

AIDentures: Dental Appointment Mobile Application

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ABSTRACT

In our present life, technology is in our hands and became the way of life, especially on the clinic today the records of patients are still done on papers, and most of all Filipinos are more vigilant on their teeth, as a result, the researchers has formulated and designed an application that (1) helped Dra. Nemecia Leonor in her clinic for an easy communication with her patients, (2) provided an easy access for patients to reserve a date for their checkup or appointments to Dra. Nemecia Leonor, (3) provided an information to users even if they are offline by receiving SMS to know if their appointment request is approved or declined, (4) provided a secured information of the patients.

The researchers developed a system for android user only. The system provides 4.4 KitKat and latest version of android.

Keywords: *dental appointment system; dental clinic; mobile application;*

1.0 INTRODUCTION

In the present life, technology has turned into a lifestyle. Especially in most dental clinic, transactions are yet done on paper. Clinics currently striving to serve as many patients as could reasonably be expected with the best of their capacities. As the years go by patients has grown and medical cases emerge.

Dra. Nemecia Gomez Leonor, DDM is a graduate of Bachelor of Science in Dentistry. She is graduated from De Ocampo Memorial College in Sta. Mesa Manila. After all the years of struggling she never stopped dreaming and later she became professional Dentist on the year 1997, as a dreamer, she believes that she will have her own clinic she never wastes any of her time grabbing every opportunity that life gave her. Challenges in life made her stronger and dedicated. Patience, hard work, and support of her family have been her inspiration throughout her journey of being a dentist she then raised her own clinic at her hometown at the year 2000, while busy raising her clinic she never thinks twice to continue her career and get the master's degree on Philippine

Dental College. She got her master's degree certificate (Doctor of Dental Medicine) in the year 1992 in the degree of Bachelor of Science in Dentistry specialized in Orthodontics.

Orthodontics is specializing in correcting dental abnormalities. In this program, you'll explore facial and cranial growth, how to adjust irregularities through surgery or corrective devices.

In this study, the researchers hope to develop a dental mobile multimedia system for Dra. Nemecia Leonor that will limit all the paper works and restorative records permitting the dental specialist ease in keeping tracks of patients, an online appointment that will reduce the time and exertion of the patients.

In this system, the researchers will use multimedia that uses different content forms such as text, images, animations, and video.

1.1 OBJECTIVES OF THE STUDY

This research is aiming to elaborate an equal and useful dental appointment system. Specifically, it intends to

1. developed a dentist mobile application for Dra. Nemecia Leonor.
2. used a video presentation that showed the services of Dra. Nemecia Leonor dental clinic.
3. provided an appointment system that lessened the time of patient going to the clinic for reservation.

2.0 LITERATURE REVIEW

Online booking systems for dental appointments

Howe (2012) describes new software available for online booking of dental appointments. He mentions that

patients have long been complaining about spending a long time to get through a receptionist and book his/her dental appointment, therefore, the new software compatible with email technology and smartphones gives the patient the convenience of booking appointments.

One example of such software is called 'Appointment'. It can lessen the burden on dental practice as well as remove the stress for patients, because dental practitioners can give appointments through e-mail or phones. With that, fast access and reliable appointment system will be given to patients by using the system. [5]

Dental Clinic Management System for Manalang Dental Clinic

On the journal made by Arceo, G. O, Dela Cruz, et al. 2011. Technological advancements like online scheduling software have made the patient-booking process easier for both administrative staff and patients alike. There are benefits of implementing an online scheduling system, considerations when utilizing it, and what to look for in a provider. Commonly referred to by such names as online scheduling software, online booking applications and online scheduler, an online scheduling system is a Web-based application that allows individuals to conveniently and securely book their appointments and reservations online through any Web-connected device, such as a computer, laptop, smartphone or tablet. [1]

On the journal made by Westgarth (2015) "Online appointment booking has never been easier!" the presentation of another application, making a dental appointment online has quite recently got simpler. The Zesty iOS App, accessible on the iTunes application store, enables patients to search for a local rehearse and

a schedule time to suit their necessities. Attracting in new patients is a best need for most dental practices yet it can be a struggle to know where to start. A web-based booking framework that enables patients to plan their appointments even out of hours can be useful. Zesty gives the tools to have the capacity to do this by enabling the user to transfer their accessible appointments and enable patients to book time in their own. The training can be accessible to take appointments 24 hours per day, seven days a week. Zesty helps dental patient book dental and human services appointments consistently.

The present interwoven of information frameworks will be changed into a bound together wellbeing administration data framework in the Philippines. [9]

Maynard (2012), "Easy online appointment booking" appointment booked utilizing Software of Excellence's (SOE's), online appointment booking module has just caught the creative ability of patients who can make appointments during an era that suits them, with the additional advantage of making more productive utilization of training gathering staff and permitting more spotlight on client benefit. SOE's appointment booking module contrasts with other online appointments because of its full coordination with EXACT's review framework. The remarkable programming can be utilized to recognize existing patients, consequently sending review messages by means of email or content with a connection inciting the patient to get to a training marked web-based booking office. Similarly, the online office can likewise be utilized on the training's site as a device to draw in new patients who can book an

appointment without the imperatives of work on opening hours. [7]

On the article "Ease of use of Electronic Medical Records" by Smelcer et al. (2007), executing electronic medical records (EMR) frameworks are a popular solution for decreasing expenses, with the side advantage of giving better care. Lamentably, 30% of EMR framework executions fail, frequently because doctors can't utilize the EMRs productively. User encounter issues, considering our involvement with a few clinics, are broad among EMRs. These incorporate losses of efficiency and soak expectations to absorb information. Basic to understanding EMRs is the physician's task flow, which clarified in detail. It is likewise useful to comprehend the distinctive work styles of physicians, varieties in the pace of work, the utilization of medical attendants, the mode and timing of information passage, and variations in needed functionality. These variances in task flow, work styles, and required functionality lead us to propose answers for enhance the ease of use of EMRs concentrating on: adaptable route, personalization and customization, getting to different patients, appointment of duty among restorative clinic, and empowering information varieties and representations.

Lau et al. (2012) directed a precise survey to look at the effect of Electronic Medical Record (EMR) in the physician office, factors that influenced their prosperity. Health Maintenance Organizations with EMRs that are integrated across numerous hospitals and walking care clinics. Most Canadian physician workplaces tend to be exclusive solo/group practices or interdisciplinary group-based clinics with independent EMR frameworks from small/medium size sellers that are not

very much incorporated with the other health information frameworks.

Computerized Health Information System enhanced administration, better utilization of both human and material resources, and uses of innovation, for example, CHITS, that will help health laborers easily monitor the incidences and injuries in their groups of tasks, and through a data frameworks strategic plan for all health center focuses. Through this program, group-based health data is made accessible not exclusively to general health offices requiring this level of information, yet notwithstanding the gathering itself making the information. Through this, the group is helped in deciding. [8]

Leonidas (2014) announced that in the Philippines, most healing centers and doctor don't yet have electronic medicinal records (EMR), mistakes, mischances, incidents, and procured pollutions in a clinic are not yet uncovered and dispersed. To enhance healthcare, hospitals, public health care, and private medical workplaces ought to require an EMR framework with social information fields, so research and result studies should be possible with a couple of snaps or taps.

Davao specialists would now be able to state farewell to those unintelligible manually written remedies. They can do as such by utilizing an electronic application. The software doesn't change over composing into computer message, however, gives an effective framework to specifically putting medical data into a computer database. The software program can computerize the admitting orders and can digitalize the patient's records in the clinic. All the information can be saved in the desktop, laptop or even saved to an

iPhone, iPad or Android. Once the information is saved, the doctor can have it anytime, anywhere at the tip of his finger. The days of those old-fashioned patient cards and space-occupying cabinet (where the cards are kept) are numbered. In the software developed, speed and being user-friendly are the two top priorities can guarantee faster than writing since the doctor can just choose the prepared database of prescriptions as fast as he can look for a name in his mobile phone book.

The Unified Health Management Information System (UHMIS) plans to coordinate information accumulation, preparing, announcing and utilization of the data which is fundamental for enhancing wellbeing administration proficiency and viability. The yields of the UHMIS will aid the administration and arrange of health programs. The advancement of the UHMIS will set up norms identified with approach plan, information gathering, and transmission, information investigation, introduction, announcing and use. The present interwoven of information frameworks will be changed into a bound together wellbeing administration data framework in the Philippines. Information from different sources can be united and will enable the Department of Health to survey drifts in diseases, injuries, handicaps, health administration access, and passing. All DOH Information Systems can be gotten to through the UHMIS and related databases are put away in the DOH Central Database Warehouse. [10]

According to Fernando Martin P. Cabula, Sid Karlo P. Ebor and Lee O. Reyes (2012) "Dental Records System Using Synchronized Touch Screen Kiosk and Server Pc with GSM Module" there are professionals who studied

possibilities of a dental office going to digital, its effects, the technological concepts, and dental practice principles. The journals and articles are written by those professionals which served as a tool that helped the group to have a better understanding of the project. Those professionals said that the design of the application is only billing and administrative functions in mind. [2]

Computerized Vs. Manual Scheduling System

Davino (2014) clarified that mechanized planning frameworks are a technique for utilizing booking calculations and principles to enable numerous individuals to oversee arrangements and gatherings. Automated planning enables clients to openly share spare time on their schedules while keeping appointments private. It is tending to be more proficient than manual booking, yet a decent appointment secretary would more be able to adequately deal with a few circumstances. In this model, the general population whose time is being reserved must check in consistently to discover what their calendar is, and to tell the secretary what times are inaccessible. [3]

A medical helper on your mobile phone

On the report of Fojas (2015), in the PDA time, an application has turned into everybody's close to a home aide. There is an application for sorting out a client's calendar, taking notes, giving the climate and news refreshes, monitoring charges, checking ledgers and Visas, and furnishing you with stimulation. To add to that considerable rundown of ordinary assistants, another application was as of late propelled to facilitate the route in planning checkups and physical checkups. Presented by St. Luke's Medical Center (SLMC), MedConnect is

a simple to-utilize, free versatile application for telephone and tablet gadget that will associate with St. Luke's Hospital whenever, anyplace, giving simpler access to the clinic's wide cluster of health care services benefits through features that can ask for a regular checkup, get to one's research center outcomes, hold a room, pay on the web, plan official checkups, read about fundamental data, and contact St. Luke's Emergency Care numbers. A client must have stable Wi-Fi or versatile information to take a full favorable position of St. Luke's MedConnect, however, it can get to the Emergency Care Services notwithstanding when the client is disconnected. Standard bearer call rates may apply when calling a crisis number. [4]

Appraisal of the Correlation between Appointment Scheduling

Katre (2014) clarified that the act of present-day pediatric dentistry requires the conveyance of value mind in a mix with adherence to astounding business and additionally time administration standards. An unequivocal arrangement timetable ought to be introduced to the guardians on the first or second arrangement. More imperatively, the supported timetable should be taken after to the best of the expert limits of the pediatric dental master. His point is to review the co-association between appointment arranging and patient satisfaction in a pediatric dental setup

with the objective of understanding the parameters related to appointment booking to construct calm satisfaction. The results show that the important number of the patients were content with the present appointment arranging structure despite exclusions. [6]

3.0 METHODS

The researchers used the Agile methodology model in the development of the AIDentures: Dental Appointment Mobile Application. The basis for this project is to expand an appointment system that can be equipped and integrated into Dra. Nemecia Leonor dental clinic.



Figure 1. Agile Model

Requirements

The researchers used different Microsoft Applications; Microsoft Visual Studio for Graphic User Interface to create a satisfying graphics as well as Microsoft Visio for flowcharting and Microsoft Word for the documentation. Java and php for codings and MySql for the database.

Plan

The researchers developed a user-friendly dental appointment mobile application that helped the patient to lessen their time going to the clinic for reservation. The application software will advantage Dra. Nemecia Leonor in her schedule to organize in an easier way by using a mobile application wherein technology is involved

Design

The researchers searched for example websites of dental appointments using internet browser for them to gather information. The researchers can also get ideas by downloading some dental appointment apps in the play store (Android).

Develop

The researchers intend to develop a mobile application. They applied their skills and knowledge to create a mobile application. The start of work will be based on GUI and flowchart.

Release

In this stage, the researchers will have the limitation, only Android user can download the application.

Track and Monitor

In this content includes the following; testing, integrating the codes and the presentation of the mobile to the client.

4.0 DISCUSSIONS

FLOWCHART

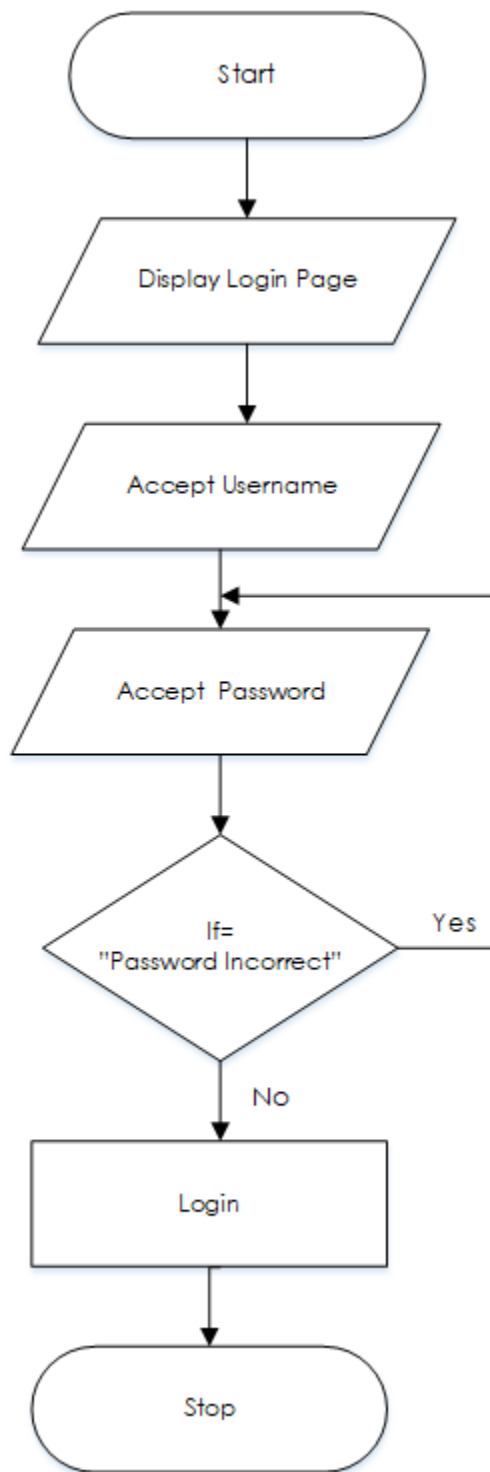


Figure 2. Admin Login Page

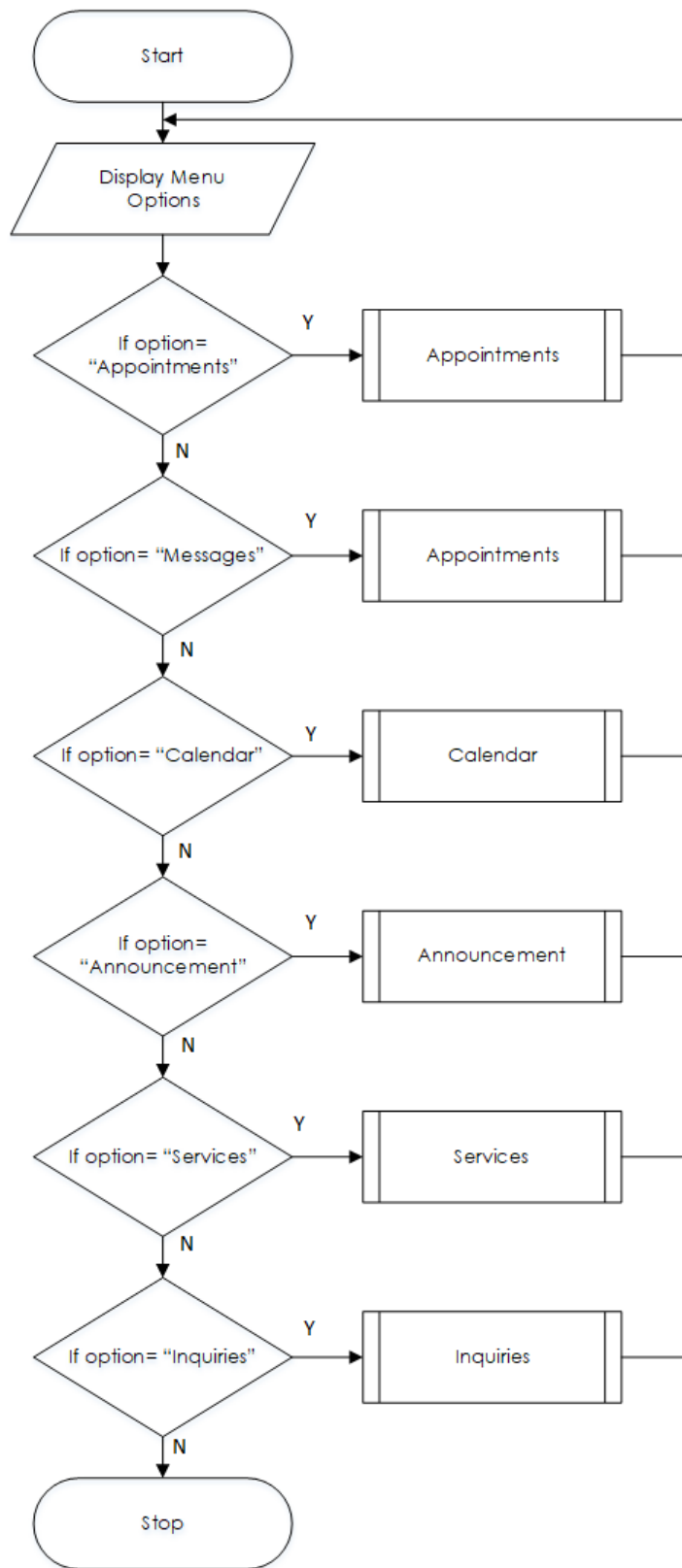


Figure 3. Admin Home Page

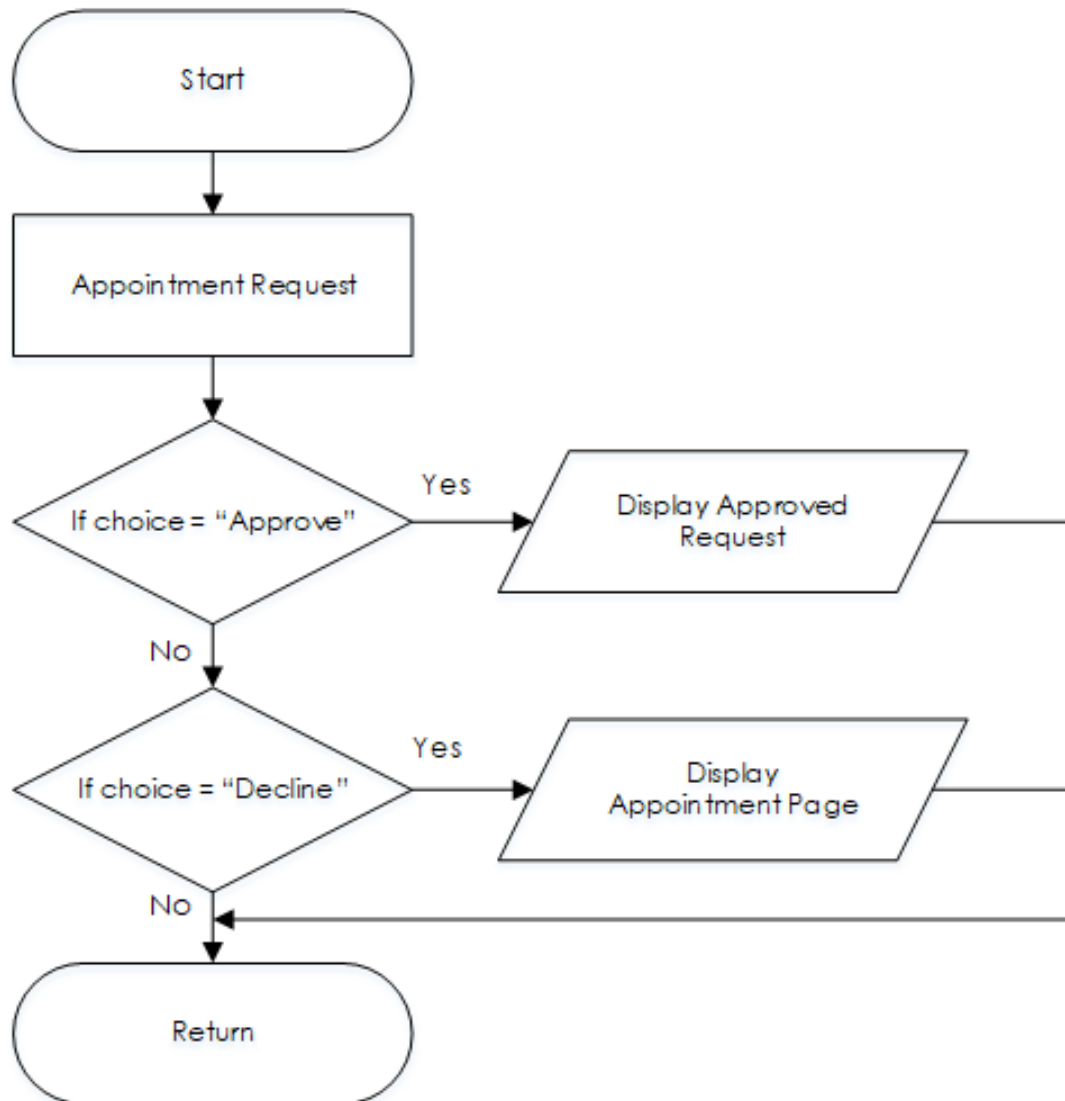


Figure 4. Admin Appointments

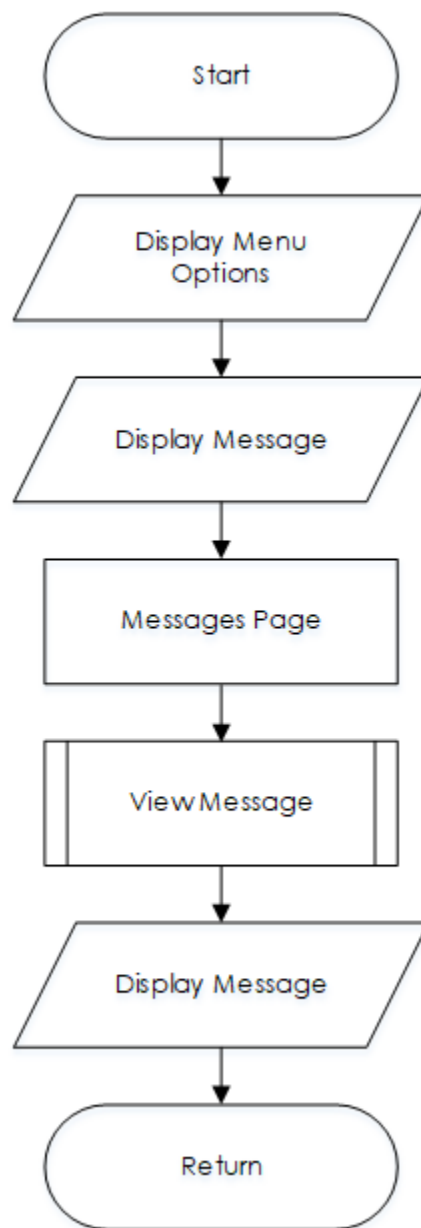


Figure 5. Admin Messages

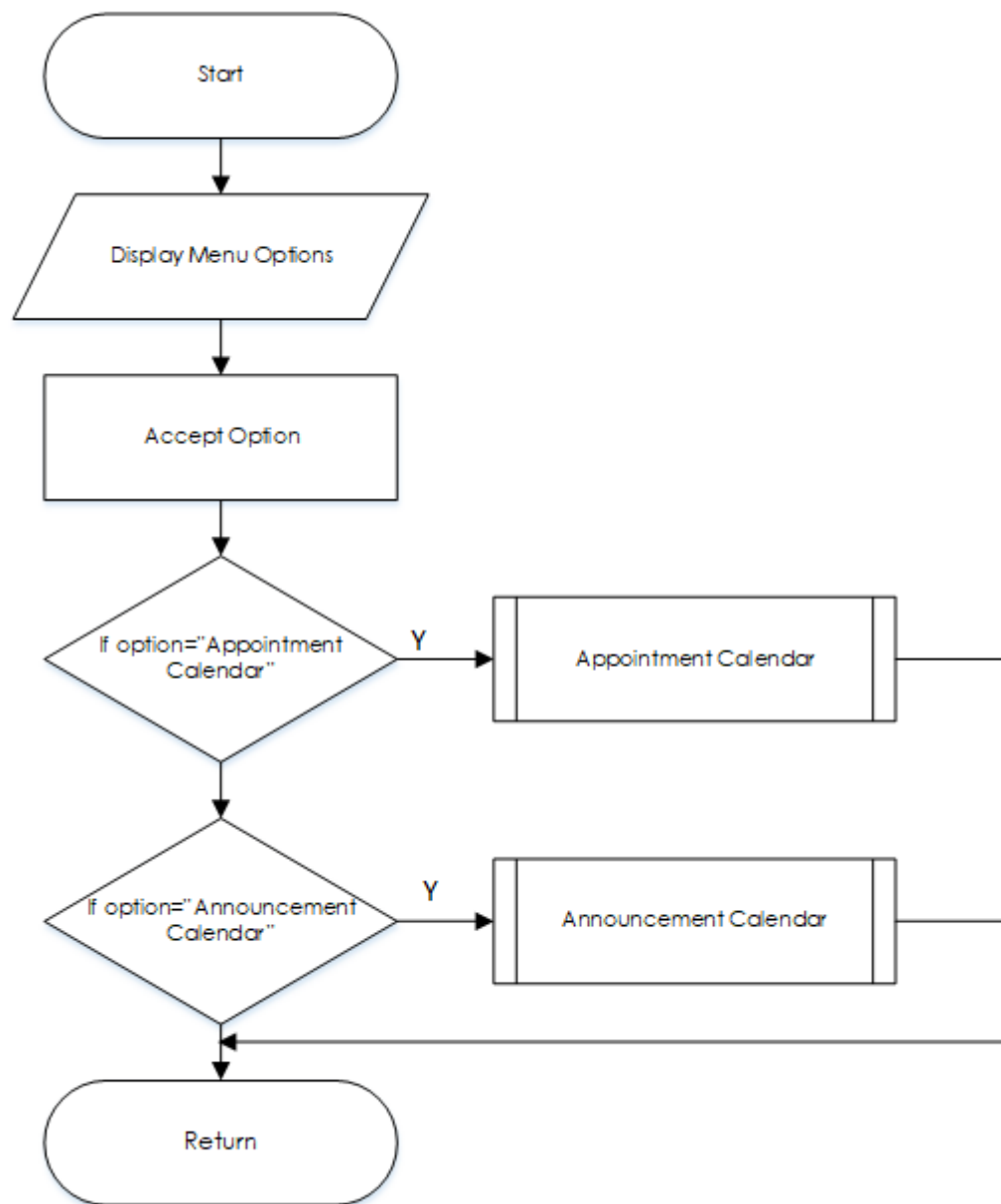


Figure 6. Admin Calendar

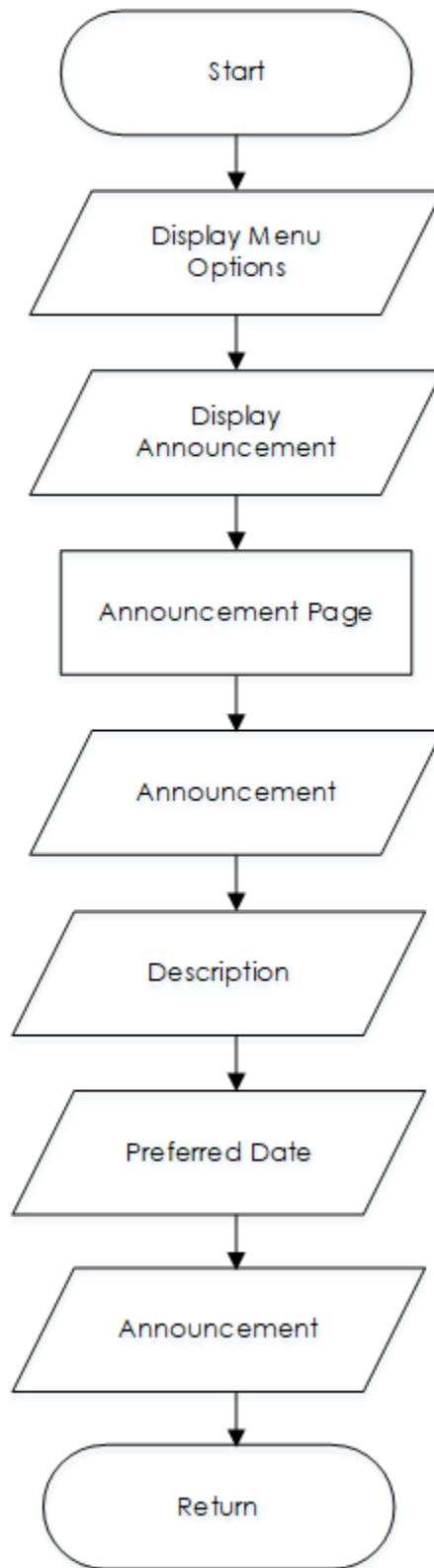


Figure 7. Admin Announcement

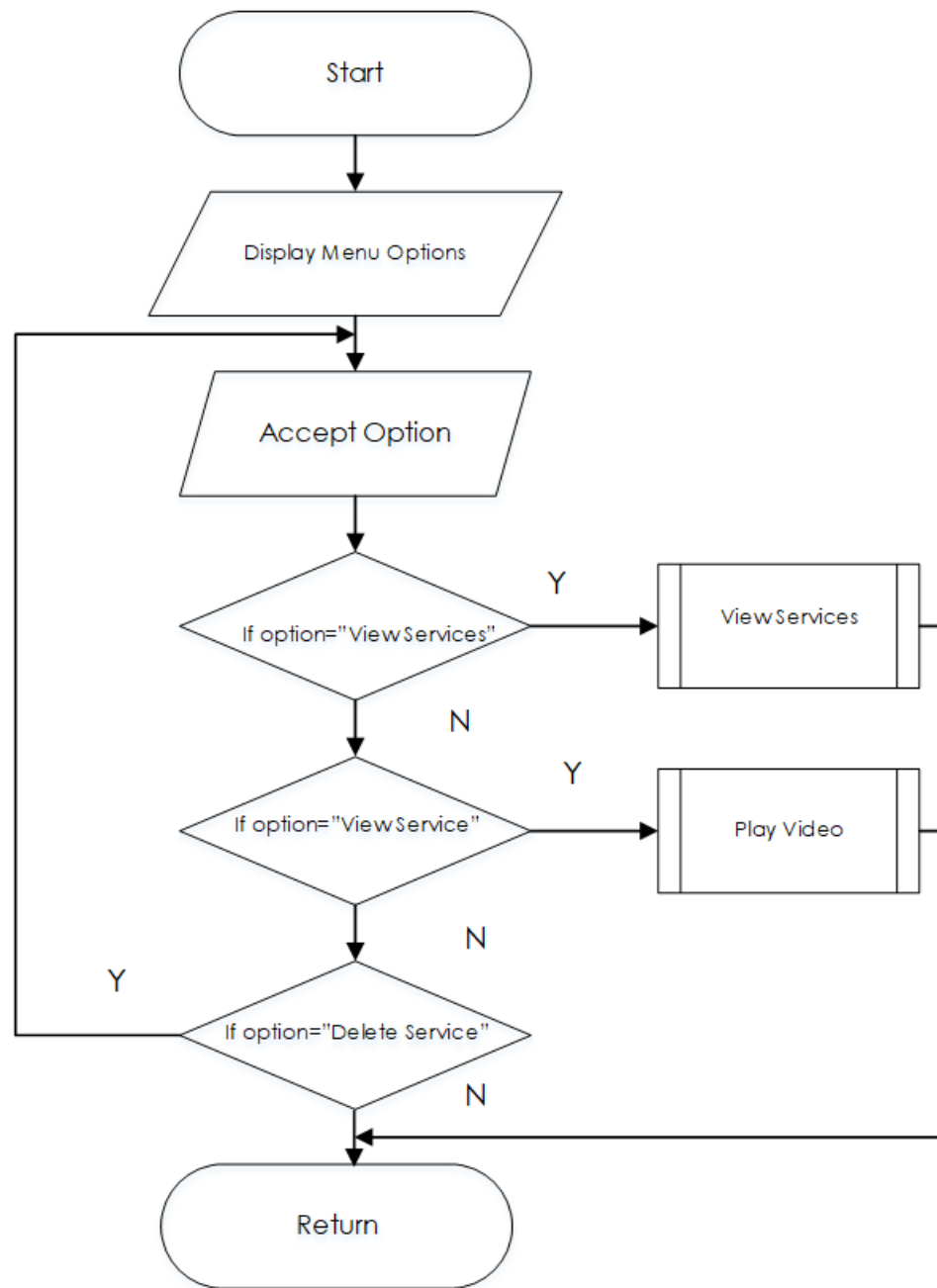


Figure 8. Admin View Services

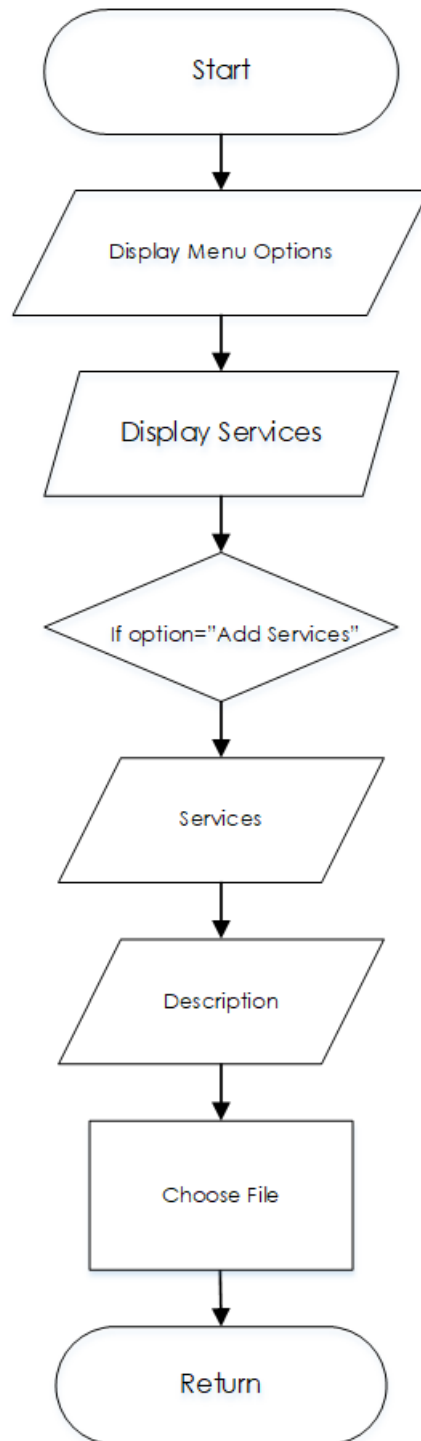


Figure 9. Admin Add Services

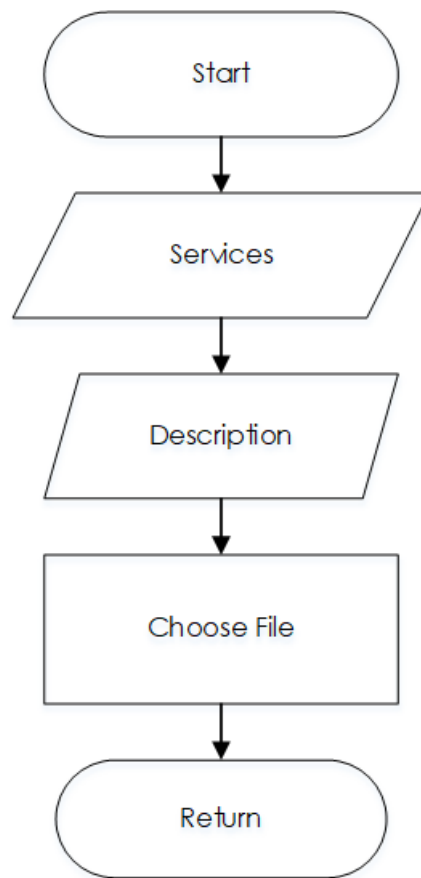


Figure 10. Admin Services

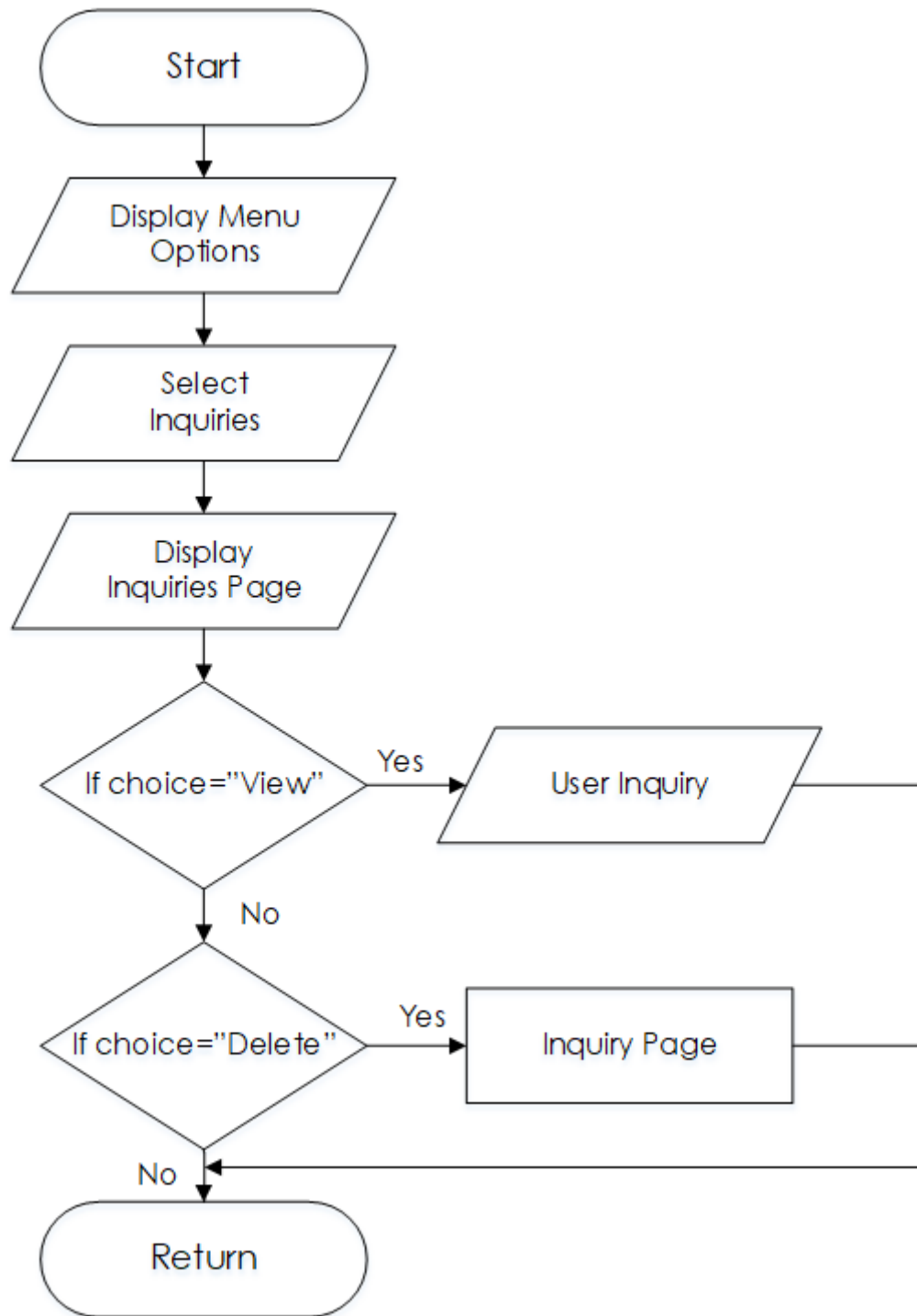


Figure 11. Admin Inquiries

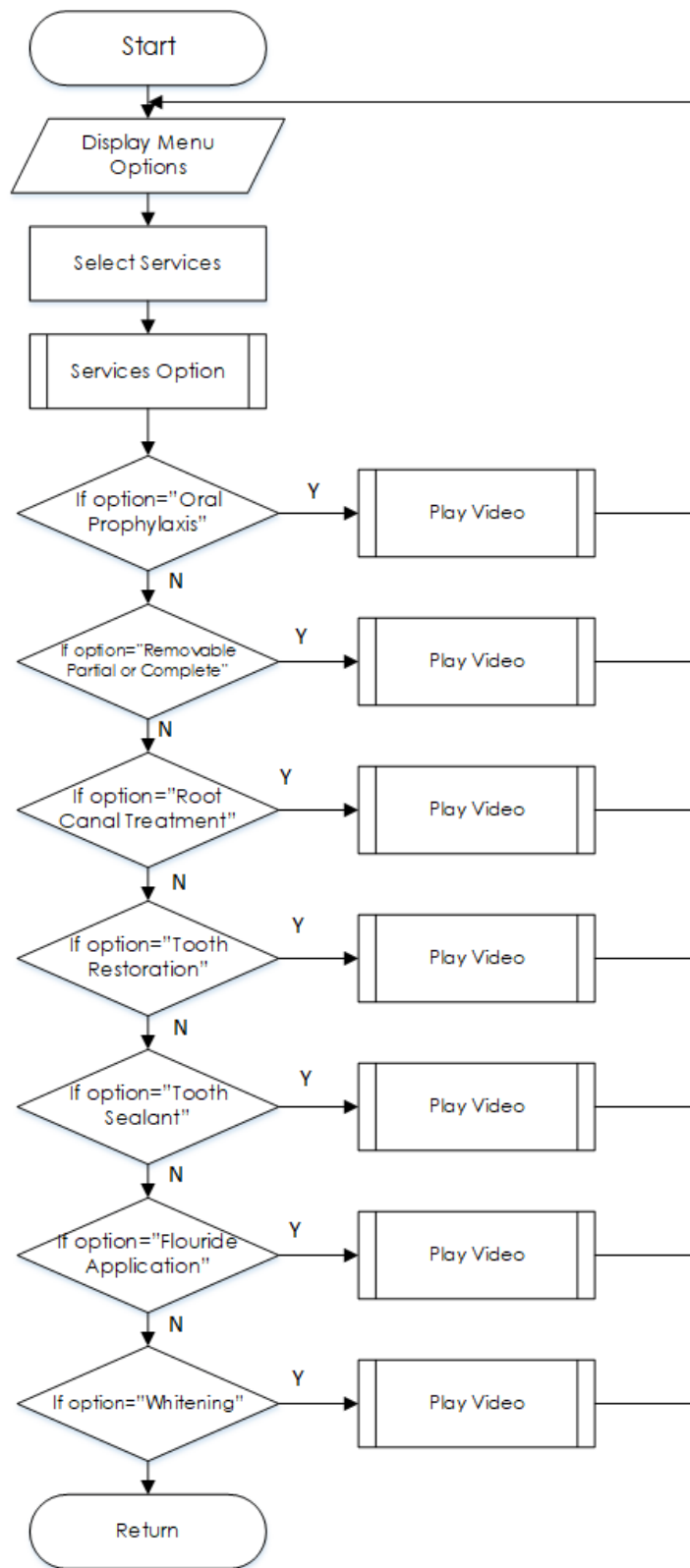


Figure 12. User Services

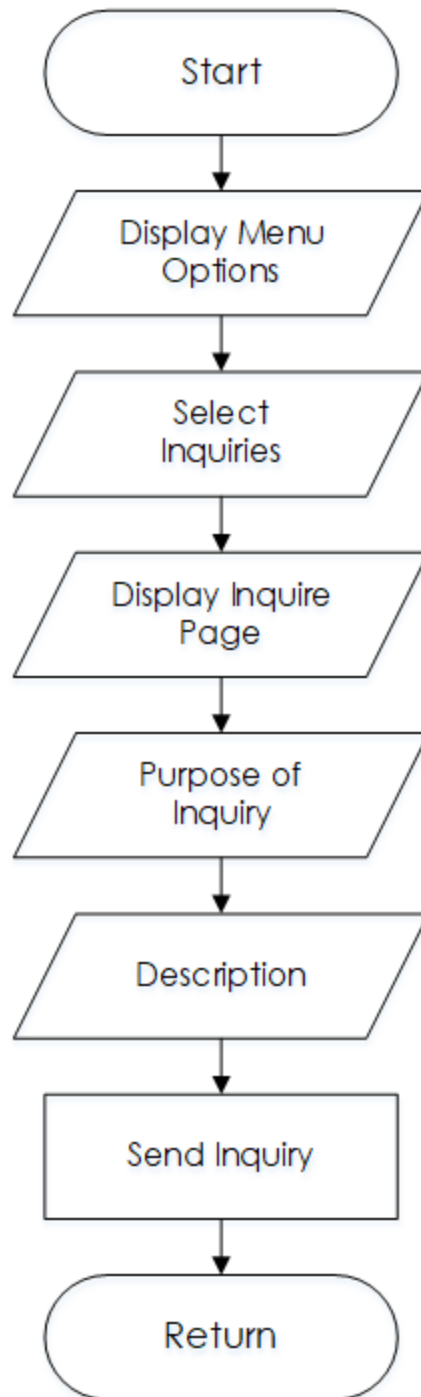


Figure 13. User Inquiries

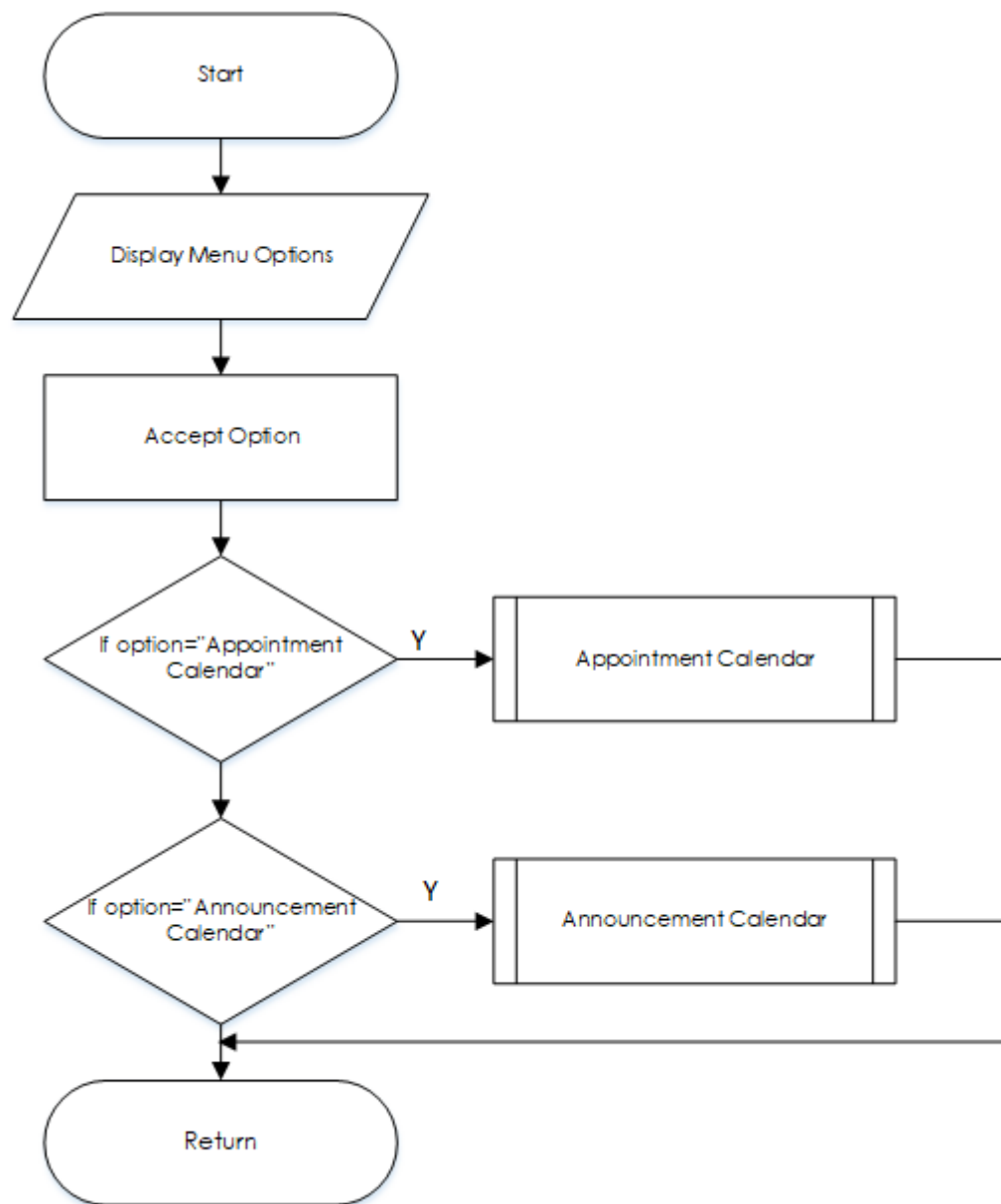


Figure 14. User Calendar

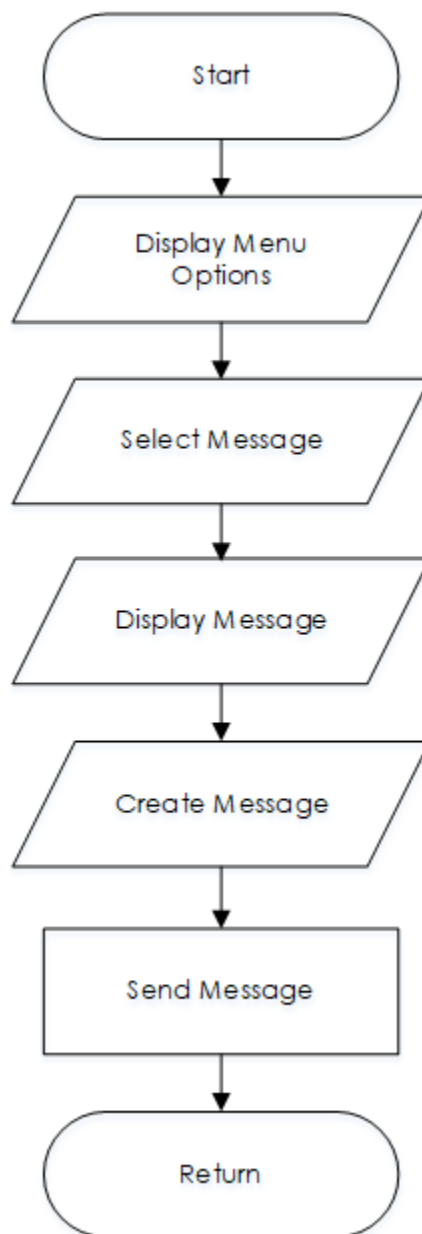


Figure 15. User Messages

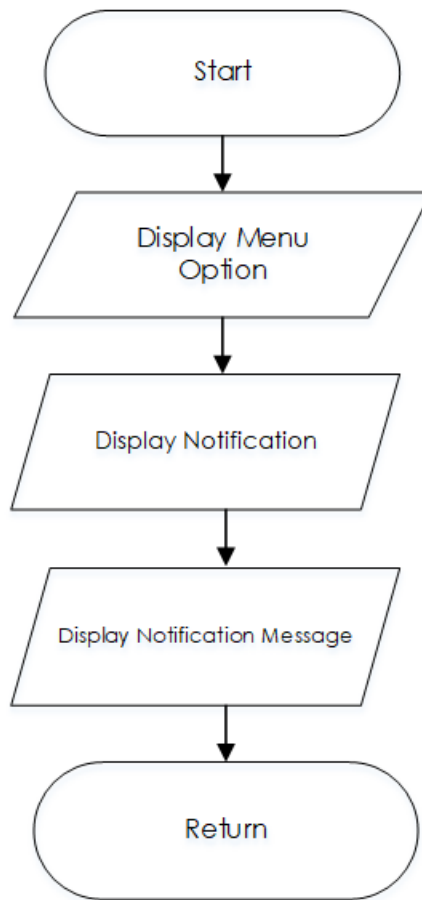


Figure 16. User Notifications

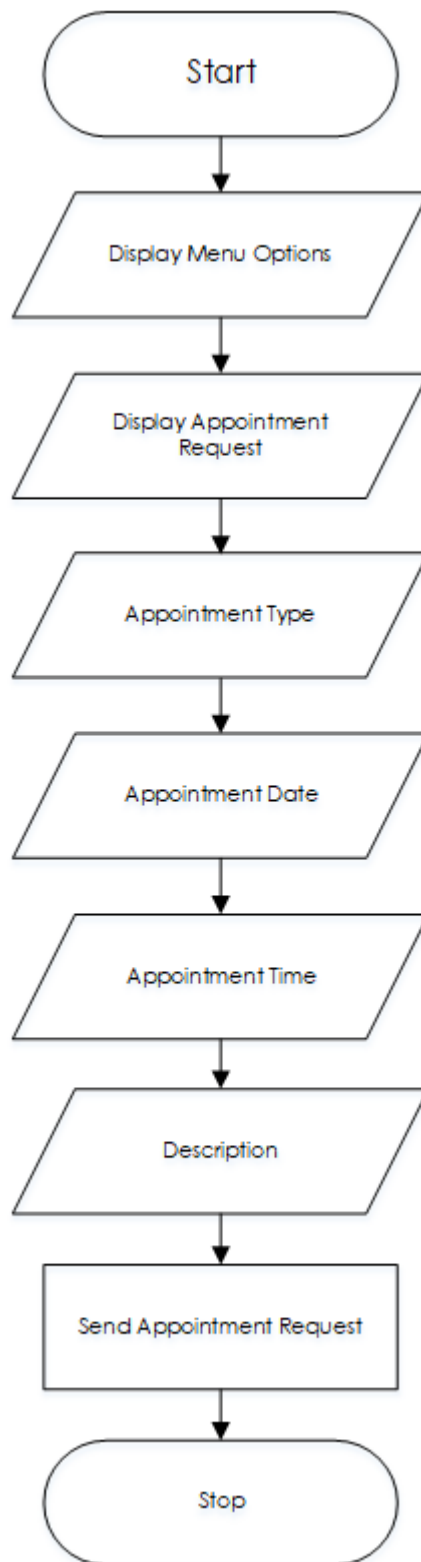


Figure 17. User Appointment Request

SCREEN LAYOUT



Figure 18. Logo

AIDentures Dental Appointment Mobile Application logo



Figure 19. Splash Screen

Once you click the icon, the splash screen appears



Figure 20. Admin and User Login Page
The client user and the admin user will login

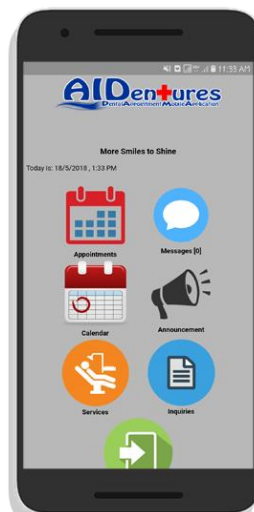


Figure 21. Admin Home Page
This is the home page of Admin user, setting of appointments, messages, calendar, announcement, services and inquiries.

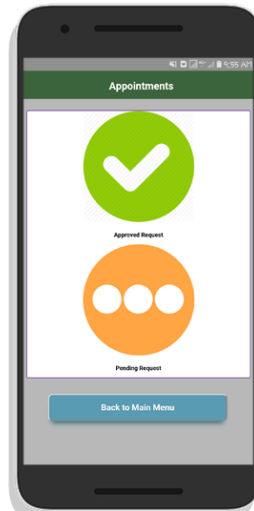


Figure 22. Admin Appointment Request

The appointment page has two options approved requests and pending request, in approved request the admin can view the approved requests while pending request the admin can approve or decline request.

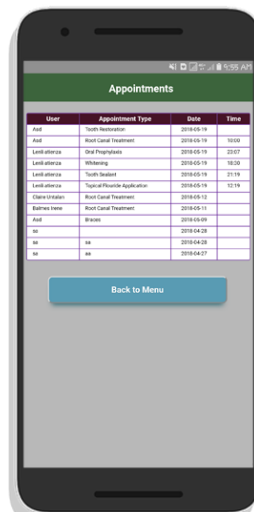


Figure 23. Admin Approved Request

Once the admin clicks the approved request the system will navigate to appointments which the admin can view the appointments he/she approved.

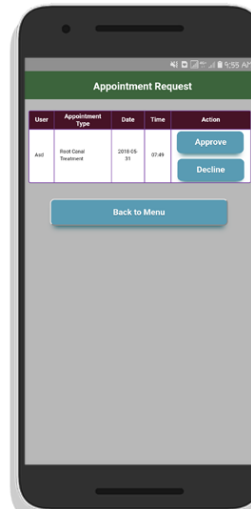


Figure 24. Admin Pending Request
Admin can approve or decline requests

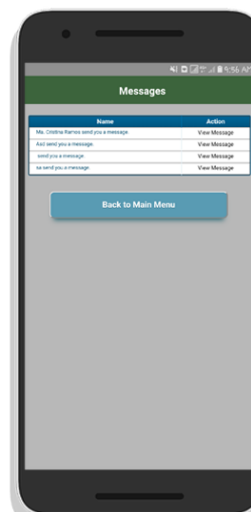


Figure 25. Admin Messages
Admin can view the messages of the users

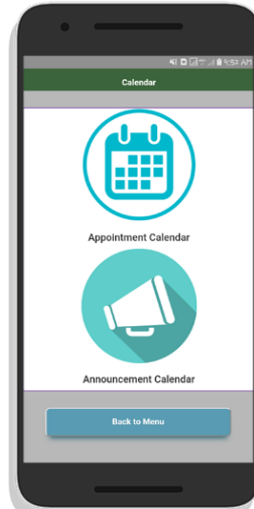


Figure 26. Admin Calendar

The calendar page has two options the appointment calendar and announcement calendar, in appointment calendar the admin can view all the dates the appointments he/she approved while announcement calendar the admin can also view the dates that he/she created.

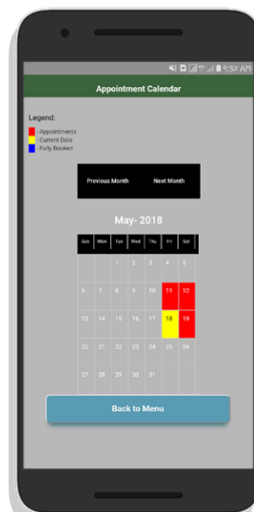


Figure 27. Admin Appointment Calendar

Admin can view the dates with appointments. Appointment calendar has legend, red is with appointments, yellow is the current date and blue to know if the specific date is fully booked.



Figure 28. Admin Announcement Calendar

Admin can view the dates with announcements he/she sets, red legend is for date with appointments and yellow is for the current date.

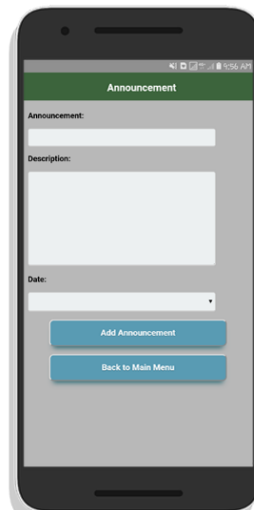


Figure 29. Admin Announcement

Admin can set her announcement by filling up the fields

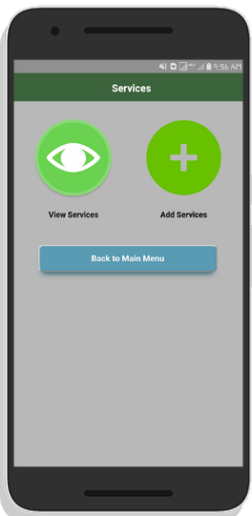


Figure 30. Admin Services

The admin services have two options, the view services and add services



Figure 31. Admin View Services

Admin can view and delete services

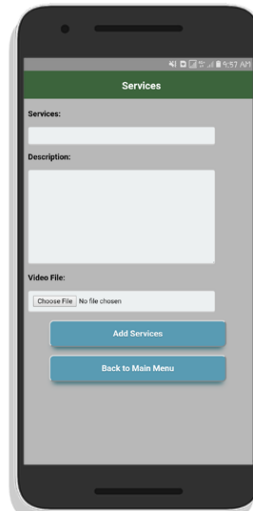


Figure 32. Admin Add Services

Admin can be able to add video to the services



Figure 33. Admin Inquiries

Admin can choose action, to view or delete inquiries of the users

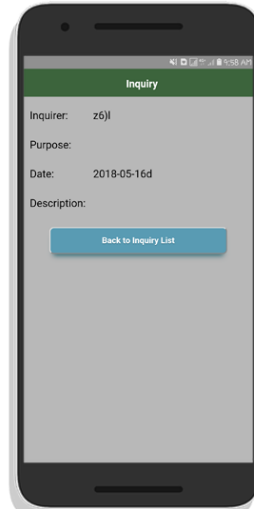


Figure 34. Admin Inquiry

The admin can view the inquiries of every user

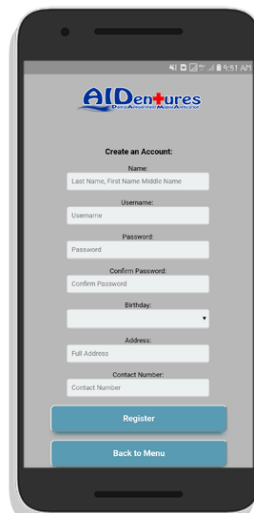


Figure 35. User Register

The users will create an account to login in to the mobile app, they can register by filling up the required fields.

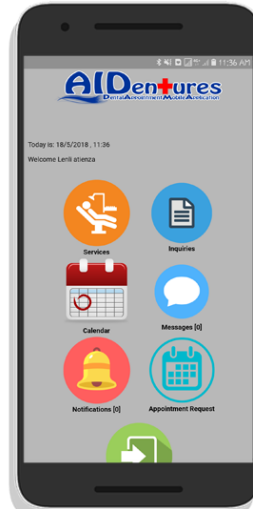


Figure 36. User Home Page

This is the home page of User, setting of services, inquiries, calendar, messages, notification and appointment request.

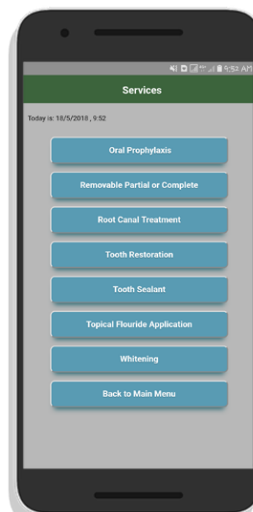


Figure 37. User Services

User can view the services offered of Dra. Nemecia Leonor clinic by clicking the desired button.

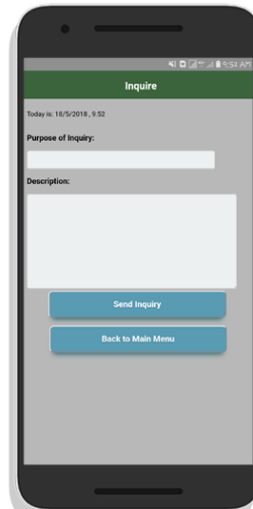


Figure 38. User Inquiry

Users will be able to send inquiries to the admin by filling up the fields.

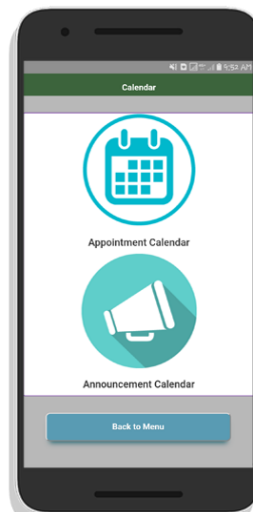


Figure 39. User Calendar

The calendar page has two options the appointment calendar and announcement calendar, in appointment calendar the user can view the dates with appointments while announcement calendar the user can view dates with announcements.

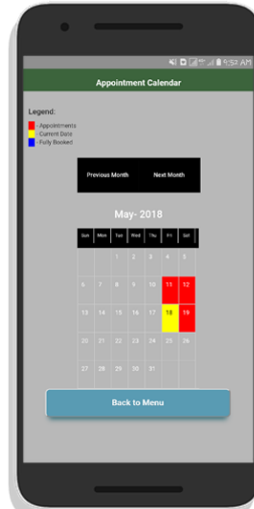


Figure 40. User Appointment Calendar

User can view the dates with appointments. Appointment calendar has legend, red is with appointments, yellow is the current date and blue to know if the specific date is fully booked.



Figure 41. User Announcement Calendar

User can view the dates with announcements, red legend is for date with appointments and yellow is for the current date.



Figure 42. User Messages

Messages is the conversation of user and admin, user can send message to admin for any inquiries.



Figure 43. User Notification

User will notify if his or her appointment request is approved or declined

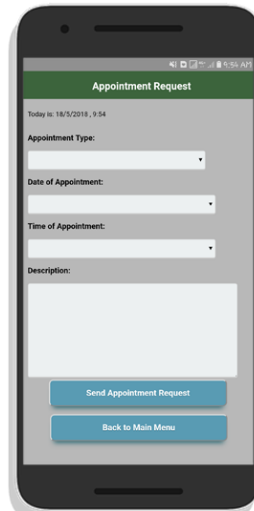


Figure 44. User Appointment Request

User can create or send appointment to the admin by filling up the required fields

5.0 SUMMARY, CONCLUSIONS & RECOMMENDATIONS

Summary

This capstone project is a dental appointment mobile application for Dra. Nemecia Leonor that can be used to provide an efficient and time effective for the patients going into the clinic only for reservations. This application should be installed in devices and can be used by all the patients of Dra. Leonor.

This research has created an easy access application wherein it has login and registration so that the patients can easily inquire and book an appointment. The application provides some videos that will display all the services of the dental clinic as well as inquiry button for the patients if they have inquiries about the services offered of the clinic and a conversation feature for the patient and for Dra. Leonor to easily and directly ask questions. The researchers provided SMS to the patients to know if their appointment is approved or declined.

A pleasing Graphical User Interface to the user to easily use the application. This research has created an android application for; (1) all the patients of Dra. Leonor to be at ease, avoid hassle going to the clinic for reservations (2) Dra. Leonor to lessen her paper works writing down all the records

of every patient. (3) the patients for the easy access even if they are offline by receiving SMS to know if their appointment request is approved or declined.

Conclusions

Based on the development of AIDentures: Dental Appointment Mobile Application the following conclusion is hereby presented

1. Upon the development of the mobile application, the researchers presented the AIDentures: Dental Appointment Mobile Application to Dra. Nemecia Leonor.
2. The researchers provided videos that helped the patients to view all the offered services of the clinic.
3. The researchers provided the users to make an appointment to Dra. Nemecia Leonor.

Recommendations

The mobile application is recommended to all the patients of Dra. Nemecia Leonor. Future researchers who will have the same or related project may further enhance the application by adding a feature which the application can send a voice message to Dra. Leonor and to her patients in messages for an easy communication.

REFERENCES

- [1] Arceo, G. O, Dela Cruz, et al. 2011. Dental Clinic Management System for Manalang Dental Clinic.
- [2] Cabula, Fernando et al. (2012) "Dental Records System Using Synchronized Touch Screen Kiosk and Server Pc with GSM Module", School of Electrical Engineering, Electronics Engineering, and Computer Engineering, Mapua Institute of Technology, Philippines
- [3] Davino, Ellis. (2014) "What Is a Computerized Vs. Manual Scheduling System?" "Hearst Newspapers, LLC, Philippines.
- [4] Fojas, Sara Grace C. (2015) "A medical helper on your mobile phone", Manila Bulletin News, Philippines,
- [5] Howe, Shaun. (2012) "Online booking systems for dental appointments", Academic Journal of Dental Nursing; Vol. 8 Issue 11, <https://bit.ly/2qdGWIK>
- [6] Katre, Amar. (2014). "Appraisal of the Correlation between Appointment Scheduling" Research Article, International Journal of Dentistry.
- [7] Maynard, Kate. (2012) "Easy online appointment booking", British Dental Journal, Macmillan Publishers Limited, UK
- [8] Smelcer et al. (2007) "Ease of use of Electronic Medical Records". (www.quezoncity.gov.ph)
- [9] Westgarth, David. (2015) "Online appointment booking has never been easier!" British Dental Journal, Macmillan Publishers Limited, UK
- [10] Leonidas (2014), "Unified Health Management Information System (UHMIS)" (www.uhmis.doh.gov.ph)

AlumniConnect: A Mobile Application for Alumni Tracking of LPU-Batangas

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ABSTRACT

AlumniConnect is an Android mobile application provided for the alumni to communicate and be updated about Lyceum of the Philippines University. It also contains an information board for the alumni that include events, news, and social page. This application has a social page that can upload photo and their status. It has also a lot of Alumni information regarding on their status in life where every alumnus can see when they search them in alumni directory. This enables the alumni to see how their classmates have been professionally. The administrators and users can post announcements and invitations to school events or other matters. The Alumni of LPU Batangas can create an account. It has its

own security to protect the information and data of the Alumni only. The Alumni and the Administrator are the authorized persons to use this application. This mobile app was developed using Android-platform and runs on NFC compatible handsets with Jellybean 4.2 versions and higher.

Keywords: *Alumni, Alumni Tracking, Android Mobile Application*

1.0 INTRODUCTION

Lyceum of the Philippines University has been in existence since 1970. Like other higher educational institutions, it manages a lot of alumni records, which are stored on hard disks and CD's for backup purposes. Those data are commonly used for referencing and keeping track of all alumni.

One of the problems encountered by the staff is that it takes time to find an alumnae/alumnus' record due to many databases which also needs a lot of memory space for data storage. It is also the task of an alumni office staff of making sure that every information on its storage devices and shelf can easily be accessed in case a company called for an immediate hiring of qualified alumni members.

The purpose of this android mobile application entitled "AlumniConnect" is to provide each graduate to communicate with his colleagues and to maintain and renew relationships among alumni through social connection. It also contains updated information for the alumni. It allows graduates of the University to search classmates and friends by posting photos and status about themselves. It has also lot of alumni information regarding on their status in life where alumni can see. This enables the alumni to see how their classmates have been, professionally. The Administrator is the one who can add, edit and delete the account of users. The Administrator can post announcements and invitations to school events or other matters. The Alumni and the Administrator are the authorized persons to use the application.

This study focuses on the online tracking of Lyceum of the Philippines University Batangas. This also covers Alumni to have an online registration, user account and profile. Each registered Alumna and Alumnus has its own username and password for access and to ensure security. Alumna/Alumnus profile can be search and view by their coAlumna/Alumnus. This study is only limited for the Lyceum of the Philippines University- Batangas Alumni and designed for those graduates that would like to submit or engage themselves to use the application.

The application limits the access of the Alumni's account when there is no Internet connectivity. The limit of the file size of the image is maximum of 1mb (megabytes) and the file types that can be use are JPEG, GIF and PNG.

1.1 Objectives of the Study This study is intended to obtain the following objectives:

1. To develop an Android mobile application that will track the alumni from 1970 of Lyceum of the Philippines University-Batangas.
2. To use Android Studio in developing, testing and debugging the android mobile application.

3. To provide an Android mobile application that will inform the alumni about the current events and announcements from LPU Alumni Association.

2.0 LITERATURE REVIEW Alumni Engagement

Relationship between the University and students starts when the students enroll into University. Cooperation between University and students has occurred since admission until graduation. When students graduated and then began to work, Alumni Association served as a bridge between the University and alumni.

Social media has found a stronghold in both the personal and professional world in the last ten years. From wikis and blogs to social networks of peers and friends, social media is ubiquitous. Social media facilitates the sharing of information, bringing previous weak ties closer and strengthening them by breaking through geographic, linguistic, and cultural barriers. According to Charles Kadushin (2011), human have been networking socially since the times of hunting and gathering. The idea of being connected to one another is not new, but with each new generation, the means of how people connect with one another change.

According to Kowalik (2011), “social media provides you the opportunity to humanize stories of students and alumni of your institution, which can create loyalty and earn future business (students), and ultimately their respect”. Social networks today operate as “both a meta-community and a specific community . . . it is a conglomeration of all interests into a single hub . . . the focus of the new social web is individuals and their collective identity” (Keenan & Shiri, 2009).

Social media platforms such as Facebook, Twitter, and MySpace have been compared for their roles in building virtual community; each has their own unique way of attracting and building sustainable communities. Emotional ties are important to alumni relations: if alumni feel as part of a strong community, their inclination to donate to their alma mater increases. LinkedIn allows communities to grow by connecting friends to friends to colleagues, creating strong networks (Makrez, 2011). The strong networks that are built using LinkedIn provide both intrinsic and extrinsic value to both the alumni being connected and the higher education institution that has set up the community. Through participation in online communities, members can fulfill

their sense of belonging while helping the institution with a vital link to the external environment (Porter et al., 2011). The challenge to building an online community is motivating people to participate. Often online communities break down when the support systems fail, and the issue of a digital divide still exists in some areas of the world, as accessibility to technology pervades (Lwoga, 2012).

Social media is providing alumni relations offices a new realm within which to practice old business. Mentoring, networking, career advice, maintaining connections, and soliciting alumni donations are just some of the things that a typical alumni relations office does. In recognizing the breadth and depth of opportunities to foster engagement, it makes sense that measuring alumni engagement online is a priority for many organizations and institutions.

Sevier (2007) looks beyond the idea of tracking social media engagement and counting clicks generated online. Sevier believes that developing one's own social network creates an inclusive space where not only can the organization focus its messaging and marketing, but also create an inclusive and supportive community where

participants feel comfortable to share their observations. "If the social networking concept includes an emphasis on community building, then the array of tools available to colleges and universities increases dramatically . . . Alumni are engaging with current students through an online directory as well". When those connections between alumni and current students can be evaluated for the kinds of topics discussed and the richness of the discussions, then postsecondary institutions can think of ways to target messaging and truly engage with their alumni audience.

Fall (2006) captures the relationship that a university can hold with its students, staff, community, and alumni. Her research focused on the community- university partnership, "communiversity" as she terms it, is a place where the pulse of engagement can be measured. She states that, as a centre for higher learning and education, it is incumbent upon universities to remain closely connected to its communities.

Shirky (2008) believes that by creating online spaces for people to connect, sharing and conversation will happen naturally and the idea of community can be strengthened. "Our electronic networks are enabling novel forms of collective action,

enabling the creation of collaborative groups that are larger and more distributed than at any other time in history". Comer (2011) agrees with Shirky's assessment of what can make an online relationship grow. Emphasizing that relationships are initially built on LinkedIn through the personal connections one has, "you . . . learn about a contact's interests, making it a great resource to help you build relationships". It is finding that initial commonality that will attract people together and give them a shared frame of reference to start discussions from.

Mobile Applications

A Mobile application is known as a software application that runs in a smartphone, tablet or another device typically with a wireless connection (Chaffey 2002). These applications are the reason why the access to all sorts of information, entertainment, or services has become easier and quicker and the knowledge acquired in this way is up-to-date and related to the actual situation.

Mobile applications are including in the progressed in creating needs and they provide results in the way of fulfilling the need. Users meet the necessity by them because they solve the problem which

conclude from not fulfill their needs in other way – they proffer fast, fruitful access to information, a comparison of the ways of delectation the needs, degrade costs to meet the needs etc. They may come from the internal needs of the consumer or to come out under the impact of external factors. By using PC, tablet or smartphones, they could be satisfied but the mobile devices in comparison with computer with

Internet-enabled vary in few points. Mobile devices are used commonly by one person, are fully mobile, they give access all day and night to convey or to entertain, are effortless to use, help to detect user, and many applications are accessible for mobile devices and simplify process of research or buying (Bilińska-Reformat 2014). Mobile applications satisfy users on various levels of pyramid of needs – owing to them users can feel secure, sense of intimacy, also respect or self-realization. One may say that mobile applications satisfy both individual and social needs and this makes them very attractive for users. In the paper the authors concentrated on the benefits, which relate to satisfying internal needs connected with satisfaction from shopping online.

Android Platform

Android is the world's most popular operating system for mobile devices and tablets. It is an open source operating system, created by Google, and convenient to all kinds of developers with different expertise levels, ranging from rookie to professional.

According to developer's perspective, Android is a Linux-based operating system for smartphones and tablets. It contains a touch screen user interface, widgets, camera, network data monitoring and all the other features that allow a cell phone to be called a smartphone. Android is a platform that carry various applications, accessible through the Android Play Store. The Android platform also enable end users to create, install and use their own applications on top of the Android framework. The Android framework is licensed under the Apache License, with Android application developers holding the right to convey their applications under their license.

3.0 METHODS

The researchers planned to use different methods and procedures for the completion of this mobile app. To achieve the set of objectives, the researchers used Mobile Application Development Life Cycle

(MADLC). As the following Mobile

Application Development Lifecycle model

MADLC is used to enable a systematic approach in development, the mobile applications have complex functionality and are different from the desktop applications, (Vithani, 2014).

Figure 1. **Mobile Application Development Life Cycle**



Initial Planning. This project started in initial planning of the topic where in the group set a meeting and talked about good capstone proposal. The group consulted their adviser about the topics that they developed. Different topic ideas were stated. The group consulted to the Dean, Mrs. Roselie B. Alday who helped them to identify and show different kinds of good capstone proposal. Until this proposal was given to them by their adviser and then they think everything about the proposal. The group agreed and gladly

accepted the project and from this it became their final capstone proposal.

Planning and Requirements. After the researchers conducted the initial planning, they have developed their concrete plan and gathered their requirements. They brushed up with a lot of readings and searching a lot of articles and capstone projects that are related and could help to their chosen topic. The researchers' adviser also discussed how to begin the first part of the project. They had given the time structure of the project and scheduled the coming activities and deadline of each part of the study. Again, the group held a lot of discussions how to elaborate the idea of their chosen topic. They had assigned each and every one on which part they will do to make the project more productive. They gathered information based on the assigned part they had. Through this, each of them got enough information about the needs, the target users, the technology, the features and functionality and the limitations of the application. These are required to utilize the development of the application or software for the identified problem.

Identification Phase. In this phase, the researchers gathered idea. They held

consultation time with their adviser for a good capstone topic and came out with the development of mobile app for tracking LPU alumni.

Design Phase. In this phase, the application was coded. Here, the researchers used the Android Studio and Adobe Photoshop for the creation this mobile application. Researchers determine the salient features and consider the functionalities and design of the approved proposal related to the objectives of the application. Researchers created guidelines and determined the salient features and the functionalities that the application should possess to be able to achieve the objectives, they had researched existing applications that related to the topic and improved the features they had. They came up also with the ideas on how the flowchart would be, and the design of the user interface that could be eye-catching and user-friendly.

Development Phase. From the approved plan, researchers plan to use Android platform in the development of the application. Screen shots were also created to further explain the usability of the application.

Prototyping Phase. Here, the functional requirements were finalized. The development, prototyping and testing phases were repeated to come out with the final output.

Testing Phase. The testing phase is one of the most consequential phases of any development life cycle model. Here, researchers performed series of test using the Android emulator and followed by testing on real Android phone. The researchers proceeded to the test of the in the Google Play for user consumption. In

this stage, the mobile app passed all the

phases and ready for deployment. The researchers delivered the application to the

intended users (target audience) and let them try to use the application for feedback and evaluation for further improvement or enhancement. The survey for the application was in accordance with the ISO 9126 standards which include the Functionality, Reliability, Usability, Efficiency, Maintainability, and Portability of the application. The survey's main purpose was to measure the level of effectiveness or

application that involved the debugging of the program, detecting the real error, solving the detected error (if there is any error found) and running a demo of the application, tested its functionalities and tried its features and determined what was/were missing or still needed in the application.

Deployment Phase. Deployment is the final phase of the development process and researchers forwarded the developed app to Alumni Office for the permission to upload

conformity of the application.

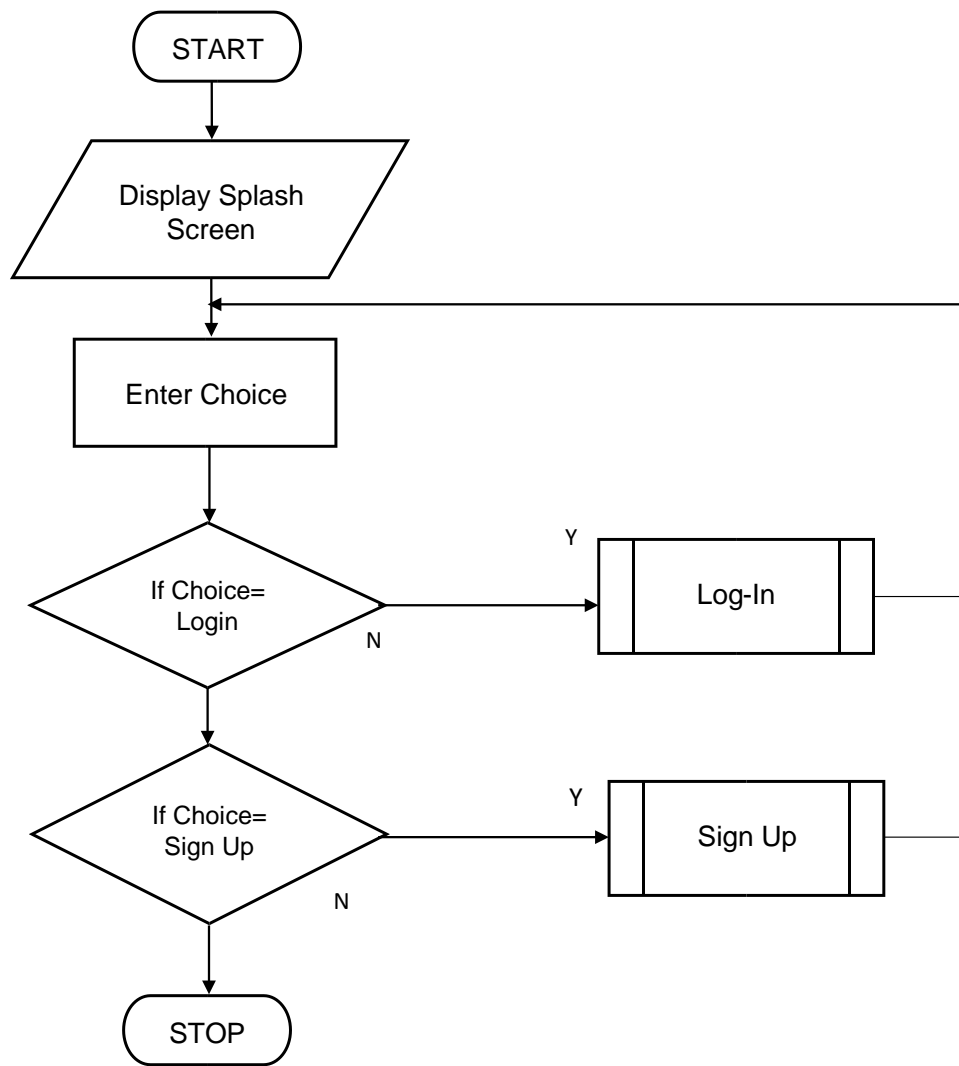


Figure 2. Splash Screen

In this figure, the user will choose to login or sign up.

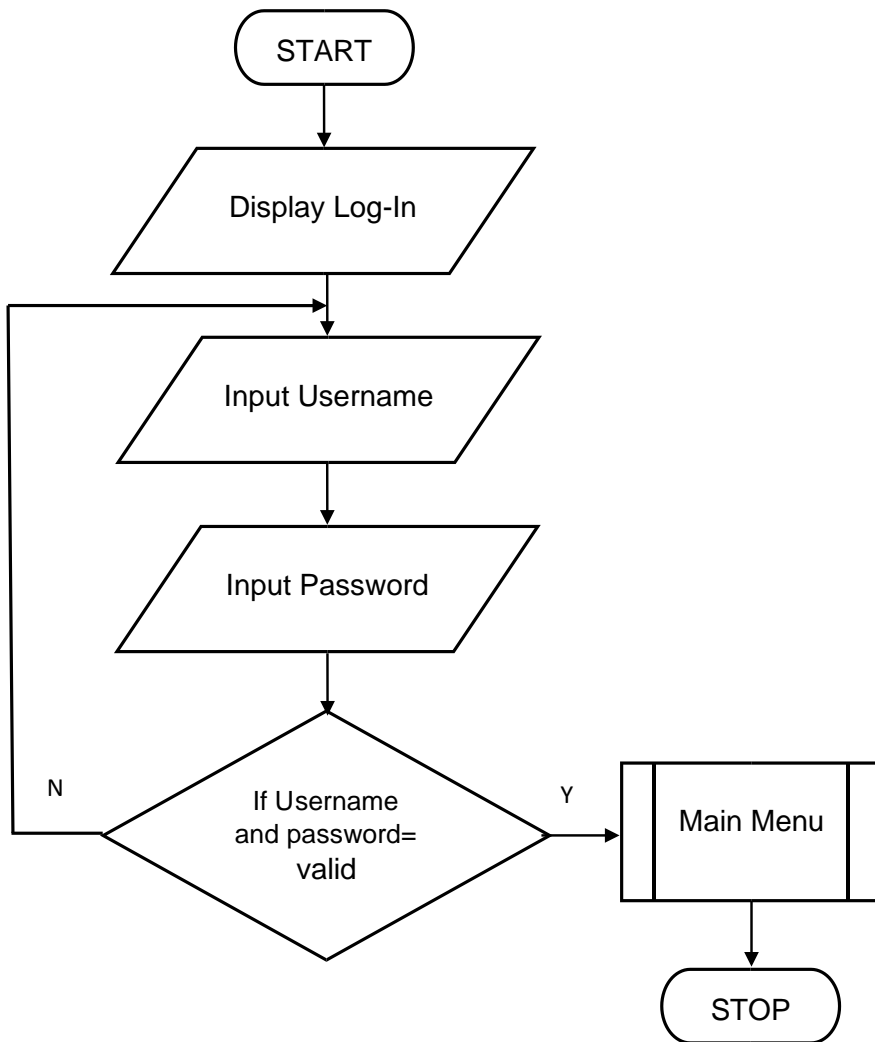


Figure 3. Log-In (User and Admin)

In this figure, the user will input the username or password.

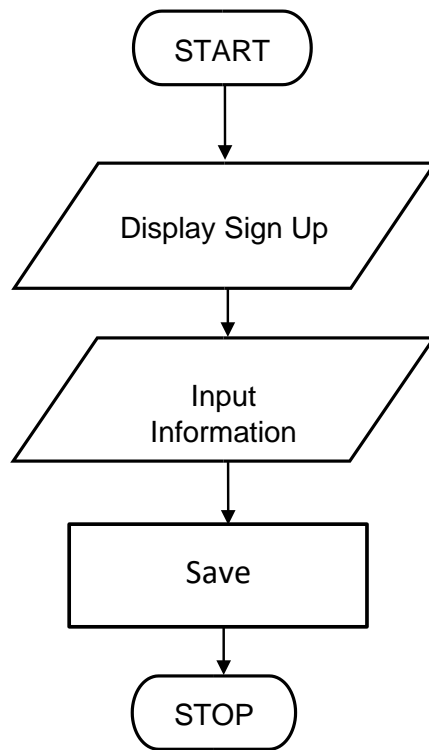


Figure 4. Sign up

In this figure, the user can input their information (User Id, First Name, Last name, Sex, Address, Email, Contact No., Department, Course, Year Graduated, Profession, and Access Type). And the user will wait for the confirmation of the admin.

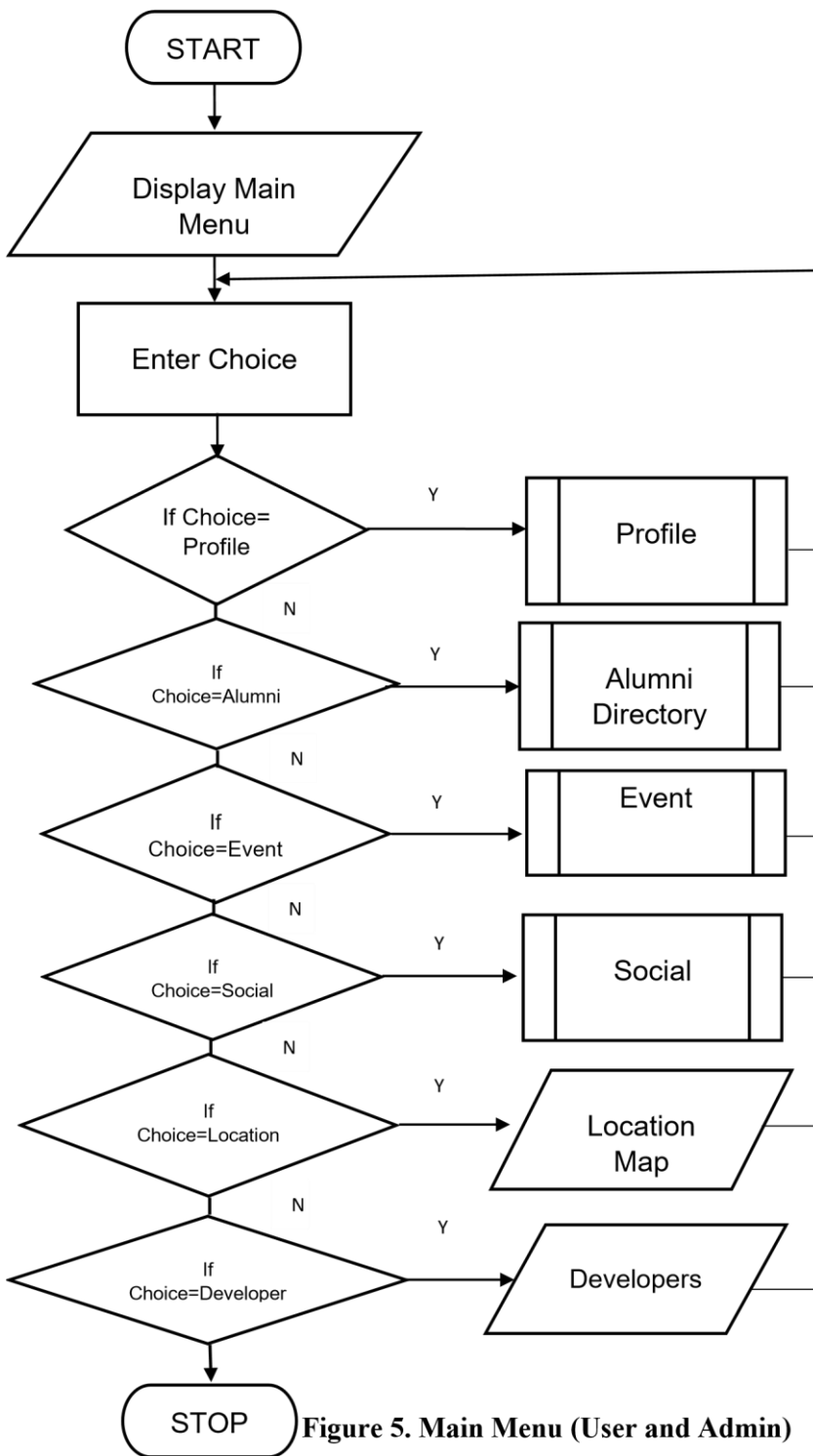


Figure 5. Main Menu (User and Admin)

n this figure, the user will choose the Profile, Alumni Directory, Even, Social, Location Map, Developers.

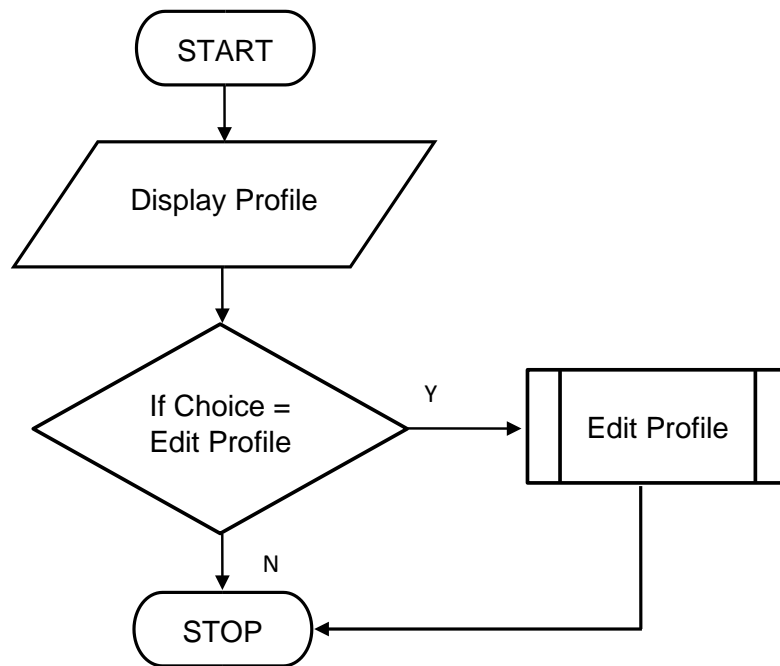


Figure 6. Profile (Admin and User)

In this figure, this will display the Profile of the Admin and User.

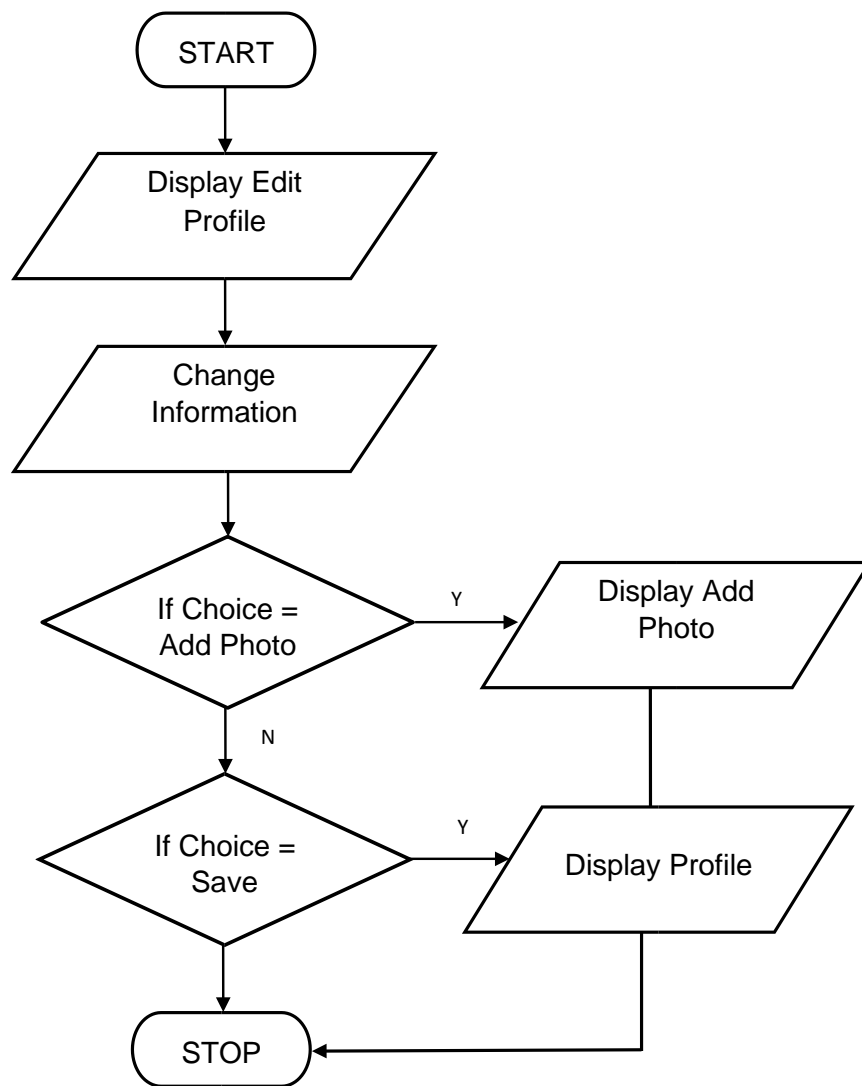


Figure 7. Edit Profile (Admin and User)
In this figure, the user can edit their Profile.

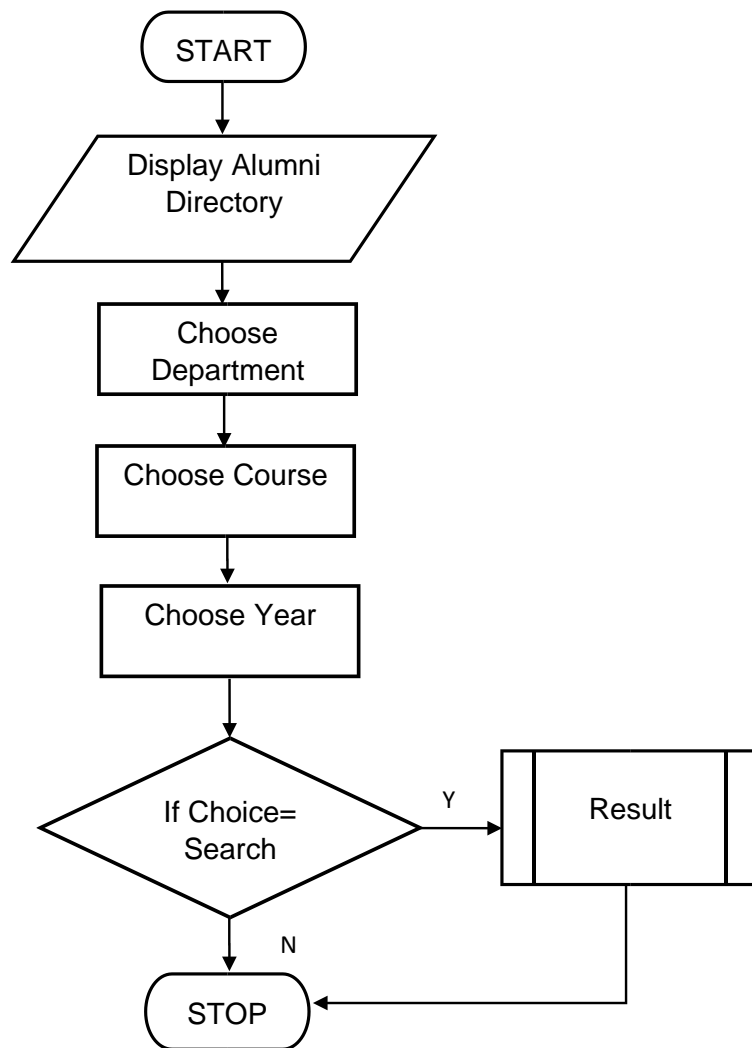


Figure 8. Alumni Directory

In this figure, the user can choose Department, Course, and Year.

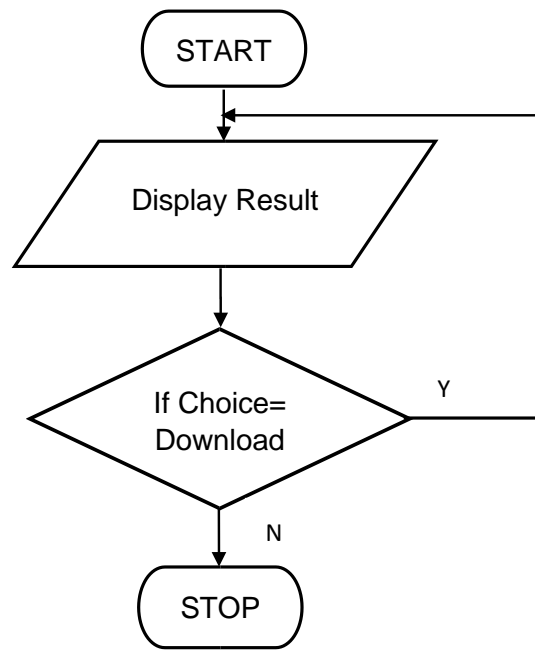


Figure 9. Result

In this figure, the user can download the result.

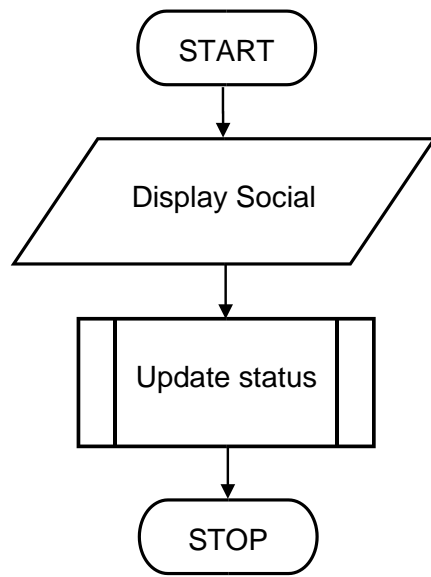


Figure 10. Social

In this figure, the user can update the status.

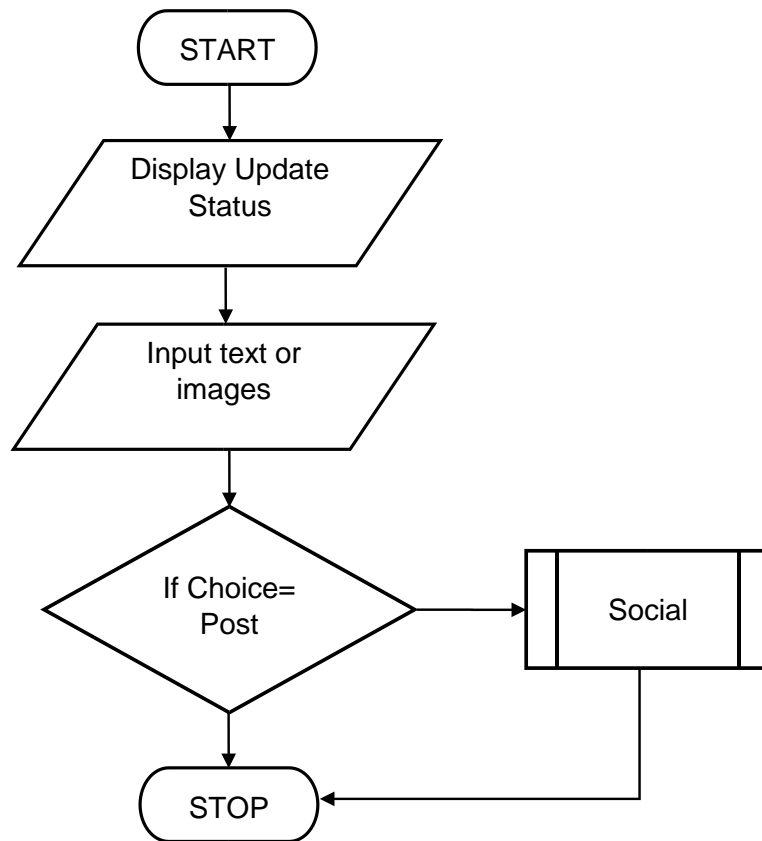


Figure 11. Social (Update Status)

In this figure, the user can input Text or Image.

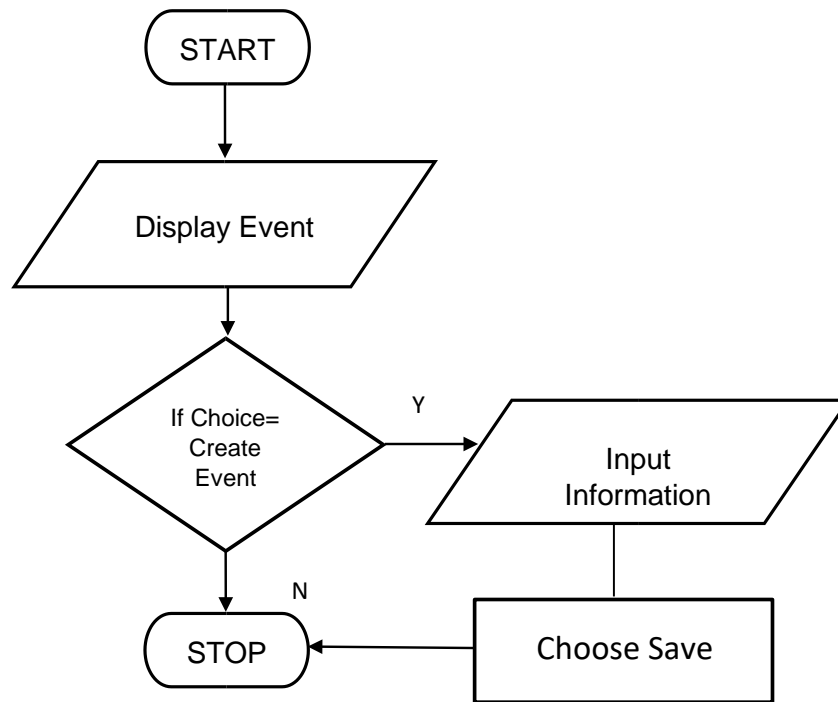


Figure 12. Event

In this figure, it displays the events in the school and the admin create event and Input Information.

[illegible]

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Figure 13. Gantt Chart (Capstone 1)

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Figure 14. Gantt Chart (Capstone 2)

4.0 RESULTS AND DISCUSSION

Screenshots



Figure 15. Logo of AlumniConnect in

HomeScreen In this figure, it shows the icon of the application. It will be used to select and to launch the application and show the Splash Screen right after selecting the icon of the application. It can be seen on the app drawer or home panel of the device if set.

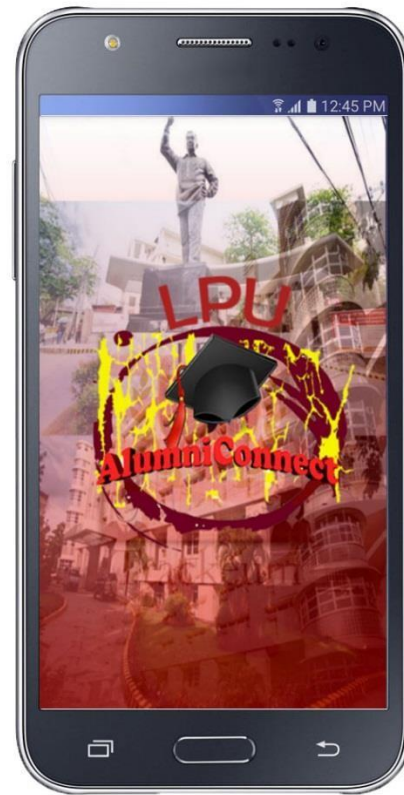


Figure 16. Splash Screen

In this figure, the user will be welcomed with a Splash Screen once the icon of the application is selected. It Displays the Logo of the application and the Sotero's statue and building of LPU Batangas.

Profession, and Access Type). And the user will wait for the confirmation of the admin.

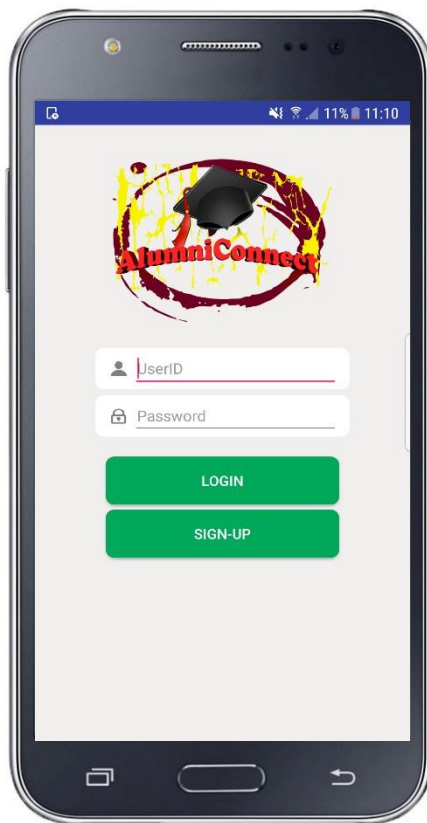


Figure 17. Login

In this figure, the login page is developed for the Alumni and Professor to login into their account with their user id and password

Figure 18. Sign up In this figure, the user can input their information (User Id, First Name, Last name, Sex, Address, Email, Contact No., Department, Course, Year Graduated,

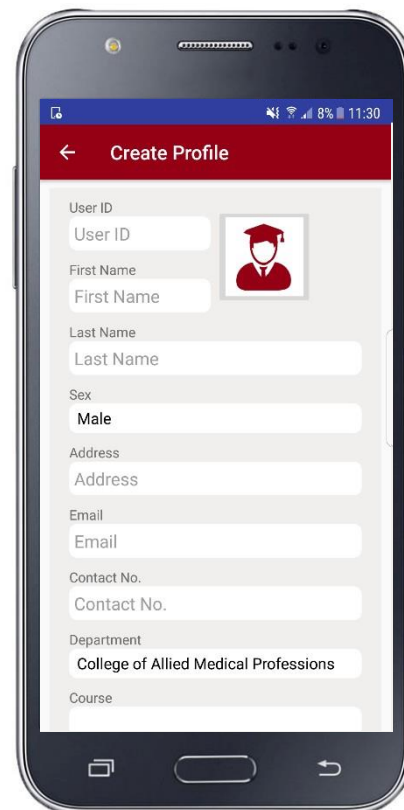




Figure 19. Main Menu (User)

In this figure, it shows the different menus. It

displays

Directory Button, Social Button, Events information.

Button, Campus Map Button and the

Developer Button.

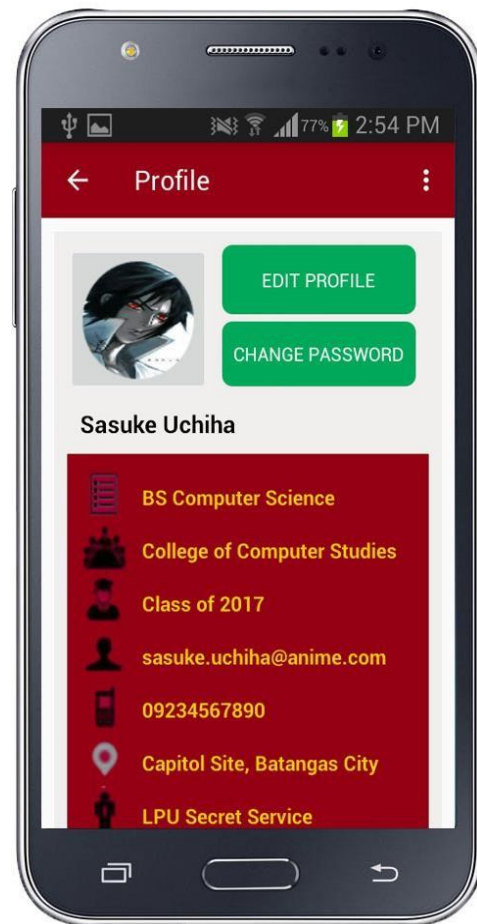


Figure 20. Profile

In this figure, it shows the information. The the Profile Button, Alumni user can edit his/her profile picture and the

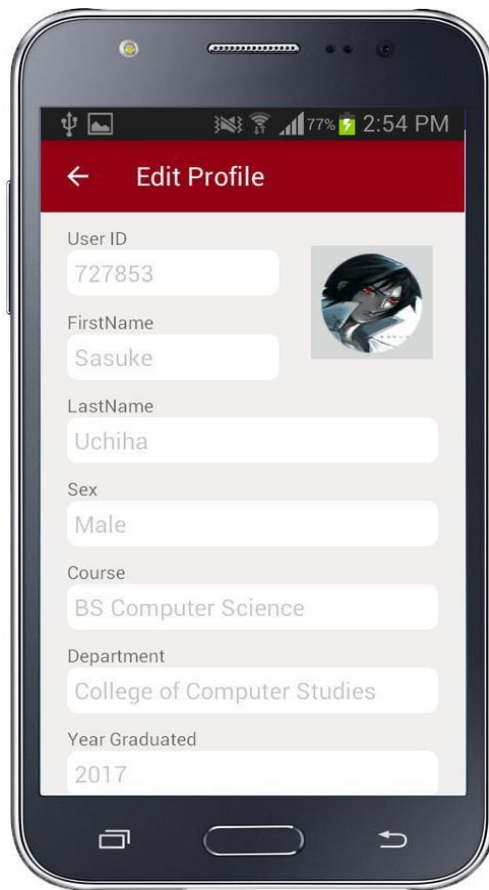


Figure 21. Edit Profile

In this figure, the users can change their information and their passwords. They can also add information's regarding to their professions.

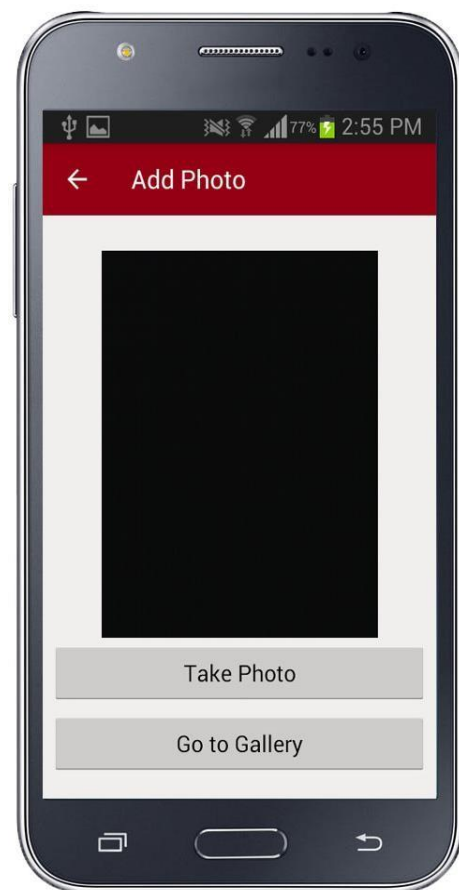


Figure 22. Add Photo

In this figure, the user can add photo. It will save to the user's profile.

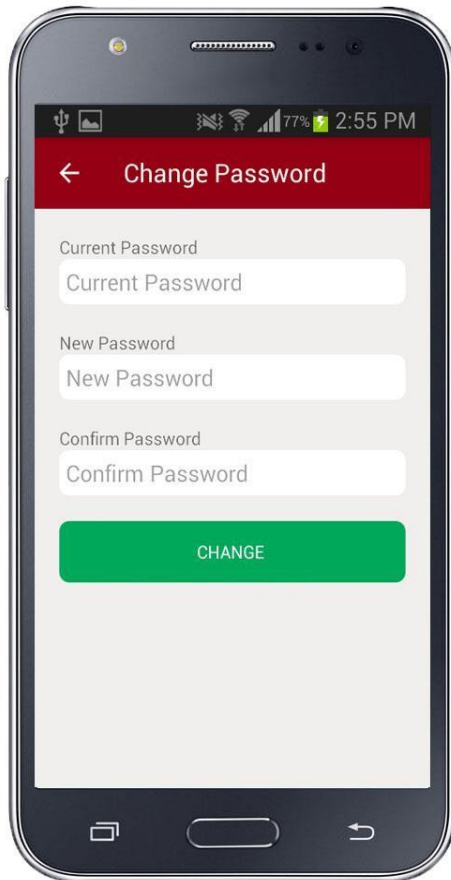


Figure 23. Change Password
In this figure, the user can change their password.



Figure 24. Select Department (Alumni Directory)
In this figure, the user can choose a Department when searching Alumni.



Figure 25. Select Course (Alumni Directory) Figure 26. Select Year (Alumni Directory)

In this figure, the user can choose the course

In this figure, the user can the year they once they clicked the Department. graduated.

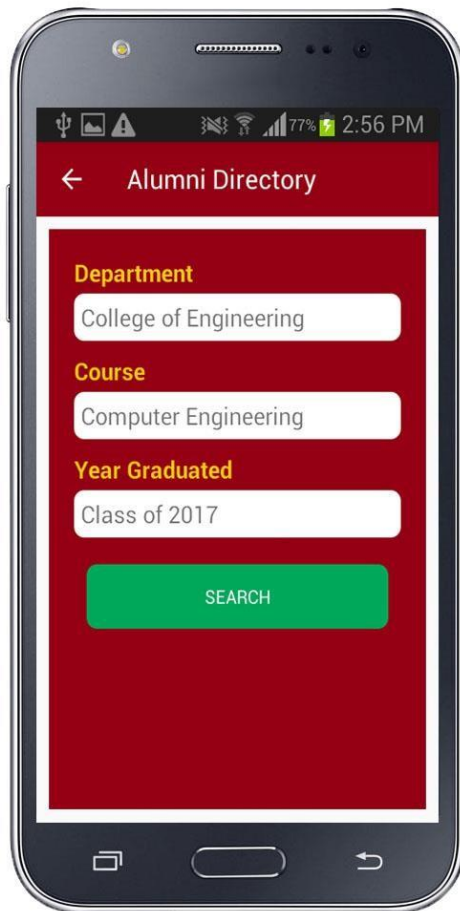


Figure 27. Search (Alumni Directory)

In this figure, the user can select the year graduated. the user clicked the search button. The



Figure 28. Result

In this figure, it will display the result after they admin can download the result.

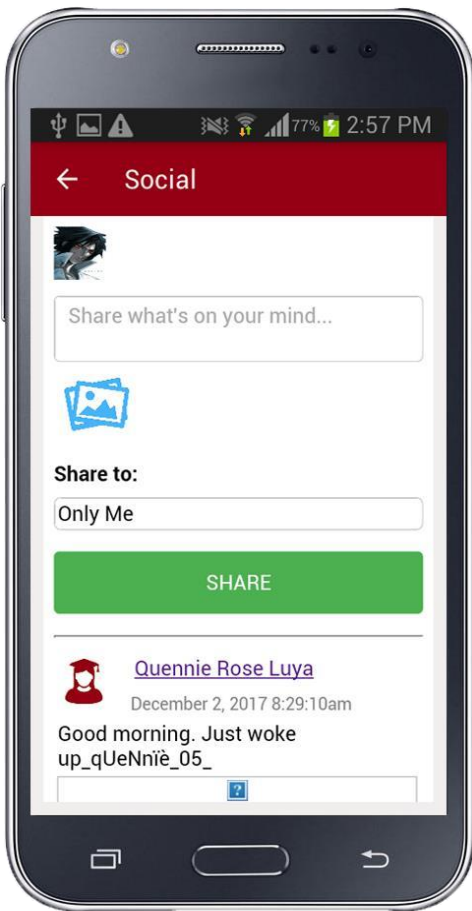


Figure 29. Social (Update Status)

In this figure, the user can share photos and status in public or in private.

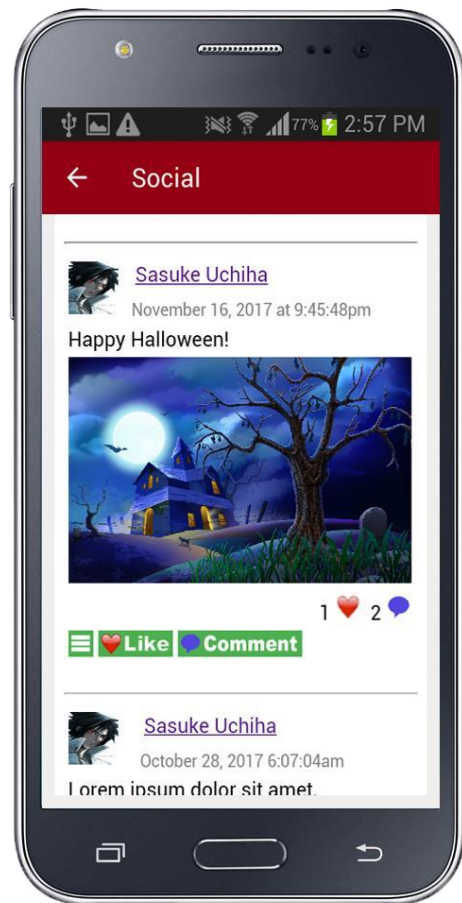


Figure 30. Social (Like and Comment)

In this figure, the users can like and comment to the post of other users. The user can also delete their own post.

Figure 31. Events

In this figure, it shows the Date, Time and

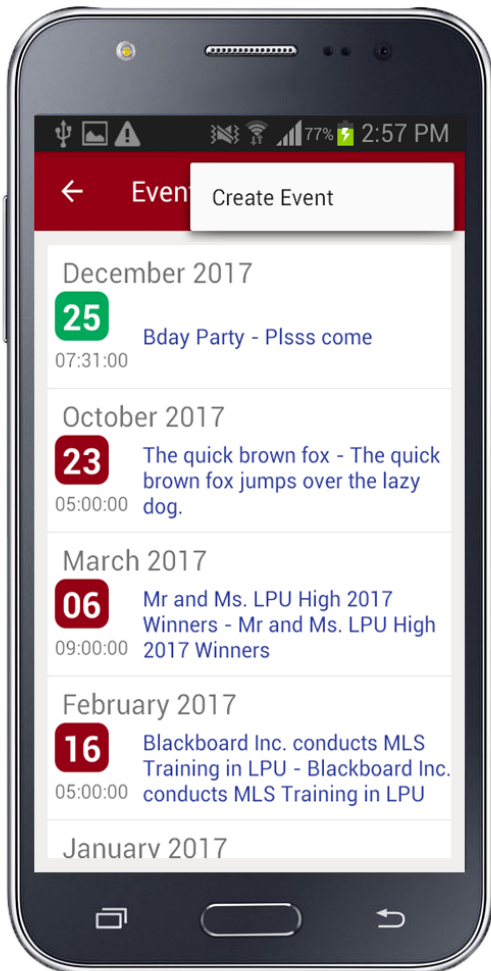
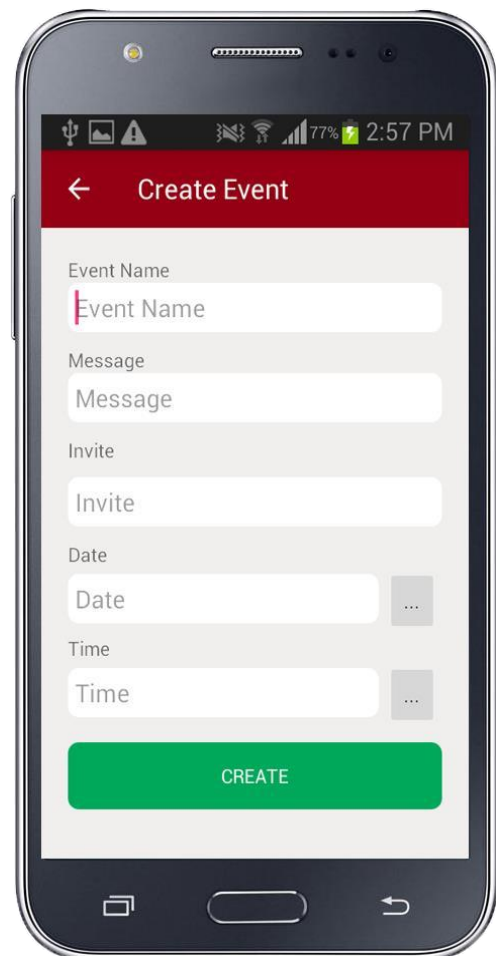


Figure 32. Create Event

In this figure, the admin will enter an



Description of the events. The admin can information about the event to create an create an event. event.

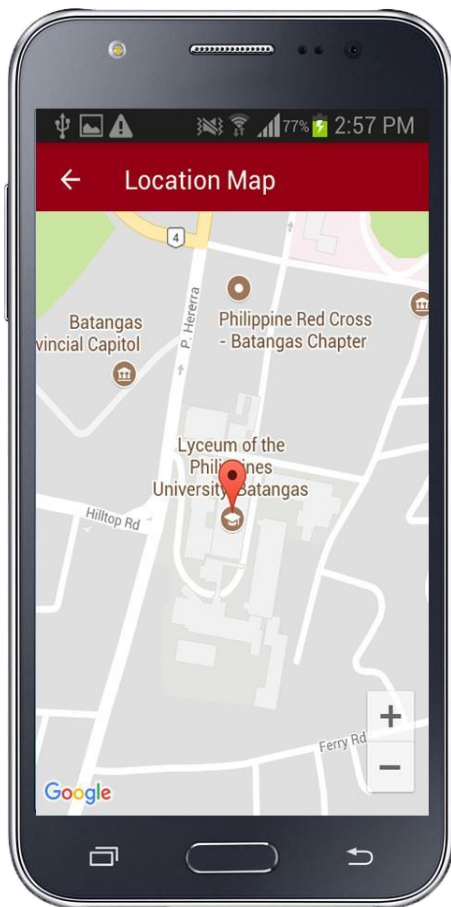


Figure 33. Location Map

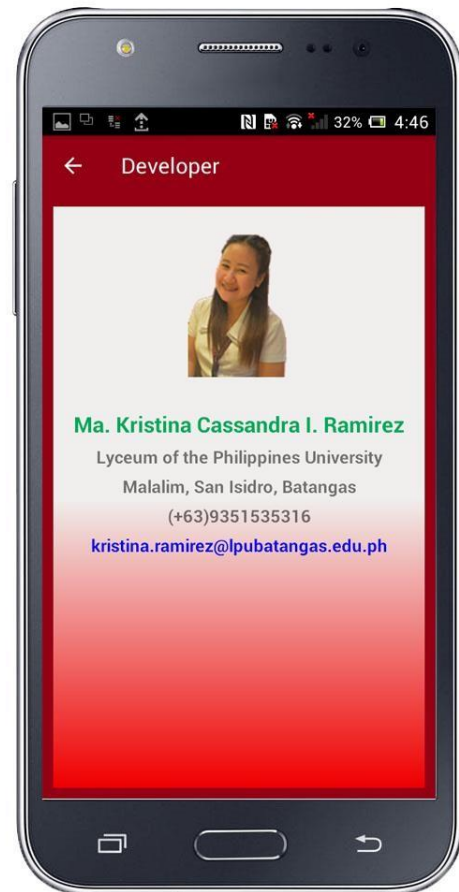


Figure 34. Developer

In this figure, it shows the map and the LPU Batangas. In this figure, it shows the information of contact of the developer of the application. To see the other developer, you will swipe from right to left.

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 SUMMARY

This Android mobile application titled “Alumni Connect” was developed to help Lyceum of the Philippines University to register easily and to the administrator of the association to track all the alumni in every part of the world.

This mobile application will provide each graduate the portal to communicate with colleagues; thus, maintaining and renewing relationships among alumni through social connection.

In order to use the application, any alumni can register for validation. Users can also update their profile by uploading photo and update their work status using the social page of this application.

This application was developed using PHP as the programming language, MySQL for its database and Apache as Web server. Android Studio was used for the development, as well as for testing and debugging process.

5.2 CONCLUSIONS

After the research was completed, the

provide the alumni an easiest way to communicate and be informed of the latest news in LPU specifically to the college where they belong. Using its feature- the social page, alumni can share things about themselves and be available to all the users of the application. This application is one good innovation for tracking alumni.

5.3 RECOMMENDATIONS

AlumniConnect of LPU-Batangas was made available for all the LPU Alumni. Even though this is a great way of tracking alumni, there are some features that the researchers failed to implement due to time constraints. To the future researchers who want to venture in similar studies, these are the recommendations:

1. The News Section is important to inform the alumni about the latest happenings in the University. Though users can view the headline of the news, much better if they can view the whole story of the news which the developers failed to implement.
2. Though social page is working, it will be more appealing to users if the interface will be improved. Also, uploading videos

authors concluded that AlumniConnect of Lyceum of the Philippines University can

to the social page will be a good advantage.

3. Tracking of alumni will be more effective if the application can be made available

not only for Android users but for iOS users too.

REFERENCES

- [1] Bilińska-Reformat K. (2014), Information and communication technologies as determinant of the growth in competitiveness of commercial enterprise, Raporty IBRKK, Handel Wewnętrzny w Polsce 2009-2014. Zmiany w handlu hurtowym i detalicznym. Technologie informacyjne i komunikacyjne w handlu. Handel internetowy, Warszawa 2014, pp.182-198.
- [2] Chaffey D., (2016), Digital Business and E-Commerce Management, PWN, Warszawa, p. 12. Economides, A. A., Grousopoulou, A. (2008). Use of mobile phones by male and female Greek students. International Journal of Mobile Communications (IJMC), Vol. 6, No. 6, pp. 729-749
- [3] Comer, J. (2011). Building relationships with LinkedIn, Practice Management Solutions, pp. 10-11.
- [4] Developing for Android - An Introduction. (n.d.). Retrieved April 15, 2017, from http://www.cprogramming.com/android/android_getting_started.html
- [5] Fall, L. (2006). Value of engagement: Factors influencing how students perceive their community contribution to public relations internships, Public Relations Review, 32, pp. 407-415.
- [6] Kadushin, C. (2011). Understanding Social Networks: Theories, Concepts, Findings. New York: Oxford University Press.
- [7] Keenan A. and Shiri, A. (2009). Sociability and social interaction on social networking websites. Library Review, 58(6), pp. 438-450.
- [8] Kowalik, E. (2011). Engaging alumni and prospective students through social media. Cutting-edge Technologies in Higher Education, 2, pp. 211-227.
- [9] Lwoga, E. (2012). Making learning and Web 2.0 technologies work for higher learning institutions in Africa. Campus-Wide Information Systems, 29(2), pp. 90-107.
- [10] Makrez, H. (2011). Am I invited? Social media and alumni relations, Laura A. Wankel, Charles Wankel, in (ed.) Higher Education Administration with Social Media (Cutting-edge Technologies in Higher Education, Volume 2), Emerald Group Publishing Limited, pp. 229-248.
- [11] Rattanamethawong, V., Sinthupinyo, S., & Chandrachai, E. A. (2015). An Innovation System that can Quickly Responses to the Needs of Students and Alumni. ProcediaSocial and Behavioral Sciences, 182, 645-652.
- [12] Sevier, R.A. (2007). Using social networking to its fullest potential. University Business, 10(5), pp. 25-26.
- [13] Shirky, C. (2008). Here Comes Everybody: The power of organizing without organizations. New York: Penguin Books.
- [14] Vithani, T., & Kumar, A. (2014). Modeling the mobile application development lifecycle. In *Proceedings of the International MultiConference of Engineers and Computer Scientists* (Vol. 1, pp. 596-600)

