STUDY ABROAD AGENT – AN ANDROID BASED MOBILE APPLICATION

A THESIS SUBMITTED TO THE GRADUATE SCHOOL OF APPLIED SCIENCES
OF
NEAR EAST UNIVERSITY

By
MANASSEH NDAKOLO SALAWU

In Partial Fulfilment of the Requirements for the Degree of Master of Science
in
Computer Information Systems

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**Approval of Director of Graduate School of
Applied Sciences**

Prof. Dr. Nadire CAVUS

**We certify this thesis is satisfactory for the award of the Degree of Masters of
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I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

This mobile application was developed for education purpose and it will only be used within the scope of this thesis, this is to certify that i will not gain any commercial benefits from this application.

Name, Last name: MANASSEH NDAKOLO SALAWU

Signature:

Date: 08/02/2021

ACKNOWLEDGEMENTS

To my parents…….

ABSTRACT

This study aims to develop an Android based mobile application to assist prospective students willing to study abroad especially in Northern Cyprus. Most of the students who wish to study abroad usually consult study abroad agents and pay them a huge amount for their admission. Most of these agents are already associated to specific higher education institutes in the countries which limits the study options for students. It is hoped that this system will be very useful to foreign students seeking to study abroad and with the help of this application, students will be able to apply on their own without any cost and these will help them a lot. Moreover, this application also consists an interface which make application process easier than ever before. Prospective students will be able to apply only with few steps and this will save their efforts, time and provide them broader options to choose from the suitable institute for their higher studies.

Keywords: Android application; admission assistant; application to study abroad; mobile application; study abroad agent

ÖZET

Bu çalışma, yurtdışında, özellikle Kuzey Kıbrıs'ta, eğitim görmek isteyen aday öğrencilere yardımcı olmak için Android tabanlı bir mobil uygulama geliştirmeyi amaçlamaktadır. Yurtdışında okumak isteyen öğrencilerin çoğu, genellikle yurtdışında eğitimle ilgilenen, yol gösteren acentelere danışırlar ve eğitim kurumu bulma ve kayıt olma işlemleri için büyük miktarda para öderler. Bu temsilcilerin/acentaların çoğu, belli ülkelerdeki belirli yüksek öğretim kurumlarıyla ilişkilidirler; bu da öğrenciler için eğitim kurumu seçeneklerini sınırlar. Bu nedenle, geliştirilen mobil uygulama, başvuru sürecini hiç olmadığı kadar kolaylaştıracak arayüze sahip olduğundan aday öğrencilere yalnızca birkaç adımda yurtdışında özellikle Kıbrıs'da yüksek öğrenimleri için uygun eğitim kurumu seçebilmeleri için geniş seçenekler sunacaktır. Ayrıca, seçilen eğitim kurumuna klolayca başvurabileceklerdir. Geliştirilmiş olan mobil sistemin, yurtdışında eğitim almak isteyen yabancı öğrenciler için faydalı olacağı ve bu uygulama sayesinde öğrencilerin hiçbir ücret ödemeden kendi başlarına başvuru yapabilmelerine yardımcı olacağı umulmaktadır.

Anahtar Kelimeler: Android uygulama; başvuru kabul asistanı; yurtdışı eğitim başvurusu; mobil uygulama; yurtdışı eğitim acentesi

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LIST OF ABBREVIATIONS

IDE: Integrated Development Environment

IT: Information Technology

SDK: Software Development Kit

SDLC: System Development Life Cycle

UI: User Interface

UX: User Experience

ICT: Information Communication Technology

CHAPTER 1

INTRODUCTION

This section of the study presents a brief introduction about studying abroad trends, its demand and need. It also examines the problem statement leading towards the need of school finder mobile application (EDULAD). Moreover, the major aim of the study and its significance is also discussed.

1.1 Background

Study abroad programs in higher learning institutions are gradually becoming popular. Many students have realized the value of an all-rounded educational system that promotes a holistic training due to its diversity. Many students wish to have such an experience because it aids them to attain critical skills and attitudes that are superior when compared to those who study domestically (Sameer, 2017). In the recent past, there has been increased emphasis in studying abroad (Oosterbeek & Webbink, 2011). Between 1972 and 1973, the United States of America received 146, 000 foreign students. The number of foreign students would further escalate to 974,926 by 2015 (Institute of International Education, 2015). International students make great economic contributions to their host countries besides higher learning institutions (Paltridge et. al., 2012). An Association of International Educators in the United States (NASFA, 2015) reveals that in the 2014-2015 academic year, international students were responsible for the $30.5 billion chagrin to the economy.

Just like many other countries, Northern Cyprus has experienced reforms in the educational sector characterised by emergence of more universities. Many of these universities employ a wide range of marketing metrics to strategically attract international students in the higher educational levels. Notably, universities in Northern Cyprus have been on the run to gain a competitive edge in the dissemination process geared towards attracting more international students. In line with this, there has been a significant increase in the number of students seeking for higher education in Northern Cyprus higher educational institutions. Owing to the influx of international students in higher learning institutions in Northern Cyprus, there has been a serious competition to attract students among educational institutions. Notably,

agents influence the choice of potential students. Notably, students do not have the liberty to make a choice. Agents dominate the international student recruitment market. Agents are made up of multinational firms to individual operations. They play a critical role in placing international students in universities in Northern Cyprus. They also influence student decision over which institution to join in their pursuit for international education (EAIE, 2018).

Mobile applications today are one of the most utilized resource today. It doesn't matter what you do, your age or status, mobile phones has become an integral part of our day to day life. For example, online shopping, communication app, notes, reminder and many more. Therefore, this project is based on creating a mobile application specifically for prospect students looking forward to pursue their higher education in Northern Cyprus. Hence, this application named "EDULAD" is not just aimed to help prospective students find schools abroad and make application just with one click but it will also give students broad options to choose school of their choice or what suits their career choice better. The application will only consider Northern Cyprus School for this project.

1.2 Problem Statement

The British Council launched a study where they examined 90,000 prospective international students for a period of five consecutive years (Oosterbeek & Webbink, 2011). Their findings suggest that 40% of students who wished to study in the United Kingdom sought the services of a recruitment agent. This translated into a 10% rise in 2007 (PRC, 2015). There are some countries where agent utility levels are exceptionally high. For example, 45% of Chinese students rely on the services of recruitment agents. India and Nigeria follow the suit with 43% and 30% respectively (Li wang, 2016). Students and their parents may turn into using the services of agents to search for study abroad programs due to poor knowledge of the educational systems of their target countries. Some may still seek for these services regardless of whether they have attained a placement or not to (Frauenberger et al., 2012). Many may feel inadequate to complete formalities such as the visa application process. Hence, they result to seeking for the services of an agent.

In general, this translates into 30% of all the students from countries that are not members of the European Union that join UK based higher learning institutions (Vincenzo et al., 2015). It is imperative to note that a whopping 92% of higher learning institutions in Northern Cyprus utilize agents for purposes of international student placement. In line with this, there has been a significant increase in agents who offer placement services considering the increase in international students (EAIE, 2018). Thousands of individuals looking forward to study abroad and for the sake of this they contact agents and spend lot of money. In some cases, if individuals are capable enough to gather information online, they search and make applications to each school that takes a lot of their time because they must create accounts on each website, create new profile etc.

1.3 The Objective of the Study

Following are the main objectives of this project:

- Creating a platform, where students can apply to as many schools with only one profile setup.
- To save students money and time.
- To avail more school options to apply in Northern Cyprus.

1.4 Importance of the Study

A few of relevant application have been seen on the Android platform, however none of them provides the functionality of admission process with single click. The current applications only support specific school; however, this application provide broader countries, schools and subjects and with only one profile setup.

1.5 Overview of the Thesis

The study consists of 5 chapters:

- Chapter 1 is based on the introduction on the need and importance of this application. It also presents objectives and significance of this project.
- Chapter 2 is a brief explanation of problem statement to support the objectives of this project along with review of related literature.
- Chapter 3 a detailed overview of application development techniques and methodology used for survey analysis.
- Chapter 4 demonstrates the entire process, use and functions of the developed application.
- Chapter 5 finalizes the entire project with a comprehensive conclusion.

CHAPTER 2
RELATED RESEARCH

This Chapter focus on related scholarly literature that link how the initiation of a study abroad android application will ease the stress of this students.

2.1 Related Research

The popularity of study abroad programs for higher institutions cannot be overemphasized. Students are becoming more aware and value general educational systems thereby promoting a holistic environment due to diversity. Students look forward to such experiences because it enhances their skill acquisition and general attitude which puts them at the fore front of their mates studying domestically (Sameer, 2017).

Studying abroad can give students a rich, diverse and cultural background as it exposes them to a whole new different world. Ironically with the thirst students have for studying abroad, they hardly have the liberty of choosing an institution for and by themselves due to the domination of agents in the educational system. They play a critical role in placing international students in universities.

According to Shahid, Shafique and Bodla (2012), the choice of the right institution can be a big tussle for most students, especially those who wish to study abroad as there are a variety of things to consider. There are some vital factors to put into consideration when choosing the right institution in a foreign country. Normally, these factors are evaluated prior to choosing a particular institution. These factors can vary from fees to location, weather, quality, exchange rates, environment, safety and so many more.

In McDonnell's (1995) and Zuker (2006) opinion, students pay particular attention to the reputation of the supposed school in terms of academics, the size of the campus, the location, scholarships availability, atmosphere, admission rules and criteria. While Hooley and Lynch (1981) stated six different factors from the above mentioned as university's prestige, distance from home, date of universities establishment, academic staff reputation and so on. According to Gorman (1976), the most important factor is the location size as students are more attracted to beauty. While Liên, Hòa and Anh (2015) said that the most important

factors are people's influence, universities characteristics and communicative effort from the universities.

Norman and Williams (1998) state that during the process of choosing a university, students attach special importance to the universities ranking and reputation, recognition of certificates, awards received, extracurricular activities and so on.

After all this, the pressing question is how students get all this information without being physically present at all these institutions to enable them make a right choice. This is where educational agents play a major role. However, we are also going to be looking at the detrimental part of these.

Recently the use of university agents has been the most common way through which students get linked up with schools of their interest. According to Pimpa (2003), the educational agents are now regarded as mentors based on their knowledge in the educational field. They render different services ranging from as providing information (application requirements, language courses, or tuition cost), counselling on choices of courses, document preparation airport pickup, home-stay arrangements, and the completion of accommodation applications (Zhang & Hagedorn, 2014). Due to the perceived urgency attached with studying abroad, combined with lack of adequate knowledge and experience, most customers (students) will rather go through marketers (university agents).

According to Krasocki (2002), most of the ways educational agents operate are not visible on campus or to the prospective students nor to the school in which they recruit for. Therefore, it is most likely that the universities in question are unaware of the actual methods these agents go through to recruit students. Both the institutions and the students rely on hearsay from the agents when making decisions.

Read (2012) said that very few of these agents work for recruitment companies while majority of them work as individuals. The disadvantage of this is that it is difficult to trace these agents in cases of fraud and disclamation. As well as the distance, challenges and cost on the part of the agent which prompts outrageous fees.

According to Zhang and Hagedorn (2014) the disadvantages and risks that comes with going through educational agents cannot be overemphasized and this puts this proposed android application in a better position to serve better. One of which is the fact these educational agents sometimes tend to become business brokers thereby posing as a huge financial risk. In terms of reputation, the risk is high because the universities have no control over what

information is disseminated by the agents. There is high dependency on these agents by both the universities and the students in questions, hence giving room to disappointments caused by vulnerability on the part of the clients (Bergen, Dutta & Walker 1992).

As more universities tilt towards an international standard, study abroad is becoming an avenue of preparation for graduates in the now globalized society (Green and Siaya, 2005). Due to the increased competition and importance of study abroad programs, an Android applications have become a welcome idea to the students because it gives them full autonomy and control of the entire process.

It is frequently debated that the needs and wants of customers, in this case the students should be met and a cordial relationship between the customers (students) and the marketing executives (schools) should exist to maintain a successful business relationship (Svensson & Wood, 2007). Then let us imagine a scenario where the students do not get to meet any of these marketing executives one on one and do all their bidding and selection process via a well put together android app.

In order to guarantee the satisfaction of the students, this study abroad android app acts as the channel between the students and the actual institution, providing all necessary information and avenues from start to finish of the entire process (I e) from sourcing for an ideal institution to the point of admission (Gomes & Murphy, 2003). Hence, the android applications acts an online word-of-mouth communication channel through which information and marketing of institutions is done (Austin et al., 2012).

According to Gracz (2016) and Bilińska-Reformat (2014), mobile applications are created to be problem solving and to meet needs due to un satisfaction, they are solution driven and meets the needs of users and giving tangible results. They also procure fast, efficient access to information, a comparison of the ways of satisfaction the needs and are cost effective. Most mobile applications come from the direct needs of the consumers or under influence of external factors. Mobile devices are majorly used by a person for communication, access to information, businesses, entertainment, and location purposes, locate user or in this case find a school that matches all your needs. It makes easy the process of seeking and finding with firsthand information and the option of choices. Mobile applications satisfy users on different levels of pyramid of needs, allowing them feel safe and in control of their decisions, enhancing their self-reliability, sense of belonging and participation and improving their general knowledge about things as crucial as the choice of a school. The

application is built with the aim of designing clear cut requirements for and from the desired universities, by so doing saving time and funds. It also gives students full knowledge of every stage of their application to admission process as it involves a step by step procedure on every sector

Through this application, universities get to upload the particular information they wish to and directly reach out to the prospective students thereby saving cost, the possibility of false representation and information, delay in response. The application also gives one the laxity of choosing what university amongst the various universities which have registered on the application. As of the time of this study, no study has been published in regards to mobile application that has been developed to meet this need neither has there been any app of this kind, hence the reason why this study is being executed.

CHAPTER 3
THEORATICAL FRAMEWORK

This chapter is consist of detail literature on relevant studies and cases done previously in support of study objectives and the theoretical framework.

3.1 Studying Abroad

Studying internationally is a product of the wave of globalization. It has changed national interdependence and mobility of people. Other factors that have greatly contributed to this trend include but are not limited to growth and development of information communication technology (ICT). Besides, commerce across borders has become a common phenomenon; thus, allowing for exchange in almost all sectors. In line with this, globalization has shaped policy in international higher education discourse. Besides, it promotes interdependence. Higher educational institutions are; thus, tasked with the responsibility to be competitive in the face of global interdependence (Emnet & Martin, 2015).

Many countries view international students as being critical source of revenue for their economies. Some countries such as the United States of America have study abroad programs as being part of their strategy to become effective and relevant in the age of globalization. Besides, it is a source of their economic revenue (Harryba, Guilfoyle & Knight, 2011). Australia is the other country that has a keen emphasis on international students as an economic master-plan. Mariginson (2011) observes that international education is one of the major sources of revenue for the Australian economy. It is the fourth biggest source of revenue fortune for Australia. According to the Australian Education International (2011), $18.6 billion in 2009 emanates from international students. Paltridge et al. (2012) notes that fortunes from international students contribute towards the economy besides the educational system.

Study abroad program gives students an opportunity to be in a different continent or country. It exposes them to foreign culture. This explains the ever-growing population of

international students (OECD, 2011). There has been a gradual growth in the population of international students on an annual basis. It has hiked up in four times in the recent two decades (OECD, 2011). Canada boasts of 45, 090 international students (UNESCO Institute for Statistics, 2012). According to the Institute of International Education (2013), 283,332 Americans were international students in 2010/12 (Institute of International Education, 2015).

3.1.1 Study Abroad Benefits and Motivation

Studying abroad gives students a rich experience both culturally and academically. The aim of this essay is to relay experiences of international students. It also discusses the role of technology in study abroad programs through an analysis of semi structured interviews. The essay discusses the cultural experiences of these students and reflects about their lives as international students and how studying abroad impacts on their lives in general. The essay also discusses the cultural experiences as impacts of international studies to students. Notably, the number of international students increases on an annual basis (Jane, 2015). Although studying abroad has some drawbacks and barriers, the benefits are worth the risk. The benefits are related to revenue and choice of duration (Norton, 2008). There are support networks in a campus setting that allow students to share their experiences (Norton, 2008).

There are some academic and professional benefits of international studies. These include but are not limited to academic achievement, acquisition of foreign language skills, increased returns on investment, and career development (Parsons, 2010). International studies have some intellectual benefit that may not be universally found in domestic study programs. These include reduction of fear, better self-understanding, and disposition of critical reflection, bouleversement and re-calibration of lives (Freedman, 2010).

In terms of cultural interaction and growth, one becomes more knowledgeable, and changes their opinions regarding their home country. Besides, it exposes international students to various cultures because many international institutions record a higher level of cultural cosmopolitanism (Parsons, 2010). Lastly, it builds one's competences in a wide range of aspects. Studying abroad offers one competencies in various cultural realms in the face of globalization (Desai Trilokekar et al., 2009).

3.2 Recruitment Agents and Issues Faced by Students

More students are travelling abroad for study related purposes. This explains the popularity of agents. This does not culminate into a direct correlation to market growth. Instead, it illuminates of the overreliance to a third party to facilitate study abroad programs (Yojana, 2014).

3.2.1 Use of Recruitment Agents

Many international universities rely on recruitment agencies to achieve part of their objectives (Vincenzo et al., 2015). Although they spend a whooping £60 million plus an annual commission, they do not benefit from professional support and advice from these agents. A comprehensive study was conducted in 2013 to inform the industry's use of agents and to share experiences. During the study, proprietors of educational institutes, and groups of universities that do not rely on agents and interview were used to collect data to determine how universities relate with agents (Vincenzo et al., 2015).

It became evident that many providers of higher educational services rely on agents. In fact, there is an increasing level of dependence on agents for institutions in every annual intake. The market is dynamic, wide and competitive. Hence, institutions have resulted to use of agents. They brand them as being critical tools and part of their strategic plans (OBHE, 2014). Many universities depend on agents because they are strategically committed to recruiting international students for institutions. Universities take advantage of the increasing demand of study abroad programs to garner as many students as possible in every intake. Hence, they have a recruitment centre or international office within the institution that offers information to international students. Universities recognize the contribution of recruitment agents for both students and universities (Holly, 2014).

Many universities use agents as their representatives as well as tools of communication. They increase the popularity of less popular higher learning institutions. They aid them to recruit international students. Besides, they are responsible for promotion of the institution

through satisfaction stories and accounts of students that they have recruited. Universities are not oblivious of the risks associated with working with agents. Hence, they carefully evaluate the agents before signing up some new agents. Although there are perceived benefits of using agents as marketing tools, universities ought to ascertain of their professionalism and credibility.

3.2.2 Risk and Challenges of Consulting Agents

There are countries where visa regulations confuse many applicants. Besides, there are many negative connotations associated with immigration policies. Hence, many students have resulted to using agents to help them gain placement in international institutions. The decision to use agents is made by the students who perceive it as a way of lessening the associated risk of failure (John, 2014).

It is imperative to note that use of agents is risky and expensive to all the parties as well as the higher education sector in general (Vincenzo, 2013). There is not much literature about government control or governance to control the sector's recruitment. Therefore, there are many agents who conduct this exercise because there are no appropriate government controls to reduce the risk.

There are several categories of risks of using agents as discussed below. First, it is challenging to classify the reasons in line with their level of harm due to close interrelation among them. Other concerns include but are not limited to fraud, scandal and dishonesty. This is risky to the intuition's financial stance besides the legal realm. Besides, they have a significant impact to the institution's reputation as well as integrity (David, 2012). Agents solicit for money from sponsors and agents. Hence, there is the risk of fraudulent activities especially where underhand transactions are involved.

Mentioned below are most common challenges or issues student experienced with recruitment agents:

a) **Fraud or Scam**

- There has been a case where a parent made a report of fraud from a recruiting agent after sending his daughter for further studies abroad. The parent had given a false account of her working condition. Sadly, the daughter is experiencing problems abroad on account of this and the agent is issuing threats (MEA, 2018).

- There is a crop of agents who have a very bad reputation from faking documents and fraud in some countries. Notably, China leads as many of its agents are associated with lies where they over-promise potential students, Yang told University World News (Yojana, 2014).

b) **High Fee**

- There has been a wrong market assessment to determine the best agencies. Agents may serve as consultants about investment in a certain sector where not much research exists to inform industry's trends. Loss of time and money are major risks associated with this.

- The GOV.UK website stipulates that agent charges range between 2.5 and 15% for commission.

- In an incident of a student complaint, the student in question stipulated that the recruitment agency charged exceptionally high fees for their services. Ideally, the fees are not reasonable (MEA, 2018).

c) **Fear**

- Reputation is an important factor in an institution's identity because it is a crucial aspect of the entire marketing process. Its brand identity is highly reliant on the institution's reputation in the educational sector. Hence, the repercussions are negative if the agent threatens the reputation of the institution either intentionally or accidentally (John, 2014).

- Not many parents are aware of how they can ascertain of the credibility of a recruiting agent such as government registration (MEA, 2018).

- Yang Shuan is a senior consultant at Beijing Overseas Study Abroad Service who believes that students express distrust for agents. Although the service has been endorsed by the Ministry of Education, complaints emerge.

d) Misleading

- One student complains of a recruiting agency that had promised him a job. However, the agency advised that he should have a student visa which would be converted to a work visa at a later date.

- Another student levelled a complaint arguing that a recruiting agency gave them false information that misguided them about the working conditions while studying abroad. Unfortunately, the terms of the contract were different from the information from the agent. Besides, the student parted with a fortune for the agent to place him in the job (MEA, 2018).

- It is imperative for higher learning institutions to be wary of the increasing rates of fraud because agents conduct several activities such as travel arrangements, visa applications, mark sheets, references and language test results (Iona et al., 2014).

- There should be a comprehensive conversion process that verifies documents succinctly to avoid instances of fraud. The verification would do away with the need to have original documents of potential students sent across the globe.

Although this continues being a sensitive social issue, various cultures view corruption differently due to its different roles in the society and business.

3.3 Use of Mobile Application among Generation Y

The mobile application industry has experienced a rapid growth in the recent past. New applications emerge on a regular basis with their perceived benefits. Several studies have confirmed that Gen Y is home to a huge pool of users of mobile applications. In line with this, Gen Y demands more informative applications that address their utility needs (Jay et al., 2014).

Apps are the major features of mobile devices. In the recent past, there has been a significant increase in the number of mobile applications. The case is attributed to the recent technological advancements. Hence, many scholars have sought to conduct scholarly

studies about technological advances. For instance, computer aided data analysis packages are common in research (Goble et al., 2012).

New applications continue to emerge. Besides, ease of access has made them universally available to many due to the popularity of internet enabled cell phones such as smartphones and tablets. Cloud computing as well as availability of Wi-Fi has further promoted access to various mobile apps. These soft technologies have made it possible for instructors as well as researchers to synchronize information from mobile apps.

Lobo (2011) observed that Indian app consumers from October 2010 grew by a whopping 108% from 2008. Besides, the sale of smartphones has increased by 294.9%. Rasheed confirms that 90% of companies in the list of fortune 500 companies did not have apps for their clients. This translates into a huge opportunity for the mobile app market in the future.

Gartner research (2012) notes that location based services, social networking apps, Mobile search and utility apps are more likely to experience a bigger demand for purposes of productivity, entertainment, and sharing files. Therefore, they are more likely to be embraced in the future depending on their utilities. The above research concludes that the preference of mobile apps depends on the country. However, all the researchers agree that Gen Y has a huge user base for mobile apps.

3.3.1 Demand of Mobile Based Applications

This research paper has presented an analysis of the preference of mobile applications among the youth in line with the Gartner Research's categories. Besides, it explores some of the apps that are synonymous with Generation Y and ones which they will prefer in the future. 2017 was deemed as being the mobile era. Handheld devices such as tablets, phablets and mobiles have entered the communication industry and are here to stay (Medium, 2018).

The use of mobile technologies has grown substantially since the emergence of smartphones. It also promoted the emergence of many mobile applications. Smartphones are common among younger demographic groups. Adolescents aged between 13 to 17, 73% with 58% of them downloading mobile apps (PRC, 2015). Heavy mobile phone users

possess are more knowledge, participate more and maintain robust interpersonal network. Besides, they maintain relationships and networks with people in their social system and those outside their social system (Suki and Suki, 2007).

Notably, consumers view smartphones as being multi-utility devices that can be used for purposes such as calling, texting, gaming, socializing and downloading their preferred applications; thus, contributing to behaviour shift and change in status and lifestyle (Shin, 2012). For many growing institutions, having a robust mobile strategy includes having a mobile app. notably; students tend to prefer an app over the website. This crop of students has risen by 31% this year. Besides, the percentage of colleges that own an app has risen from 13% in 2011 to 28% in 2012 (ICEF, 2012).

3.3.2 Tracking the Increasing Use of Mobile Apps in Recruitment

Student's expectations towards an application study abroad (ICEF, 2012):

- They tend to prefer countries and cities which resonate well with their preferred career path and their personal interests.
- Besides, they consider the academic program they would prefer to enrol in and their future prospects after graduation.
- They also consider the kind of experience they would wish to attain besides the culture of the host country.

Students applying to study abroad are a relatively nervous lot because they are not well versed with many things about the host country. They may also be confused over what is right for them. Besides, concerns over financial wellbeing chip in because being in a foreign country is not equal to being in one's home country. Language skills also concern many students who wish to study abroad because their first language may not be necessarily the first language in their host country.

Students often express concerns over whether their considerations feature in those of educators and agents. ICEF Monitor reports that the 2012 E recruiting practices report from Noel-Levitz (2012) shows that 52% of students depended on the mobile app or their tablet

to navigate through the college or university website. Notably, only 39% of US four-year public universities have an optimal website that is ideal for mobile browsing while private universities account for 35% (Goble et al., 2012). It is important to note that use of mobile apps to support recruitment is gaining moment as stipulated by the eclipse desktop access by 2014 (Medium, 2018).

CHAPTER 4
SYSTEM ANALYSIS

In this chapter, the EDULAD application will be discussed in line with its features and architecture. Everything describing how the application was developed will be discussed in this chapter. This application depicts a real-time university finder that helps prospective students seeking to study abroad find their desired university of choice.

4.1 Software Development Life Cycle

The methodology used in the development of these application, was a software methodology known as Waterfall model. The stages used is known as software development life cycle, it is a sequence of activities carried out doing the development and testing of the software, there are V shaped, iterative, spiral and agile models all of which are some SDLC models used in developing software and application, in the application the Waterfall was used for the following reasons:

- The model pays full attention to departmentalization and administrative control,
- Uncomplicated as well as uncomplicated,
- This application can be easily supervised because of its unbending nature,
- Each step is completed in turns.

The Waterfall has its advantages and also it has its disadvantages, some of them include. In the final phase of development, it is almost impossible to change and return aspects of previous stage:

- No developed system is delivered before the end if the SDLC.
- The waterfall models are usually utilized for some of the following reasons and under situations like these. This model was implemented for the same reason.
- The product definition is constant.
- Technology is grasped.
- Requirements are defined and fixed.

- The undertaking is brief.
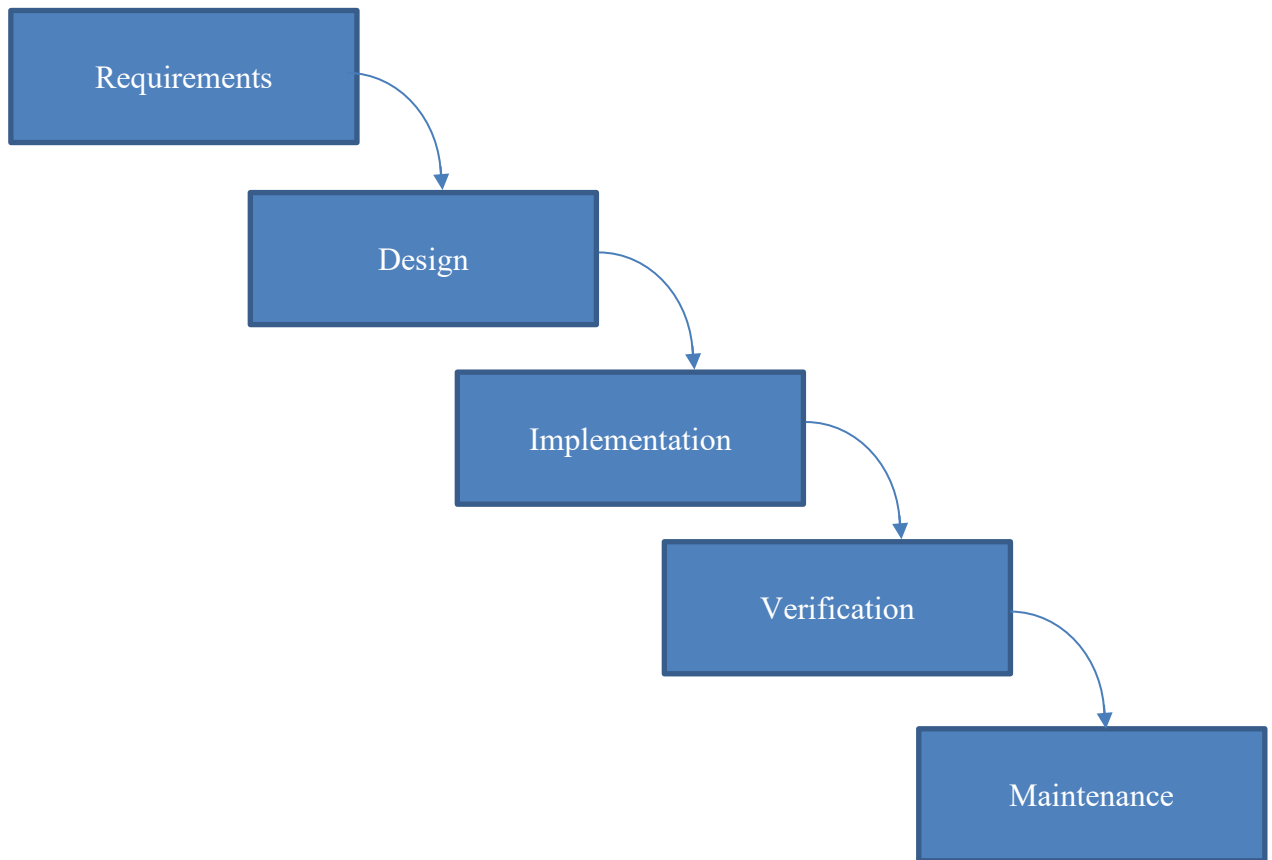
Figure 4.1: Waterfall Model

Figure 4.1 is the picture explanation of waterfall model. All the stages in the application were developed based on Waterfall method and were classified in the type each project as follows

4.1.1 Project Planning

This is the stage that entails all discussion to which all the stages of the waterfall model is carried out, it is normally carried out by the whole team.

4.1.2 Requirement Definition

The developer of these application and his supervisor came up with these to help students looking for schools in Cyprus easier for them and

4.1.3 Design

The following tools were used in developing this application:

- Smartphone
- Adobe flash
- Scripting layer for android
- Firebase Cloud Storage
- SPSS

4.1.4 Maintenance

The application was also further tested by some experts and their observations were added to make the application perform as required in the plan.

4.2 System Architecture

The architecture of the system provides an in-depth information of the application and shows how the various feature of the application are all connected. An application such as these which is designed to enable students apply for admissions need not be complicated but very straightforward so as to be easily understood and very intuitive to the user.
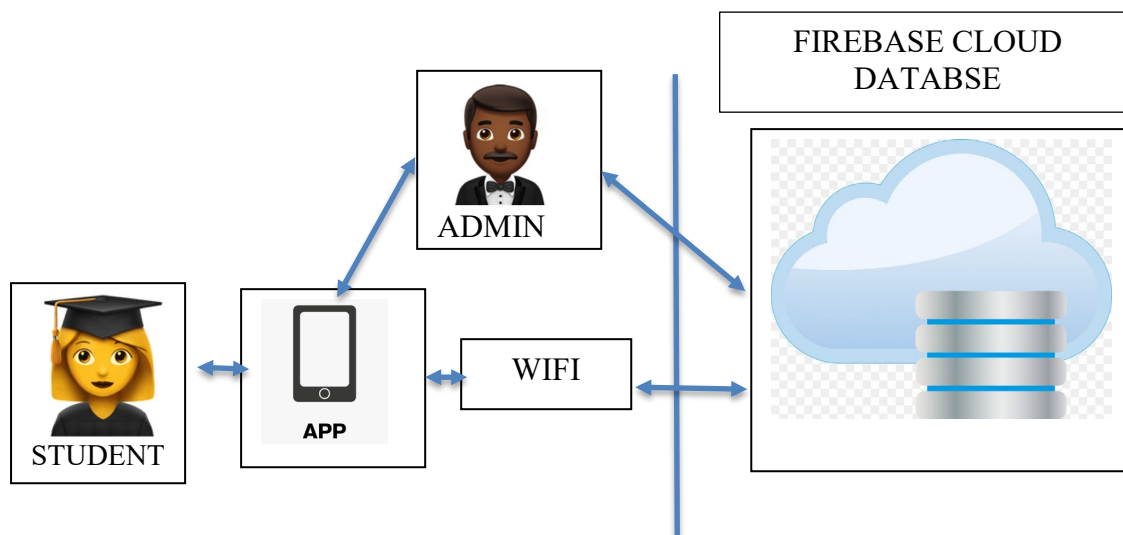

Figure 4.2: Developed system architecture

Server Side: After the student submits their application, an email is immediately sent to the admin letting the admin know that a new application has been made. The administrator logins into the database and accesses the information submit by the student. The database used for the developed application is Google firebase, this was selected due to the easy integration into mobile application. The firebase provides real-time connectivity to the developed application, whatever is modified on the app, immediately takes effect on the app.

Client Side: This is the student area, where the student gets to interact with the developed application and submit university application. The developed application needs internet connectivity in order for it to connect to the database.

4.3 System Description

The application works with Firebase. As soon as the user logs into the application, the application connects with the database, the Firebase database provides a real-time update of data with the application. When the user submits the application, a notification mail is sent to the admin, informing the admin that an application has been started. At the same time the documents uploaded by the user is also sent to the firebase database where the admin can download the data for review.

The application is designed to be as user friendly as possible. From the figure below, it shows a start page that directs you to the login page and sign up for the app. The user has the option to either sign up using their Facebook or google account and also to sign up using their email account details. An email is sent to the user notifying them of their sign up if done successfully. From there the next screen is the home screen where the user is asked to choose the program they intend to study and also to upload their document which is to be reviewed by the admin.
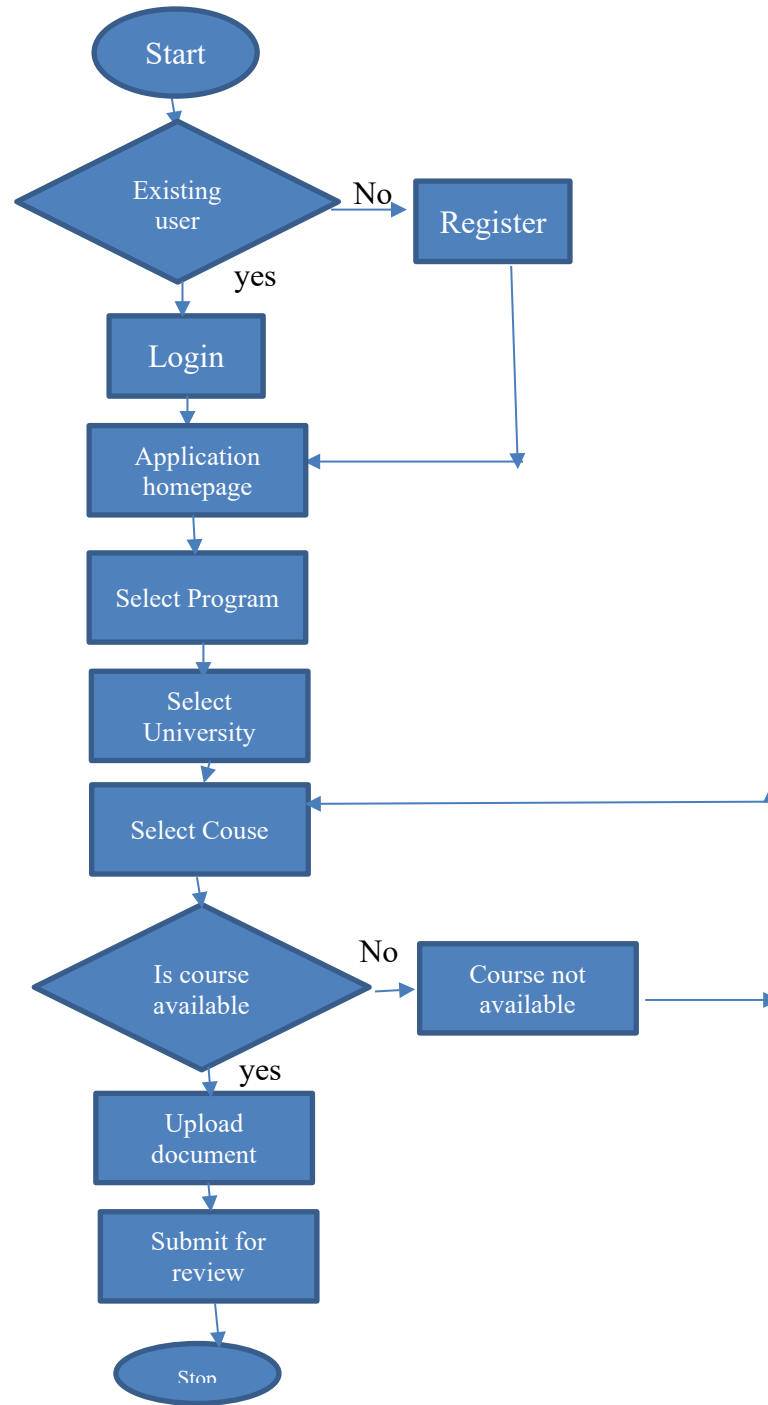
Figure 4.3: Flowchart that shows the flow of the application

One of the things that makes the program unique, is its access to the google firebase cloud service which provides real-time database access, the firebase cloud service is very friendly and intuitive, making it easy to effect changes Realtime from the database to the app.
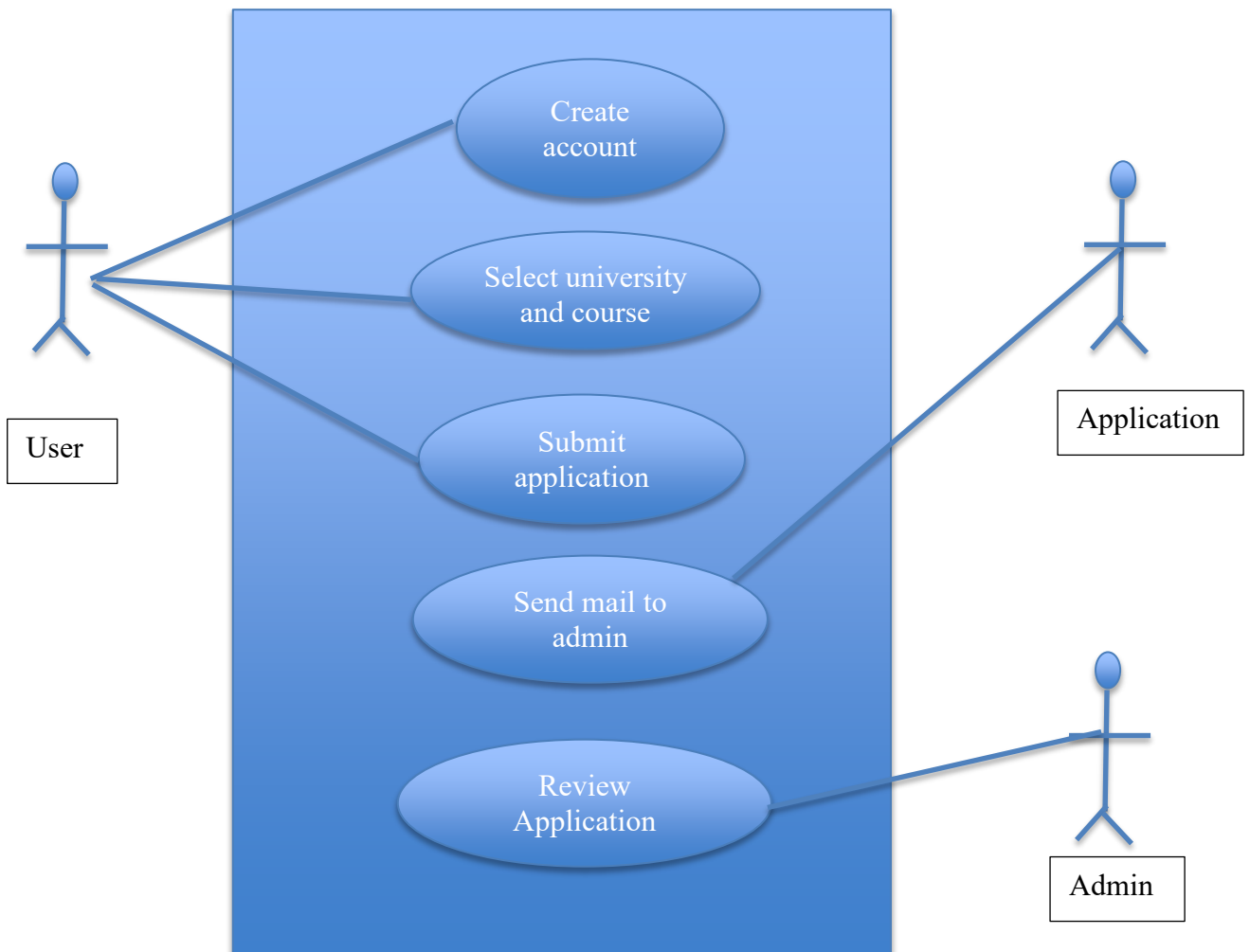
Figure 4.4: Use-case diagram of the developed application

The use case diagram above shows how the various actors interact with each other and components in the application. In this case the user is the student that intends to gain admission to the university, the student is able to create account, using either their google account or Facebook account, once the account is created, he can submit application, once application is submitted, the app immediately sends an email notification to the admin,

informing the admin that an application has been submitted. After the application has been submitted the admin then reviews the admission and processes it.

4.4 Target Category

This system is designed to assist prospective students seeking to study abroad, fid universities with ease. The app development is geared towards acquiring information from the student and using this information to help determine if universities are available that offers the program that they desire and at the same time help collect and send their information in a seamless manner. A detailed literature has been reviewed to understand the need of this application. Furthermore, market search has also been done to find similar existing applications and analyse features that will distinguish this application than others. Application has been designed and developed in 2 months period.

According to Beky (2016) an earlier step to build a successful android application is to develop a market research plan. Market research helps in discovering market need and demand, type of consumer, and competition. It helps to create a better application with distinct functions and features.

4.5 Specification of Device

In order to ensure that the application runs effectively, there needs to be a foundation on which the android app will effectively function. Nowadays there are various applications which allow the use of Android applications. This application was built to be used on Android 4.0.4 and later versions. This means that any device that can support this android platform will be able to run the application effectively. For the application to run smoothly and effectively, it needs access to the internet so access to a WIFI technology or GSM / HSPA is very essential.

4.6 Features of Application

In order to be able to submit documents and find universities using the application, the mobile app needs access to the internet. The size of the application is light with an apk file size of 7.5MB, installation of the app on your mobile phone is relatively fast. ensure that the application runs effectively, there needs to be a foundation on which the android app will effectively function. Nowadays there are various applications which allow the use of android applications. This application was built to be used on Android 4.0.4 and later versions. This means that any device that can support this android platform will be able to run the application effectively. For the application to run smoothly and effectively, it needs access to the internet so access to a WIFI technology or GSM / HSPA is very essential.

4.7 Application Database

Firebase was used as the database for building this application. The Firebase real-time database is a NoSQL cloud based database. This database helps developers build high quality apps. It uses JSON(JavaScript Object Notation) format to store its data, this format doesn't use query to insert, update or delete its data. All clients connected to it share one instance and they automatically receive updates when new data are inserted.

4.8 Application Design Elements

A good application design needs to consider various elements, mentioned below are some requisites that was taken into consideration while designing the application

4.8.1 Age Group

For this study students between ages 17 to 35 were targeted, as these ages of people are most likely to use mobile application and are willing to study abroad. Beky (2016) in this regard stated that age is an essential factor to be considered while designing a mobile application.

4.8.2 User Interface (UX)

The reliability of an app depends on the users' experience (UX). The application was designed in such a way that makes it very intuitive and easy to understand by anyone, special care was given in designing the interface because a good UX is what differentiates between successful and non-successful apps. Users expect ease of use, fast loading time, and delight of use from a mobile app. Hence, one of the major decisions before seeking for an app is to consider the UX. The design is not the most important thing in an app but an essential component of product strategy (Nick, 2018).

4.8.3 Self-Evident Navigation

Notably, features and content is not important if there is no platform through which users can access it. The following are some of the rules that was implemented to guide the process of navigation (ICEF, 2012):

- **Don't hide it**: Hidden navigations such as those that are gesture driven was avoided because more often than not, many users will experience problems with finding it.
- **Consistent navigation**: The interface was designed with a specific standard for navigation. In the design of the application, it was ensured to Communicate the current location. This is to enable users to be able to identify the current location for successful navigation.

4.9 Application Development

4.9.1 Android Studio

Android Studio refers to the official Integrated Development Environment (IDE) for purposes of app development and this is what was used in the development of the application. It is based on the IntelliJ IDEA. IntelliJ has a powerful code editor complete with developer tools. The Android Studio has many features that allow one to become more productive when building many more android apps (Android Studio, 2017).

4.9.2 Programming Language

Java is the programming language used in the design of this application. It is a common programming language for many android applications. In this case, the Android Software Development Kit (SDK) is preferable. Java language is a product of Sun Microsystems. It is an object-oriented language that develops android in java language. User testing is conducted to determine any error or functional impairment, stability, security and performance tests. The app's ability may be evaluated through installing it in different mobile devices.

4.9.3 Duration of Application Development

The development duration for the application was between Oct 15 and 31st Nov 2019. It took approximately 45 days to build this application. Most of the time was contributed in graphics design, content design and coding.

4.9.4 Application Testing

To test and evaluate the qualities of the application, first the ability of the application was evaluated by installing it in various mobile devices and then user testing has been done. To determine the errors in aspects of functional requirements of the mobile application following tests have been done (Guru99, 2019):

- **Functionality Test:** To ensure each integrated feature is working as determined functionality test is important.
- **Usability Test:** This is an end user testing to evaluate if user has any difficulty in using application. It ensures the application is flexible and has user friendly interface.
- **Performance Test:** This is all about application speed, stability, programming, and responsiveness. This ensures the reliability of the application usage.
- **Security Test:** To ensure that application is free from all type of vulnerabilities that can lead to risk of data theft or application manipulation.

CHAPTER 5

IMPLIMENTATION

This chapter provides a brief exploration and navigation guide of the developed study abroad agent mobile application.

5.1 Start Page

Before the user is able to use the app, the user must have an android phone and install the application, once the application is installed, the icon would be found amongst the menu and then the user can click on the icon. Once the user clicks on the icon, the welcome page of the application is the first page where a welcome message displays the application intro to users. Users then will be required to sign up in case of a new user or sign in if already signed up. The Figure 5.1 shows the actual welcome page from the designed application.

- Login with Facebook: this is a simple way to help users easily sign up with the app without going through the stress of entering their details, their account details is easily synchronized with their Facebook account and then the information is sent to the app database

- Login with Google: the user also has another option of choosing to login with their google account and just like the Facebook option, the app immediately synchronizes with the google account to retrieve the users details for quick and easy sign up.

- Login with email: in a case where the user probably doesn't want to login with the google of Facebook account, the user can then choose to enter their details manually.

- Already have an account: In the case the user is an existing user, the user can just click this button and login directly
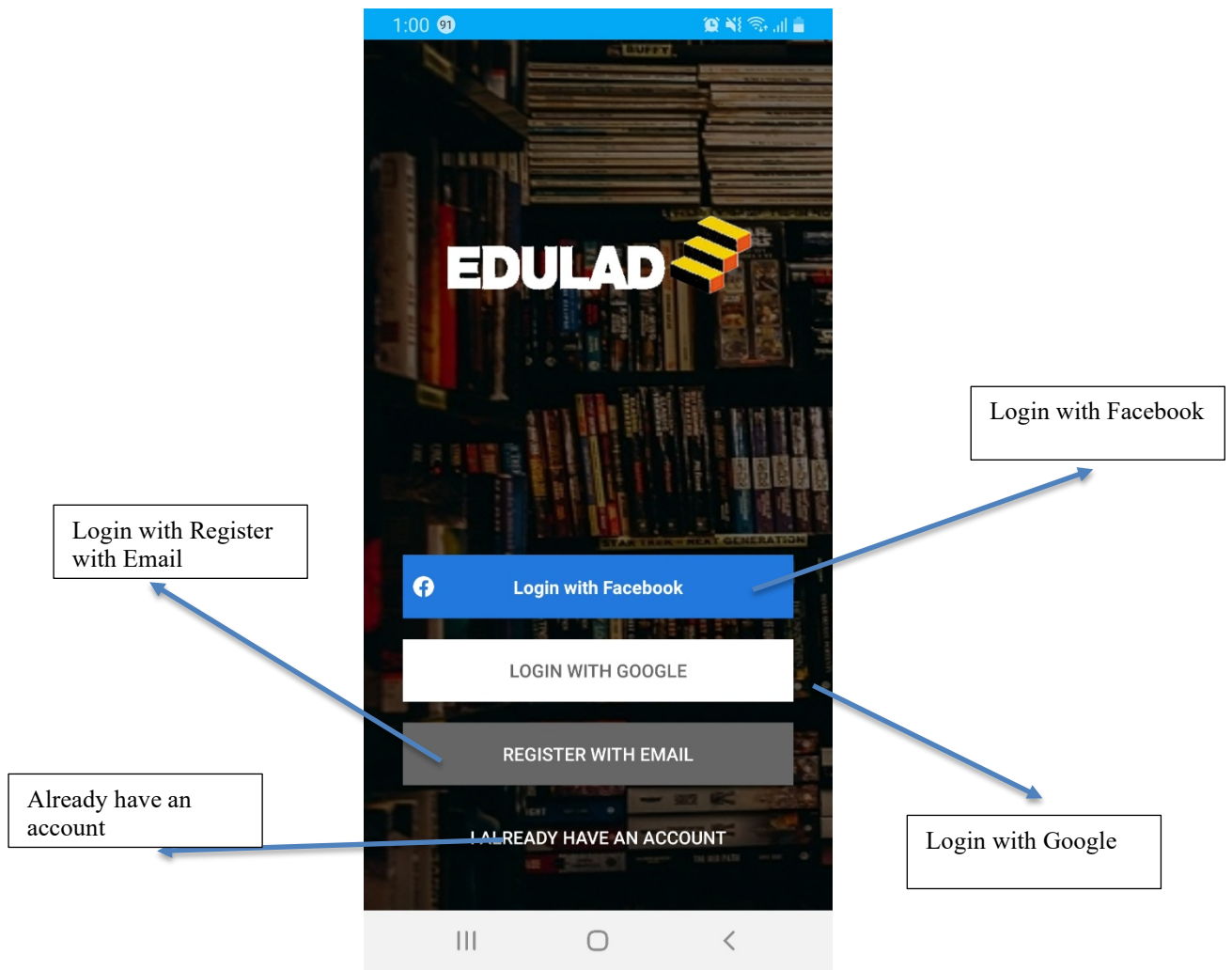
Figure 5.1: Welcome page

5.2.1 Home Page

After sign up or login user will be taken to the home page, the home page gives the user the opportunity to start the admission process by selecting the degree of choice. The user has the option of choosing from either associate, undergraduate, masters of PhD, depending on the degree the user selects, the mobile application carries out an AND command to crosscheck the degree with the next commands the user selects.
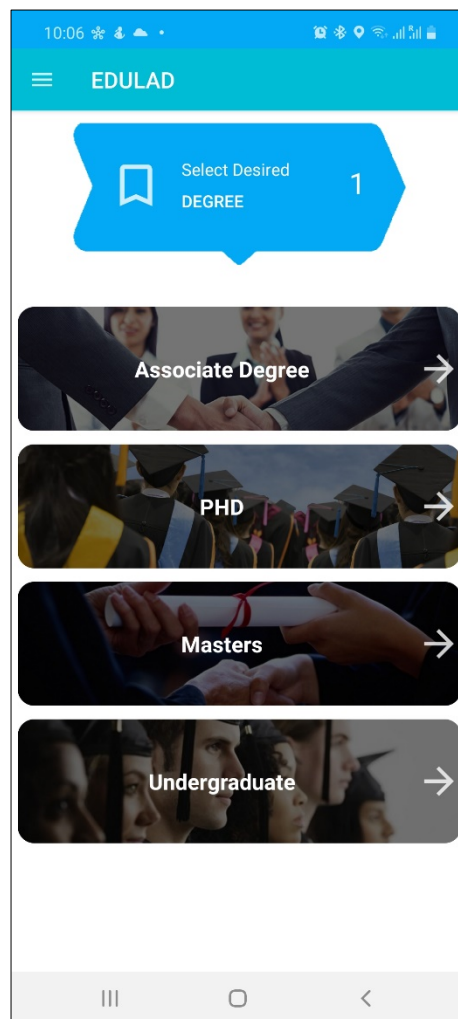
Figure 5.2: Home page

5.2.2 Program Selection

Once the degree has been selected which the user intends to study, the application takes the user to the next screen to select the program the user intends to study in, based on the choice of the user, the application takes the user to the country selection page
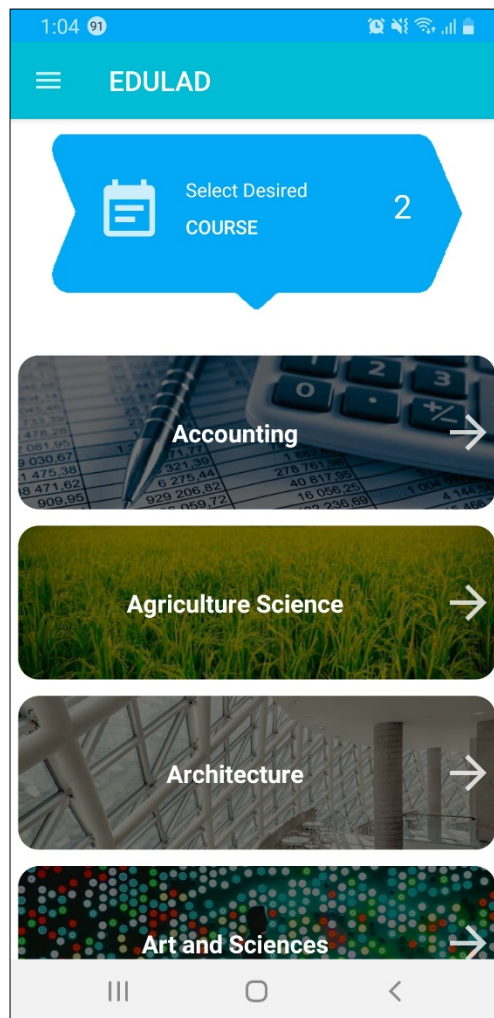
Figure 5.3: Program selection page

5.2.3 Country Selection

The next screen gives the user the option to select the country of intention, for now the application only gives the option to choose between Turkey and Turkish republic of Northern Cyprus.
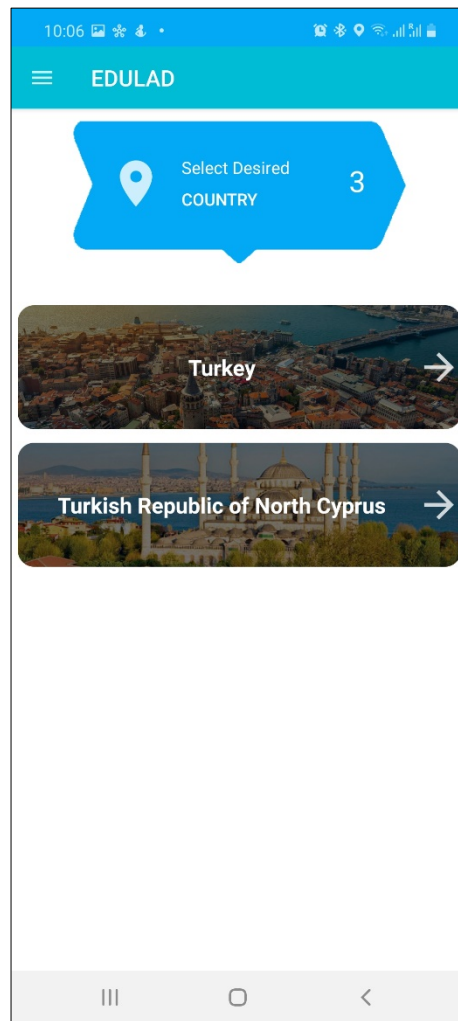
Figure 5.4: Country selection page

5.2.4 University Selection

Based on the country selected, the application populates and presents to the user a list of universities available in that country that the user can choose from.
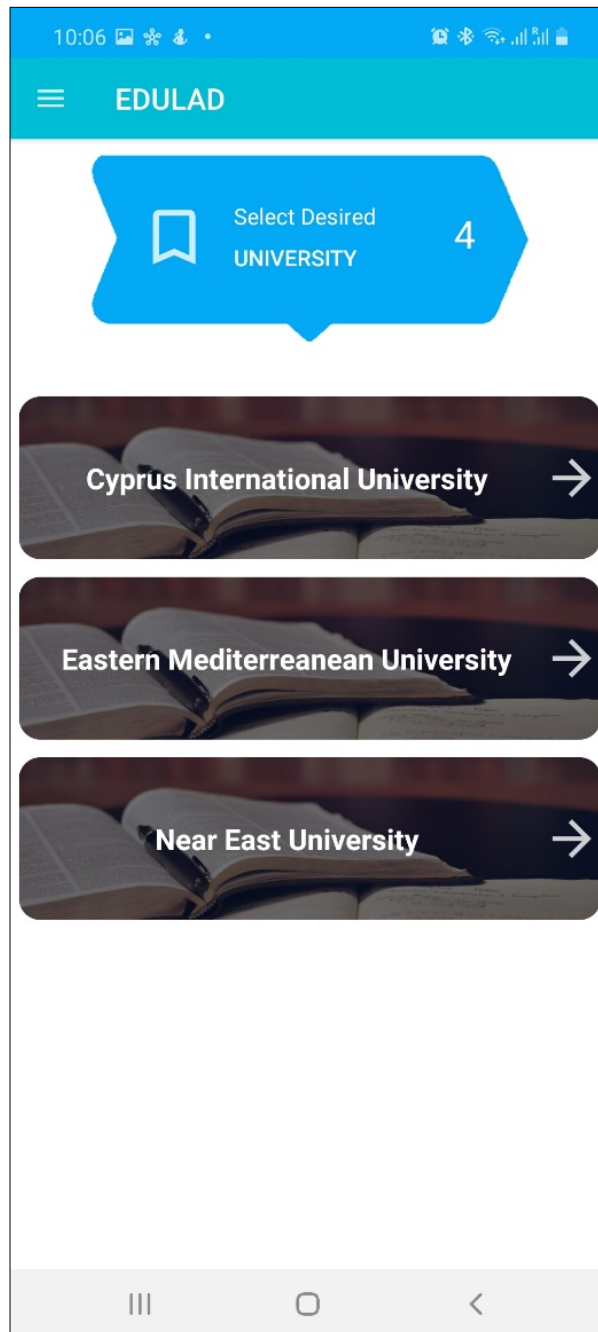
Figure 5.5: University selection

5.2.5 Course Selection

The next screen that comes after the user selects a university is the course selection screen, the user then selects the course intended to study, the application cross references this selection with the database, if the course is available at that university in that program and degree, the user can go ahead and upload required documents but if the course is not available, the application informs the user that the selected course is not available.
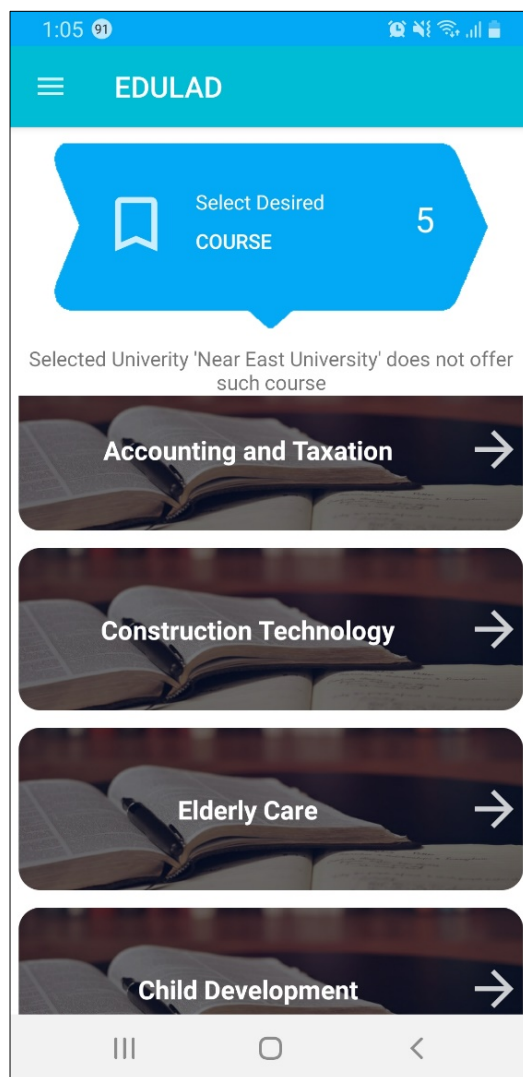
Figure 5.6: Course selection

5.2.6 Result

After the user has made all the selection, the application runs the user's selection with the database to find out if the course selected by the student is offered by the university, if the course selected is not offered by the university, the application informs the user on the unavailability of the course, but if the course is available, the application takes the user to another screen, prompting the user to upload their documents.
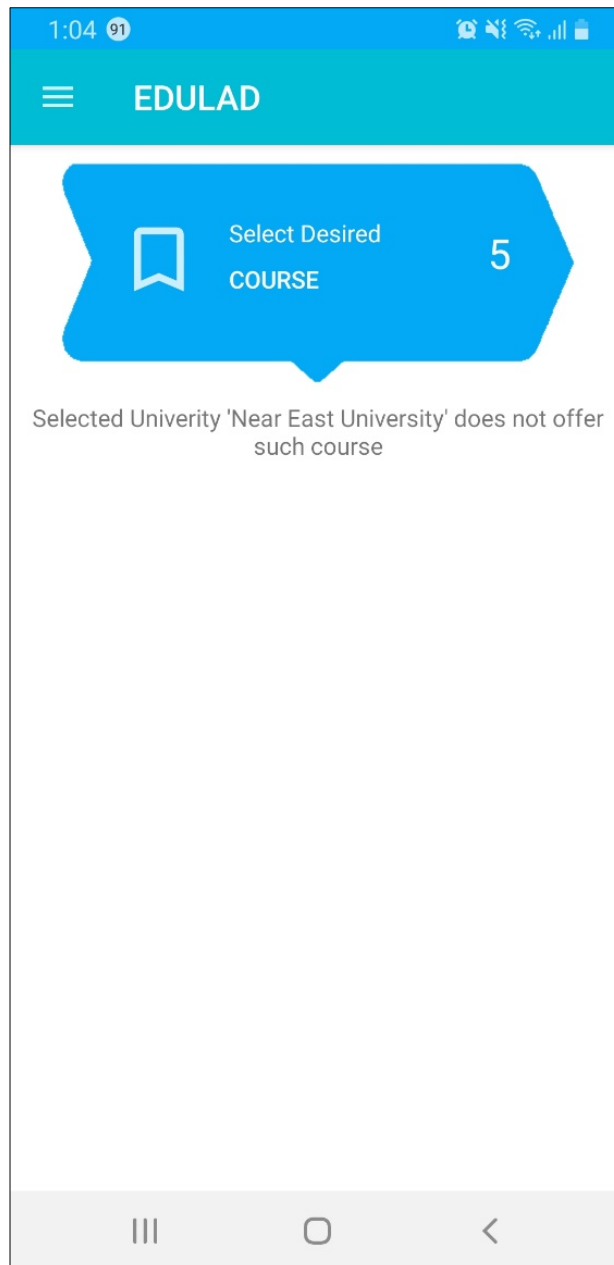
Figure 5.7: Page showing selected course is not available

5.2.7 Document Upload

Once it has been confirmed that the courses the student requested for is available in the university of choice, the application gives the user the option to upload some required document necessary for processing the admission
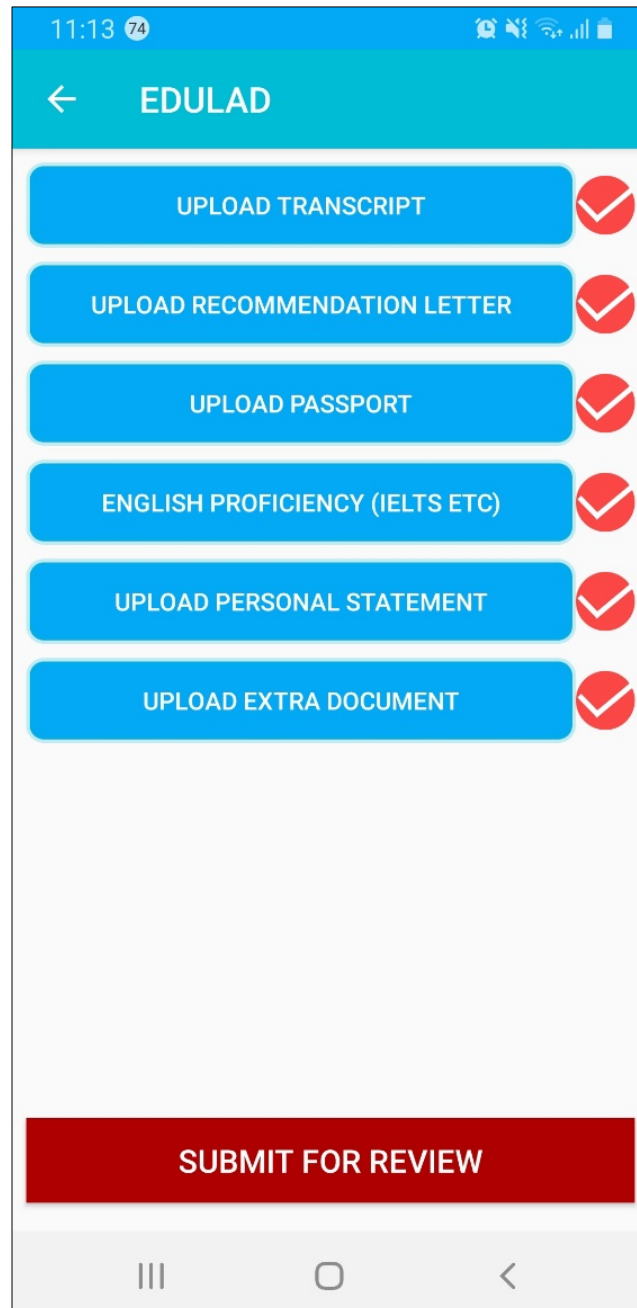
Figure 5.8: Document upload

I summary after the user selects the degree of choice the app takes the user to the next page as shown in Figure 5.3 which allows the user to select the program of choice, once that has been selected, the application takes the user to the next page which gives the user the option to select the country of choice. As of this moment the user can only select Turkish Republic of Northern Cyprus but subsequently other countries will be added eventually. Once the user selects the country the application takes the user to the next page to select their university of choice as shown in Fig. 5.5, this enables the application to check if the course selected by the user is offered in that particular university, if it is not currently being offered, the application notifies the user that the selected university does not offer the course as shown in Figure 5.7. However, if the program is being offered by the university, the application takes the user to the next page where he gets to upload his documents to be reviewed by the admin.

5.2.8 Contact Page

The Contact page allows the user to be able to communicate with the a. This allows the user make inquiry and get clarity on areas of concern while using the application.
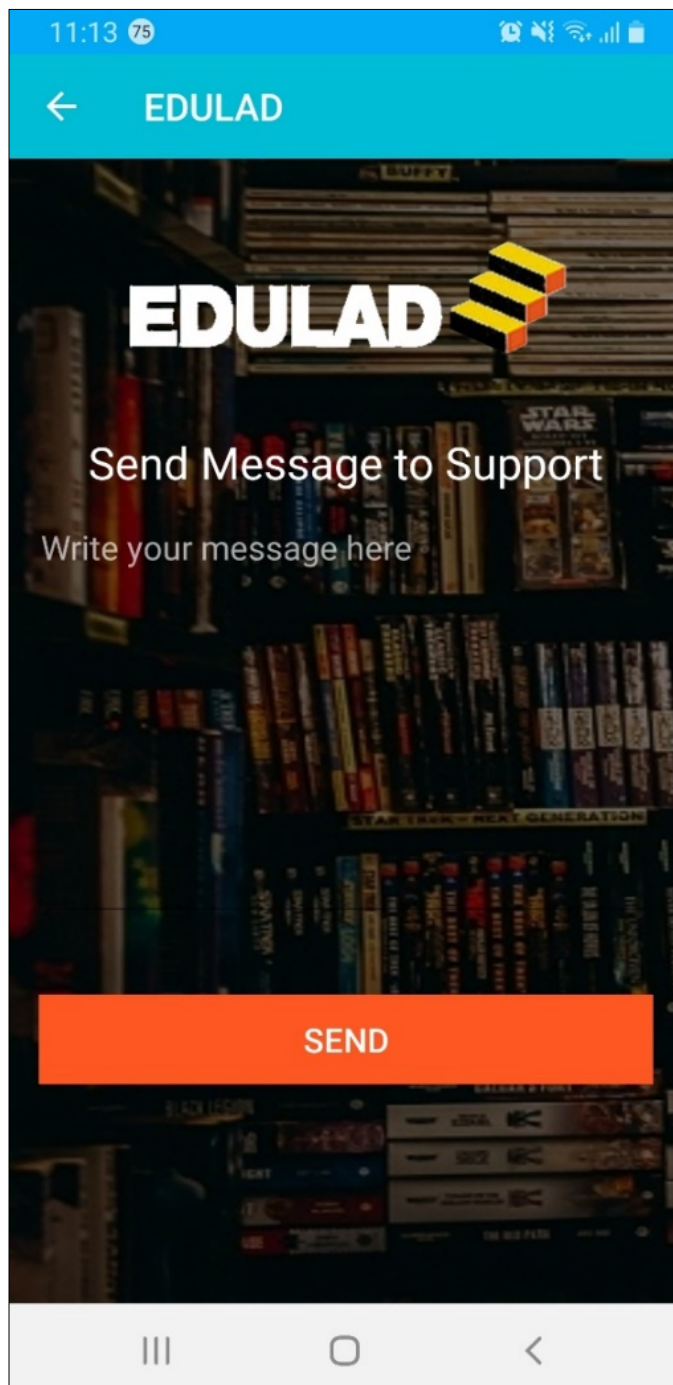
Figure 5.9: Search page

CHAPTER 6

CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

This chapter ends the study with final remark and also discusses future recommendations.

6.1 Conclusion

Studying abroad for higher education is one of the trends that is never getting old. 70% of any generation prefer to study abroad. Most of the prospective students willing to study abroad relies on their parents to find schools and the parents themselves have to rely on agents in this matter to help them get the schools. As mentioned in the literature review of this study, prospective student or their parents who lack the knowledge or have less information about the procedures mostly becomes victim of fraud. It has been noticed they have been either charged with lot of commission or been misguided. Using agents is always either risk based or money consuming however, some students who have enough knowledge and confidence usually search online for schools and make applications themselves. Therefore, the aim of this study was to create a mobile application that provides a broader study option with no limitation, provide authentic information, helps students apply directly with one profile setup and redirects all applications directly to the particular school.

Based on all study literature and application survey it has been concluded that prospective students prefer to find easiest, authentic and cost-effective way to find a school to study abroad. Use of mobile application which does not just provide them global study options but also assist them to make their admission directly to the schools without using the agent. Consequently, this developed mobile application can help students providing accurate and broad options, saving cost and time and protection from the fraud.

6.2 Limitations and Recommendations

Time duration was the biggest limitation here, due to short time period not all universities in North Cyprus were inserted into the app. Also, the application consists on limited range countries, hopefully with later versions more countries and schools will be added. In future more information can be added to the application, such as updates on review process can be indicated in the app as the agents review application. A different scientific methodology such as mediating or moderating role of application ease and other functionalities can be used in future.

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APPENDICES

APPENDIX 1

SIMILARITY REPORTS

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MANASSEH NDAKOLO SALAWU

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APPENDIX 2

ETHICAL APPROVAL DOCUMENT

NEAR EAST UNIVERSITY

ETHICAL APPROVAL DOCUMENT

Date: 10/10/2020

To the Graduate School of Applied Sciences

For the thesis project entitled as "Study Abroad Agent – An Android Based Mobile Application" the researchers declares that they did not collect any data from human/animal or any other subjects. Therefore, this project does not need to go through the ethics committee evaluation.

Title: **Prof. Dr.**

Name Surname: **Nadire Çavuş**

Signature:

Role in the Research Project: **Supervisor**

```java
package android.support.v4.app;

import android.app.Notification;
import android.os.Binder;
import android.os.IBinder;
import android.os.IInterface;
import android.os.Parcel;
import android.os.RemoteException;

public interface INotificationSideChannel extends IInterface {
    void cancel(String str, int i, String str2) throws RemoteException;

    void cancelAll(String str) throws RemoteException;

    void notify(String str, int i, String str2, Notification notification) throws RemoteException;

    public static abstract class Stub extends Binder implements INotificationSideChannel {
        private static final String DESCRIPTOR =
"android.support.v4.app.INotificationSideChannel";
        static final int TRANSACTION_cancel = 2;
        static final int TRANSACTION_cancelAll = 3;
        static final int TRANSACTION_notify = 1;

        public Stub() {
            attachInterface(this, DESCRIPTOR);
        }

        public static INotificationSideChannel asInterface(IBinder obj) {
            if (obj == null) {
                return null;
            }
            IInterface iin = obj.queryLocalInterface(DESCRIPTOR);
            if (iin == null || !(iin instanceof INotificationSideChannel)) {
                return new Proxy(obj);
            }
            return (INotificationSideChannel) iin;
        }

        public IBinder asBinder() {
            return this;
        }
```

```java
public boolean onTransact(int code, Parcel data, Parcel reply, int flags) throws
RemoteException {
    Notification _arg3;
    if (code == 1) {
        data.enforceInterface(DESCRIPTOR);
        String _arg0 = data.readString();
        int _arg1 = data.readInt();
        String _arg2 = data.readString();
        if (data.readInt() != 0) {
            _arg3 = (Notification) Notification.CREATOR.createFromParcel(data);
        } else {
            _arg3 = null;
        }
        notify(_arg0, _arg1, _arg2, _arg3);
        return true;
    } else if (code == 2) {
        data.enforceInterface(DESCRIPTOR);
        cancel(data.readString(), data.readInt(), data.readString());
        return true;
    } else if (code == 3) {
        data.enforceInterface(DESCRIPTOR);
        cancelAll(data.readString());
        return true;
    } else if (code != 1598968902) {
        return super.onTransact(code, data, reply, flags);
    } else {
        reply.writeString(DESCRIPTOR);
        return true;
    }
}

private static class Proxy implements INotificationSideChannel {
    private IBinder mRemote;

    Proxy(IBinder remote) {
        this.mRemote = remote;
    }

    public IBinder asBinder() {
        return this.mRemote;
    }

    public String getInterfaceDescriptor() {
        return Stub.DESCRIPTOR;
    }
```

```java
        public void notify(String packageName, int id, String tag, Notification notification)
throws RemoteException {
            Parcel _data = Parcel.obtain();
            try {
               _data.writeInterfaceToken(Stub.DESCRIPTOR);
               _data.writeString(packageName);
               _data.writeInt(id);
               _data.writeString(tag);
               if (notification != null) {
                  _data.writeInt(1);
                  notification.writeToParcel(_data, 0);
               } else {
                  _data.writeInt(0);
               }
               this.mRemote.transact(1, _data, (Parcel) null, 1);
            } finally {
               _data.recycle();
            }
         }

        public void cancel(String packageName, int id, String tag) throws RemoteException {
            Parcel _data = Parcel.obtain();
            try {
               _data.writeInterfaceToken(Stub.DESCRIPTOR);
               _data.writeString(packageName);
               _data.writeInt(id);
               _data.writeString(tag);
               this.mRemote.transact(2, _data, (Parcel) null, 1);
            } finally {
               _data.recycle();
            }
         }

        public void cancelAll(String packageName) throws RemoteException {
            Parcel _data = Parcel.obtain();
            try {
               _data.writeInterfaceToken(Stub.DESCRIPTOR);
               _data.writeString(packageName);
               this.mRemote.transact(3, _data, (Parcel) null, 1);
            } finally {
               _data.recycle();
            }
         }
      }
   }
}
```

```java
package android.support.v4.os;

import android.os.Bundle;
import android.os.Handler;
import android.os.Parcel;
import android.os.Parcelable;
import android.os.RemoteException;
import android.support.v4.os.IResultReceiver;

public class ResultReceiver implements Parcelable {
    public static final Parcelable.Creator<ResultReceiver> CREATOR = new
Parcelable.Creator<ResultReceiver>() {
        public ResultReceiver createFromParcel(Parcel in) {
            return new ResultReceiver(in);
        }

        public ResultReceiver[] newArray(int size) {
            return new ResultReceiver[size];
        }
    };
    final Handler mHandler;
    final boolean mLocal;
    IResultReceiver mReceiver;

    class MyRunnable implements Runnable {
        final int mResultCode;
        final Bundle mResultData;

        MyRunnable(int resultCode, Bundle resultData) {
            this.mResultCode = resultCode;
            this.mResultData = resultData;
        }

        public void run() {
            ResultReceiver.this.onReceiveResult(this.mResultCode, this.mResultData);
        }
    }

    class MyResultReceiver extends IResultReceiver.Stub {
        MyResultReceiver() {
        }

        public void send(int resultCode, Bundle resultData) {
            if (ResultReceiver.this.mHandler != null) {
                ResultReceiver.this.mHandler.post(new MyRunnable(resultCode, resultData));
            } else {
                ResultReceiver.this.onReceiveResult(resultCode, resultData);
```

```java
            }
        }
    }

    public ResultReceiver(Handler handler) {
        this.mLocal = true;
        this.mHandler = handler;
    }

    public void send(int resultCode, Bundle resultData) {
        if (this.mLocal) {
            Handler handler = this.mHandler;
            if (handler != null) {
                handler.post(new MyRunnable(resultCode, resultData));
            } else {
                onReceiveResult(resultCode, resultData);
            }
        } else {
            IResultReceiver iResultReceiver = this.mReceiver;
            if (iResultReceiver != null) {
                try {
                    iResultReceiver.send(resultCode, resultData);
                } catch (RemoteException e) {
                }
            }
        }
    }

    /* access modifiers changed from: protected */
    public void onReceiveResult(int resultCode, Bundle resultData) {
    }

    public int describeContents() {
        return 0;
    }

    public void writeToParcel(Parcel out, int flags) {
        synchronized (this) {
            if (this.mReceiver == null) {
                this.mReceiver = new MyResultReceiver();
            }
            out.writeStrongBinder(this.mReceiver.asBinder());
        }
    }

    ResultReceiver(Parcel in) {
        this.mLocal = false;
```

```java
        this.mHandler = null;
        this.mReceiver = IResultReceiver.Stub.asInterface(in.readStrongBinder());
    }
}

package android.support.v4.os;

import android.os.Binder;
import android.os.Bundle;
import android.os.IBinder;
import android.os.IInterface;
import android.os.Parcel;
import android.os.RemoteException;

public interface IResultReceiver extends IInterface {
    void send(int i, Bundle bundle) throws RemoteException;

    public static abstract class Stub extends Binder implements IResultReceiver {
        private static final String DESCRIPTOR = "android.support.v4.os.IResultReceiver";
        static final int TRANSACTION_send = 1;

        public Stub() {
            attachInterface(this, DESCRIPTOR);
        }

        public static IResultReceiver asInterface(IBinder obj) {
            if (obj == null) {
                return null;
            }
            IInterface iin = obj.queryLocalInterface(DESCRIPTOR);
            if (iin == null || !(iin instanceof IResultReceiver)) {
                return new Proxy(obj);
            }
            return (IResultReceiver) iin;
        }

        public IBinder asBinder() {
            return this;
        }

        public boolean onTransact(int code, Parcel data, Parcel reply, int flags) throws
RemoteException {
            Bundle _arg1;
            if (code == 1) {
                data.enforceInterface(DESCRIPTOR);
                int _arg0 = data.readInt();
                if (data.readInt() != 0) {
```

```java
          _arg1 = (Bundle) Bundle.CREATOR.createFromParcel(data);
        } else {
          _arg1 = null;
        }
        send(_arg0, _arg1);
        return true;
      } else if (code != 1598968902) {
        return super.onTransact(code, data, reply, flags);
      } else {
        reply.writeString(DESCRIPTOR);
        return true;
      }
    }

    private static class Proxy implements IResultReceiver {
      private IBinder mRemote;

      Proxy(IBinder remote) {
        this.mRemote = remote;
      }

      public IBinder asBinder() {
        return this.mRemote;
      }

      public String getInterfaceDescriptor() {
        return Stub.DESCRIPTOR;
      }
      public void send(int resultCode, Bundle resultData) throws RemoteException {
        Parcel _data = Parcel.obtain();
        try {
          _data.writeInterfaceToken(Stub.DESCRIPTOR);
          _data.writeInt(resultCode);
          if (resultData != null) {
            _data.writeInt(1);
            resultData.writeToParcel(_data, 0);
          } else {
            _data.writeInt(0);
          }
          this.mRemote.transact(1, _data, (Parcel) null, 1);
        } finally {
          _data.recycle();
        }
      }
    }
  }
}
```