# DEVELOPMENT OF STUDENT MOBILE APPLICATION FOR FACULTY OF SCIENCE UNIVERSITY OF PERADENIYA

A PROPOSAL PRESENTED BY

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# CHAPTER 1
# INTRODUCTION

Today smart phones have become ubiquitous among people of all age, gender and profession. It has revolutionized the way we communicate. Almost all undergraduate and graduate students of higher education institutions (Universities) own a smart phone. Therefore, the communication between the university and its students can be very easily streamlined using the smart phone. Students expected to satisfy their information needs immediately. Rather than going to get the information students today are accustomed to instant information access. Using smart phones personalized and accurate information can be delivered to the students quickly.

At present, the Faculty of Science, University of Peradeniya provides student services such as course management, notices and announcements via its official website[1]. The faculty administration posts notices to its website. It conducts course surveys at the end of the course period manually.

## 1.1 Problem Statement

Even though there is a web based system available, the Faculty of Science lacks a mobile native way to provide these services to the students. There is no detailed map for navigation inside the university premises for students. Current maps does not provide more localised details. Notices uploaded to the website do not reach all the students or reaches the students late, not within the intended time period. The Faculty of Science does not have a method of logging suggestions and complaints electronically. They have to be done manually. Course surveying can be made more efficient if done electronically.

Therefore, I am proposing a mobile application which incorporates features to address the above issues.

## 1.2 Objectives

The objectives of this project are:

- Provide a user friendly and convenient way for the students to use the faculty services via a mobile application.
- Make communication between students and faculty efficient and streamlined.
- Provide an easy way for the faculty to reach the students and engage with them.

# CHAPTER 2
# LITERATURE REVIEW

The Faculty of Science, University of Peradeniya currently has a web based system to manage student services. It requires constant login via a computer or mobile device to access them. Frequent logins reduce the efficiency and give a less favoured user experience. It also lacks a native mobile user experience. A system that is easy to use would drastically increase student engagement.

Many leading universities in the world have mobile application to manage student services even though they have a web based solution in place. The Harvard University Mobile App[2] is a university wide initiative by Harvard University to improve the mobile experience of its students. It offers student services such transit, map, courses, library, admissions, athletics, people search and support. It also offers other native services[3] offered by the university. This mobile application helps students manage services easily.

Princeton University also offers services via its mobile application, Princeton Mobile[4]. It includes the campus map, dining locations, menus and hours, live bus transit, people search, course listings and library information. It also has a web application of the mobile application[5].

Using a mobile application is an effective way of managing student services. It is advantageous to both the student and the faculty. It provides all the essential resources needed by the student in a single package. Makes information access and deliver fast. Additional services can be easily added to the application based on availability.

# CHAPTER 3
# FUNCTIONAL SPECIFICATION

## 3.1 Functions Performed

The mobile application will provide the following functionalities:

- Course management
  - Add or drop courses (Course enrolment).
  - View enrolled courses.
  - View grades obtained.
  - View course catalogue.
- Provide detailed map of the university premises for navigation.
- Search for contact information of staff members in Faculty of Science, University of Peradeniya.
- A system to send notices.
- A system to log complaints and suggestions.
- A system to survey courses (course feedback).

## 3.2 Limitations and Restrictions

To access the features of the application the user has to login using a valid faculty provided G suite user name. Other forms of user validation is not provided. Course enrolment via the application will be provided if the faculty decides to do so. Course survey data will be collected anonymously. User data will not be collected.

# CHAPTER 4
# METHODOLOGY

## 4.1 Approach

The waterfall development method will be used as the software development methodology.

- Requirement analysis – Analysis of student requirements and planning how the system can implemented in a user friendly manner.
- System design – Creating entity relationship diagrams, data design and user interface design.
- Implementation – Implementing the system using the proposed programming languages.
- Testing – Testing and debugging the system.
- Maintenance – Maintaining the system and providing support. Fixing bugs that did not arise during testing. Making system tweaks based on user feedback.

The initial focus will be to complete the mobile application for android platform. Initially, only the map of Faculty of Science will be included and later it will be expanded to cover the whole university premises.

## 4.2 Implementation Languages and Technologies

The mobile application will be implemented using the following programming languages and technologies:

- Frontend – The frontend will be developed using Flutter framework which uses the Dart programming language.
- Backend – Google Firebase.
- Databases – Cloud Firestore and Firebase Realtime Database.

### 4.3 System Structure

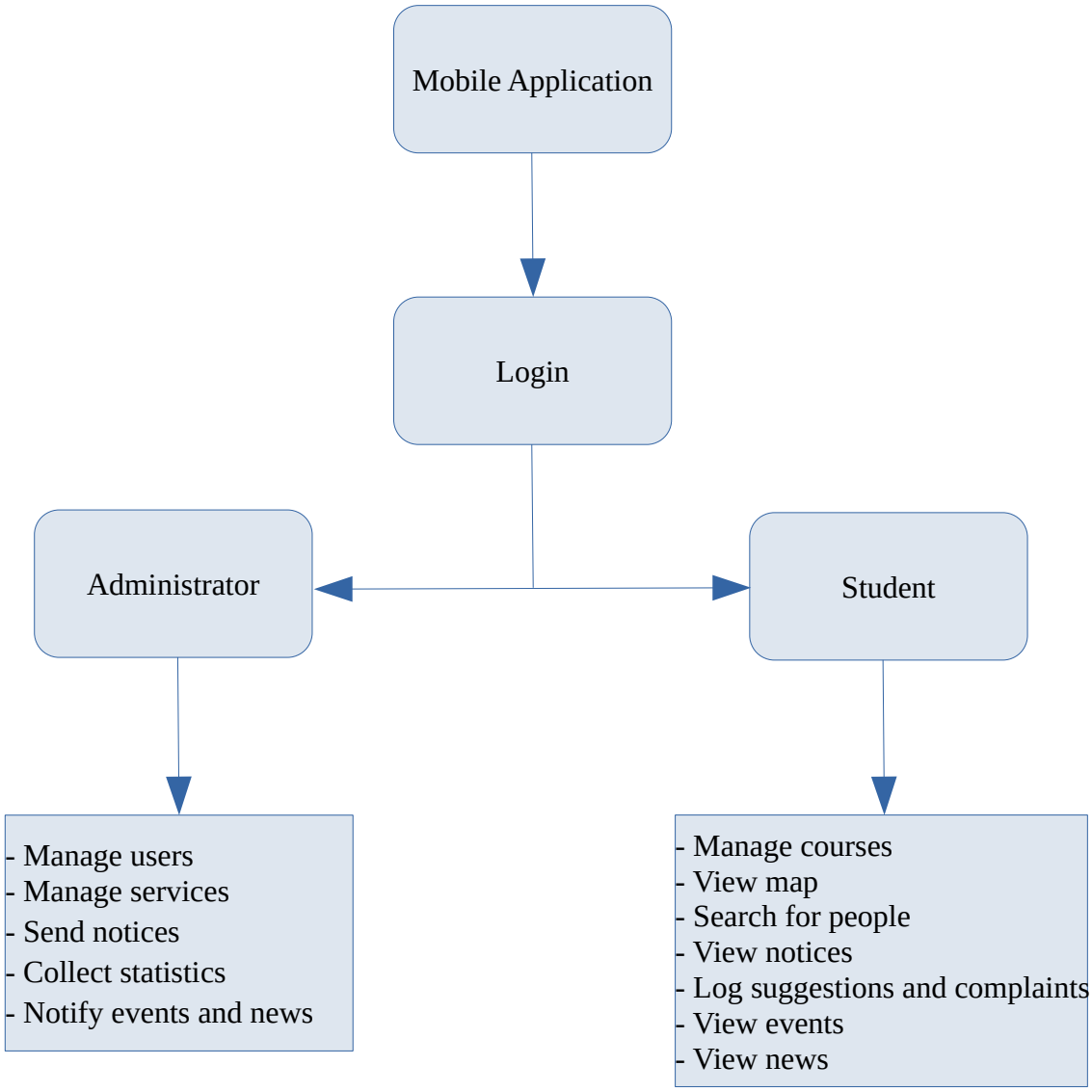


**Figure 4.1:** Basic design of the system

### 4.4 Timeline

**Table 4.1:** Work-plan for the project

| | 2020 | | | | | | | 2021 | |
|---|---|---|---|---|---|---|---|---|---|
| Item | June | July | August | September | October | November | December | January | February |
| Requirement Analysis | | | | | | | | | |
| Data Design | | | | | | | | | |
| UX/UI design | | | | | | | | | |
| Implementation | | | | | | | | | |
| Documentation | | | | | | | | | |
| Testing and debugging | | | | | | | | | |

# REFERENCES


[1] "Faculty of Science", Sites.google.com, 2020. [Online]. Available: https://sites.google.com/prod/sci.pdn.ac.lk/services/. [Accessed: 11- Jun- 2020].

[2] "Harvard Mobile Apps | Harvard University", Harvard University, 2020. [Online]. Available: https://www.harvard.edu/about-harvard/harvard-mobile-apps. [Accessed: 11- Jun- 2020].

[3] "Harvard", m.harvard.edu, 2020. [Online]. Available: https://m.harvard.edu/. [Accessed: 11- Jun- 2020].

[4] "About this app", m.princeton.edu, 2020. [Online]. Available: https://m.princeton.edu/default/info/index. [Accessed: 11- Jun- 2020].

[5] "Princeton Mobile", m.princeton.edu, 2020. [Online]. Available: https://m.princeton.edu/default/page/index. [Accessed: 11- Jun- 2020].