

Master Thesis

Empowering Afghan Refugees in Iran: Harnessing ICT4D to Overcome Challenges and Foster Integration

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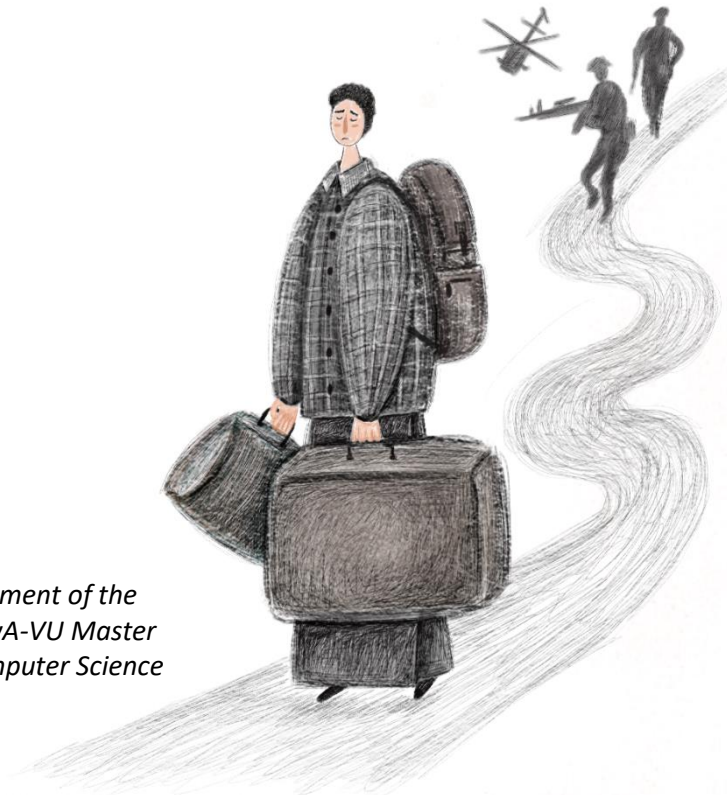
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Abstract

Due to escalating social, political, and economic issues, the global immigration population is steadily growing. Iran provides shelter and support to immigrants and refugees from Afghanistan, which is considered one of the most challenging countries in the world.

This project aims to highlight the crucial role of information and communication technology for development (ICT4D) in enhancing the circumstances of Afghan immigrants residing in Iran. In response to the demands and preferences of Afghan immigrants living in Iran, an effort is being made to develop a mobile application that provides comprehensive support and information across numerous aspects of their lives. This application is designed to simplify the process of integrating individuals, granting them access to vital services, and enhancing their awareness of legal protocols, ultimately promoting a more prosperous future for the Afghan community.

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1. Introduction

Many economic and political variables have shaped global migration, causing individuals crossing boundaries in search of opportunity, stability, and safety. Despite the advantages and disadvantages of hosting a large number of refugees, Iran has made considerable contributions to giving asylum for millions, the most of whom are from adjacent Afghanistan. Many of these individuals are fleeing persecution, violence, and social and religious inequality.

We examine the complex historical background of Afghan migration to Iran and explore the various challenges that Afghan refugees and migrants face in the setting of Iran. Furthermore, the interviews conducted with Afghan refugees in Iran allowed for an examination of their fundamental needs and priorities. Afghan refugees in Iran inhabit an environment that is challenging and influenced by a variety of cultural, social, and political factors. Additionally, we evaluate the influence of information and communication technology for development (ICT4D) on the improvement of the overall welfare of refugee populations and the satisfaction of their needs.

Given the challenges they are facing in their new residences, the requirement for readily available assistance and services is of the highest importance. Considering this fact, a comprehensive mobile application has been designed to provide critical and fundamental information for asylum seekers and Afghan refugees in Iran. This initiative aligns with the Sustainable Development Goal (SDG) 10: Reduced Inequality, which aims to reduce inequality within and among countries by ensuring equal opportunities and reducing inequalities of outcome through eliminating discriminatory laws, policies, and practices.

The information contained in this application is the result of extensive research and interviews with Afghan refugees who are currently residing in Iran or have previously resided there. The application considered the community's preferences and provided users with an extensive range of resources that enabled the accessibility of important data, valuable assistance, and essential services. The app intends to reduce economic and social gaps and promote community

involvement by emphasizing vital areas such as legal assistance, healthcare, education, and employment, thereby directly aligning with the objectives of SDG 10.

After carefully considering the interests and requirements of the Afghan community, it was decided to develop this application as a mobile application. An in-depth examination of improving the availability of legal documents, health services, educational potential, and employment resources for the Afghan population will contribute to reducing the inequality experienced by Afghan refugees. The application also aims to preserve and improve the existing community while simultaneously fostering the creation of new communities and social unity in order to decrease inequality. This integration underscores the broader impact and significance of the project in contributing to global efforts to reduce inequality and enhance the well-being of marginalized populations.

1.1 Motivation

The Afghan Refugee Assistance App was created out of a strong dedication to aiding Afghan refugees in their efforts to reconstruct their lives in unfamiliar surroundings. After personally observing the difficulties experienced by Afghan communities in Iran or those who recently lived in Iran, we were motivated by a strong determination to offer practical support and encourage individuals to better adapt to their new situations.

By conducting in-depth interviews and thorough research, we acquired significant insights into the particular obstacles and requirements of Afghan refugees. Given the legal and administrative challenges, as well as the difficulties in accessing necessary services, it is evident that there is a critical need for a comprehensive support system that is specifically designed for the Afghan refugee community.

The objective of the Afghan Refugee Assistance App is to serve as a crucial resource for Afghan refugees, granting them access to critical information, practical advice, and necessary services. Through the utilization of technology, our objective is to ensure that this support is readily available, even in regions lacking internet access, as the program does not require an internet connection and its content can be accessed offline.

In essence, our purpose stems from a dedication to promoting self-reliance, empowerment, and the ability of Afghan refugees to withstand and recover from challenges as a community. By equipping them with the necessary tools and resources, we aim to facilitate the progress and prosperity of Afghan communities globally, contributing to a more promising and optimistic future. This application is the outcome of extensive research and in-depth interviews performed with Afghan refugees who are presently residing in Iran or have previous experience living in Iran.

1.2 Research Questions

RQ1. Can the obstacles and essential requirements of Afghan immigrants in Iran be efficiently addressed through the design of a mobile application?

Sub-research question

- 1- How could developing a mobile application for Afghan immigrants in Iran improve their situation and well-being, promoting a more optimistic and positive future for Afghan communities in Iran?*
- 2- Which aspects should be included in the mobile application design to efficiently meet the requirements of Afghan immigrants in Iran?*
- 3- Why is a mobile application a more suitable solution compared to other forms of technology (e.g., web platforms, SMS) for Afghan refugees in Iran?*
- 4- How does the use of ICT4D (Information and Communication Technology for Development) impact the overall welfare of Afghan refugees in Iran and what are the key factors contributing to its success?*

2. Related Work

2.1 Navigating History and Migration Realities in Iran

In August 2022, the United Nations High Commissioner for Refugees (UNHCR) published a report stating that Iran has been accommodating a substantial and continuous flow of refugees, with the majority originating from Afghanistan. As of 2023, Iran is among the top countries housing refugees (1). Although a significant number of Afghan migrants had been living in Iran since the late 19th century, the arrival of Afghans in the country increased significantly after the Soviet conquest of Afghanistan in 1979 (2).

Afghan labor contributed positively to the Iranian economy throughout the Iran-Iraq conflict (1980–1988) and the subsequent restoration period. Meanwhile, international organizations stated that "the overwhelming majority of Afghans live in a state of great uncertainty and vulnerability." (3) "Severe health and sanitation issues, inadequate nutrition, and widespread poverty are prevalent in several Afghan settlements," according to the International Consortium for Refugees in Iran (ICRI)(4).

According to reports, around three million Afghans sought refuge in Iran from 1980 to 1989 due to the Soviet occupation of Afghanistan. Furthermore, after the Soviet withdrawal from Afghanistan in 1989, 1.4 million Afghans returned to Afghanistan from Iran (5). The repatriation process of Afghan refugees began in the early 1990s with a Tripartite Agreement between Iran, Afghanistan, and UNHCR (7).

Based on a 1992 report by the United Nations High Commissioner for Refugees (UNHCR), an estimated 2.8 million Afghans were residing in Iran (6), of which 76% registered themselves in Iran, 14% were unregistered, and 10% were in refugee camps (8). Amidst the civil war in Afghanistan from 1992 to 1996 and the subsequent takeover of the majority of the nation by the Taliban, more waves of refugees emerged due to the United States-led war in Afghanistan in late 2001, which led to Afghans' forced migration again (9).

Iran, in 2002, collaborated with the Afghan government and UNHCR to conduct a return agreement after the fall of the de facto Taliban government in 2001 (2). Early in 2004, an estimated 1.4 million individuals were identified as refugees in Iran; that number has decreased to approximately 740,000 as of October 2005 (9). In addition, a significant number of Afghans pursued refuge in Iran after the Taliban assumed power in Afghanistan in August 2021, driven by the deteriorating humanitarian and security conditions in the country (10) and this figure will rise daily.

2.2 The challenges the Afghan community has encountered within Iran

Migration creates a challenging situation for people since they have to adapt to a new environment and this challenge is a stressful life event for them (11). Refugees in countries worldwide are challenged with managing their general needs, e.g., legal, education, employment, social, emotional, economic, and healthcare requirements which might also be different from the general population (12). Since the 19th century, the history of Afghan migration to Iran has been documented and possibly existed even before this (5).

In August 2021, analyst and consultant David Ramin Jalilvand, in an interview published by the German political foundation Friedrich Eberhart Stiftung (FES), asserted that Afghan refugees residing in Iran were subjected to discrimination and diverse social attitudes; regrettably, xenophobic feelings towards Afghans were prevalent in Iranian society (13). Discrimination can be in various social settings, including schools, workplaces, and public spaces (14). Afghan girl Zahra Nader, a journalist who studied and resided in Iran, discussed her experiences on a Deutsche Welle broadcast: "As an Afghan refugee in Iran, I grew up in fear and humiliation." This illustrates the discrimination that children refugees in Iran face; in general, their existence is precarious (15). Children, as the most vulnerable refugees, need more care and attention to develop their psychological-social abilities and physical health (16), although the parents' excessive concern with their responsibilities has resulted in their lack of awareness regarding their children's well-being, as well as their inability to effectively address challenges or employ

contemporary strategies to manage those challenges. Health is the most important part of a person's life since it impacts well-being and self-image (17). For refugees, access to health care is very important to UNHCR (18). Mental, communicable, and non-communicable diseases are the main health problems of Afghan refugees in Iran (19). Afghan refugees suffer from mental health significantly, since they live in a country that encountered long-term war, and this situation makes them anxious and depressed, this statement is proved based on a statistical report done in the Dalakee refugee camp of Bushehr Province, the prevalence of social dysfunction, psychosomatic problem, anxiety, and depression were 80.1%, 48.9%, 39.3%, and 22.1%, respectively; the number of mental health disorders was determined as 88.5%. (20). According to a study in 2016, low consumption of fruit and vegetables, abnormal lipid profile, and inadequate physical activity are the three most common factors for non-communicable diseases in Afghan refugees in Iran (21). According to the research done from 2005 to 2010 from 23,167 registered Afghan refugees who were referred to United Nations High Commissioner for Refugees (UNHCR) offices, the most common health referral for females and males (0–14 years) were perinatal diseases and in the females aged 15 to 59 it was ophthalmic diseases (13.65%), and for males it was nephropathies (21.4%), generally, in both of them, the most frequent causes for medical appointment were for ophthalmic diseases, primarily cataracts (23.7%), neoplasm (13.3%), nephropathies (11%), ischemic heart diseases (10.4%), and perinatal disorders (9.2%) (22). For communicable diseases, based on a study done on major infectious diseases affecting the Afghan population in Iran, the proportion of Afghan immigrants who were infected with tuberculosis was (29%), Multiple-Drug-Resistant (MDR) tuberculosis (56%), malaria (40%), cholera (8%), Crimean-Congo hemorrhagic fever (25%), leishmaniasis (7%), and hepatitis B (14%). The total percentage of Afghan immigrants with the above-mentioned infectious diseases is 29% (23). In addition, the insufficient knowledge among Afghans results in a lack of awareness regarding their illnesses and the methods of preventing them (24). Sometimes the government cannot manage the mass of refugees, and on the other hand, the refugees are not aware of the determined policies in their destination country, and this issue creates problems. For example, Iran's government planned to set strict policies to make Iran an undesirable destination for

Afghan refugees in recent decades, such as starting the issuance of temporary registration cards to Afghan refugees and replacing the previous policy of granting them indefinite permission (25,26). However, despite these policies, Iran still is a destination for Afghan people, since there is war in Afghanistan now, Iran is in proximity to their country and their language and culture are similar, and these significant factors make Iran a desirable destination for Afghans (27).

2.3 An Investigation of the Impact of Information and Communication Technology for Development (ICT4D) in Tackling Global Challenges

Information and Communication Technology for Development (ICT4D) seeks to utilize technological advancements in order to enhance human welfare and make a positive contribution towards the establishment of more prosperous communities and individuals. Access to and effective utilization of information and communication technologies can have a profound impact on societal issues and the promotion of sustainable development, according to the guiding principle of ICT4D initiatives.

Sen asserts that a comprehensive range of requirements, such as the availability of nourishment, housing, healthcare, and education, collectively form the concept of well-being (28). Well-being can differ significantly among individuals. Indicators used to assess well-being include the United Nations Human Development Index (HDI), the Gender Development Index (GDI), and the Human Poverty Index (HPI) (29).

ICT4D is currently able to benefit human civilization in a variety of domains. In the twenty-first century, ICT is a crucial factor that has prompted businesses and individuals worldwide to concentrate on developing in this area; however, rural areas are unable to keep pace. Nowadays, the significance of refugee education has been acknowledged by governments and organizations across the globe [30,31] in the context of education. Drolia et al. [32] reached a different conclusion regarding the relationship between mobile learning, an element of ICT4D, and refugee education. They found that mobile learning appears to improve the quality of refugee education and grant refugees access to education.

By leveraging ICT4D, entrepreneurs residing in urban areas and rural areas can attain improved livelihoods through the use of mobile phones. Similarly, farmers and fishermen gain access to information that was previously inaccessible to them; and renowned social media ladies, who went on to establish prosperous enterprises based on the revenue generated from the sale of their mobile phone time, are assisted in gaining such access. Mobile payment systems, which have assisted countless individuals in escaping poverty in Asia and Africa, are also prevalent in other regions of the globe (29). Moreover, the utilization of ICT4D can enhance communication, thereby reinforcing social connections that contribute to the development of social capital.

The following interview serves as a clear example of how ICT4D may significantly contribute to bridging the gap in rural areas and enhancing human well-being. This conversation also emphasizes the substantial discrepancy between Afghan immigrants and their restricted awareness of contemporary events.

In this interview, Nabi, a 75-year-old man, and his family, who immigrated to Iran during the Soviet invasion of Afghanistan, expressed their belief that "The conflict in Afghanistan is still ongoing." Similar to Nabi, a significant number of the 3,800 refugees residing in the SHAHID NASERI SAVEH camp in Iran have spent over a decade there. During this time, they have become disconnected from current events in Afghanistan. They are unaware that the Soviet invasion concluded a long time ago, the Taleban regime has been overthrown, and a new government has been established in Kabul (33).

3. A Framework to Develop ICT4D Services

The creation of ICT4D (Information and Communication Technology for Development) services is crucial in addressing the special challenges that marginalized groups, like Afghan refugees in Iran, deal with. The subsequent table shows the main components needed for developing effective ICT4D services.

Component	Objective
Research Strategies and Research Methods	Identify the specific needs and challenges faced by the target community.
Identifying Stakeholder	Involve all relevant stakeholders to ensure the services meet community needs.
Service Design	Create a design for ICT4D services that is easy to use and meets the needs of the community.
Technology Selection	Choose appropriate technologies that are scalable, sustainable, and cost-effective.
Development and Implementation	Build and deploy the ICT4D services in a timely and efficient manner.
User Assistance	Empower the community to effectively use and sustain the ICT4D services.
Monitoring and Evaluation	Continuously assess the impact and effectiveness of the ICT4D services.

Table 1: ICT4D Service Development Framework

In the following sections, we will discuss each component of the framework employed to develop ICT4D services for Afghan refugees residing in Iran. This will help us understand how each component helps meet the community's needs and resolve their issues. We will examine research strategies and research methods, identifying stakeholders, service design, technology selection, development and implementation, user assistance, and monitoring and evaluation.

Our goal is to illustrate the procedure for developing an application that benefits, is sustainable, and positively impacts Afghan refugees.

4. Research Strategies and Research Methods

This section will focus on conducting semi-structured interviews with Afghan refugees in Iran and the Netherlands in order to collect comprehensive and firsthand information regarding their experiences and difficulties. The interviews were conducted in two stages, guaranteeing a broad spectrum of viewpoints. Next, we will address the interview structure, which encompasses gathering demographic information, digging into migration stories, analyzing integration and adaptation experiences, examining employment, measuring health and well-being, and investigating technology usage. The process of data analysis consisted of transcribing and translating interviews, utilizing thematic analysis to find significant themes, and sorting replies into different components. The process of collecting data resources included gathering relevant data from many sources that specifically address immigrants in Iran, including the UN Refugee Agency and other governmental and non-governmental organizations.

4.1 Interview

In two phases, interviews with Afghan refugees residing in Iran and the Netherlands were conducted using a semi-structured format. Interviews were chosen as the method of data collection because I spent 33 years in Iran and a large number of Afghan immigrants resided in my province of Golestan; therefore, I had interaction with some Afghans in Iran. In addition, I met a number of Afghans in the Netherlands, and since my family maintains close contact with them, I was able to conduct an interview with them despite the fact that they spent a portion of their lives in Iran. Due to my awareness of the difficulties Afghans faced while residing in Iran, I attempted to engage in in-depth conversations with them in order to gather the necessary details. Due to the in-person format of the interview and the opportunity to conduct an environment assessment, I obtained additional insights into the subjects' personal circumstances and developed a more comprehensive understanding of their challenges.

Moreover, for the initial stage of data collection, I have arranged to go on a journey to Iran in November 2023. This determination was based on the challenge of network connectivity in Iran,

which is attributable to the filtering restrictions imposed on numerous social media platforms, including WhatsApp. A few of them and I conducted a remote second interview after I became aware of the general obstacles they encounter in Iran. I explored subjects in greater depth during this interview, such as how they utilize the functionalities of their mobile phones. Furthermore, I obtained their consent to reach out to them again in case I have any uncertainties. This action was executed by sending a message using the WhatsApp social media platform.

A total of thirty-five interviews were carried out, with participants of both sexes providing their responses. In certain instances, I was unable to conduct individual interviews because of particular constraints; instead, I did interviews with members of the family at the same time.

As previously stated, both males and females were included in the sample in order to facilitate an in-depth analysis of the issue. Additionally, I administered the interview questions to a 7-year-old boy; however, I excluded this case from my statistical population due to his difficulty with sitting for an extended period of time to respond to my inquiries. The interview took a minimum of 40 minutes and a maximum of 1 hours and 45 minutes.

As pointed out, the interview was done in two phases, and the reason for the interview was based on access to people through initial acquaintance with the samples, and gradually, the participants based on the goals of the research were identified. After each interview, with an awareness of the interview's objectives, the interviewees invited new people to join in the debate. This chain is like a snowball on its way, and over time it gets bigger and turns into a wide group of respondents, in such a way that at the first phase of the interview, the sample was 18 and in the second phase, the sample reached 35. In dedication to ethical guidelines for qualitative research, informed consent was obtained from all participants prior to conducting interviews. Data confidentiality and the right to withdraw from the study were also preserved.

The attendance and participation in the research have been approved by the participants. In order to protect the confidentiality of the participants and ensure that the research was

conducted in accordance with the principles of research ethics, all audio files have been removed from mobile phones once they have been implemented and analyzed.

4.2 Interview structure

The interview was done in accordance with the specified structure. Furthermore, we asked the next question based on the answers to the previous ones. It indicates that the participants didn't give responses to all of the questions. It is important to note that in order to gather more accurate data, the interview is conducted multiple times, with each subsequent interview digging into additional details.

- 1 Tell me about yourself. Name, age,
- 2 Where were you born? Could you please explain the area? (Rural, Urban)
- 3 Are you married?
- 4 Do you have kids?
- 5 What was your highest level of education? When did you finish your education?
- 6 What's your religion? Have you always followed that religion?
- 7 How long have you stayed here?
- 8 How did you leave your country?
- 9 Where did you plan to travel after leaving your own country? What was your motivation for going there?
- 10 Could you discuss your trip to Iran? What were the most difficult challenges you experienced during this process?
- 11 What are your cultural differences from Iranian society?
- 12 Why did you decide to leave your country?
- 13 Who did you move here with?
- 14 Is it possible to return to your country?
- 15 Have you had any interaction with people in your country? When was the last time you spoke with these people, and how regularly can you make contact?
- 16 Do you have work experience? How do you support yourself? Please provide details.

- 17 Do you work? What would you like to do? Is it similar to what you did in your home country?
- 18 What is your source of income, and is it sufficient to cover your expenses each week?
- 19 Have you had any special experiences communicating with Iranians, both verbally and in writing?
- 20 Would you be willing to return to your country?
- 21 Do you participate in any refugee organizations or activist groups? What is your experience with these?
- 22 How do you handle immigration issues, such as visas and residency?
- 23 Do you have any relationships with fellow asylum seekers or refugees? Do you feel supported by them?
- 24 Have you ever received support from individuals or organizations?
- 25 How much time do you spend with Iranians?
- 26 What concerns you about Iranians?
- 27 What was the most challenging aspect? How has life changed since you left Afghanistan?
- 28 How secure and safe do you feel where you live?
- 29 What are your least favorite aspects of living in Iran?
- 30 What adaptations have you had to make since arriving in Iran? Can you share a specific occasion or experience that made you feel welcomed in your new community?
- 31 How have you adjusted to the new culture and environment here?
- 32 What legal and political challenges have you faced?
- 33 What is your current physical, mental, and emotional health?
- 34 What social challenges have you encountered in Iranian society?
- 35 How do you perceive Iranian society's response to you?
- 36 Have you ever faced discrimination in your daily life?
- 37 How do you feel about the medical care in this area?
- 38 Do you have any physical or mental health issues that require treatment?
- 39 Are you registered and in contact with healthcare professionals?
- 40 What help have you received from local organizations or groups since moving here?

- 41 How do you feel now in Iran compared to your experience in Afghanistan? Is there anything specific on your mind that you'd like to discuss?
- 42 What has brought you a great deal of joy in our country?
- 43 Explain your obligations as a refugee.
- 44 What physical health concerns do refugees face? (This includes HIV/AIDS.) 63
- 45 How do health-related concerns affect social and economic integration?
- 46 What are the challenges you experience due to family separation? (For example, mental health difficulties, financial duties, and remittances.)
- 47 How do you believe discrimination and prejudice against refugees in host communities should be addressed?
- 48 What is your hobby in Iran? How do you spend your free time with your family?
- 49 Do your children attend government schools?
- 50 Do you own a mobile phone?
- 51 How many members of your family own cell phones?
- 52 What type of smartphone do you own?
- 53 Can you afford to buy a mobile phone?
- 54 Can you use the internet? Do you have a reliable network connection?
- 55 Do you have sufficient funds to charge your internet?
- 56 Do you know how to utilize a smartphone? For example, how do you install an application?
- 57 Do you have a social media channel? Which social media channels do you use the most?
- 58 What are your hopes and aspirations for the future, both personally and within the immigrant/refugee community in Iran?
- 59 Do you have anything more to say or add?
- 60 How was your interview? Do you feel okay?

4.3 Data Analysis

During this phase, our main objective was to interpret the data. To achieve this, we employed the rotational approach, which involved continuously alternating between the acquired and analyzed information. Our aim was to determine whether the identified themes were consistent or contradictory.

Three phases of analysis were employed in this process: In the initial stage, the interviews conducted after implementation are transcribed exactly, with each line of text written down. During this phase, the initial ideas and concepts are developed. Subsequently, the similarities and differences between the responses are identified and organized into categories. Furthermore, apart from the aforementioned assessment, the categorization was determined by the analysis of the interviewees' conversation or discourse type. During the transcription of the interview, certain notable words and sentences stood out, including terms like support, help, and concepts that convey feelings of frustration and desperation. They all migrated in order to improve their quality of life and secure a more promising future. However, they were dissatisfied with their current situation since they were not aware of their rights and the possible support that they could receive from local organizations to feel welcomed by the host community. The participants in this study lived a lifestyle that consisted of long hours at work and social isolation, compounded by a lack of reliable internet access.

Assistance is required by them. The hectic nature of their lives, along with their limited understanding of searching for and identifying appropriate solutions, has resulted in persistent challenges in their lives. During a personal interview, the interviewee shared a story about his neighbor, whose recently born child lacks a birth certificate. This refers to the restriction of any services provided by the government. Through the analysis of the obtained data, we have been motivated to think about the design of a comprehensive mobile application that addresses the various needs and challenges faced by Afghan refugees and immigrants. This application can be scaled to cover their future requirements.

After considering all the analyses, the replies were grouped into key categories, which include social, emotional, economic, communicational, and educational challenges. The application was designed using categories and subcategories, with each main category focusing on a certain topic related to their difficulties.

The subsequent figures comprise the relevant information regarding the individuals who were interviewed.

4.3.1 Gender Ratio

- Of the 35 interviews that were conducted, fifteen were female and twenty were male.

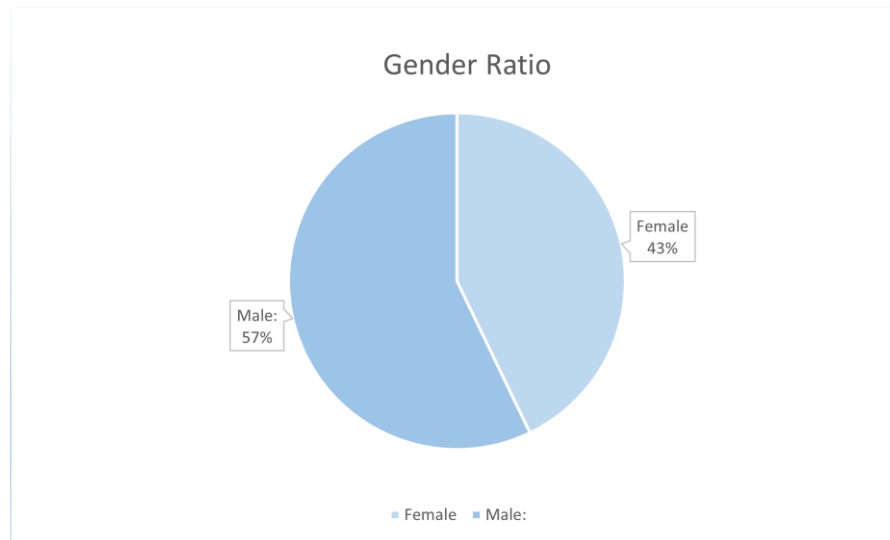


Figure 1: Gender Ratio

4.3.2 Age Group

- Our initial objective was to conduct interviews with newly arrived immigrants who possess more knowledge about new situations and encounter novel challenges. However, to gain a comprehensive understanding of the situation in the past and in comparison to the present, we opted to schedule interviews with Afghans who

have resided in Iran for an extended period of time, as well as Afghans who formerly resided in Iran but currently live in another country.

- We categorized the participants into four groups based on their age during the interview.
- Our objective was to conduct interviews with individuals from various age groups in order to get insights into their perspectives and challenges, and to gather the necessary data to address these issues.
- The interview with the 7-year-old child was unclear due to the child's unique age-related conditions, resulting in a lack of information. Consequently, we have excluded it from our categorization.

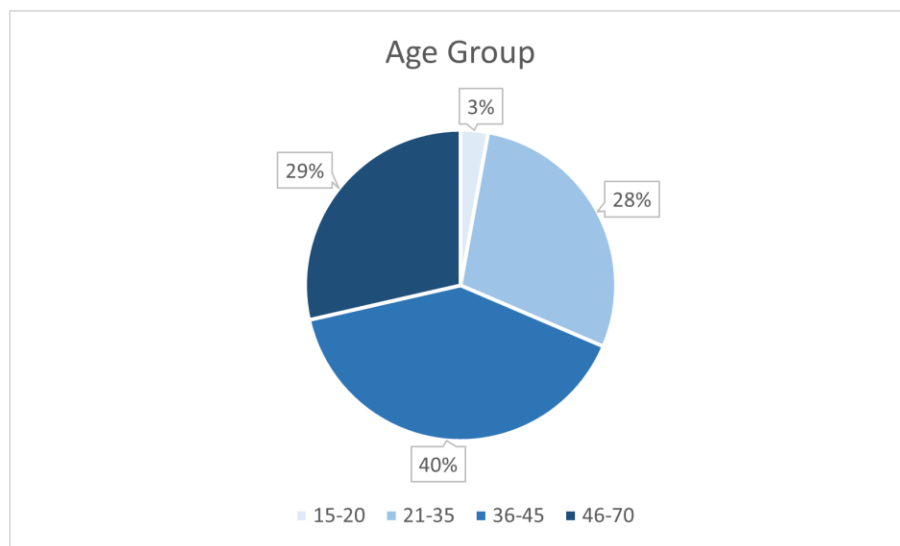


Figure 2: Age Group

4.3.3 Birthplace

- The categorization of birthplaces was conducted due to different issues faced by individuals who were born in Iran and raised there, compared to those who were born in Afghanistan and later relocated to Iran after residing there for a significant period of time. This includes various aspects, ranging from the process of

integrating into Iranian society to the manner in which Iranians handle the presence of refugees or immigrants, as well as the challenges of finding a job and getting married, among other issues associated with them.

- The chart clearly illustrates that 33 out of 35 interviewees were born in Afghanistan.

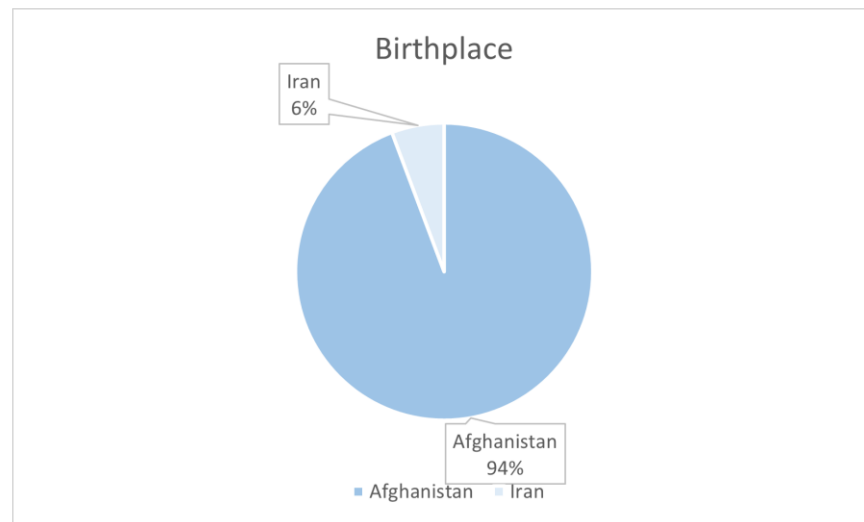


Figure 3: Birthplace

4.3.4 Education Level

- The educational level is a crucial parameter for categorizing the individuals we interviewed. The level of education is directly correlated with technology utilization, social integration, job opportunities, societal Functional requirements, and various other factors.

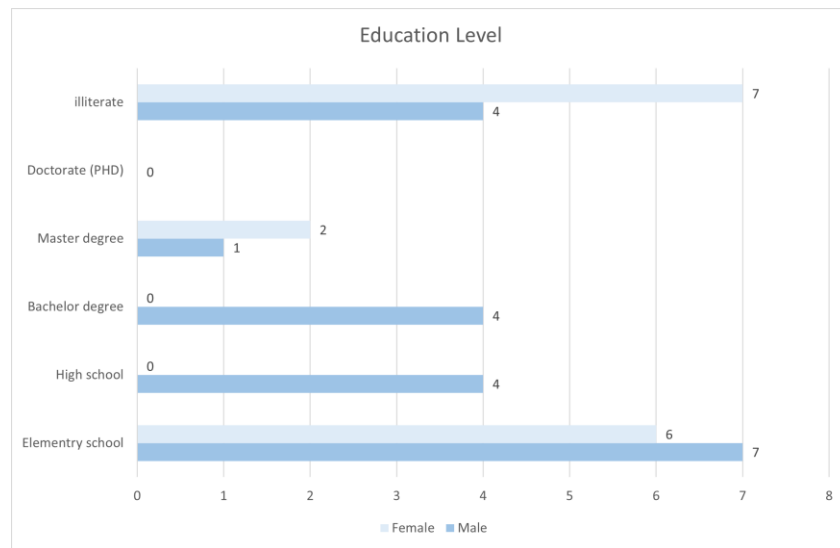


Figure 4: Educational Level

4.3.5 Marital Status

- In order to have a comprehensive understanding of the issues Afghans confront, it is valuable to consider marital status as a category. This can provide valuable insights into the obstacles experienced by different segments of the Afghan refugee population and aid in identifying the unique difficulties faced by various family units. For instance, an unmarried woman may have different obstacles in comparison to married or unmarried men.

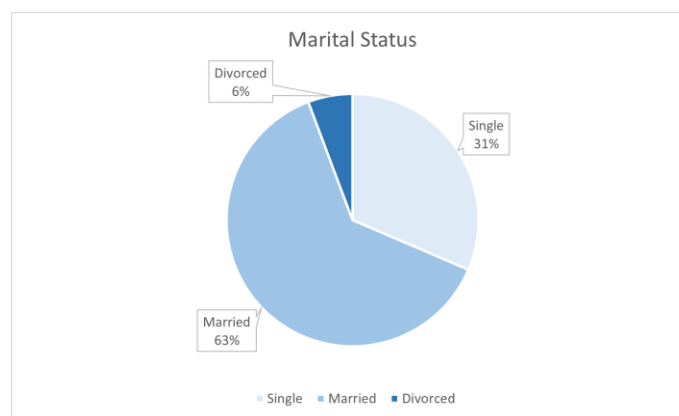


Figure 5: Marital Status

4.3.6 Social Media users

- Users of social media in Iran have encountered numerous difficulties due to the country's special filtering regulations and slow internet connection. Users are required to utilize a VPN in order to access the social media listed in the table below, with the exception of LinkedIn, which is filtered in Iran. On the other hand, the usage of VPN is forbidden in Iran. Despite the challenges faced by Iranian residents, they continue to make use of social media.
- According to the table below, it is obvious that most of the users have an account on WhatsApp, and 28 out of 35 individuals use Instagram.

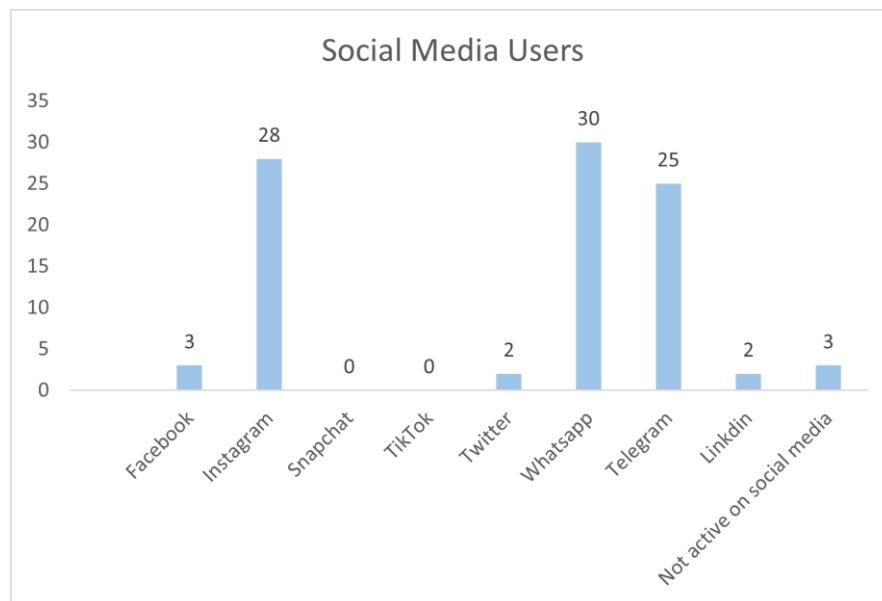


Figure 6: Social Media Users

4.4 Data Resource Finding

After analyzing the interview, it was determined that a mobile application should be designed to assist refugees in all aspects of their lives in Iran. To do this, it was necessary to gather suitable and precise information regarding their issues and potential solutions. For instance, if one of the issues they face pertains to insurance, "health insurance" will be included as an element in the application. The information regarding refugee concerns is collected from various sources in Iran that are focused on immigrants. These sources include the UN Refugee Agency, the Bureau for Aliens and Foreign Immigrant Affairs, the Immigration National Organization, Trade Unions for Aliens and Foreign Aliens Residence and Employment Association, the Ministry of Cooperatives, Labor, and Social Welfare for Afghan Aliens, Employment and Residency Services Offices for Foreigner Aliens in Provincial Governments in Iran, the Government Services Management System, and various Refugee Councils.

4.5 Limitation

Researchers continually encounter constraints in their research activities. It is critical to identify these limitations in order to present a comprehensive picture of potential issues and opportunities for development in future investigations. In this part, the main constraints discovered in this study are listed:

1. **Insufficient Sample Size:** The sample size for the study was restricted to only 35 persons, which may have prevented it from accurately representing the full range of experiences and challenges that the Afghan refugee community in Iran is confronted with each day.
2. **Language Barriers:** The interviews were done in Persian and then translated into English. This may have resulted in the introduction of minor variations and translation errors, which in turn affected the accuracy of the responses.

3. **Technological Constraints:** Legal constraints on iOS devices in Iran prevent iPhone users from accessing the project, hence technologically speaking, the application can only be built on Android.
4. **Government Policies:** The regular shifts in immigration policies and regulations, as well as the frequent changes in the cost of performing each process in Iran, could potentially affect the ability to maintain the application up to date.
5. **Restricted Access to Research materials:** There are constraints in terms of accessing research materials, including the inability to locate books, statistics, and databases, as well as the lack of a comprehensive website with up-to-date regulations and guidelines related to refugees.
6. **Absence of Children's Perspectives:** Children under the age of fifteen were not interviewed for this study, which means that we may have missed some important points about the concern of refugee children under the age of fifteen.
7. **Influence of Family Dynamics:** Interviews involving full families, especially those that included grandparents or fathers, may have affected the opinions and answers of family members, especially girls and women.
8. **Data Reliability:** The accuracy and reliability of the data may have been impacted by potential deportations and threats that Afghan refugees faced, potentially leading to inadequate reporting or the omission of certain issues from the Afghan refugee perspective.

4.6 An Overview of Interviews

This chapter provides a brief summary of the interviews that were performed. There were a total of 35 interviews done, and 33 of them were included in the list. We chose not to articulate our thoughts on two occasions when general issues were brought up. The initial phase of the interview was carried out face-to-face. Subsequently, the subsequent interviews were arranged to gather additional information.

All the interviews were carried out in the Persian language. Initially, the voices of the participants were captured after obtaining their consent. Subsequently, it was transcribed and translated into the English language.

Given the unique circumstances of certain immigrants, the interview was done with the attendance of additional family members. Each member was asked a question in a sequential manner. To precisely indicate the response of the respondent, we employed the Role label. We consider.



4.6.1 Participants Information Number 1 and 2

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
1	Husband	Male	35	Master degree	Language translator	Afghanistan	Married
2	Spouse	Female	32	Master degree	Nurse	Afghanistan	Married

Table 2: Participant Number 1 and 2

What are your cultural differences from Iranian society?

Husband: We have lived in four countries. Our birthplace was Afghanistan, then we moved to India to further our studies before immigrating to Iran. We have now lived in Holland for about 5 years. I can confidently state that the cultural differences between Iran and Afghanistan are small. Afghanistan was a part of Iran for many years, which could be explained by the two countries' cultural similarities. From New Year to manners, socializing, cooking, and so on.

Why did you decide to leave your country?

Husband: Ever since I was a child, I have had a lot of dreams that I see every day, but I am unable to realize them in Afghanistan. In order to complete our education, we first relocated to India, and then we moved to Iran. This was the first stage in our journey.

Spouse: We got married fairly quickly and have been together for many years. My wife proposed to me to leave Afghanistan around 15 years ago, and I believed him because of the awful situations in Afghanistan, which I witnessed, and we moved to another country to complete our education and have a better life.

How did you handle immigration issues whenever you were in Iran?

It was quite hard. Everything is now done online around the world. Filling out forms and apply for a new request.

First, we didn't know where to go. There was not any portal to guide us, and the webpages had not been updated. I mean their records didn't update. The phone numbers had changed, and it took us a long time to find the correct one.

For example, in the Netherlands, the IND website provides complete information. However, I believe this webpage is also confusing.

Overall, our greatest issue was a lack of clarity regarding primary issues and tasks. For example, health insurance or an extension of the resident permit.

Spouse: It took a long time, and no one was present or aware. Most Afghans who immigrated to Iran were refugees with little information. I've often told my husband that even though we're educated and spend a lot of time each day on our laptops and the internet, we still struggle to get information, so what do others who don't have computers or computer skills do? In my perspective, Canada.ca is more comprehensive as well as useful than all of the sites.

What concerns you about Iranians? What social challenges have you encountered in Iranian society?

Husband: I think Iranians are hospitable and kind people. The issue of residence and integration with Iranian society is perhaps the most important concern.

Wife: Iranian people have a rich and strong culture. History has proved that. I think Afghan should be aware that we are the ones who entered their country, and they are hosting us. Only public awareness can provide a solution to this issue.

What are your least favorite aspects of living in Iran?

Husband: Absolutely everything is sloppy and messy. Newcomers will find it quite frustrating.

Spouse: Inflation and high cost of living

Do you have any physical or mental health issues that require treatment?

Both: We left our country for several years, spending nearly half of our lives outside of Afghanistan. But spiritually, when we see the issues that our countrymen and brothers and sisters in Afghanistan continue to face, we are upset and depressed. Can't you be upset?

4.6.2 Participant Information Number 3

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
3	Wife	Female	22	Elementary school	Catering	Afghanistan	Married

Table 3: Participant Number 3

How have you adjusted to the new culture and environment here?

You are aware that we speak nearly the same language and are all Muslims, so there is no significant religious difference; yet, in terms of culture, the circumstance, interactions, and, most significantly, time have taught us how to adapt. It was difficult, and it remains so to this day. Despite living in Iran for a long time, we continue to face some Iranians who refuse to consider our citizenship rights.

What legal and political challenges have you faced?

This includes receiving birth certificates for my children, having documents proving my marriage, having a driver's license, taking educational training courses, having the right to vote, possessing a credit card, having an insurance card, being prohibited by strict regulations regarding traveling between cities, deprived of citizenship rights, and generally being subjected to legal discrimination.

What is your current physical, mental, and emotional health?

Mental and emotional: there has never been a day when I have not faced social discrimination; even after 10 years of living here, I am still not accustomed to this

discrimination, and it all makes me upset and depressed; we are refugees from an enemy-invaded country, and any small ignorance or mistreatment makes us feel worse and more frustrated. I'm a mother, and I'm not as sensitive as my children. They are youngsters, and it will break their hearts if other children do not interact with them or make friends with them. What can I do? In my opinion, all Afghan refugees require extensive therapy and visits to psychologists, but this is very expensive for us. Our youth died away in terror and frustration; how unfortunate for the poor Afghans.

4.6.3 Participant Information Number 4

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
4	Daughter	Female	55	illiterate	Cleaning company	Afghanistan	Single (Her husband had passed away)

Table 4: Participant Number 4

What legal and political challenges have you faced?

Political challenges, no, but legal ones. I had problems receiving my driver's license and applying for a resident permit card. I had no idea how to begin or what to do. It had several official stages, and there was no information about it at the time. I became confused and had to consult another refugee, but at the time, I believe refugee offices were actively working to assist refugees.

What is your current physical, mental, and emotional health?

I live with my parents, who are both elderly, therefore I must work to supplement our income. I'm fine emotionally, but I have a backache.

Are you registered and in contact with healthcare professionals?

No, I'm not registered. One of my friends once introduced me to a radio station that broadcasts health-related information every morning. I find it useful and listen to it every day. For one of my problems, I called the channel and explained my situation over the phone, and the doctor answered my questions and advised me. However, there are still many things about which I know nothing.

Do you have anything more to say or add?

We are asylum seekers in need of help, support, and advice; please find us and take action. Because I am illiterate, if you want to design an application for us, please consider our situation as well. Because we cannot read or write.

4.6.4 Participant Information Number 5

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
5	-	Male	27	High school	-	Afghanistan	Single

Table 5: Participant Number 5

Why did you decide to leave your country?

I recently left my country due to several issues. I was unable to imagine my future in Afghanistan. Health, technological, ideological, and political issues, along with domestic political instability, motivated my decision to emigrate.

Who did you move here with?

Nobody. I came alone. It was quite hard. I understand that I have an extremely difficult path to success.

Do you work? What would you like to do? Is it similar to what you did in your home country?

I am not legally able to work. In fact, I have yet to announce myself as a refugee. I am currently researching what to do. Everything is new to me. It's as if I were newly born.

How do you handle immigration issues, such as visas and residency?

The truth is that I haven't begun any procedures yet to determine what challenges I will face. However, according to my friends, the process is complex and time-consuming. I need to search the internet for information. Despite my efforts, I was unable to obtain relevant information, and I believe I should set aside more time. Because the cost of living here is expensive, and I don't have much money either, and my money is getting less by the day.

Have you ever received support from individuals or organizations?

I am currently at my friend's house. Of course, I pay and purchase food. I have several friends who arrived in Iran and immigrated before me. I'm in contact with them. Some of them stay illegally in Iran and work illegally.

What concerns you about Iranians?

All Afghans in Iran share the anxiety that we will be unable to fit into Iranian society. The number of Afghans living in Iran is not insignificant. There are nearly five million Afghans. Our failure to integrate into society can generate numerous problems for both us and Iranians.

What are your least favorite aspects of living in Iran?

The most pressing issue is that there is no clear roadmap for refugees as to what we must do first. I discovered a website, but it wasn't great. If I leave my friends and decide to go through the asylum process on my own, such as declaring asylum, obtaining a residency card, filling out documents, receiving health insurance, and so on, I understand that it will take a long time. On the other hand, we only have one mobile phone, and I am now unable to obtain a SIM card in my own name, so I can only use the software loaded on my phone. I mean, I have no access to mobile data. In my opinion, the need for a comprehensive database is critical for Afghan society regarding their issues.

4.6.5 Participants Information Number 6, 7 and 8

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
6	Father	Male	44	Elementary school	Construction	Afghanistan	Married
7	Mother	Female	40	Elementary school	Carpet weaver	Afghanistan	Married
8	Son	Male	15	High school	Student	Iran	Single

Table 6: Participants number 6,7 and eight

Why did you decide to leave your country?

Father: We fled Afghanistan years ago. Perhaps twenty years ago, when we were young, Afghanistan means war; it means tribal struggle, and this condition has persisted since then.

Mother: As my wife mentioned, there was never peace. It was all battle and crisis. The country's progress in health, jobs, security, and other areas was significantly behind that of other countries.

Son: I've never been to Afghanistan, but I keep up with the news because it's my parents' home country. I am delighted to reside in Iran. It is undoubtedly better than the current Afghanistan situation.

Do you have work experience? How do you support yourself? Please provide details.

Do you work? What would you like to do? Is it similar to what you did in your home country?

Father: I worked for a construction company and owned agricultural land in Afghanistan, where my wife and I worked. Of course, my wife did the most of the work on the agricultural land. My construction work generates the majority of our income in Iran.

Mother: According to my wife, I was working on our agricultural field in Afghanistan. It was not a large land, but it helped cover some of the costs. Here in Iran, I weave carpets. I attended a training session and learned little by little. Carpet weaving is only for financial support, and the best part is that I work from home.

Son: I am a student with no income. Right now, I'm completely focused on my studies.

How do you handle immigration issues, such as visas and residency?

Father: I can't remember exactly; it was a long time ago. But we had a lot of issues. We knew nothing, and no one advised us where to start or where to go. Everywhere we went, they told us to go somewhere else, so we all went from one office to another, which was challenging with a tiny child.

Son: I have no problem with it because I was born in Iran and raised here.

Do you have any relationships with fellow asylum seekers or refugees? Do you feel supported

Have you ever received support from individuals or organizations?

Father: We received no support at all. We have a relationship with the Afghans. But not much.

Mother: Yes, there was no one to support us. Those were hard days, and I don't like to think about them. Right now, we have a lot of problems, and we can't really support anyone else.

What concerns you about Iranians? How do you perceive Iranian society's response to you?

Father: The Iranian people's perception toward Afghans has changed dramatically. We did not take someone's place. We are attempting to stand on our own two feet. However, the number of Afghan refugees has increased, particularly illegally, and I've heard that young people are doing criminal things to support their daily needs, which has harmed our reputation after 20 years in Iran.

Mother: The most significant aspect is insecurity, not being accepted in society, and leaving. It is unfortunate if, after 20 years, your neighbor no longer wishes to visit your home. What are our faults? This is my main concern, particularly for my son's future.

Son: I have several Iranian friends. Regardless, they still consider me a foreigner. Of course, this isn't the case for everyone, but it does apply to some of my newfound friends. Well, this discrimination is completely unacceptable. We speak the same language. I was born in Iran and have spent my entire life here.

What are your least favorite aspects of living in Iran?

Father: Hard living conditions for Afghans

Mother: Discrimination

Son: Discrimination

What legal and political challenges have you faced?

Father: There are still many unknowns. I frequently have to wait for my son to see what has to be done. Sometimes, I prefer not to go to any organization to do administrative work. The world's situation has dramatically changed. The Internet facilitates a wide range of activities. However, there are so many different websites that I'm unsure what to do, and I don't have a computer to work with.

About political issues. Whatever happens between Iran and Afghanistan has always had an impact on us. Please continue; I don't want to discuss it further.

Mother: I don't know much about politics. However, Afghan-Iranian ties have an impact on our lives. Especially after the Taliban.

How do you believe discrimination and prejudice against refugees in host communities should be addressed?

Father: I don't know. We simply need to say that it is not fair to look at all Afghans in the same way.

Son: Awareness. Afghans and Iranians should be more conscious. Afghans should understand what they can do to ensure that the Iranian people's

perception of us remains stable. Changing this perspective can have a significant impact on our future. Given that I am only 15 years old and have not yet entered the labor market, my future could be significantly impacted. So, how can an employer trust me under these circumstances? All we have to do is increase public awareness about equality. It's not difficult.

Can you use the internet? Do you have a reliable network connection?

Father: We only utilize WIFI at home and don't pay for mobile data internet. The internet at home is not very good. It connects, then disconnects. I'm not sure where the fault is. It was better earlier.

Mother: I use only WIFI and don't pay for mobile data internet. I don't go anywhere to use it. The internet at home is horrible. We should all utilize VPNs. The free VPN is also not stable. It experiences frequent connectivity interruptions. In general, when I want to use the Internet to go to Instagram or WhatsApp, I often give up because it is so frustrating.

Son: I have mobile internet. I don't think the pricing is expensive. But the speed is terrible. Everyone, particularly those of our generation, who uses social media has problems with a stable connection. You have to wait a long time to upload a simple photo on Instagram. I primarily utilize offline applications or games. At least I don't have any internet troubles.

4.6.6 Participant Information Number 9

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
9		Female	40	Elementary school	Tailor	Afghanistan	Single

Table 7: Participant Nine in the Interview

What social challenges have you encountered in Iranian society?

The social challenge was finding a job with appropriate income.

How do you perceive Iranian society's response to you?

I've lived in Iran for almost 30 years. I was able to build solid connections with Iranians, and my best friends are from Iran.

What has brought you a great deal of joy in our country?

I am glad we departed Afghanistan. Even after 30 years, the country hasn't improved and nothing has changed. I believe that my life has improved here.

Do you know how to utilize a smartphone? For example, how do you install an application?

Yes, of course, social media is the most common way to interact with me. One of my brothers and his family live in a different city in Iran, and we have a family group on social media where we exchange movies and photos of ourselves to keep each other up to date on our lives. My brother's wife communicates with her family in Afghanistan via social media, but due to current safety concerns, social media platforms such as Instagram have been filtered and VPNs have been required, resulting in problems and bad connections.

4.6.7 Participant Information Number 10

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
10		Male	31	Elementary school	Salesperson	Afghanistan	Single

Table 8: Participant ten in the Interview

What social challenges have you encountered in Iranian society?

I believe that residents in the city's upper and lower areas see Afghans differently: "Downtown people argue that Afghans came and made us unemployed." They say, why don't you return to your homeland? They blame us for their unemployment; they only give us hard tasks like labor and construction with low wages and no insurance. Iranian workers will not accept these jobs. Lower places, but they don't say it; by the way, they are also pleased with our efforts.

How have you adjusted to the new culture and environment here?

Yes. I have been in Iran for 20 years. I grew up here and had no problems.

What legal and political challenges have you faced?

Since I grew up here and had an older brother who encountered numerous legal issues, I've learned strategies and can handle them, but I recall how my brother became confused and limited in his ability to obtain a driver's license. My brother didn't know how to apply for these documents and certifications. It took him a long time to discover the legal process. In the first few months after arriving in another country, life for an alien can be extremely complicated.

4.6.8 Participant Information Number 11

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
11	Father	Male	41	Bachelor	Teacher	Afghanistan	Divorced

Table 9: Participant Eleven in the Interview

What are your cultural differences from Iranian society?

Cultural differences can be identified in a variety of ways. First and foremost, there are no significant distinctions between Afghan and Iranian societies in terms of religion, culture, and tradition. Furthermore, the Farsi language in Iran differs from Dari and Pashto in Afghanistan in various accents and vocabulary, which could lead to communication issues. Our accent is sometimes amusing to Iranian communities, which is quite embarrassing.

Why did you decide to leave your country?

I opted to leave Afghanistan because of the political and security situation. The challenging and insecure conditions in Afghanistan, as well as the threats that my family

and I faced, prompted me to move to Iran to have better living conditions and greater security.

What is your source of income, and is it sufficient to cover your expenses each week?

My primary source of income is teaching Afghan students. I also have some additional revenue from various Afghan-related social and educational activities. Of course, the money from these activities is not high.

How do you handle immigration issues, such as visas and residency?

In Iran, I work with the necessary offices and legal authorities to resolve such difficulties. I sometimes ask for assistance from others, but I usually attempt to address these challenges on my own. The problem is that information is difficult to obtain in Iran. We don't need a lawyer if we know how to do it.

Do you have any relationships with fellow asylum seekers or refugees? Do you feel supported by them?

Yes, I have interacted with other asylum seekers and refugees. Many of them look to me for information and advice on living in Iran, and I always try to help them through my own experiences. However, the prior issue persists. You cannot genuinely guide those who have just arrived. Because refugees' rules change constantly, I don't know how to guide them. I believe Iran's government pays little attention to the situation of Afghan refugees.

What are your concerns in Iran?

There are several aspects of Iran that concern me, like the lack of permanent settlement and the availability of basic services for refugees.

What are your least favorite aspects of living in Iran?

My least favorite aspect of living in Iran is the difficulty in obtaining licenses and the confusion about various difficulties that may emerge owing to my legal status. Because the government does not have a clear plan to handle the challenges of refugees.

What social challenges have you encountered in Iranian society?

In Iranian society, I've encountered a variety of social obstacles, including discrimination and a lack of access to social services.

Can you use the internet? Do you have a reliable network connection?

You are aware that the internet situation in Iran is worse than ever. The application does not work properly online. Except for banking software.

4.6.9 Participant Information Number 12

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
12		Female	41	illiterate	Salesperson	Afghanistan	Single

Table 10: Participant Number 12

How do you perceive Iranian society response to you?

It varies depending on the area that you visit. However, in general, it is negative. They simply consider us to be a labor force for their jobs, and they do not rely on us.

What are your hopes and aspiration for future?

You are fortunate to live in a region where people have a positive attitude toward us and believe in you. I believe that if it were possible for Afghan refugees to locate one another in each place, it would be a fantastic method for them to connect with one another, as well as to get support and assistance from one another. In fact, there is a small group of Afghan refugees that is particularly kind toward incoming asylum seekers.

4.6.10 Participant Information Number 13

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
13		Female	47	Elementary school	Chef	Afghanistan	Married

Table 11: Participant Number 13

Do you know how to utilize a smartphone? For example, how do you install an application?

Yes, I am aware of it. My phone is filled with a diverse range of applications. I have a variety of games and apps that cover topics such as cooking, diet, and even entertainment. Without my smartphone, I'd be unable to go a single day.

What are your hopes and aspirations for the future, both personally and within the immigrant/refugee community in Iran?

To work and earn more money, to be educated and have the better job opportunity, to live in a safe place, to have behaved like a citizen, to be supported by organizations and individuals, to create a bright future for my child, to be rich and help my family in Afghanistan,

Do you have anything more to say or add?

Generally, as refugees, we require assistance and attention. I hope that the results of this research will be useful to us in various aspects of our daily lives.

4.6.11 Participants Information Number 14,15,16,17 and 18

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
14	Grandfather	Male	67	illiterate	Construction	Afghanistan	Married
15	Grandmother	Female	64	illiterate	-	Afghanistan	Married
16	Father	Male	49	illiterate	Car mechanic	Afghanistan	Married
17	Mother	Female	46	illiterate	Sorter	Afghanistan	Married
18	Son	Male	25	Bachelor	Student	Iran	Married

Table 12: Participants Number 14,15,16,17 and 18

Is it possible to return to your country? 20. Would you be willing to return to your country?

Grandfather: Yes, that is feasible. But I cannot return alone. This decision must be taken together with my son. I traveled with him and will return with him since I am too old. I absolutely prefer Afghanistan over being in Iran, and I wish I could go back.

Grandmother: I'd like to go back too. But how can I return to Afghanistan?

Father: Yes, there is a lot of discussion in the family. I'd rather go at least once to see how things are in my home country than decide to return. Meanwhile, I don't think it will be easy to get from Afghanistan to Iran. I'm not familiar with legal issues like this and need to look into them. Our living conditions in Iran are unique. Right now, the government is constantly highlighting the topic of Afghans returning to their home country. However, it's important to consider the cost of emigrating to Afghanistan, as it could significantly impact my life if the immigration process prevents me from working for a month. A lawyer is not a good choice because he charges a lot.

Mother: We don't know what to do. I just know that one day I'll have to return to Afghanistan. Sooner or later

Son: I'd like to travel to Afghanistan. But I haven't decided whether or not to reside in Afghanistan yet. It's not an easy decision, and I don't want to think about it right now.

How do you handle immigration issues, such as visas and residency?

Grandfather: From one department to the next, we had no idea where we needed to go for the refugee procedure, such as getting a residency permission card, health insurance, and so on. We didn't have much money, and we needed to get our task done quickly.

Father: We went through a tough process to declare asylum. We traveled to Iran in a car with seven people inside. We needed to have a vehicle. Getting a simple driving license certificate takes a long time. When I first started working as a mechanic, I needed to get a card reader (POS). I waited days for it. The bank personnel are so busy that they are unresponsive. My parents were sick, and having insurance that could cover the basics cost

was quite beneficial. But we weren't sure what we needed to do. Consider that you have arrived in a new country and will have to spend a significant amount of time on each issue.

We had a difficult time even getting a SIM card. They requested documentation but did not provide us with SIM cards. I don't know why. But if you would like to help, I believe the most crucial step is to get this information. Put the forms and links on your platform, then contact a few consultants. Consultants who can assist for free. How can a refugee with many problems pay a lot of money for a lawyer?

Mother: I'm not educated. I wished I could learn to read and write. At least, I will be less dependent on someone else. My wife handled the entire process, and I lacked the necessary understanding.

Do you have any relationships with fellow asylum seekers or refugees? Do you feel supported by them?

Immigration means, in my opinion, accepting personal responsibility. Here, everyone is having problems. You can't make other Afghans' problems worse. That's the reason no one offered us any extra help. We find it much easier to converse with Afghans than with Iranians when it comes to establishing relationships in Iranian culture.

What concerns you about Iranians?

Grandfather: Be concerned about changes to the rules. As I have stated, I would like to return to Afghanistan, but I do not want to do so by force.

Grandmother: As my wife mentioned, I'm frightened of the day when circumstances and laws will force us apart. This means that my son and his family are still in Iran, and we must return. I personally prefer to be together wherever we are.

Father: The most serious concern is that Iranians' attitudes toward Afghans are becoming increasingly unfavorable. As a result, Iranian society rejects us, pays little attention to us, and has a poor understanding of our issues. Social prejudice will worsen, and our

behaviors will deteriorate to the point that we will be required to migrate again. My son is a student, and I do not want the future he dreamed of for himself to change. My future is my son's future.

Son: After numerous difficulties, my life has finally been steady. I don't want to modify it in any way. Legal changes may have an impact on my life.

I strongly advise you to include a news item in your application stating that we will receive any information from the Iranian government regarding immigrants, including details about their homes, facilities, and places of employment.

How do you feel about the medical care in this area? What physical health concerns do refugees face? (This includes HIV/AIDS.)

Mother: Health is an extremely important topic. The conditions at the camp are significantly different, and if we do not take the required precautions, we will become infected very quickly. In the camp, we have extremely limited medical information. Not only that, we don't have any information. Many of the refugees are unaware of medical issues. It isn't even a priority. Especially health for adolescent girls. In modern society, it is usual for parents to discuss a wide range of topics with their teenagers. How can teenagers who grow up in conflict and migrate to camps be aware of the risks around them, as well as the infectious diseases that may infect them? I believe this is a critical issue, and if not addressed, it might worsen our current challenges. We cannot afford the medical expenses. So not becoming sick is preferable to going to the doctor. I know a few people who have infectious diseases, but their families are unaware of them.

Can you use the internet? Do you have a reliable network connection?

Son: The internet speed is quite slow. My mom and dad only use offline applications. They don't consistently connect to the internet. But, of course, I have mobile internet, and its speed is also slow.

Do you have anything more to say or add?

The majority of problems arise from a lack of awareness. Not sure what to do. My friend's baby has just been born in the camp, and he is having serious issues. He is unsure where to obtain a birth certificate, health insurance, and other documents.

We need a strong Afghan community. Everyone here is involved in daily life. However, Afghans engaged in medical work or medical consultations outside of Afghanistan or Iran can freely assist us in addressing some of our issues. I have no idea how, but perhaps Afghans living overseas can help us understand and solve our problems.

4.6.12 Participant Information Number 19

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
19	Father	Male	36	Bachelor	Cable puller	Afghanistan	Married

Table 13: Participant Number 19

Why did you decide to leave your country?

I decided to leave my own country due to Afghanistan's uncertain security environment, political events, and terrible economic conditions. The unpredictable security environment, regular threats from armed groups, and uncertainty about the country's future all contributed to my choice to seek a better life and chances in another country, such as Iran.

Is it possible to return to your country?

Of course, I like it. I believe that, despite the hardships, the situation in Afghanistan has improved. The new government has established security, and I must determine how to return. This is not a simple decision. But it's truly on my mind. Aside from myself, there are many more Afghans who wish to return to Afghanistan. We only need assistance. Perhaps assistance is the most important thing.

What help do you need?

First, we're confused about what to do or where to go. I've heard that international organizations are helping us financially. Returning to Afghanistan, starting a business, and other challenges require funding and adequate information. We migrated once. We suffered greatly and received the fundamental needs of life to some extent. I'm completely confused about making this decision.

Can you use the internet? Do you have a reliable network connection?

Iran's internet status is really terrible. Using social media channels is quite challenging. They're all filters. On my mobile phone, I only play a few offline games and practice offline applications. Is it conceivable to have all of these internet difficulties in one country by 2024? I do not believe Afghanistan is now experiencing such a situation.

4.6.13 Participant Information Number 20

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
20		Female	30	Master degree	Teacher	Afghanistan	Single

Table 14: Participant Number 20

How do you perceive Iranian society's response to you?

The response is almost always negative and rarely favorable. And as the number of Afghan refugees in Iran grows, the response becomes increasingly harsh. They perceive us as the cause of their unemployment and insecurity by invading their country. As an educated woman who manages the family's issues, when people meet me and see how hardworking and educated, I am, they react differently and appreciate me.

What are the challenges you experience due to family separation? (For example, mental health difficulties, financial duties.)

You see, I live with my family, but I miss my friends and cousins. I do not have severe difficulty with the separation, but I do get homesick at times and wish I could live and

work in Afghanistan. Even if you are safe and successful in another country, you will always feel foreign and estranged.

What help have you received from local organizations or groups since moving here?

In the early years of living in Iran, all I had was a charity, some clothes, and a mosque that provided some food.

4.6.14 Participant Information Number 21

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
21	Mother	Female	50	illiterate	Secretary	Afghanistan	Married

Table 15: Participant Number 21

How have you adjusted to the new culture and environment here?

I'm not adjusted. I guess I'll get used to it. I wish to establish a friendship with my Iranian neighbors, but they refuse. I am free in the evenings and would want to speak with someone about my daily life, but because I have attempted multiple times and had negative reactions, I prefer to stay at home and watch TV instead.

How do you feel about the medical care in this area?

In Iran, there are numerous doctors. There are clinics on each block, but we cannot afford them. We nearly always utilize pain relievers or home therapy, and if the physical health deteriorates and there is no other option, we recommend going to medical care centers.

Do you have any physical or mental health issues that require treatment?

Yes, I have needed a therapist for a long time. I need someone to tell me about my regrets, wishes, and desires. I'm alone and miss my homeland.

What are the challenges you experience due to family separation? (For example, mental health difficulties, financial duties, and remittances.)

I miss my relatives. I'm depressed. I become sensitive to hurtful comments. I cry every day. I came here to make money and return to Afghanistan to aid my family, but the money I earn only covers my food, rent, and living expenses. All of these concerns have led to my frustration and loss of hope. I believe I was born to work without free time to enjoy life, such as traveling and hosting parties. What a dreadful fate! I wish I had not been born in Afghanistan. I don't want my children to live like me.

Do your children attend government schools?

Because he is employed, my child does not attend school.

Can you use the internet? Do you have a reliable network connection?

Because we live in the suburbs, we have a really bad connection. My son installs several apps on my phone and uses them, but we also watch films on it together. To raise awareness about these topics, my son and I use some educational and health-related pages. They are valuable, and we use a few of them.

4.6.15 Participant Information Number 22

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
22		Female	34	illiterate	Salesperson	Afghanistan	Single

Table 16: Participant Number 22

Do you have any physical or health mental issues that requires treatment?

Yes, I have. But I need to tell you something about my nephew, who lives with us. He is a teenager in a vulnerable stage of his life. I've noticed some behavior that makes me anxious. He requires specific knowledge regarding various sexual issues. I suppose he requires unique information regarding the significance of this subject. Some teachers are present at his school to guide the teenagers, which is a good thing. I wish there was a database to use to raise awareness among families and youth, as many Afghan refugees

are illiterate and lack knowledge and understanding about sexual issues. I know some people who are suffering from sexually transmitted diseases, which is not nice at all.

How do you feel about the medical care in this area?

Medical care is extremely expensive, and Afghan refugees rarely can afford it. We primarily utilize homemade medications and conventional methods to treat ourselves. We do not have health insurance because the rules in Iran regarding refugees are always changing. Can we get insurance? I do not know. If so, I am not aware of the official procedure for receiving it. We reside in the suburbs, far from the city. It takes a long time to go to the city and request this issue, and we work long hours every day.

4.6.16 Participant Information Numberb23

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
23	Mother	Female	51	illiterate	Salesperson	Afghanistan	Married

Table 17: Participant Number 23

What adaptations have you had to make since arriving in Iran? Can you share a specific occasion or experience that made you feel welcomed in your new community?

We were new to our community and lived alone. One night, an elderly woman visited me and delivered me food. Even with a meal, I feel supported, which was a great desire for me in our early days of living in Iran, when we had no idea what to do or how to handle life.

How do you perceive Iranian society's response to you?

I have high hopes that our opinions will be taken into consideration during your investigation and that something will be done to provide us with assistance and direction. Regarding the outcome of the interview, I have a positive outlook.

Are you registered and in contact with healthcare professionals?

I don't have any links, nor am I registered. I only stay updated with my information by watching the health channel on television. It is interesting to me. At this point in time, social media has brought about the creation of fascinating platforms that enable individuals to increase their awareness about anything without the necessity for direct interaction. The fact that my children are able to easily access a great deal of interesting material on their phones is quite beneficial.

4.6.17 Participant Information Number 24

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
24	Father	Male	44	Elementary school	Mover	Afghanistan	Single

Table 18: Participant Number 24

What is your current physical, mental, and emotional health?

Physically, I suffer from back and foot pain due to my daily work of moving large boxes over long distances, which is my primary source of income. I don't have health insurance, and I don't know how to apply for it. My son occasionally goes to the drugstore and buys some painkillers, but they are ineffective. I do not have the money to see a doctor, so I am in pain. Sometimes I try home therapy, such as applying turmeric and oil to my foot, but it only works for a few days before I have to see an experienced doctor and go through the treatment procedure, and there are times when I am unable to walk. I have excruciating pain and must stay at home rather than go to work. It's bad for me because I earn money every day. What can I do?

What physical health concerns do refugees face? (This includes HIV/AIDS.)

Afghan refugees cannot afford to visit doctors on a regular basis because they come from a war-torn country with limited access to healthcare facilities and professionals. We mostly reside in suburban and rural areas and have little knowledge about certain concerns, particularly women's-related illnesses such as abortion and childbirth. Abortion and childbirth are sometimes performed at home, causing the mother to experience a variety of health problems. Many Afghan refugees are addicts. They did not practice good hygiene and had no desire to go to the doctor and have an annual checkup or blood test. I believe that Afghan refugees are suffering from a variety of physical and health issues that require care but that they are unaware of. If you wish to help us, I advise that you focus on raising public health awareness. Without a healthy physique, we cannot perform physical work.

How do you believe discrimination and prejudice against refugees in host communities should be addressed?

I believe that refugees are innocent people escaping their own country in search of a better future. The host community should consider some helpful arrangements for us; we need help because we have abandoned everything and are suffering from people who cannot take mental pain and stress any longer. We must behave like humans and enjoy the same human rights that citizens do. I hope that the responsible parties hear our concerns and make some supportive plans to assist us.

4.6.18 Participant Information Number 25

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
25	Father	Male	46	Elementary school	Construction	Afghanistan	Married

Table 19: Participant Number 25

Do you have any physical or mental health issues that require treatment?

Yes, I have a headache, a backache, and muscle pain; as a result of my heavy work and smoking, I require lung treatment.

Are you registered and in contact with healthcare professionals?

No. I am not registered and have not contacted any healthcare professionals. I'm not sure what the process is. Actually, the refugees have no info on how to seek to contact healthcare providers.

How do you feel now in Iran compared to your experience in Afghanistan? Is there anything specific on your mind that you'd like to discuss?

I'm homesick. But, because I feel safe here, I choose to live in Iran.

What has brought you a great deal of joy in our country?

The chance for girls to pursue an education is significant. I came for my daughter. I want my daughter to attend the best universities and continue to work so that she can benefit society. Indeed, my daughter was the driving force behind my decision to immigrate. She is talented and needs a suitable atmosphere to develop it.

Do your children attend government schools?

My kid attends a school dedicated to serving refugees. It was a long time coming to find this location. We had no idea these facilities existed. Nobody led or assisted us in this place. We lost access to a trustworthy database, which is extremely bad for Iran—a nation that welcomes a large number of refugees.

4.6.19 Participant Information Number 26

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
26	Father	Male	39	Elementary school	not allow to work	Afghanistan	Married

Table 20: Participant Number 26

Why did you decide to leave your country?

We had just arrived in Iran. After the Taliban took power, the situation became extremely terrible for us. Very tight laws forced me to relocate for my daughter's future, as well as

other reasons. Iran and Pakistan are the closest countries for immigration, and we chose Iran since the conditions there are better than in Pakistan.

Is it possible to return to your country?

Unfortunately, I am unable to return to my country. I can't and do not want to discuss this.

How do you handle immigration issues, such as visas and residency?

I don't know. I just arrived by car. I did not do many things, and I don't know how to do them. I can't go to the city and return. It's far from here, and it costs me a lot to get from one office to the next. Now, the most crucial thing is to obtain insurance, a bank card, and a SIM card for myself, my wife, and my daughter. My daughter's husband is still in Afghanistan, and he will join us later. We obviously need to provide paperwork proving that these two got married. Otherwise, they'll get in trouble.

What was the most challenging aspect? How has life changed since you left Afghanistan?

Okay, everything has changed. Our lives are not similar to those in Afghanistan. Of course, I understand that in the first few months, all Afghans experience this problem, which is normal.

Not knowing what to do is totally different from knowing and planning. We've now arrived in a place where we're unfamiliar with numerous issues. It is correct that we do not have a language problem. However, in order to participate in society, enter the labor market, and exercise our basic rights, we have to finish a number of tasks and get some legal documents.

What are your least favorite aspects of living in Iran?

I don't want to complain. I just wish there was a guideline to help new immigrant.

4.6.20 Participant Information Number 27

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
27	Father	Male	37	Bachelor	Driver	Afghanistan	Married

Table 21: Participant Number 27

Is it possible to return to your country? Would you be willing to return to your country?

Of course, I can. I did not have any political activities that would prevent me from returning to my country. The only reason for my migration was the difficult living conditions. Even now, my situation is not easy, but it is definitely better than the situation in Afghanistan. Unfortunately, I work almost 14 hours a day and during a day I have no free time for myself. I do not know about the process of returning to Afghanistan or traveling there. What kind of visa should I get so that I can return to Iran without risking my asylum status? I'm not sure what aid we can receive or where to start.

How do you handle immigration issues, such as visas and residency?

The truth is that we stayed in Iran for a long time without permission. We had no idea, and we didn't have anyone to assist us. We gradually became familiar with Afghans who had previously traveled on this journey. undoubtedly, their information was insufficient. However, they helped us a lot. Honestly, if we had known that the asylum conditions in Iran are like this and that every job requires a significant amount of administrative paperwork, we might have stayed in Afghanistan. I've been driving for years. However, I had difficulty obtaining a driver's license, creating an account, and obtaining insurance, among other necessities of everyday life. Opening an account for Afghans and Iranians is rather different. Our work procedure is substantially longer than Iranian and requires more documentation. Our insurance is different from theirs. There were numerous things that, if I had known ahead of time, I could have either prepared for or reconsidered my decisions.

How much time do you spend with Iranians? What concerns you about Iranians?

Well, I work as a taxi driver and am always in contact with Iranians. To be honest, Iranians do not have a favorable opinion of us. I often try to demonstrate that not all Afghans are the same. I cannot make any changes on my own.

4.6.21 Participants Information Number 28 and 29

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
28	Older brother	Male	42	High school	Construction	Afghanistan	Married
29	Younger brother	Male	38	High school	Driver	Afghanistan	Divorced

Table 22: Participants Number 28 and 29

Tell me about yourself

We were a large family who immigrated to Iran over time and subsequently claimed refugee status. I am married, and my younger brother is divorced and living with us. To be honest, there are eight people living in this small house.

Would you be willing to return to your country?

Elder brother: Yes, I would like to, but I need to know our legal procedures and limitations. Is it feasible to return to Iran and stay? Is my work permit lawful, and will it remain valid? What will our stay's status be? I don't know; I must review the procedure. This is not an easy decision.

Younger brother: We suffered greatly during this journey. What is the point of traveling to Afghanistan if it invalidates all of our documents? Can we resume our lives once we return? The majority of our relatives are currently living here or in other countries. It has been a long time since I have communicated with Afghans living in Afghanistan.

I strongly recommend that you assist in the formation of an Afghan community around the world. I'd like to know what's occurring in Afghanistan right now. What is the current state of the economy, employment, education, and housing in Afghanistan? Afghans

planning to visit Iran should also be aware of the life circumstances there and the problems they will face.

How do you handle immigration issues, such as visas and residency?

Younger brother: We migrated in a group, so everyone could share some of their experience with others. Our journey to Iran was strengthened by the fact that several family members accompanied us. However, we made many mistakes. Our documentation was not completed. Unfortunately, we didn't pack many documents, like marriage certificates, and had to wait till they arrived, as many administrative tasks in Iran required them.

Do you have any relationships with fellow asylum seekers or refugees? Do you feel supported by them?

The truth is that no one supported us, but we helped many others. Afghans who lived here illegally occasionally used our house to reside and slept here at night. We used this assistance not only to provide a place to sleep, but also to encourage them to complete their legal immigration paperwork as soon as possible.

What are your least favorite aspects of living in Iran?

Older brother: In short, Iran's failure to organize Afghan immigration.

Do you have anything more to say or add?

Younger brother: My wife and I immigrated to Iran. Life as a refugee is really challenging. Unthinkable for you. My wife's challenging life circumstances have caused her to become increasingly distant from me, and we are unable to maintain our relationship. In my opinion, our problems were not complex enough for us to get a divorce. We did not even have a simple consultation. We didn't know how to handle these issues. We did not anticipate these issues. I firmly believe that Iran should provide treatment and care for all

Afghan immigrants. We have severe mental illness. We have lived through many years of suffering, hardship, war, and stress, and this tension will continue.

4.6.22 Participants Information Number 30 and 31

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
30	Husband	Male	38	Elementary school	Construction	Afghanistan	Married
31	Spouse	Female	36	Elementary school	Cleaner	Afghanistan	Married

Table 23: Participants Number 30 and 31

What are your least favorite aspects of living in Iran?

Spouse: Unfortunately, Iran does not have a specific program for Afghan refugees. We need a program to help us integrate into society more quickly. We require educational courses that enhance our skills. For example, both my wife and I are familiar with computers. If we can take a series of free online courses, perhaps I won't need to work as a cleaner. For example, I could work as a secretary. These online or offline courses do not cost the government anything. These courses simply offer us the opportunity to develop ourselves through diligent effort. I recognize my own potential.

Male: As my wife stated, we require these trainings. I believe we have time at night to develop our knowledge and talents. I searched the internet multiple times. There are several instructional websites, but I don't know which one is better or more complete, and this has always kept me from starting. This is the most basic level of assistance available to asylum seekers.

In addition, the cost of living here is extremely high, and our salary does not cover our expenses.

Finally, despite the fact that we speak the same language, Iranian society continues to accept us as foreigners, preventing us from integrating. I believe the government should come up with a plan to raise public awareness of Iranians. Perhaps through commercials or a series of television debates.

What legal and political challenges have you faced?

Male: There were numerous problems. For instance, Iran rejected my driver's license, making it impossible for me to drive there. Many administrative processes need a witness, which is difficult to find and request. When my child was born, I had no idea how to obtain his birth certificate because I assumed they would get one quickly, as Iranian children do. However, the official process was altogether different, consuming a significant amount of my time, and my wife was extremely lonely during her early days of motherhood. Despite the fact that my wife and I were married in Afghanistan before moving to Iran, we were required to provide our marriage certificate. We did not bring our marriage certificate to Iran. We had no idea what was required or how to prepare for entering Iran. We had no idea that in order to work in Iran, we needed to obtain a work permit.

How do you feel about the medical care in this area?

Male: The camp's health conditions were poor. To be honest, Afghans have been involved in battle for many years. In terms of health information, they are not especially outstanding. They have little access to health care and are frequently sick with infectious diseases. They lack knowledge and do not have time to improve.

They spend the majority of their time in the camp, where they are legally unable to work. That is the ideal moment to update their medical and general information. They should understand how to integrate into society and read about administrative duties. If they don't take advantage of this opportunity, they will face troubles in the future.

4.6.23 Participant Information Number 33

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
32	Mother	Female	61	Elementary school	Teacher	Afghanistan	Married

Table 24: Participant Number 32

How do you feel about the medical care in this area?

Yes. Of course. When I go shopping at a market, the seller normally serves the Iranian clients first, then me.

How do you feel now in Iran compared to your experience in Afghanistan? Is there anything specific on your mind that you'd like to discuss?

In Iran, there are many doctors, but we cannot afford them. I am a member of a channel on Telegram that is about medical care. I read their posts every day and used them several times. Some of their treatment solutions were useful. In relation to the previous question about the discrimination, I can add that I joined different entertainment groups and channels on social media to entertain myself and stop thinking about the issues that make me sad, like the discrimination.

Do you have anything more to say or add?

Newly arrived Afghans frequently ask me about the first steps that should be taken in Iran. In my opinion, in the design of your application, include everything you believe a newly arrived immigrant with limited scientific understanding and knowledge requires.

Another issue is that many young Afghans are illiterate, yet they have mobile phones and can study using educational apps and programs. In my opinion, you should either introduce instructional websites or include them in your application.

4.6.24 Interview with one participant

	Role	Gender	Age	Educational level	Career	Birthplace	Marital Status
33	Father	Male	37	Elementary school	Building guard	Afghanistan	Married

Table 25: Participant Number 33

How do you handle immigration issues, such as visas and residency?

I handled all immigration and asylum declarations myself. From asking to searching about the sites, unfortunately, the information on the websites did not match the actual

content, resulting in a significant amount of wasted time. I believe I am eligible to obtain a passport. I know three other families arrived in Iran with me, and we live in almost identical conditions. As I already stated, I am the building's security guard and should not quit my job. I don't get much time off. I've wanted to find out what I need to do to get a passport and what paperwork I need to prepare. Searching the webpage also confuses me.

What concerns you about Iranians?

My main concern is for my wife and children. My wife is an introvert. She speaks less and socializes less. Our living conditions in Iran, including living in a 20-meter condo with an almost 10-year-old daughter, have made life difficult for all of us. My concern is that my wife's health may deteriorate over time, causing her to withdraw further from society. Unlike me, she enjoys learning new things. She enjoys learning new subjects like English and developing skills like carpet weaving and hairdressing. Maybe if her knowledge and talents grow, she'll feel more confident in society. My daughter is another issue I have. She is at a vulnerable age. She uses a cell phone, as do all girls, but I have no idea how she spends her time with her mobile. I mean, I'm not usually at home to see and speak with her.

5. Identifying Stakeholders and Functional Requirement

Multiple stakeholders are involved in this project. In addition, functional and non-functional requirements were considered to determine the specific criteria that the application must fulfill.

5.1 Afghans Living Illegally or Legally in Iran

5.1.1 Description:

Illegal immigration refers to the population of individuals who enter a country without the proper documentation, frequently through smuggling. Illegal immigrants enter the destination country secretly, bypassing border controls. Therefore, they have violated the immigration laws of the destination country and are no longer permitted to stay there.

5.1.2 Functional Requirement:

- 5.1.2.1 Granting legal status to prevent deportation and secure legal privileges.
- 5.1.2.2 Availability of fundamental services such as healthcare, education, accommodation, career, and financial transactions.
- 5.1.2.3 Safeguarding against discrimination and exploitation.
- 5.1.2.4 Enhanced quality of life and enhanced security.
- 5.1.2.5 Possibilities for integration within Iranian society.
- 5.1.2.6 Assistance is provided for the purpose of facilitating the reunion of family members.
- 5.1.2.7 Access to precise information regarding their entitlements and the services that are accessible to them.
- 5.1.2.8 Know about the process to get citizenship or legal residency.
- 5.1.2.9 Possibility of obtaining a work permit in Iran and having access to job opportunities.

5.2 Afghan Under 18

5.2.1 Description:

Individuals under the age of 18 typically lack the necessary expertise to effectively handle problems. As a result, they may struggle to accurately identify threats and respond appropriately to them. Individuals in this age group are particularly vulnerable to hazards because of their eagerness to explore novel and dangerous activities, which are sometimes pushed on by their peers.

5.2.2 Functional Requirement:

- 5.2.2.1 Expect to have access to high-quality education and prospects for both academic and personal growth.
- 5.2.2.2 Expect to reside in a secure and protected setting, devoid of any instances of violence, exploitation, or abuse.
- 5.2.2.3 Expect to have access to healthcare services and support for their physical, mental, and emotional well-being.
- 5.2.2.4 Anticipate the ability to participate in social activities, make acquaintances, and integrate into Iranian society.
- 5.2.2.5 Expect that their fundamental rights as children, such as the right to education, healthcare, and protection from injury, will be safeguarded.
- 5.2.2.6 Anticipate establishing a connection with the appropriate authorities in the event that they encounter obstacles in various locations in Iran concerning significant matters.

5.3 Afghans Who Have Just Arrived in Iran

5.3.1 Description:

The term "Afghans who have just arrived in Iran" refers to individuals who have recently migrated from Afghanistan and are currently in the process of settling themselves in Iran.

5.3.2 Functional Requirement:

- 5.3.2.1 Seeking a place of safety and protection from war, persecution, and instability.

- 5.3.2.2 Provision of housing, nourishment, uncontaminated water, and medical assistance.
- 5.3.2.3 Acquiring official papers and authorization to stay in Iran.
- 5.3.2.4 The availability of educational opportunities for children.
- 5.3.2.5 Discovering job openings to support themselves and their families.
- 5.3.2.6 Being welcomed and received with open arms by the Iranian community.
- 5.3.2.7 Anticipating assistance from the appropriate authorities in the case of issues or emergencies.
- 5.3.2.8 Increasing their awareness about rules and legislation in Iran
- 5.3.2.9 Interacting with the Afghan community

5.4 Afghans Who Have Lived for Years in Iran

5.4.1 Description:

The Afghans residing in Iran for an extended period of time consist of individuals who migrated from Afghanistan in pursuit of improved opportunities and a more secure livelihood. Several individuals have been living in Iran for a long period of time. Some individuals may have migrated as refugees, while others may have traveled for reasons associated with business or education. Over time, they have become an integral part of Iranian society, despite facing numerous challenges. They have made substantial contributions to the country's economy and cultural richness.

5.4.2 Functional Requirement:

- 5.4.2.1 Enhanced job prospects
- 5.4.2.2 Equivalent educational circumstances to those of Iranian children
- 5.4.2.3 Integration into the community and acceptance
- 5.4.2.4 Ensuring stability and security
- 5.4.2.5 Permanent residency privileges
- 5.4.2.6 Increasing their awareness about rules and legislation in Iran
- 5.4.2.7 Enhanced Afghan communities

5.5 Literate and Illiterate People

5.5.1 Description:

Literate Afghans are those who possess advanced reading and writing skills, allowing them to acquire knowledge and resources more effectively. Additionally, their ability helps them to actively engage in society and the labor market. Conversely, illiterate Afghans lack the basic ability to read and write, hence facing more challenges in accessing information and services. The dependence on others for help in several aspects of life can limit their choices for social and economic progress.

5.5.2 Functional Requirement of Literate Afghans:

- 5.5.2.1 Access to advanced education through either online or in-person instruction.
- 5.5.2.2 Recruit as employees
- 5.5.2.3 Better integration into Iranian society
- 5.5.2.4 Enhanced interaction and involvement with Iranian institutions.
- 5.5.2.5 Improved awareness of their rights, legal protections, and available services.
- 5.5.2.6 Have an access to Afghan communities to use Afghan's experience in Iran

5.5.3 Functional Requirements of Illiterate Afghans:

- 5.5.3.1 Availability of fundamental services such as healthcare, education, and employment.
- 5.5.3.2 Improved awareness of their rights, legal protections, and available services.
- 5.5.3.3 Integration into Iranian society facilitated by community support and aid.
- 5.5.3.4 Have an access to Afghan communities to use Afghan's experience in Iran
- 5.5.3.5 Dependence on the assistance of others with administrative tasks such as completing forms, submitting service applications, interacting with government agencies, and other such activities.

5.6 NGOs

5.6.1 Description:

NGOs are non-profit organizations whose mission is to tackle social or humanitarian concerns. They engage in cause advocacy, service delivery, and economic growth activities. They conduct business on a local, national, or global scale, with a particular emphasis on human rights, healthcare, education, and others.

5.6.2 Functional Requirements

- 5.6.2.1 Enhancing living conditions: Non-governmental organizations (NGOs) strive to enhance the living conditions of Afghan refugees through the offering of vital services such as healthcare, education, and social support.
- 5.6.2.2 Advocacy: They engage in a concerted effort to promote the rights of Afghan refugees, by increasing public knowledge about their difficult situation and advocating for legal changes that improve their circumstances.
- 5.6.2.3 NGOs facilitate the integration of Afghan refugees into Iranian society by offering them opportunities for education, employment, and several other prospects.
- 5.6.2.4 Legal aid: They provide support to Afghan refugees in navigating bureaucratic procedures, acquiring essential papers, and comprehending their entitlements.
- 5.6.2.5 Collaboration: NGOs often engage in partnerships with government agencies, foreign organizations, and other stakeholders to effectively address the needs of Afghan refugees.

5.7 Non-functional Requirement

- 5.7.1 Reliability: The application must exhibit a high level of reliability, guaranteeing that users may access information and services even in the absence of an internet connection.
- 5.7.2 Data security: remains crucial, even when operating in an offline environment. The program must employ encryption techniques to safeguard sensitive user data stored locally on the device, thereby preventing unlawful access and maintaining user privacy.
- 5.7.3 Usability: The application should include a straightforward user interface, facilitating effortless browsing and information retrieval even in the absence of an online connection. Precise guidelines and user-friendly design that is easy for users to navigate are crucial.
- 5.7.4 Performance: The application should exhibit rapid and efficient behavior, ensuring prompt retrieval of information and access to services, even when offline. It is necessary for the performance to be optimized in order to guarantee seamless operation on a diverse array of Android devices.
- 5.7.5 Scalability: The application should be structured to support future expansion and the integration of additional functionalities.
- 5.7.6 Accessibility: The program must be consistently accessible, independent of internet availability, allowing users to utilize it at any given time. Users should have the capability to retrieve information and utilize services even while not connected to the internet.

6. Service Design

The service design component of our ICT4D framework is dedicated to the development of a mobile application that is both user-friendly and accessible, with a particular focus on Afghan refugees in Iran. In this section, we apply the knowledge we have acquired from our comprehensive research to create a simple and beneficial service that resolves the issues we identified.

6.1 Objective

During this phase, the major goal is to make an app that Afghan refugees can easily use and that meets their many needs. This means making sure that both literate and illiterate users can access it, providing assistance in different languages, and adding features that meet the unique needs of the Afghan community.

6.2 Process

6.2.1 User-Centric Design

The design process began with the creation of user personas and journey maps, based on the data gathered from research-related interviews. These personas are representative of several subsets of the Afghan refugee community. They illustrate the particular needs, interests, and difficulties that these subsets may encounter when utilizing the application.

6.2.2 Interface and Experience

The user interface (UI) of the application was deliberately designed to be simple to understand and operate. By utilizing simple menus, obvious icons, and visual signals, it is possible to assist our target population in locating and utilizing the information and services they require in a hurry. For Afghans who are unable to read, future upgrades will include audio instructions and visual aids to make the process simpler.

6.2.3 Multilingual Support

It is crucial to observe that Farsi is spoken by individuals from both Afghanistan and Iran, despite the fact that the application supports a variety of languages, such as Persian (Farsi) and English.

6.2.4 Feature Integration

Based on the identified needs, the application includes several key features:

- 6.2.4.1 Legal Information and Assistance: Provides refugees with essential information about their legal rights, residency procedures, and access to legal aid.
- 6.2.4.2 Healthcare Services: Offers information on available healthcare facilities, how to access medical services, and health-related educational content.
- 6.2.4.3 Educational Resources: Provide Online tutorial video for various ages with different demands.
- 6.2.4.4 Employment Support: Includes the process of obtaining work permit and useful information regarding starting a business
- 6.2.4.5 Social Services: offer a variety of services to assist individuals in the process of social integration, such as the creation of a bank account, visa application, E-passport issuance and SIM card acquisition.

6.2.5 Why Choose a Mobile Application

For a variety of reasons, a mobile app is the best approach to assist Afghan refugees. Because so many refugees now own mobile phones, mobile applications offer even easier access to important materials than web-based platforms. Furthermore, refugees may use mobile applications offline to access information whenever and wherever they need it. Mobile applications dramatically improve the user experience by incorporating rich multimedia content and interactive features, as opposed to SMS and USSD services, which only give text and rudimentary interactions.

- 6.2.5.1 High Mobile Phone Penetration: Mobile phones are quite prevalent in Iran, and the majority of Afghan refugees rely on their mobile phones rather than computers. For them, this makes a mobile application the alternative that is both the easiest and most handy.
- 6.2.5.2 Offline Functionality: Having the capability to function offline allows a mobile application to provide access to essential information and services even in situations when the internet is unstable or they have no access to the internet, which is a situation that many migrants frequently find themselves in.
- 6.2.5.3 Ease of Use: Mobile applications are typically easier to use than websites, especially for those who are not very well-versed in digital technology operations.
- 6.2.5.4 Push notification: One of the advantages of using mobile applications compared to others is that it alerts users to recent changes and new services.
- 6.2.5.5 Integration with Device Features: Mobile applications have the ability to take advantage of the device's features, such as the GPS, camera, and contacts, in order to provide more personalized and integrated services.

7. Technology Selection

The components of our ICT4D framework dealing with technology selection are critical in ensuring that the application is scalable, sustainable, and safe, as well as adapting to the specific needs of Afghan refugees living in Iran. In this section, the criteria and procedure used to select the best technology for the mobile application are described.

7.1 Objective

During the technology selection phase, the main goal is to choose technologies that will help make the app creation and deployment go smoothly. The technologies that are picked must be easy for everyone to get, affordable, and work in environment where there is little or no internet access.

7.2 Process

7.2.1 Evaluation Criteria

The selection of technologies was based on several key criteria to ensure the app's effectiveness and sustainability:

7.2.1.1 Ease of Use:

It is imperative that technologies are user-friendly for both developers and end users. This necessitates the use of simple development processes and a visual interface.

7.2.1.2 Cost-Effectiveness:

These technologies should be affordable, given the typically limited funds available in ICT4D projects.

7.2.1.3 Scalability:

The chosen technologies must have the capability to scale in order to handle the growing number of users while maintaining optimal performance.

7.2.2 Offline Functionality

Given the challenges faced by refugees, such as limited internet speed and restricted access to social media, it is critical that the software have the capability to function without an internet connection.

7.2.3 Security

Strong security measures are essential for safeguarding sensitive user data and guaranteeing privacy.

7.2.4 Chosen Technologies

7.2.4.1 Mobile Development Platform:

Legal restrictions prohibit the use of Apple devices with iOS in Iran. Therefore, the primary platform of choice for developing mobile applications is Android. Android has gained widespread popularity, especially in less affluent regions, due to its ability to function without an internet connection.

7.2.4.2 Programming Languages:

native Android development framework and Java language were chosen from the several available frameworks for Android application development because of faster application execution, easy updating, interoperability with all Android phones, multilingual functionality, and day and night themes.

7.2.4.3 storing and retrieving:

Json was selected due to its easy to use, minimal storage requirements, and extensive compatibility with a wide range of programs. This feature is highly suitable for the storage and transfer of data in our mobile application.

7.2.4.4 Multilingual Support:

The application utilizes language translation libraries to facilitate support for both Persian (Farsi) and English. Afghan residents in Iran have the option to

select Persian as their language preference, but individuals from other nations can also benefit from this application by accessing and reading English information.

7.2.5 Implementation Considerations

During the implementation phase, we placed special emphasis on optimizing the application for performance and ensuring that it functions proficiently on a diverse array of Android devices frequently employed by Afghan refugees.

For additional details and a more in-depth exploration of this topic, please refer to the appendix section at the end of this thesis.

8. Development and Implementation

The primary focus of the development and implementation phase is the conversion of study designs and insights into a mobile application that is both practical and effective in serving Afghan refugees. This phase aims to guarantee that the application fulfills the users' requirements and operates effectively.

8.1 Objective

The primary objective of this phase is to create an effective and reliable mobile application that offers fundamental information and services to Afghan refugees residing in Iran.

8.2 Process

8.2.1 Project Planning

The precise project plans outlined the timelines for project development, major milestones, and deliverables. As a result, the project successfully stuck to its intended timeframe and accomplished its goals.

8.2.2 Development

The application was developed iteratively using the Android platform and Java programming language. Essential aspects such as legal information, healthcare services, educational resources, employment support, and social services were implemented, among others. The development process heavily relies on user interface and offline functionality.

8.2.3 Testing

The application has been verified to ensure that it satisfies the relevant standards for both its performance and its usability through the execution of intensive internal testing. The primary objective of conducting tests is to ensure that the program runs without any

problems on a variety of Android devices, particularly low-cost cellphones that are widely used by refugees.

8.2.4 Optimization

To ensure seamless functionality on older Android phone models, we have enhanced the application's performance, including optimizing load times, resource usage and increasing user experience.

8.2.5 Future Work

Subsequent versions of the application will integrate supplementary functionalities in response to user feedback and changing requirements. This includes adding audio instructions and visual aids to support illiterate users and continuously updating the content to reflect the most current information and resources available to Afghan refugees.

8.3 Demo Version of the Application

The demo version of the mobile application is focused on providing assistance to communities. A demo version of the application has been produced to review and get feedback from refugees. This version consists of the primary features and capabilities of the application.

8.3.1 Features and Capabilities

- 8.3.1.1 Multilingual support: The application is accessible in both Farsi and English, ensuring that users can operate it smoothly.
- 8.3.1.2 Offline Capability: The application has the ability to get information and provide services even without an active Internet connection, which is essential for users who lack consistent access to the Internet.

8.3.1.3 Simple UI: The user interface design has been designed to ensure that even individuals with limited digital literacy can easily navigate and utilize the application.

8.3.2 Evaluating and Testing

The demo version of the application passed through testing following the original development phase in order to detect and fix any potential issues and malfunctions. These tests are conducted on several Android devices to verify the appropriate functionality of the app under varied circumstances. The exams assess offline performance, loading speed, user interface, and overall performance.

8.3.3 Collecting Feedback

Feedback from Afghan refugees is gathered via a question-and-answer format. Users have conveyed their experiences and comments regarding the application. The feedback suggests a satisfactory level of meeting users' needs and their satisfaction with the app's functionality. Nevertheless, they anticipate that the application will effectively address issues related to discrimination. Consequently, we will give priority to enhancing this aspect in future updates.

To enhance understanding, there are multiple visual representations of the demo version of the application:

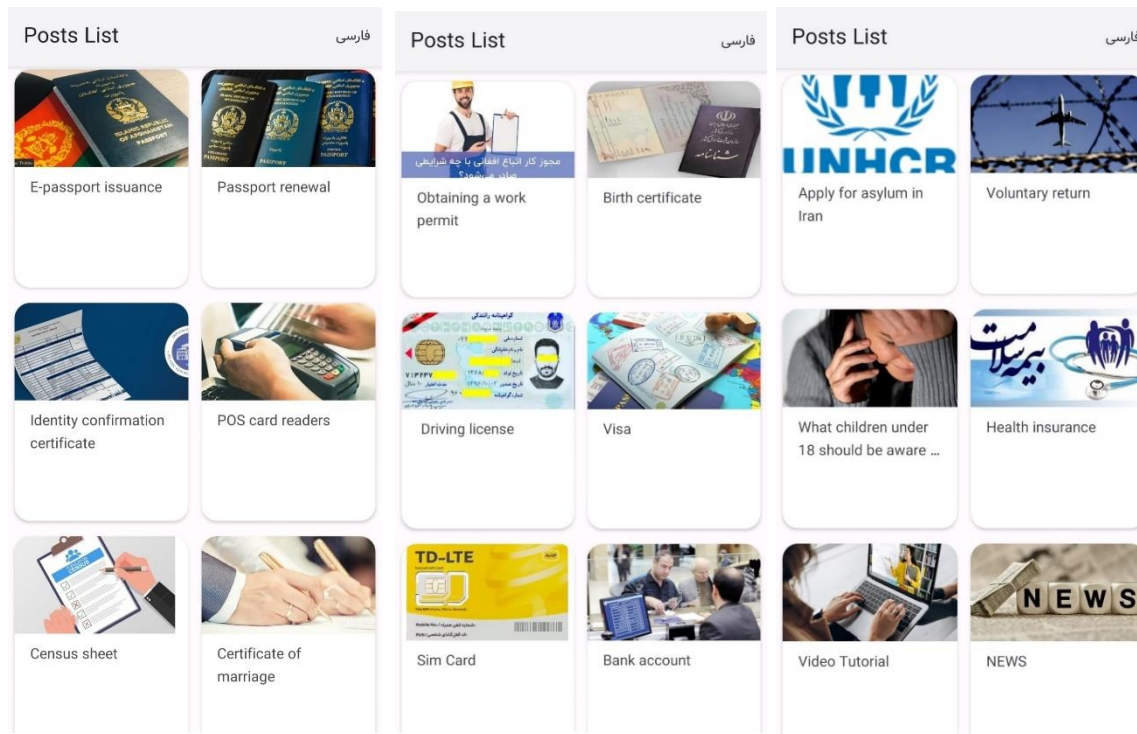


Figure 7: English Version Demo

This is the English version of the application, with 18 categories via which users can access information by clicking on each individual category. The image below serves as an illustration of an English lesson designed specifically for people who are new to the language.

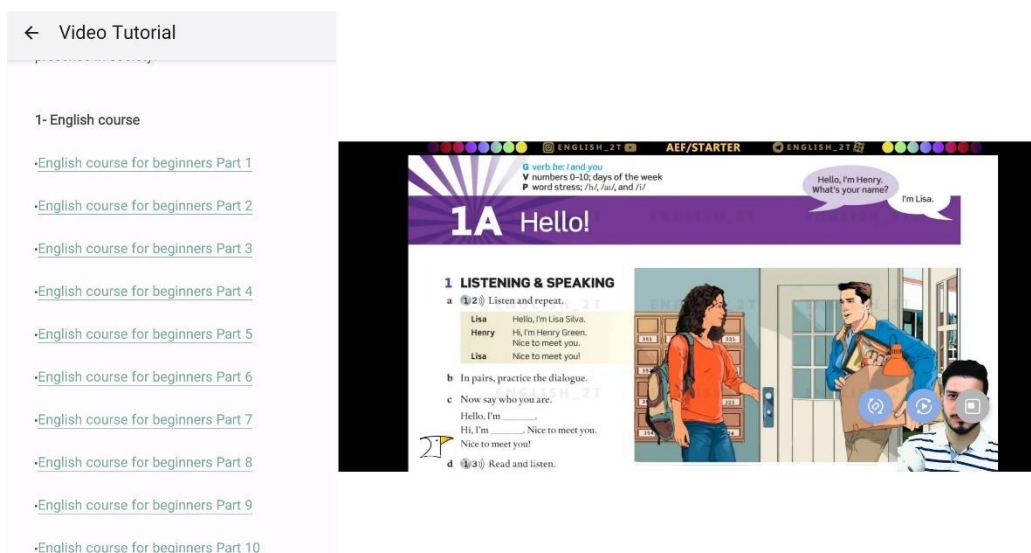


Figure 8: Learning English Course for Beginners



Figure 9: Persian Demo Version

The language can only be changed by clicking on either the English or Persian button. A current news article is provided, accompanied by a hyperlink that directs to the main website.

The demo version of the application has been effectively developed and tested, and users have provided positive feedback. This type of feedback is beneficial in improving the app and guaranteeing that it meets the needs of users in the most efficient manner. The primary objective of developing a demo version was to guarantee the program's efficacy and practicality for Afghan refugees. Thus far, favorable outcomes have been realized.

9. User Assistance

Through the offering of assistance, training, and continuous instruction, this component of the ICT4D framework aims to increase the application's impact and persistence by focusing on the Afghan communities.

9.1 Objective

During this phase, the major objective is to provide Afghan refugees with the information and abilities they need to operate the mobile application in an efficient and independent manner. In order to guarantee that the Afghan community is able to make full use of the services that are given by the program, this involves providing support resources, and developing digital literacy throughout the community.

9.2 Process

9.2.1 User Training

Training sessions to introduce the application to refugees and show its features and capabilities were held by a third party in Iran in person. These sessions are designed to be accessible and engaging, ensuring that users of all literacy levels can understand and navigate the program. Because our audience was Farsi-speaking, the educational materials were conducted in Farsi.

9.2.2 Development of Support Resources

The present version of the application lacks a dedicated section for user guides. While this aspect is still in the process of being developed, the significance of having these support resources for the project is extremely high. User manuals include step-by-step instructions, frequently asked questions (FAQs), and troubleshooting approaches that help users familiarize themselves with the application and make the most of its functionalities. This enhances user satisfaction and enhances the user experience, which leads to attracting and retaining more users.

10. Monitoring and Evaluation

The Monitoring and Evaluation Section (M&E) is very important in the ICT4D service development framework because it assesses the effectiveness and impact of the mobile program designed for Afghan refugees in Iran. This step ensures that this program meets its goals, meets users' needs, and improves based on feedback and performance data.

10.1 Objective

At this stage, we mainly aim at reviewing the app's performance, gathering user feedback, and assessing its effect on the Afghan communities. This procedure enables an expanded understanding of the program's strengths, areas for improvement, and potential for expansion.

10.2 Process

10.2.1 Key Performance Indicators (KPI)

A set of specific indicators was established to evaluate the program's efficacy. Criteria such as user satisfaction, the utilization of identified refugees' requirements, and the utilization of problems are included in these indicators. Technical performance indicators, including error rate and loading time, were also assessed to guarantee the program's optimal performance.

10.2.2 Collecting Data

In order to gather data regarding the utilization and effects of the application, Afghan users were requested to provide us feedback on working with the application and its content. The feedback was gathered through a question-and-answer format in order to gather insights on users' perspectives regarding the program's performance and functionality.

10.2.3 Iterative Improvements

We implemented continuous enhancements to the application in accordance with the results of surveillance and evaluation activities. This included adding new topics in response to user feedback, fixing problems, improving the user interface, and updating features.

10.2.4 Expandability and Future Planning

Future enhancements and program expansion were planned using the perspectives received from the monitoring and evaluation phases. As part of this process, we looked for ways to expand, such as reaching out to more refugee populations or introducing new services. The evaluation results informed long-term strategic planning that kept ICT4D services stable and scalable.

11. Conclusion

In this section, we analyze the outcomes and discoveries of the research, specifically addressing the research questions mentioned in the introduction. Initially, we will begin with our sub-research questions, as they are crucial in guiding our primary research question.

1. How could developing a mobile application for Afghan immigrants in Iran improve their situation and well-being, promoting a more optimistic and positive future for Afghan communities in Iran?

Several analyses were conducted to determine the fundamental requirements of the Afghan population in Iran, taking into account the large number of recently arrived immigrants. Due to numerous challenges, the Afghan society felt forced to go to Iran with the aim of establishing a more promising future for themselves and their children. The challenging circumstances of their life in Afghanistan, followed by the difficult procedures of migrating, caused several hardships upon them. In addition, ignoring health concerns has resulted in numerous mental and physical ailments. Therefore, Afghan immigrants should not have to deal with the problems they faced in Afghanistan again in Iran.

The design of this software has made it possible to reduce the concerns of a large part of the Afghan society, especially newly arrived Afghans. A wide range of questions and legal problems of Afghans to start a stable life have been answered for different ages and groups, so that Afghans can be aware of the rights they have in Iran. For instance, when examining a part focused on videos tutorial aimed at enhancing the overall skills of Afghans, it was seen that by improving these talents, individuals may integrate into society, find employment opportunities, and experience a boost in self-assurance and self-worth.

2. Which aspects should be included in the mobile application design to efficiently meet the requirements of Afghan immigrants in Iran?

The majority of our intended audience consists of Afghan individuals who lack the requisite expertise to operate complex mobile devices. Therefore, the application must be extremely easy

to understand enabling users quickly obtain the desired information. Given the slowness of internet connectivity and the absence of internet access in certain isolated regions and camps, the application functions in both offline and online modes. Due to the prohibition of the iPhone in Iran, the application is exclusively compatible with the Android operating system. Furthermore, the application is available in two languages, specifically English and Farsi. The Persian language was designated for Afghan individuals, while the English language was chosen for immigrants from other nations. This decision was based on the similarity of immigration procedures and the potential benefits that immigrants from other countries can derive from this application.

3. Why is a mobile application a more suitable solution compared to other forms of technology (e.g., web platforms, SMS) for Afghan refugees in Iran?

When compared to other technologies, a mobile application is considered to be a more appropriate solution for Afghan refugees who are now residing in Iran for a variety of reasons. Access to information and services is substantially improved by the widespread use of cellphones among Afghan refugees in Iran, which makes the process of accessing information and services more convenient and efficient. Given that significant numbers of migrants have mobile phones compared to desktop computers, a mobile application is the most suitable platform for providing services to these individuals.

In addition, Afghans, who often lack or have restricted internet access, greatly benefit from the capability to use mobile applications without an internet connection. Mobile applications can offer vital information and services required by immigrants even without an internet connection, and once connected to the internet, the information will be promptly updated. Thus, this particular characteristic grants mobile applications a distinct position within the Afghan refugee community.

The concern of user-friendliness is particularly significant for our target community, which regularly possesses little digital literacy, as mobile applications provide a more effective and simple operation than websites. Additionally, notifications are a feature that is not available in

other technologies, such as SMS and USSD, that enables users to be informed of new services and updates.

Finally, mobile applications have the potential to deliver a wealth of multimedia information and interactive features which enhance the user experience and make it possible for Afghan communities to make more efficient use of services.

4. How does the use of ICT4D (Information and Communication Technology for Development) impact the overall welfare of Afghan refugees in Iran and what are the key factors contributing to its success?

The welfare and enhancement of the living conditions of Afghans in Iran are potentially influenced by the advantages of utilizing information and communication technology for development (ICT4D). The well-being of Afghans is improved by the availability of resources, including legal aid, health care, and educational resources, as well as other essential information, through ICT4D services. In addition to enhancing and broadening social networks that reduce isolation among Afghan immigrants, it equips them with professional training and employment prospects to access the Iranian labor market. Simple access, updated information, and user-centered design can address numerous requirements of the refugee community.

RQ1. Can the obstacles and essential requirements of Afghan immigrants in Iran be efficiently addressed through the design of a mobile application?

The successful implementation of a mobile application that addresses the particular requirements of Afghan immigrants in Iran has effectively addressed the obstacles and essential needs faced by these individuals. The implementation of this application has significantly reduced numerous challenges faced by Afghan immigrants, especially those who have recently migrated to Iran. Furthermore, the program provides comprehensive guidance on a multitude of critical facets of residing in Iran. The objective of the smartphone application is to improve the accessibility of vital information and services for Afghan immigrants, thereby empowering them.

In addition, it aims to facilitate their integration into Iranian society, make a positive contribution to their general welfare, and expand their prospects for a more promising future.



12. Future work

The current efforts have focused on identifying and addressing a significant portion of the fundamental demands of Afghan immigrants. It is certain that future iterations of this application will be able to address more aspects of the challenges faced by the Afghan community in Iran.

- 1- Enhancing public knowledge about issues related to discrimination.
- 2- Incorporating relevant forms and hyperlinks to access additional information and ease the workflow.
- 3- It is important to gather ongoing input from users in order to identify aspects where the application may be improved and further developed. Additionally, it is crucial to incorporate iterative upgrades to effectively tackle any arising obstacles or evolving requirements of the Afghan immigrant community in Iran.
- 4- Establishing a strong community of diverse groups of Afghans with varying talents and occupations in Iran, Afghanistan, and other global regions. This community is engaged in diverse fields, including medical consulting, career possibilities, housing, and other related areas.
- 5- Including an experience section that can be beneficial for many Afghan immigrant communities, consisting of Afghans residing in Afghanistan and Afghans living in Iran.
- 6- Implementing specialized training and skill development programs for Afghan immigrants to equip them for integration into Iranian society and the job market.
- 7- Add audio instructions and visual aids to support illiterate users
- 8- Considering the requirement of children who are under 15
- 9- Release the application in the biggest Persian android app shop, Cafebazar, at no cost.

13. Appendix

13.1 Technical section

The section under "Development and Application Design" offers a detailed explanation of the technical details involved in designing the mobile application for Afghan immigrants. Furthermore, we will go into the features of the applications, the framework utilized for development, and the programming language employed for the application. In addition, it provides a justification for selecting the Android operating system and highlights significant advantages such as its user-friendly design, ability to work without an internet connection, and support for multiple languages.

13.2 Software Characteristics

This application has been developed to display a collection of content, including text, images, and links to web pages. According to the investigations and considering different platforms, it was decided to develop this program as a mobile application in the form of an Android operating system. Among the reasons for this choice, we can mention the ease of use, the availability of mobile phones in most cases, the possibility of offline use, and the abundance of the target community.

We selected the native Android development framework and Java language from the several available frameworks for Android application development. Some arguments for using this framework over alternatives like React Native or Flutter include faster application execution, easy updating, interoperability with all Android phones, multilingual functionality, and day and night themes.

Furthermore, the selection procedure for developing Android applications involved choosing the native Android development framework and the Java programming language from a range of available options. There are several reasons why we selected this framework instead of

alternatives like React Native or Flutter. Some of these reasons include enhanced processing speed, quick update capabilities, global compatibility with Android phones, multi-language support, day and night themes, and more.

Property	Value
Application Frame	Mobile Application
Operation system	Android
Framework	Native
Programming language	Java

Table 26: Technical Characteristics of the Application

13.2.1 Application Content Structure

Concerning the storage of program information in offline mode, it was necessary to design a framework for storing and retrieving program data that possesses the following characteristics:

1. Capability to easily modify content, even without requiring technical expertise
2. Enhancing reading speed and optimizing performance
3. Possessing a well-organized and orderly arrangement.
4. The capacity to establish basic correlations between written works and visual representations
5. Fulfill user and developer needs
6. Support for content in multiple languages

In order to achieve this objective, we conducted an analysis of various techniques for saving content offline within the application. In this discussion, we will provide a concise overview of the three primary ways.


13.2.1.1 Store the Content in the Strings.xml File

When developing Android applications using the Native framework, there is a file called strings.xml that may be utilized to store textual content in a certain structure and in the XML language format.

This method involves the inclusion of a key and a corresponding value in each text. When utilizing texts, the true value of the text can be acquired by employing the matching key associated with the text. An advantage of this strategy is the ability to define multiple string files for various languages. By utilizing the key associated with the text, just the relevant text will be retrieved in the chosen language format.

Utilizing this approach may be an appropriate option for preserving program data because of its uniformity and capacity to work with many languages. However, the primary issue with this approach is the inability to consistently classify the content and accurately identify the photos associated with the posts in a straightforward manner.

```

1  <resources>
2   <string name="app_name">My Application</string>
3  <string name="post_list">Posts List</string>
4  <string name="language_button">فارسی</string>
5  </resources>

```

Figure 10: Sample strings.xml File

13.2.1.2 Save the Content in a SQLiteDatabase

The Android operating system and the Native Android framework have built-in support for the SQLiteDatabase. Therefore, utilizing the SQLiteDatabase is considered one of the most effective methods for storing and retrieving information.

SQLiteDatabase, similar to other relational databases, allows for the creation of tables and the retrieval of information by executing SQL queries.

Although this database has numerous benefits, it was not considered an appropriate option for this project. Several factors contribute to this limited choice, including:

- 1- The requirement for additional software to modify the database
- 2- It is necessary to transfer the database file to the phone's internal memory and perform migration while upgrading the content.

- 3- Avoiding the utilization of data writing functionalities in the database and only employing the database for information retrieval purposes.

13.2.1.3 Utilizing the JSON File

The Json format is a widely recognized standard for the exchange and storage of data in software. Given the extensive adoption of Json, there exists a multitude of libraries that facilitate the conversion of data from Json format to Java classes and vice versa. Some of the often used libraries in Android applications include Gson and Jackson.

This strategy allows for the structured and systematic storage and retrieval of data. Furthermore, Json's support of lists and objects allows for the organization of data and the inclusion of various content types, such as text paragraphs and graphics.

Another benefit of utilizing Json is its independence from external software for editing. Files can be easily prepared for use in the program using a basic text editor without requiring any specialized technological expertise. Furthermore, the ease of use and the ability to easily incorporate content into the software are additional factors that make this method very ideal for implementation.

To enable the multilingual feature in the software, multiple different Json files can be designated for use. Depending on the user's selected language or phone language, the corresponding file for the desired language can be picked.

In order to retrieve data from Json files, files written in several programming languages are stored in the assets folder of the application. When the program is executed, the JSON file corresponding to the application's language is read and transformed into a Java class using the Gson library.

```
{
  "title": "Master Your To-Do List with These Life Hacks",
  "coverImage": "image1.png",
  "paragraphs": [
    {
      "imageUrl": "",
      "content": "Feeling <a href=\"http://www.google.com\">overwhelmed</a> by your to-do list? Learn how",
    },
    {
      "imageUrl": "",
      "content": "Feeling overwhelmed by your to-do list? Learn how to prioritize tasks, create effective",
    }
  ]
},
```

Figure 11: The Information Relating to the Presentation of a post within the Application

This Json file contains data including the post title, main post image, and program paragraphs. Additionally, each paragraph has the capability to include both an image and text that are relevant to the content of the paragraph.

This framework establishes a consistent and scalable structure that enables the creation of various forms of written content and its subsequent publication.

Maintaining information	Advantages	Disadvantages
strings.xml file	<ul style="list-style-type: none"> - multilanguage - Ease of use 	<ul style="list-style-type: none"> - Not having a proper structure - Failure to maintain order of content and images
SQLite Database	<ul style="list-style-type: none"> - Being structured - High response speed 	<ul style="list-style-type: none"> - Dependence on software for editing - The complexity of receiving information - The need for migration in order to update the content
Json File	<ul style="list-style-type: none"> - Structuredness - Ease of editing - Simple support for multiple languages - Simple conversion to Java class 	<ul style="list-style-type: none"> - The possibility of problems in reading the content if the file is edited incorrectly

Table 27: Information Storage Comparison

13.3 Presents a Comparison of Several Strategies Used for Storing Information.

The program's stored information, including texts, colors, language, and more, is typically categorized into two distinct groups:

1. Content that remains unchanged or static - Static content.
2. Content that is constantly changing or updated – Dynamic content.

In this section, we will explore the process of understanding and generating data in both classifications.

13.3.1.1 Static Content

As mentioned earlier, the program's static content, such as the content list and the details of each content, will be saved in individual Json files for each language. These content repositories serve as the initial source for accessing the program's static content.

The static content of this program is exhibited in two activities. The `PostListActivity` activity is utilized for presenting the program content list, while the `PostDetailActivity` activity is employed for displaying the specifics of each item, including the primary image, title, and textual paragraphs and photographs.

After generating the Java class on the `PostListActivity` page, the content list is retrieved from the Json file of the specified language, and the `GridView` is launched.

The `readPostList` method in this class is responsible for getting the content. This method utilizes the `JsonUtil` class to interact with the assets folder and the Json files generated from the received Json content. By utilizing the Google Gson library, it converts the Json content into a collection of `Post` class objects. The resulting list is then returned to the `GridView` launcher method, which is responsible for initiating the user interface.

If a post is selected, the user is redirected to the `PostDetailActivity` page. The content of the post, obtained from the `Json` file on the previous page, is also transmitted to this page in order to provide the post's details.

The program receives the static content from the `Json` file and passes it to the application's classes.

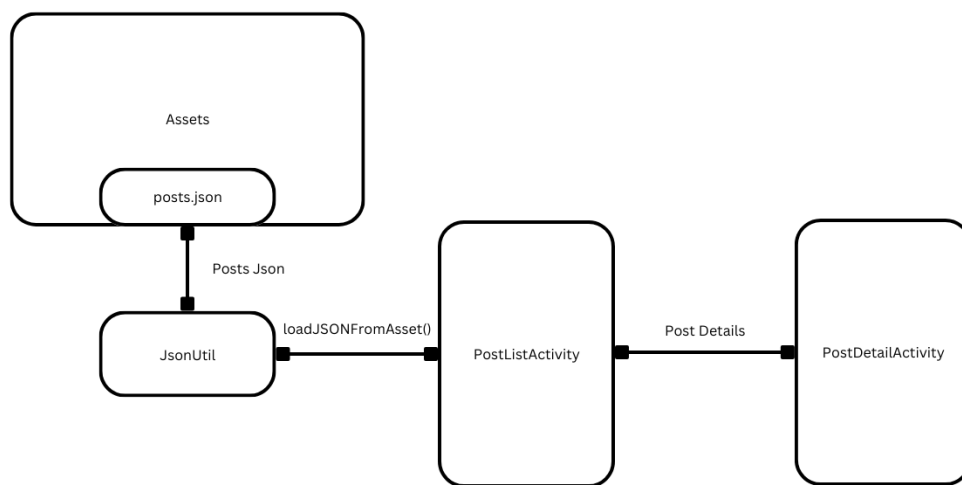


Figure 12: The Iteration of the Static Content

13.3.1.2 Dynamic Content

Because the content of this program is stable, numerous factors are irrelevant to the program's execution. Nevertheless, the selected theme of the phone and the programming language are variable aspects that can impact the program's execution.

To enable the program to switch between day and night modes and modify its theme accordingly, it is essential to provide the colors used in the program in two distinct files. This ensures that the program's user interface remains unaffected when the device's theme is altered.

Furthermore, to allow for optional program language selection, it is essential to provide content and user interface texts in two distinct languages. Additionally, the program's logic must be designed to allow for language changes while the program is in operation.

13.4 Enhancing Program Efficiency

A vital aspect of implementing mobile applications is optimizing and enhancing their performance. Mobile phones with limited hardware may experience slowdown and memory overflow if the device's resources are not fully utilized.

Due to the large number of photographs and content in this application, it became clear that the user interface needed particular attention to be efficiently optimized. To accomplish this goal, an effort was made to enhance the software's performance to the maximum extent possible. This was achieved by employing the Adapter design pattern of the RecyclerView widget and fetching photos using the Glide image loading library.

13.5 Explanation of RecyclerView Functionality

This widget, which is a vital aspect of the Native Android framework, enables the presentation of long lists with abundant content.

The RecyclerView widget efficiently manages views in a list by reusing existing views and updating their content as the user scrolls. This prevents the creation of duplicate views and eliminates the need to store all views and content in memory. As a result, scrolling should be smooth and not cause any lag or memory issues.

The app employed both the widget and the Adapter design pattern to present a list of posts and their respective paragraphs on the detail page. This was done to mitigate the excessive utilization of memory and mobile phone resources.

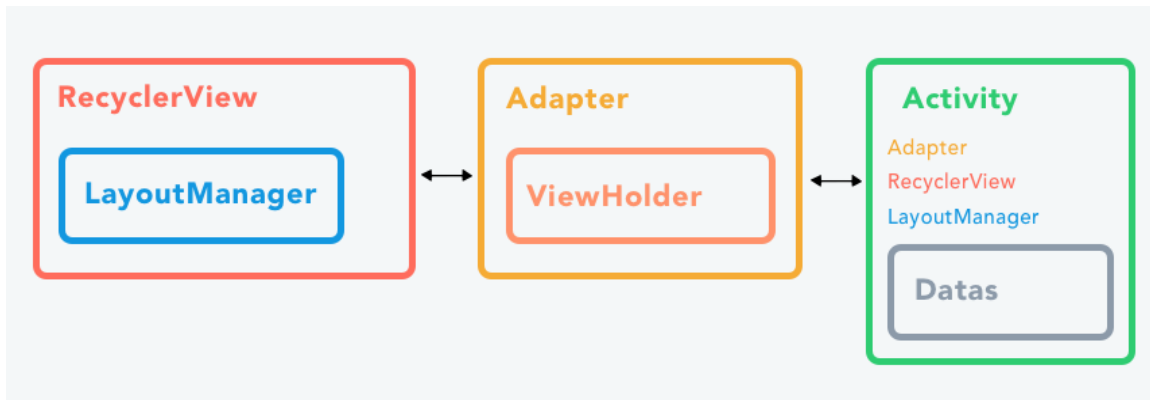


Figure 13: The RecyclerView and Adapter Architecture of the Application

13.6 Implementing the Application Font

The application utilizes the open-source font "Vazir" to enhance the visual appeal and presentation of the user interface. In Android applications, it is typically required to manually choose and enter the font for each text used in the program. Consequently, it is impossible to employ a singular font for the entirety of the application.

The Calligraphy3 Android library was utilized to resolve this issue. This library analyzes the widgets utilized in the program by means of the Application class and employs Interceptors from the ViewPump library to apply the specified font to each widget. By doing so, there is no requirement to manually indicate the font of the texts.

13.7 Instructions for Uploading Photographs

For each post, this program allows you to specify the main image and an unlimited number of images to be displayed alongside the text. As a consequence, a post may contain a significant number of images; therefore, it is critical that the images are loaded in a manner that prevents them from overwriting the device's temporary memory and causing scrolling delay.

The Glide library was utilized to load images in this program. This module enhances image optimization by adjusting it based on the page and image dimensions and subsequently loading the compressed image into the ImageView. This will enhance the image loading procedure.

13.8 Classification of Programs and Examination of Code Structure

In this section, we will evaluate the efficacy of the classes that were implemented in the application.

The classes of this application are organized into three distinct packages:

1. Data,
2. Presentation
3. Util.

13.8.1.1 Data

Program models have been implemented within this package. This program contains two Java models that are used to store information.

The Post class serves as a model for storing information about a post, containing the post's title, primary image, and list of paragraphs. Additionally, getter and setter methods are defined within this class to retrieve and modify the post information.

An additional function of the Paragraph class is to store data relating to the paragraphs of each post. Per paragraph in this class, there is one image and one text. Getter and Setter methods are defined within this class to retrieve and write paragraph information, respectively.

An additional purpose of the Paragraph class is to maintain information related to specific posts' paragraphs. Each paragraph in this course comprises a single text and one image.

In order to retrieve and manipulate paragraph data, this class defines the Getter and Setter methods.

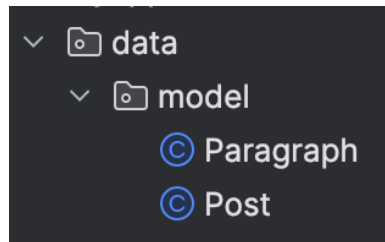


Figure 14: Data Layer Structure

13.8.1.2 Presentation

The presentation package includes the user interface layer. Activities, Adapters, as well as the connection of the user interface layer with the content of the program, are implemented in this program.

The package comprises two general features. The post list feature is designed to display a list of posts, while the post detail feature is intended to provide in-depth information about each post.

13.8.1.2.1 Post List Feature

This feature comprises the `PostListActivity` and `PostAdapter` classes.

The `PostListActivity` class, as the primary class of the program, has the responsibility of receiving and presenting the program's content as a `GridView`.

The methods that are employed in this class are as follows:

- 1) `initViews`: user interface initialization, language application, and page title definition.
- 2) `onCreateOptionsMenu`: Establishing a menu to define the language change icon in the program's action bar.
- 3) `onOptionsItemSelected`: respond to the selection of the language change menu item.
- 4) `etLocale`: Modify the language of the application.
- 5) `setupGridView`: Establish the content list.
- 6) `readPostList`: Retrieve the JSON file containing the list of posts.

Additionally, the PostAdapter class is accountable for the creation of ViewHolders for the content list as well as the filling of content within those List. It is the responsibility of this class to take the list of posts as its input and transform the elements included inside the list of posts into Views that can be reused within the GridView.

13.8.1.2.2 Post Detail Feature

This feature is responsible for displaying the specific information in every single post. This package also contains the PostDetailActivity and ParagraphAdapter classes, both of which we will analyze individually.

The PostDetailActivity class is tasked with presenting the graphical user interface details of each post. This activity comprises the visual representation of the post, the title, and the defined paragraphs within the post.

The methods that are utilized in this class are as follows:

- 1) initViews: UI element initialization.
- 2) fillData: Retrieve the page's content from the class opener intent and parse it.
- 3) fillParagraphList: Provide the Adapter with content via ParagraphList so that it can generate and present the list elements.

Additionally, it is the responsibility of the ParagraphAdapter class to generate the ViewHolders utilized on the detail page and to fill the paragraphs with content. The items in the list of paragraphs that are passed as input to this class are converted to recyclable views in preparation for their use in the RecyclerView. As previously stated, each paragraph includes an optional text and image as well.

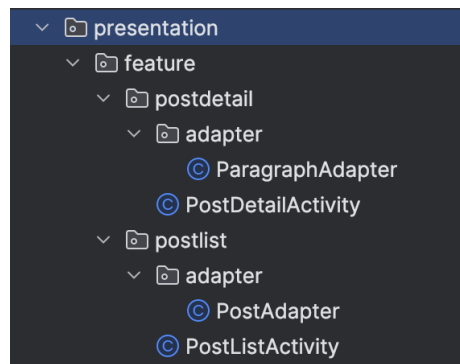


Figure 15: Structure of the Presentation Layer

13.8.1.3 Util package

This package comprises program supplementary classes that are utilized throughout the information reading process and also facilitate the modification of the program's language.

Two classes are included in this package: JsonUtil and LanguageUtils.

One of the methods of the JsonUtil class is loadJSONFromAsset. This method accepts the filename as input, retrieves the file from the assets folder, and performs a JSON conversion.

The LanguageUtils class consists of only one method. The isPersianLanguage method is utilized to determine whether the program's current language is Farsi. The language is determined by this method using the configuration parameter within the application context.

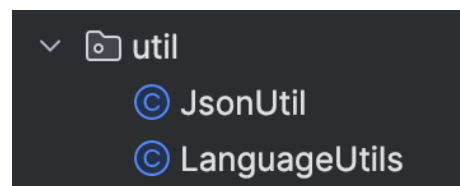


Figure 16: Classes in the Util Package

13.9 Application Build Specifications

In order to build the program on a personal computer, it is essential that the versions of the systems that are associated with the application be compatible with one another. The application versions are detailed in the table that follows.

Build Parameter	Version
Compile Sdk	34
Min Sdk	24
Target Sdk	34
Java Version	8
Gradle	8.2

Table 28: Specifications of the Application Build

13.10 List of Libraries Employed in the Application

Various libraries have been utilized in this project to exhibit fonts and images and parse the Json file, subsequently transforming them into Java models. The table below displays the names and version numbers of the libraries utilized in this application.

Library	Version
glide	4.16.0
gson	2.10.1
calligraphy3	3.1.1
viewpump	2.0.3

Table 29: List of Libraries used in the Application

13.11 Presenting Hyperlinks within the Application

To define the sources of the texts, a system was implemented to enable linking the program's content to other websites on the Internet. Within web pages and web applications, it is feasible to establish connections between the content of the site and other websites.

By default, Android lacks support for Markup features, making it unable to modify texts using HTML tags. By utilizing the `` tag in HTML, one can apply bold formatting to the text. Similarly,

employing the `<a>` tag enables the establishment of hyperlinks between certain sections of the website's content and external web sites.

To enable the linking of program content to online pages, it is essential to set the TextViews in the program and specify the texts in a specific manner that allows for the linking of content to web pages.

To configure the TextView, input the desired text into the TextView as depicted in the image below:

```
holder.textView.setMovementMethod(LinkMovementMethod.getInstance());
holder.textView.setText(Html.fromHtml(paragraph.getContent(), Html.FROM_HTML_MODE_LEGACY));
```

Figure 17: Configuring a TextView to Create a Hyperlink to an External Website

Furthermore, when working with textual content, it is necessary to utilize HTML tags to apply the desired website connection to the specific portion of the text that requires linking. To achieve this objective, similar to the HTML language, the hyperlink should be specified using the `<a>` tag and the href parameter.

```
"paragraphs": [
  {
    "imageUrl": "",
    "content": "Feeling <a href=\"http://www.google.com\">overwhelmed</a> by your to-do list?"
  },
  {
    "imageUrl": "",
    "content": "Feeling overwhelmed by your to-do list? Learn how to prioritize tasks, create effective"
  }
]
```

Figure 18: An Example of Creating a Link in the JSON File

13.12 Program's list of layouts

Native Android framework uses xml files under layout to display the application's user interface in activities. Also, in RecyclerViews and custom views, dedicated layout files should be used to display items and view the user interface.

The following table displays the available layouts in the program along with their respective applications.

Layout name	Usage
User interface of post details page	activity_post_detail.xml
The user interface of the list of posts	activity_post_list.xml
The user interface of each paragraph of text	item_paragraph.xml
The user interface of the post in the list of posts	item_post.xml
Button to change the language of the action bar	language_button.xml

Table 30: List of Application Layouts

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