DEVELOPMENT OF MOBILE APPLICATION CINEMA E-TICKET AND PAYMENT SYSTEM

BY

MABELLYN LIEW LINZHEN

A REPORT

SUBMITTED TO

Universiti Tunku Abdul Rahman

in partial fulfillment of the requirements

for the degree of

BACHELOR OF COMPUTER SCIENCE (HONOURS)

Faculty of Information and Communication Technology

(Kampar Campus)

JANUARY 2021

UNIVERSITI TUNKU ABDUL RAHMAN

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DECLARATION OF ORIGINALITY

I declare that this report entitled "**Development of Mobile Application Cinema E-ticket and Payment System**" is my own work except as cited in the references. The report has not been accepted for any degree and is not being submitted concurrently in candidature for any degree or other award.

Signature : 

Name : Mabellyn Liew LinZhen

Date : 14.04.2021

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First, I would like to express my special thanks of gratitude to my supervisor, Mr. Phan Koo Yuen for his guidance and support in completing my project. Second, I would like to thank my family for giving me support mentally when I felt stress.

ABSTRACT

There are some problems with the cinema ticketing. This first problem is time-consuming. It will take longer time for users to buy cinema ticket at cinema counter. This is because of they need to queue up for at least 15 minutes to buy a ticket especially at the cinema which located inside shopping mall. The next problem is there are no notifications come out when the tickets are sold out. Customers need to always go to cinema counter to check the available time of some famous movies as the movie maybe sold out. The last problem is the payment method. In the year of 2020, many customers prefer e-payment rather than cash as the corona virus will be spread through everything when that thing being touched by someone.

This project is a development of mobile application cinema e-ticket and payment system. In this mobile application, users can see the details of movie list such as released date and summary. Uses also can book their movie tickets if the time slot and seat of movie is available. Users can make their payment through e-payment system such as e-wallet and debit card. When the users successfully book the ticket, the seat available for the movie will be updated and user also can see their receipt through history and email. The system will push up a notification to notify the users before 3 hours the movies starts. Admin can update the movie list such as add and delete the movie list by using this mobile application. Admin can generate report that contains the total sales of certain movie on particular week or month. By using this system, users will have more time to do their things as they no need to queue up at cinema counter.

TABLES OF CONTENT

LIST OF FIGURES

LIST OF TABLES

Chapter 1 Introduction

1.1 Introduction

Chapter 1 is about the introduction of the project. It will discuss about the background of study, problem statement, motivation, project scope, project objectives and significance.

1.2 Background Information

Users can buy the cinema ticket through different types of system. The most traditional way for users to buy the ticket is counter cinema booking system. Other than that, users can use kiosk to buy the ticket or online book the movie ticket.

For the counter cinema booking system, users need buy a single ticket at counter. The first cinema in Malaysia was Coliseum Theatre in Kuala Lumpur in 1928 (Anon., 2020)Users must go to cinema to buy tickets. Users can ask some questions to workers and the workers will try to solve the problems. Users can pay the payment through cash only at that time. Nowadays, some of the cinema supports debit or credit card, online banking, and e-wallet payment but some does not. Users need to wait for a long time if the only one counter does not have the small change. Users cannot buy the tickets anytime and anywhere as the counter will be closed at 11pm.

For the kiosk cinema booking system, users can print or buy the cinema ticket through kiosk. The first kiosk ticketing system was My Bilet which is in Turkey while the first kiosk ticketing system in Malaysia was deployed by Longbow (Anon., 2015). This system was located at TGV Cinema since September 2015. This kiosk system usually will be located at malls or cinema. This will save users time as users no need to have a long queue to buy the tickets. This system supports debit or credit card, online banking, and e-wallet payment. Users cannot buy the ticket anytime and anywhere as the location of kiosk system is specified such as mall and this specified location will be closed on certain time. After the business hours of certain location, users have to wait until it opens.

For the online booking system, there are two types which are website and mobile application. In the year of 2011, there are two cinemas that launched the online movie booking system

through mobile applications which are TGV and GSC. TGV cinema launched its mobile application on 15th January 2011 (Jamaludin, 2011). Through this online system, users can skip the queue and click on the button to buy the ticket online. After buying the ticket, the system will send a receipt about the booking details and e-ticket to users. Users can pay the payment through debit or credit card, online banking, and e-wallet. This will save a lot of time as users no need to queue up to buy the ticket and users no need to wait for the change. Users can buy the ticket anytime and anywhere as long as they have Internet connection and devices.

1.3 Problem Statement

Nowadays, most of the people depend on their smartphone and they like to do online shopping. They like to go to cinema to watch movies. Most of them also prefer buy ticket at counter than online. There are some problems will occur when users buy ticket at the counter of cinema. The first problem is time-consuming. It takes longer time to book a ticket at cinema counter (Addis E. et al., 2014). Customers need to queue up for at least 15 minutes to buy the tickets in the cinema especially the cinema located inside the shopping centre. The second problem is the ticket maybe sold out without any notifications. Customers need to go to cinema more than 1 times to buy the ticket as the tickets will be sold out especially their favourite movie or some famous movie (Rahman, 2009). For example, a customer needs to queue up for 30 minutes just to buy a single ticket and finally he cannot watch the movie just because of there are no seat remaining for that time slot. The third problem is the payment method. Customers need to pay cash when they buy ticket at the cinema (Nwakanma I.C. et al., 2015). Not all of the cinema will support e-wallet payment and maybe certain time the machine was broken down. For example, customers need to go to bank withdraw the money if they have no enough cash to pay the ticket and there is no e-wallet system in that cinema. This will let customers feel annoying as wasting their time.

1.4 Motivation

Nowadays, most of the people depend on their smartphone and they like to do online shopping. There are 62 percent of Malaysian use their smart devices to do online shopping and most of them preferred online payment as their payment (Anon., 2019). The motivation for this project is to develop a new automated movie ticket system with online payment system. The record of the tickets' sales will be recorded in the system and the remaining tickets stock or seat available will be updated after the customers buy the tickets through the system. This can save customers' time as they can see the available seat through online. They no need to queue up at the counter.

1.5 Project Scope

The scope of this system is to let admin add or delete or edit the details of movie such as showing time and price. Admin has the authority to view the history of booking details. Customer can login to the system for ticket booking. Customer can modify the seat before the payment. Customer can check the record of ticket when he is making payment. Customer will receive a notification 3 hours before the movie starts.

1.6 Project Objectives

The objective of this project aims to minimize the problems of buying ticket at cinema counter. This project intends:

1. To develop another option which is mobile application to let users buy movie tickets.
2. To develop a user-friendly design in mobile application.

In order to archive the above objectives, the following are some sub-objectives that are in basic and advance.

Sub-objectives (basic):

- Module of movie list. User can see the list of on-showing movies and up-coming movies.
- Module of cinema's location. User can see the cinema in certain area.
- Module of login system. User can login to the system to buy ticket.
- Module of e-payment system. User can pay their payment by using e-payment such as bank card and e-wallet.
- Module of movie details. User can see the movie showtimes, synopsis and trailer.
- Module of seat. User can see the available seat and the seat will not be available after user reserve a seat.
- Module of profile. User can see his personal details such as name and contact number.
- Module of history. User can see each history of booking the movie ticket.

Sub-objectives (advance):

- Module of announcements. User can see any update or announcement on the main page.
- Module of notification. User will receive a notification about their booking details 3 hours before the movie starts.

1.7 Report Organization

Chapter 1 is about the background information, problem statements, project scopes, objectives and motivation of the project. Chapter 2 is about the literature review. There are 2 parts of literature review. 1 is literature review of cinema ticketing system while another is about payment system. Chapter 3 is about the system design of this project. It will include UML diagram, use case diagram, activity diagram and sequence diagram. Chapter 4 is about the methodology used in this project. Chapter 5 is about the project review which is screenshot of mobile application. Chapter 6 is about the conclusion of this project.

1.8 Conclusion

There are 3 problem statements which are time-consuming, ticket maybe sold out without notification and type of payment method. Thus, our project is to develop a user-friendly mobile application for users to buy movie ticket online.

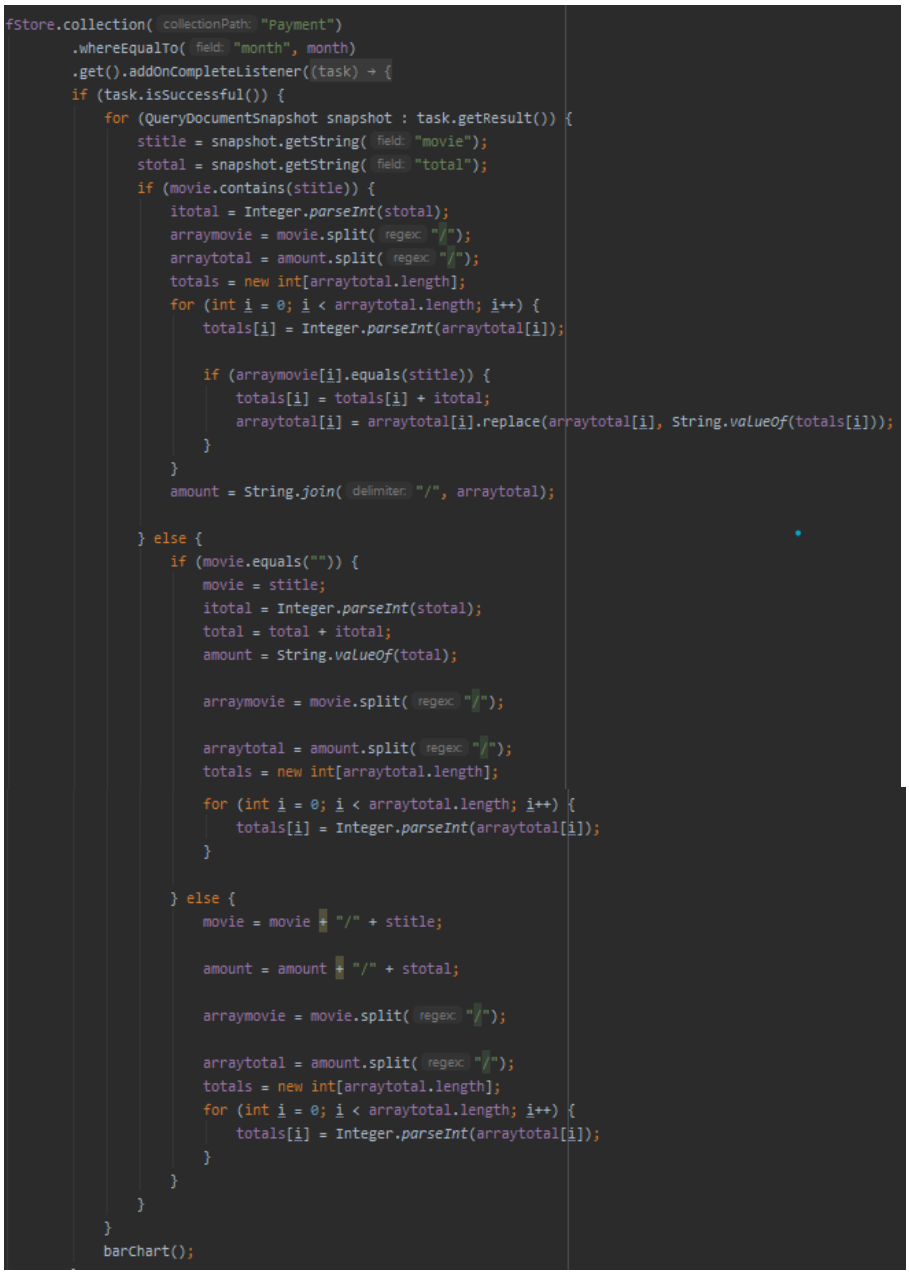
Chapter 2 Literature Review

2.1 Introduction

In this era of modernization, all of the cinemas use automated ticket system rather than manual ticket system. In the manual ticket system, the tickets need to be pre-printed with serial numbers and sold it at cinema gates. The limitation of this system is the tickets are difficult to track as the record of customers maybe not recorded or missing. The other limitation is customers need to queue up to buy or enter the cinema.

Automated ticket system is the movie tickets are printed by computer when there are customers buy the tickets. The record of the sales of movie tickets will be recorded in the system and the remaining tickets stock or seat available will be updated after the customers buy the tickets. The automated ticket system usually sells ticket online or at cinema counter. Before the generation of online ticket system, customers will buy the ticket at the counter of cinema. If they want to see the showtime or buy a movie ticket, they need to go to the cinema. Some of them go to cinema for few times as there is no seats at that current time. Customers usually need to queue up for a long time to buy a ticket. At the generation of e-ticket, there are 2 types of online cinema ticket system which are users can reserve the ticket through website and mobile applications. This cinema e-ticket system is an Internet based application that can be accessed by any customers who has Internet connection (Anon., 2017). If there is no Internet connection, users cannot buy cinema e-ticket. In the year of 2018, 93.1% of the public uses smartphone to access the Internet and the percentage of online shoppers among Internet users increased from 48.8% in 2016 to 53.3% in 2018 (Commission, 2018). This shows that the number of people books the movie ticket online was increased.

Figure 2.1 shows the analytic algorithm that will be used in our project.



```
fStore.collection( collectionPath: "Payment")
        .whereEqualTo( field: "month", month)
        .get().addOnCompleteListener((task) → {
        if (task.isSuccessful()) {
            for (QueryDocumentSnapshot snapshot : task.getResult()) {
                stitle = snapshot.getString( field: "movie");
                stotal = snapshot.getString( field: "total");
                if (movie.contains(stitle)) {
                    itotal = Integer.parseInt(stotal);
                    arraymovie = movie.split( regex: "/");
                    arraytotal = amount.split( regex: "/");
                    totals = new int[arraytotal.length];
                    for (int i = 0; i < arraytotal.length; i++) {
                        totals[i] = Integer.parseInt(arraytotal[i]);

                        if (arraymovie[i].equals(stitle)) {
                            totals[i] = totals[i] + itotal;
                            arraytotal[i] = arraytotal[i].replace(arraytotal[i], String.valueOf(totals[i]));
                        }
                    }
                    amount = String.join( delimiter: "/", arraytotal);

                } else {
                    if (movie.equals("")) {
                        movie = stitle;
                        itotal = Integer.parseInt(stotal);
                        total = total + itotal;
                        amount = String.valueOf(total);

                        arraymovie = movie.split( regex: "/");

                        arraytotal = amount.split( regex: "/");
                        totals = new int[arraytotal.length];
                        for (int i = 0; i < arraytotal.length; i++) {
                            totals[i] = Integer.parseInt(arraytotal[i]);
                        }

                    } else {
                        movie = movie + "/" + stitle;

                        amount = amount + "/" + stotal;

                        arraymovie = movie.split( regex: "/");

                        arraytotal = amount.split( regex: "/");
                        totals = new int[arraytotal.length];
                        for (int i = 0; i < arraytotal.length; i++) {
                            totals[i] = Integer.parseInt(arraytotal[i]);
                        }
                    }
                }
            }
            barChart();
```

Figure 2.1 Analytic Code for Admin Report Chart

2.2 Types of Ticket Booking System

Users can buy the cinema ticket through different types of system. The most traditional way for users to buy the ticket is counter cinema booking system. Other than that, users can use kiosk to buy the ticket or online booking the movie ticket.

2.2.1 Counter Cinema Booking System

The customers need to go to the counter of cinema to buy tickets. They need to queue up to buy the tickets anytime and anywhere. They cannot search the showtime online through any website. They just can visit to cinema to see the showtime of particular movie or upcoming movies. At the payment session, customers only can pay through cash. They can pay by e-wallet at some of the cinemas that support e-wallet. The workers of cinema will be very busy on serving customer and the human errors may occur. For example, the workers will give the change wrongly to customers due to fatigue. The workers also need to check the ticket at the entrance of cinema. This is unlike online system; it just provides a QR code for customers to scan it at the entrance. There are many limitations of offline cinema ticket system which is wasted customers' time as they need to queue up to ask or buy ticket and does not support e-payment in some cinemas. To solve this limitation, the counter of cinema should be open more if there is enough place and workers and the system should support the e-payment systems so that customers no need to worry about not enough money to but the ticket.

2.2.2 Kiosk Cinema Booking System

Kiosk cinema ticket system is to transform the ticket process (Tally, 2019). The first e-ticket company in Turkey is My Bilet. It is a ticketing kiosk system. This is to provide an alternative channel for customers to buy the movie tickets. This system also can let the customers print the ticket that are purchased online. This system is located at the malls to let customers easier to buy or print the tickets. The kiosk system accepts cash and credit or debit cards as the payment form to convenience the customers. Customers no need to have a long queue to but the tickets compared to counter cinema ticket system. This is due to system react faster than human. The limitation of this system is the hardware or software of system will be failure or downtime. To solve this limitation, the technician should always stand-by when there is an error occurred on the system.

2.2.3 Website Cinema Booking System

Based on (Mehta, 2013), the customers need to visit the cinema hall for booking seats and they do not have the information of movie such as show time and rates in the existing system. Thus, he proposed an online system that provide information about movie, cinema hall and rates. The customers can buy the ticket through the website and can cancel the seat with the time range of 2 days before the movie to 1 hour before the movie by visiting the cinema hall. The system lists all the show time of a movie along with available seats and major cinemas. It also provided the summary and trailers of a movie. Customers can conduct a feedback or review in that system. Customers also can search by filtering the cinema, location, movie and date. the system will send an email to customers if they successfully booked the movie tickets. The strengths of this system are users can cancel the reservation before the time range by visiting the cinema hall and user can pay it through e-payment. The weakness of this system is the UI design is not user-friendly. For example, some of the text cannot be seen as the background colour is black and the text colour is dark grey. The other weakness of this system is it does not show the announcement to users. For example, users do not know about the situation if there is renovation of cinema or electricity is broken down. To solve these problems, the system should design the user interface with the best readability of colour such as black and white. The system also needs to improve by adding a news section on it so that users can read on it if any important information.

2.2.4 Mobile Cinema Booking System

According to (Nkrumah, 2011), the purpose of online ticketing is to facilitate the buying of tickets online and this process makes it easier and convenient to users. Users can purchase the ticket at any time, any location and any day of the year as long as the Internet connection exists. Online ticketing also can deliver relevant information along with the service. This can help to purchase decisions and may encourage coming usage. The user no need to queue up to buy the ticket on a rainy day. There is no manpower is required for this system because the process of transaction is automated and overhead is reduced. Thus, online ticketing has many advantages compared to modern cinema booking systems. The manager of the cinema needs to do many reports and computerized it for manual ticket system. A computerized reservation system provides the detail of information required with a mouse click. The manual cinema booking system needs manpower to manage it such as serve the customers who want to buy the movie tickets where online cinema booking system does not need manpower.

Based on (Baweja, 2009), it is a website cinema ticket booking that is faster, cleaner, and a tad more personal website. Users can navigate and find out themselves and they can leave the feedback of this system. Users can view the contents of any movie show at any time and they can book the ticket. This system will automatically calculate the total of the price of movie tickets. If the user is a visitor, the user's information will be updated and store in the database. User needs to register the account when he visited the website. The user uses this account to purchase the movie tickets. The booking information will store in a database too. The booking page will show the type of seats, number of seats, service charges, price of the ticket and total payment amount. After the user done the booking details, the system will collect the bank card information from user to pay the tickets such as credit card number, CVV, cardholder and expired date. For the disadvantage of this system is the design of user interface. The background of the website is too dark and messy. The colour of the button also does not catch the user eyes as it uses dark colour background with dark colour text. The arrangement of the layout also too simpler and no creative on it. The scroll down box of movie's description also does not match the whole user interface as the textbox colour is too bright. This lets the user see the textbox only but not the poster of the movie and the description text.

2.3 Payment Method

There are a few payment methods that users can pay for the ticket at the counter of cinema or online booking. Example of payment methods are cash, online banking, credit card, debit card and e-wallet.

2.3.1 Cash

Cash is the traditional way to be used to pay the payment. Nowadays, many people still use cash to pay for their payment especially pay for their meals or cheap things. The advantage of cash is limited users to spend the money (Kennan, 2019). If users do not have much money in the wallet, they will not able to buy things. Users also no need to worry about the credit card payment. The disadvantage is users need to carry enough money to buy a single thing. For example, if a user wants to buy a laptop, he needs to bring more than RM 4000 cash. This will easier to lost the money and maybe robbed.

2.3.2 Online banking and credit or debit cards

Online banking and credit or debit card can pay through online. Users can log in to their bank account and do the transaction. Users also can add a credit card or debit card to certain applications to pay the payment such as Lazada. The advantage of online banking and debit card is the security of the system (Degree, n.d.). User need to key in their personal identification number (PIN) when they login to the account. It requires OTP value in each transaction of online banking payment. This will be safer because the OTP will send to the user's phone number. The advantage of credit card is complete the purchases without a PIN (Pritchard, 2020). This will save the users' time when they are in a rush to buy somethings. The disadvantage is users cannot control the flow of cash because users will forget each of the transactions. At every month, user will pay a lot of cash for the credit card.

2.3.3 E-wallet

E-wallet is a software that allows one party to make electronic transactions with another party bartering digital currency units for goods and services. The cash can be deposited into the e-wallet in anytime as it links the user's bank account. The credentials can be passed to a merchant's terminal wirelessly through near field communication (NFC). There are some advantages and disadvantages of e-wallet. The advantage of e-wallet is more security (Gaille, 2018). It is easier to lost the credit card if the users put it on their pocket or bag. If users lost the credit card, they need to contact each lender to cancel each card. For the e-wallet, it stored the information through a third-party provider that will be locked behind passwords. If user lost the device, they still can access the e-wallet to the new device. Another advantage is it needs users to authorize in every transaction. It requires users to input their PIN or fingerprint to authorize the transaction so that other people cannot use it. The disadvantage is some applications may have a charge during transaction (Vapulus, 2018). They provide the offers such as cash back that only can be transferred to bank after user use the application to pay the fees. The other disadvantage is it not fully worldwide. For example, not every smartphone can accept NFC. If there is no NFC support in one of the smart devices, the transaction will not be going on.

2.4 Review on Similar System

Nowadays, many cinemas have their own mobile application to let users buy the ticket. This topic is to review the mobile application system of certain cinema's mobile application such as GSC, TGV and MBO.

2.4.1 Golden Screen Cinema (GSC)

GSC was founded in 1987 (Anon., n.d.). It is the largest cinema company in Malaysia. According to Figure 2.4.1.1, the interface of movies menu which is main menu is simple. In movies menu, it shows the announcements and the poster of movies at half screen of mobile. This can let user easier to check the latest announcement and the latest movie as it is big enough. The announcement also can check by clicking the ring on the top left of mobile screen. It also shows the now showing movies and the advance sales in the main menu. Based on Figure 2.4.1.2, it allows user to see the nearest cinema by using the current location of user if the user give location permission on it. It also can see the list of cinemas according to Klang Valley, Southern, Northern, East Cost and East Malaysia. Another feature that will attract user is the favourite button. User can choose his own favourite cinema and can show it on the favourite list. The disadvantage of this mobile application is it does not show the oncoming movie.

Figure 2.4.1.1 Main menu of GSC

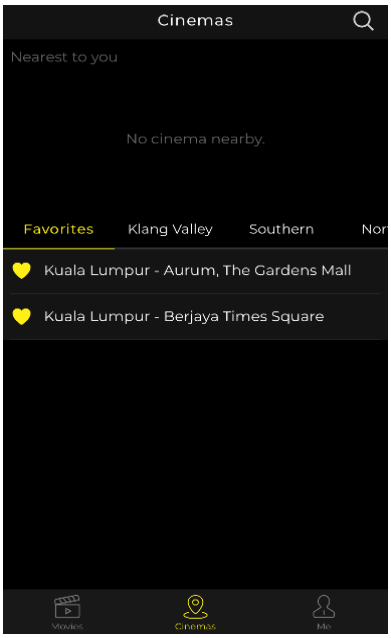


Figure 2.4.1.2 List of GSC cinemas

2.4.2 Tanjong Golden Village Cinema (TGV)

TGV cinema was founded in the year of 1995 (Anon., n.d.). TGV is the second largest cinema company in Malaysia. From Figure 2.4.2.1, the interface of main menu which is movies many is quite good because it contains movies menu, cinemas menu, promotions menu, experiences menu and movie club menu. In movie menu, it contains the trailer of movies, now showing movies and on coming movies. It also got search tab on the top left of the menu. In cinemas menu which is Figure 2.4.2.2, it listed out all the locations of cinema according to south, north, east and middle of Malaysia. It also can search the cinema in certain location. Based on Figure 2.4.2.3, it shows the type of seat with description such as Deluxe, Deluxe +, LUXE and etc. The promotions menu shows the type of promotions that having now such as buy 1 popcorn free 1 drink. The disadvantage of TGV cinema mobile application is the latest news menu doesn't show on the bottom layer. It shows at the top right menu. Users may difficult to get the latest news when they open the application.

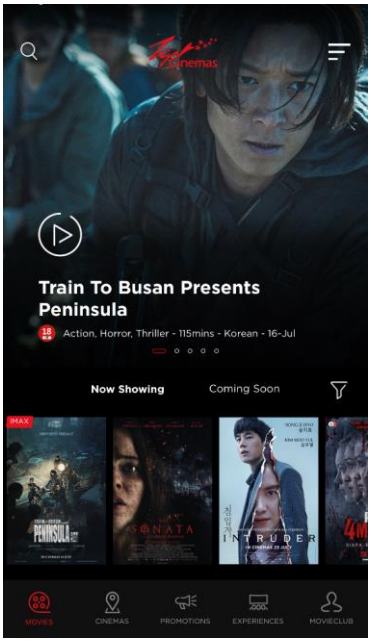


Figure 2.4.2.1 Main menu of TGV

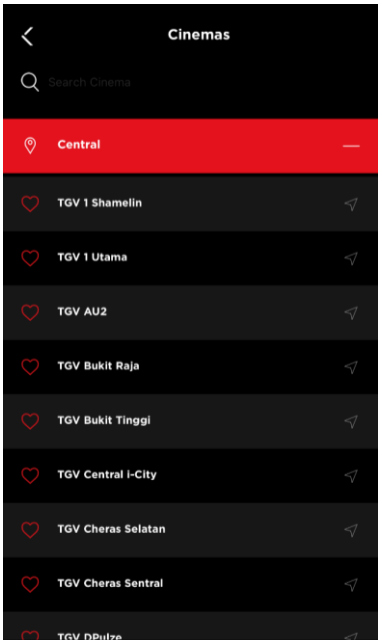


Figure 2.4.2.2 List of TGV cinemas

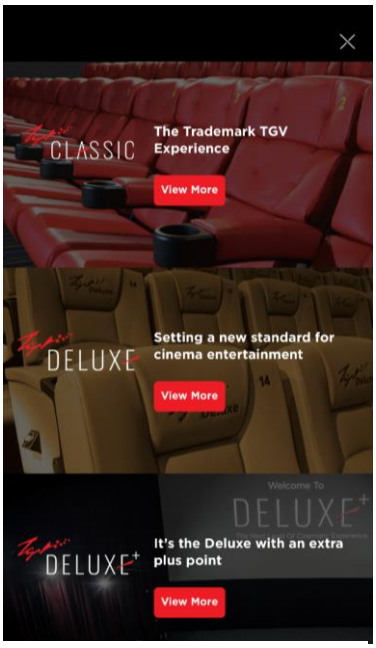


Figure 2.4.2.3 Type of TGV seats

2.4.3 MCAT Box Office (MBO Cinema)

MBO is the third largest cinema company in Malaysia. The first MBO cinema in Malaysia is in the year of 2005 (Anon., n.d.). Figure 2.4.3.1 shows the main menu of the application. At the bottom layer of application, it only can select the view showtimes button. There are some announcements show in the main menu to let user know about the announcements. Figure 2.4.3.2 shows when user wants to check the location of cinema or rewards, he needs to select the top left button and select the certain button. This application also can let user search the cinema location, favourite the cinema and filter the cinema. Based on Figure 2.4.3.3, it shows the picture of cinema and location of cinema as description. The disadvantage is there is no on-coming movies showed on this application.

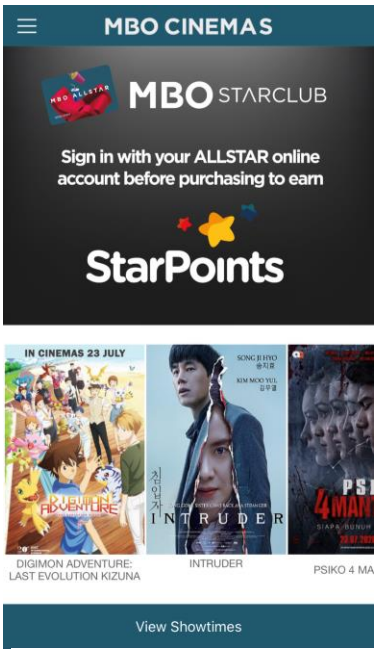


Figure 2.4.3.1 Home menu of MBO

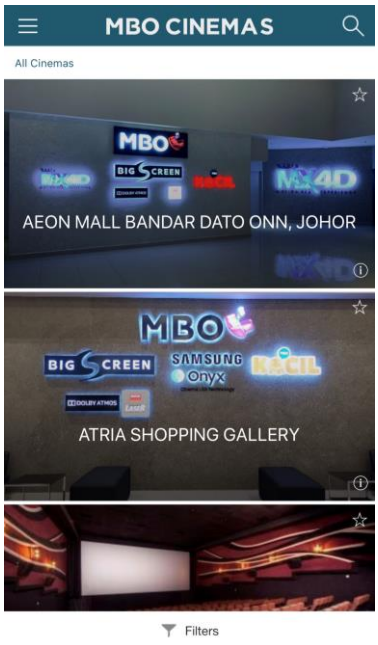


Figure 2.4.3.2 List of MBO cinemas

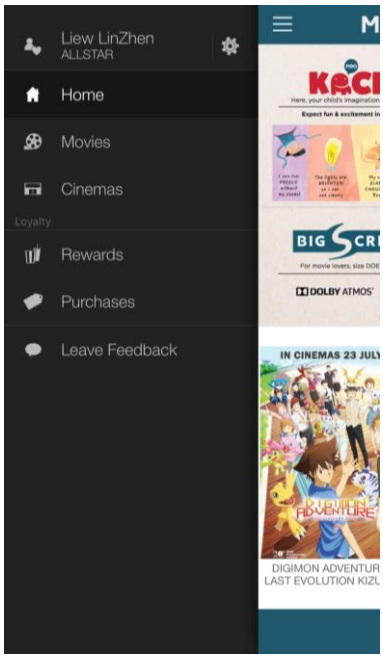


Figure 2.4.3.3 Menu of MBO

2.5 Summary

Table 2.5.1 shows the advantages and disadvantages of the booking systems that reviewed on above. Customer can buy the movie tickets through counter at cinema, kiosk, website and mobile application.

Booking System	Advantages	Disadvantages
Counter	• Users can ask question to workers by face to face	• Users need to queue up for a long time to buy ticket • Users need to go cinema to check the showtimes • Users pay with cash
Kiosk	• Users can pay with cash or debit card • Users no need have to queue up for a long time	• Hardware or software will be not function well
Online (Website and Mobile)	• Users can pay through online banking or credit card or e-wallet • Users no need to queue up	• It needs Internet connection

Table 2.5.1 Pros and cons among the type of movie ticket bookings system

Table 2.5.2 shows the advantages and disadvantages of different type of payment systems. There are 4 types of payment are reviewed above which are cash, online banking or debit card, credit card and e-wallet.

Payments	Advantages	Disadvantages
Cash	• Limit the users to spend the money	• Users need to carry enough money to buy a single thing
Online Banking and Debit Card	• It requires PIN number to log in to account • It requires OTP value in each transaction	• Users cannot control the flow of cash
Credit Card	• Save user's time as it doesn't require PIN number	• Users cannot control the flow of cash
E-wallet	• More security • Need users to authorize in every transaction	• Have charge during transaction • It not fully worldwide

Table 2.5.2 Pros and cons among the type of payments

Table 2.5.3 shows the advantages and disadvantages of similar applications. There are 3 similar mobile applications that created before which are GSC, TGV and MBO.

Cinema	Advantages	Disadvantages
GSC	• Can use location to find nearby cinema • Simple design of main menu	• Does not have coming soon movies
TGV	• Explain the differences among the type of seat • Can search the available cinema in certain state	• Need to click on menu to find announcements
MBO	• Can search, favourite and filter the available cinema in certain state	• Does not have coming soon movies • Need to click on menu to find announcements

Table 2.5.3 Pros and cons among the existing cinema mobile application

Table 2.5.4 shows the functions among the similar applications. Some of the applications have certain function but some will not have.

Functions	GSC	TGV	MBO	Proposed Project
Announcement	Yes	Yes	Yes	Yes
Cinema Location	Yes	Yes	Yes	Yes
Cinema nearby	Yes	No	No	No
Coming soon movie	No	Yes	No	Yes
Concession	No	Yes	No	No
Location filters	Yes	Yes	Yes	Yes
Login	Yes	Yes	Yes	Yes
Movie filters	No	Yes	Yes	No
Now showing movie	Yes	Yes	Yes	Yes
Personal Details	Yes	Yes	Yes	Yes
Promotions	No	Yes	No	No
Rewards	No	No	Yes	No
Seat type	No	Yes	No	No
Search cinema location and movie	Yes	Yes	Yes	Yes
Showtimes	Yes	Yes	Yes	Yes
Notifications before movie start	No	No	No	Yes

Table 2.5.4 Functionalities among the existing cinema mobile application and proposed project

CHAPTER 2 LITERATURE REVIEW

First of all, our proposed system is to let users buy online movie ticket through mobile application with e-payment such as e-wallet and debit or credit card. Through this system, it will let users to use current location to search the nearby cinemas which TGV and MBO does not have this function. This system also will have membership rewards section to let users see the rewards and redeem it if they have enough points. Users can see their booking history and personal details through this system. Users also can search and filter the movie list based on now showing and coming soon movie list. This system will generate a notification before the time of movie that they bought begin. This function is not available on any similar application yet.

In a nutshell, this chapter discuss the literature review of cinema ticket booking system which is counter system, kiosk system, website system and mobile application system. It also discusses the type of payment method in Malaysia which is cash, online banking, debit card, credit card and e-wallet. It also reviews on similar mobile application which is GSC, TGV and MBO. In summary, it shows the advantage and disadvantage of each ticket booking system, payment type and similar application. It also shows the functionalities among the similar applications

Chapter 3 System Design

3.1 Introduction

This chapter is about the system design of this project. It will discuss the UML diagram, use case diagram, sequence diagram, and activity diagram. It also discussed the function of each module.

3.2 System Design

System design defines the elements of a system such as modules, architecture, components and interfaces and data based on the requirements.

3.2.1 Graphical Modelling Language

There are 2 types of graphical modelling language in this project which are UML diagram and activity diagram.

1. Use case diagram. It illustrates the activities that performed by the users in this system. Figure 3.2.1.1 shows the use diagram of this system.

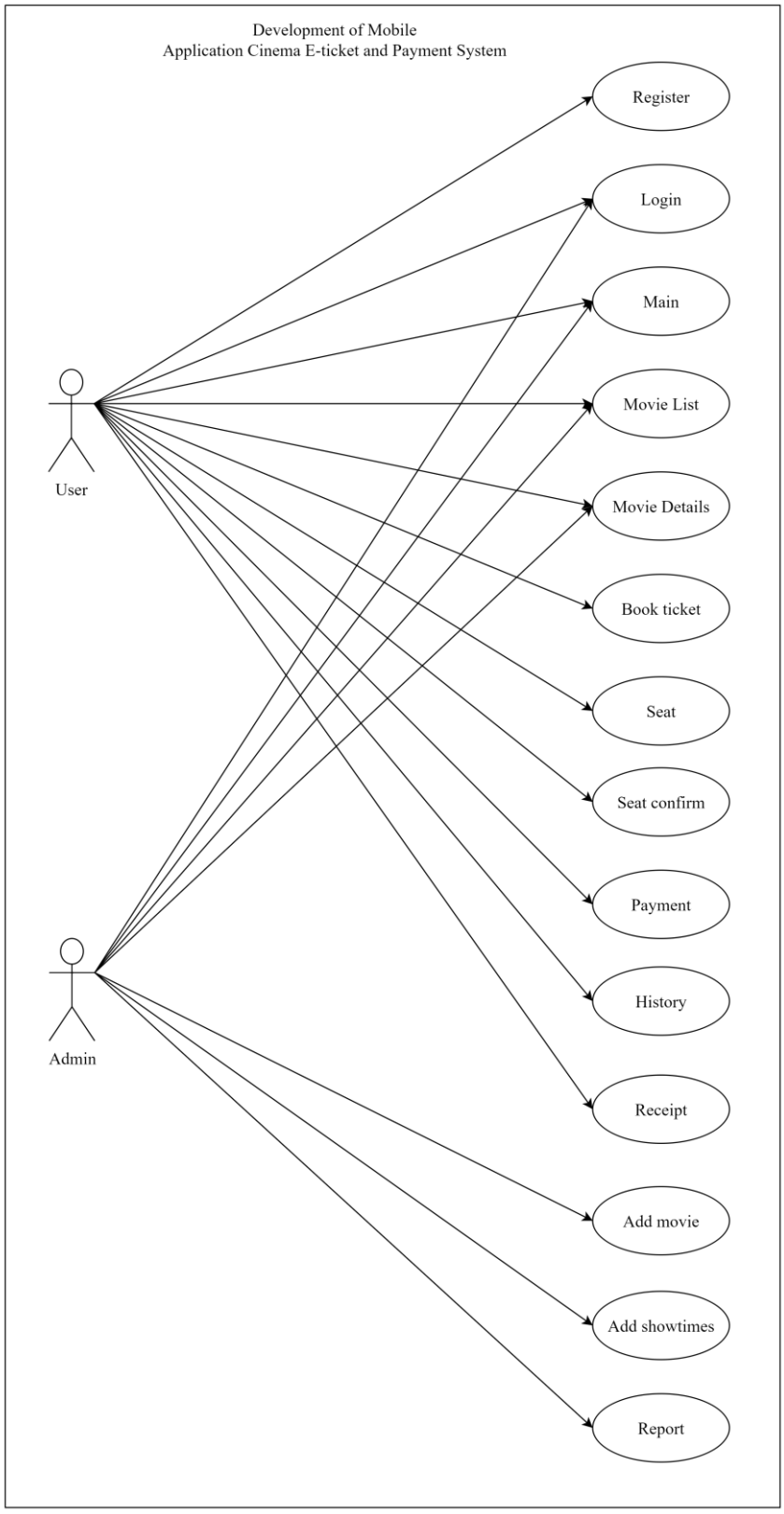


Figure 3.2.1.1 Use case diagram

2. Unified Modelling Language (UML) Diagram. It is to describe the structurally and behaviourally with graphical notation of system. Structure diagrams represent data and static relationships in system. Diagram 3.2.2.1 shows the UML diagram of this system.

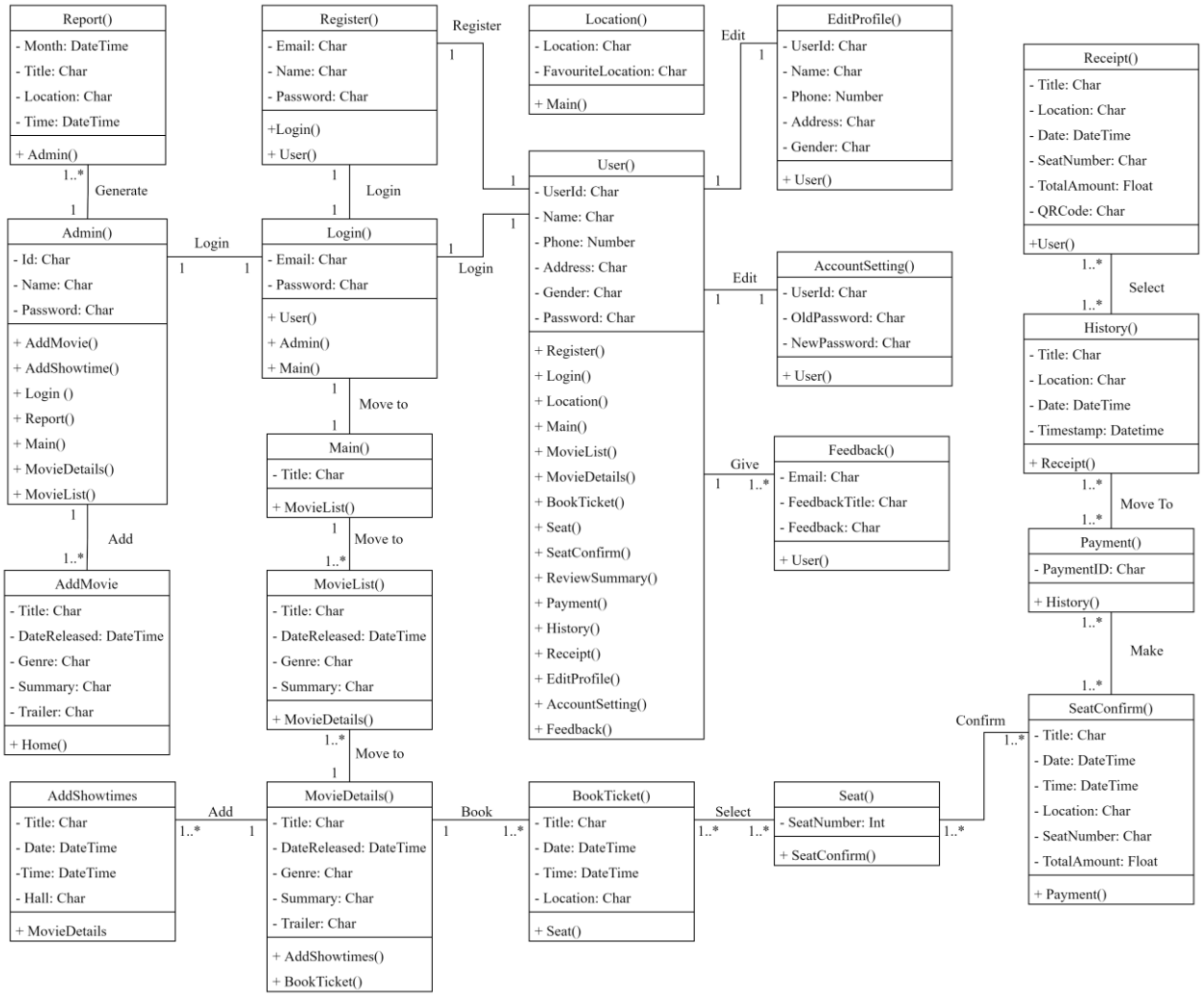


Figure 3.2.2.1 UML diagram

3. Activity diagram. It provides the ability to model processes in system. It specifies the logic procedural of an operation. Figure 3.2.3.1 shows the activity diagram of user and Figure 3.2.3.2 shows the activity diagram of admin. Figure 3.2.3.3 to Figure 3.2.3.17 shows the activity diagram of each modules.

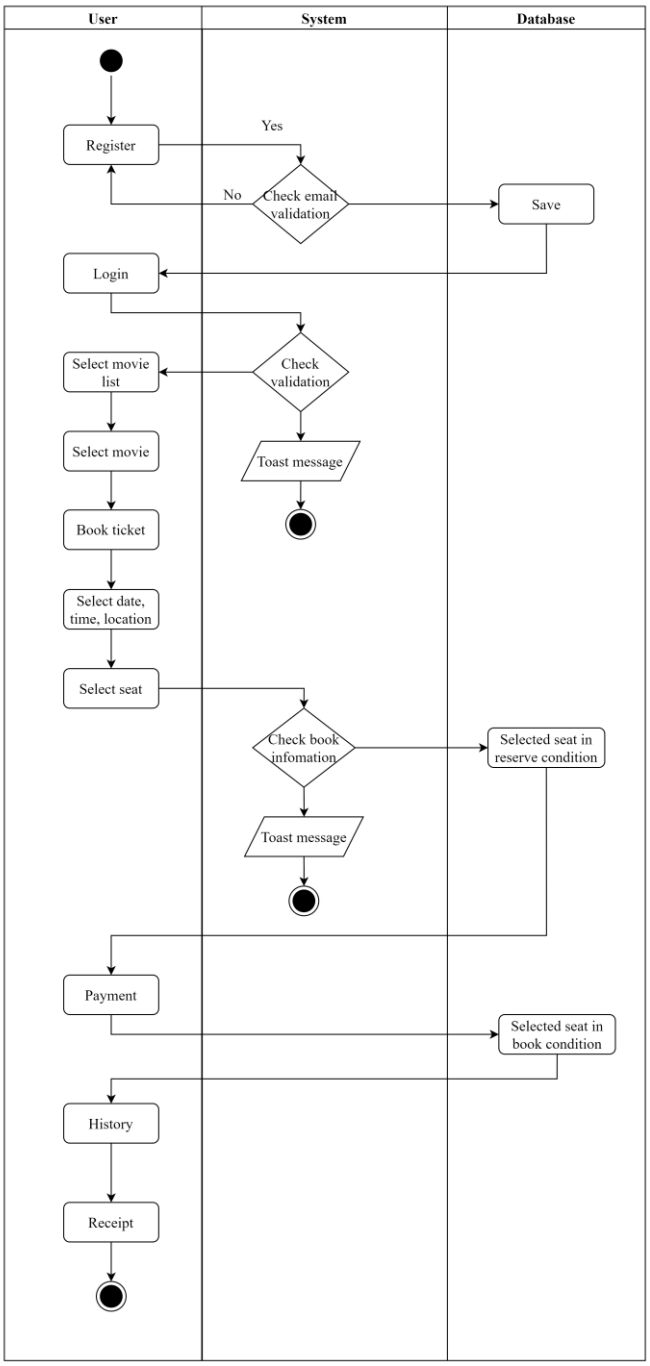


Figure 3.2.3.1 Activity diagram for User

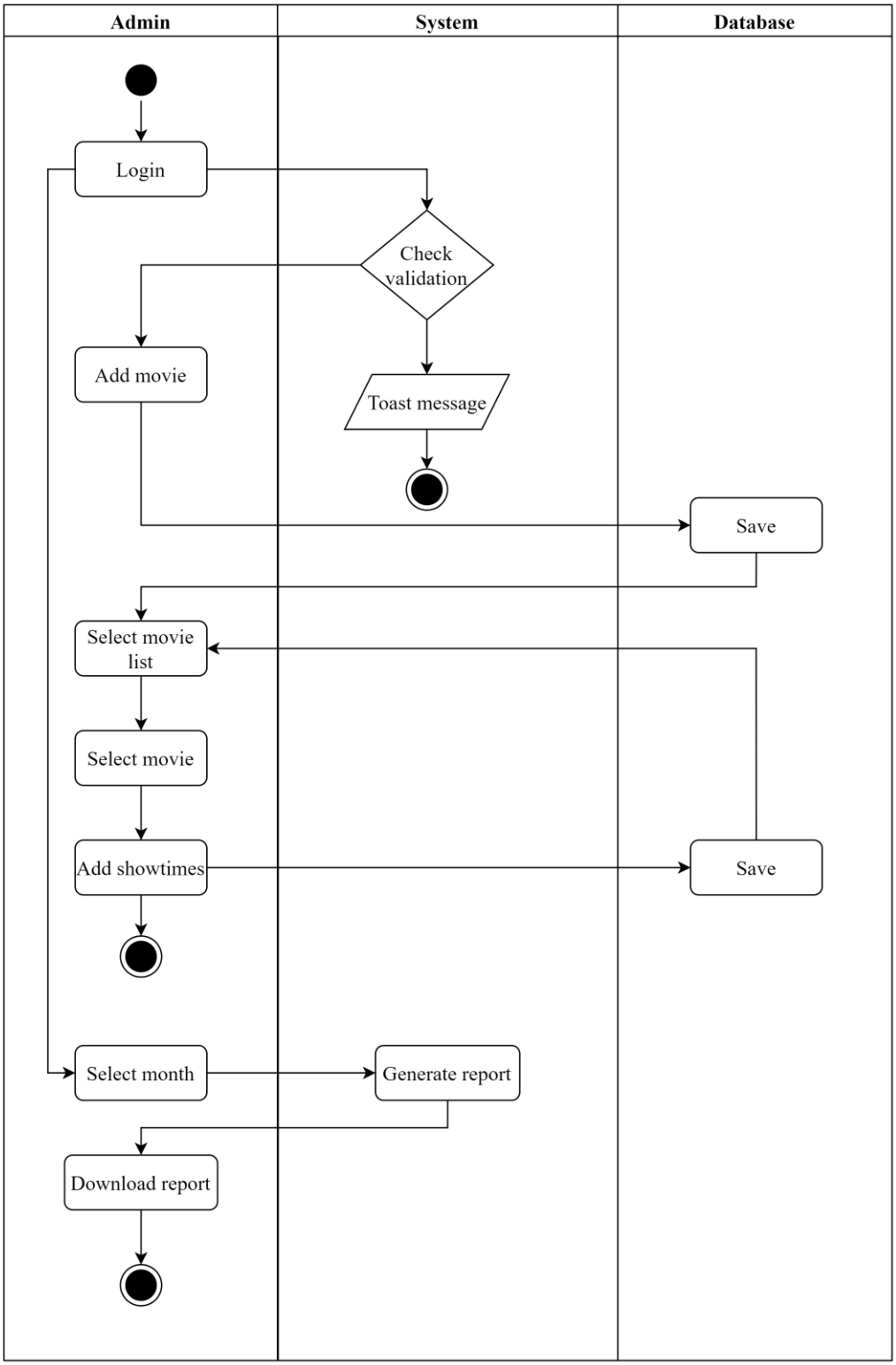


Figure 3.2.3.2 Activity diagram for Admin

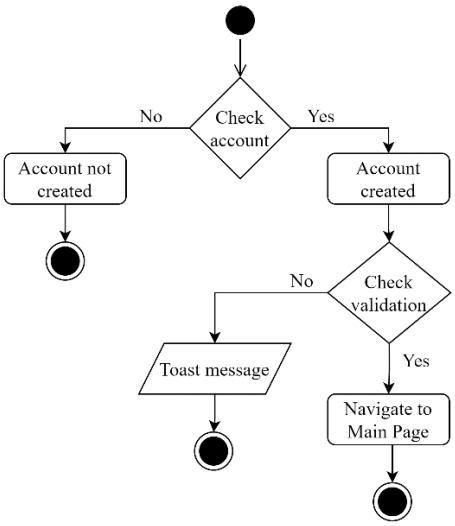


Figure 3.2.3.3 Activity diagram for Login Module

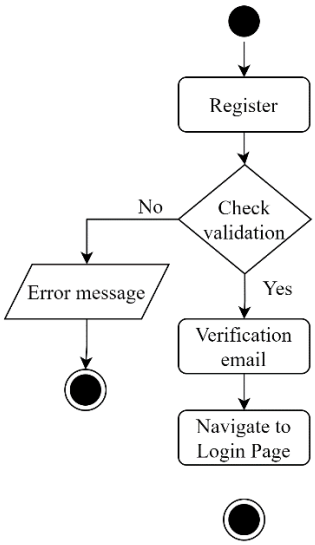


Figure 3.2.3.4 Activity diagram for Register Module

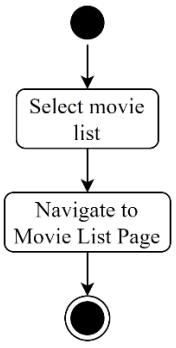


Figure 3.2.3.5 Activity diagram for Main Module

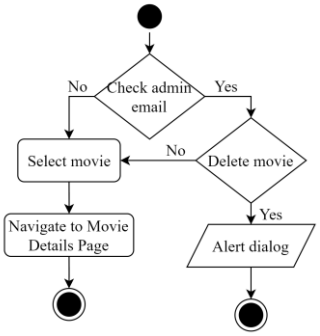


Figure 3.2.3.6 Activity diagram for Movie List Module

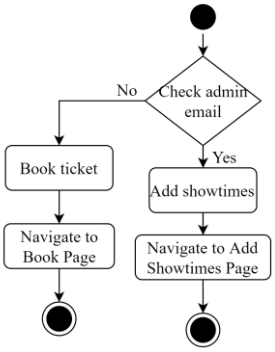


Figure 3.2.3.7 Activity diagram for Movie Details Module

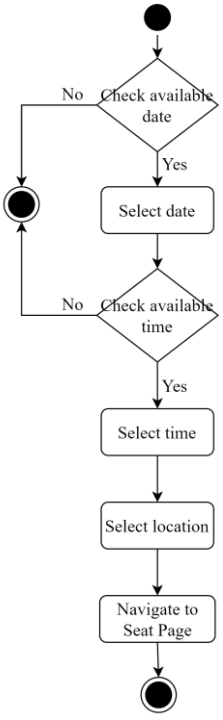


Figure 3.2.3.8 Activity diagram for Book Module

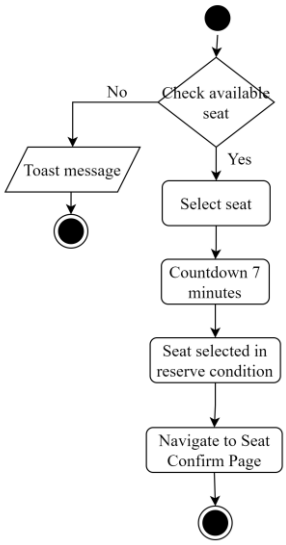


Figure 3.2.3.9 Activity diagram for Seat Module

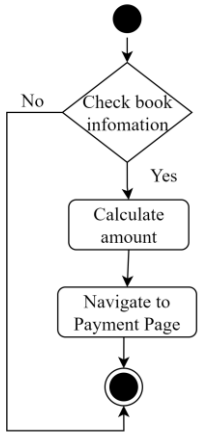


Figure 3.2.3.10 Activity diagram for Seat Confirm Module

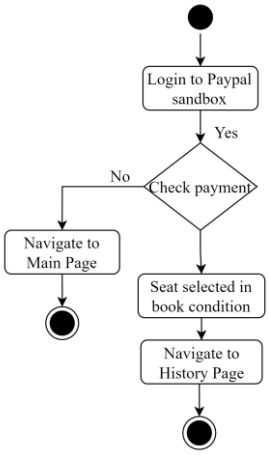


Figure 3.2.3.11 Activity diagram for Payment Module

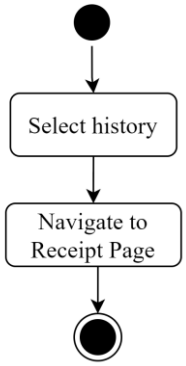


Figure 3.2.3.12 Activity diagram for History Module

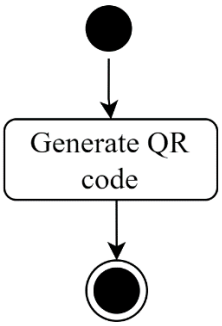


Figure 3.2.3.13 Activity diagram for Receipt Module

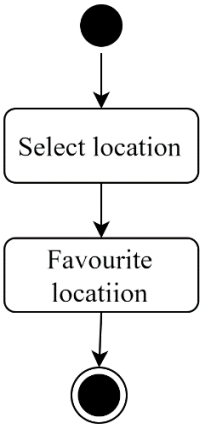


Figure 3.2.3.14 Activity diagram for Location Module

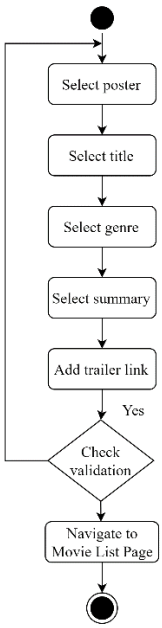


Figure 3.2.3.15 Activity diagram for Add Movie Module

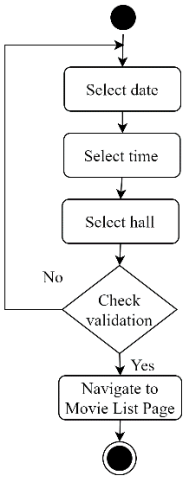


Figure 3.2.3.16 Activity diagram for Add Showtimes Module

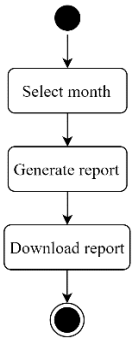


Figure 3.2.3.17 Activity diagram for Report Module

4. Sequence diagram. It shows how is the object can collaborate each other to support each use case. It will also show the messages which pass between the objects. Figure 3.2.4.1 shows the sequence diagram of user. Figure 3.2.4.2 shows the sequence diagram of admin.

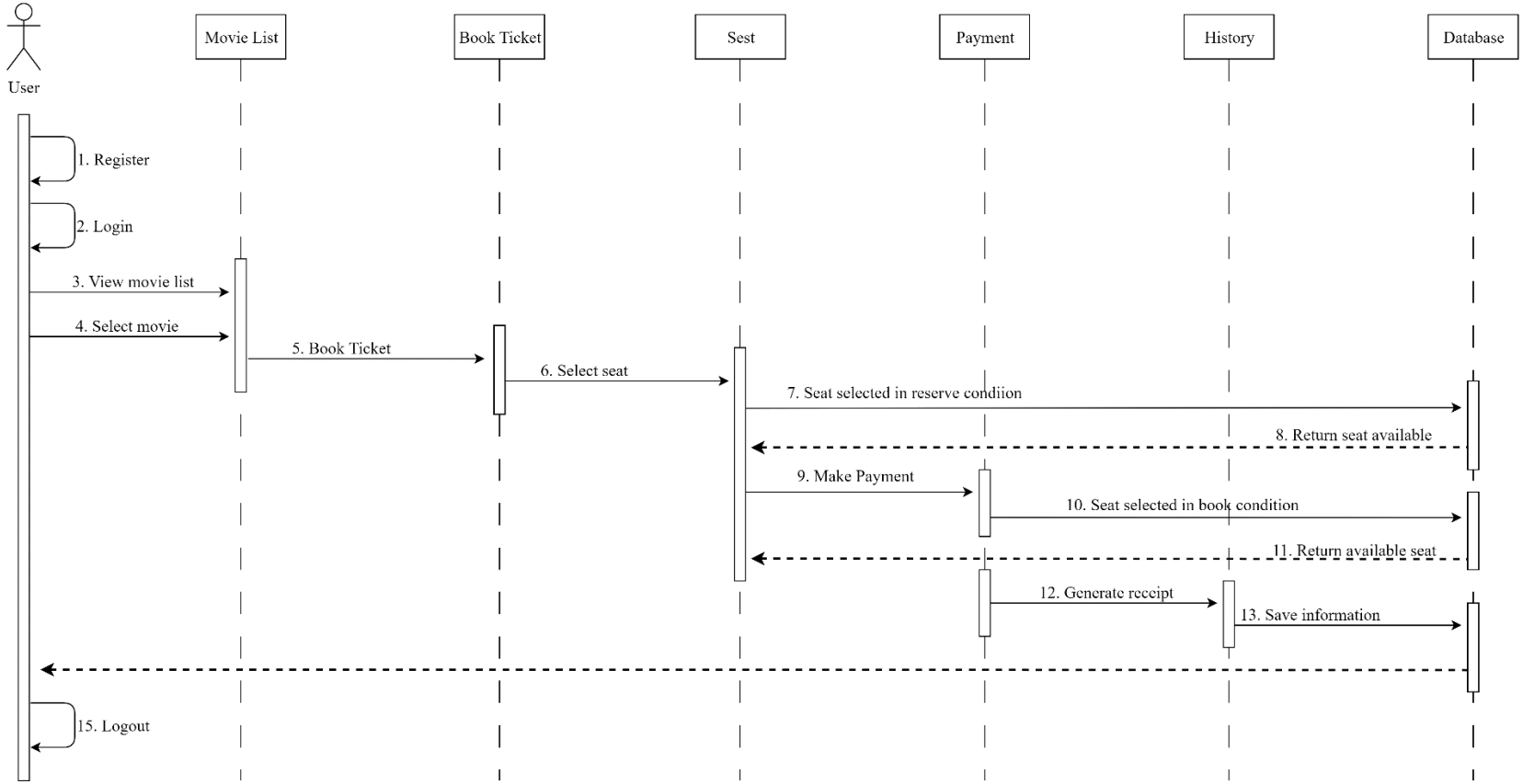


Figure 3.2.4.1 Sequence diagram of user

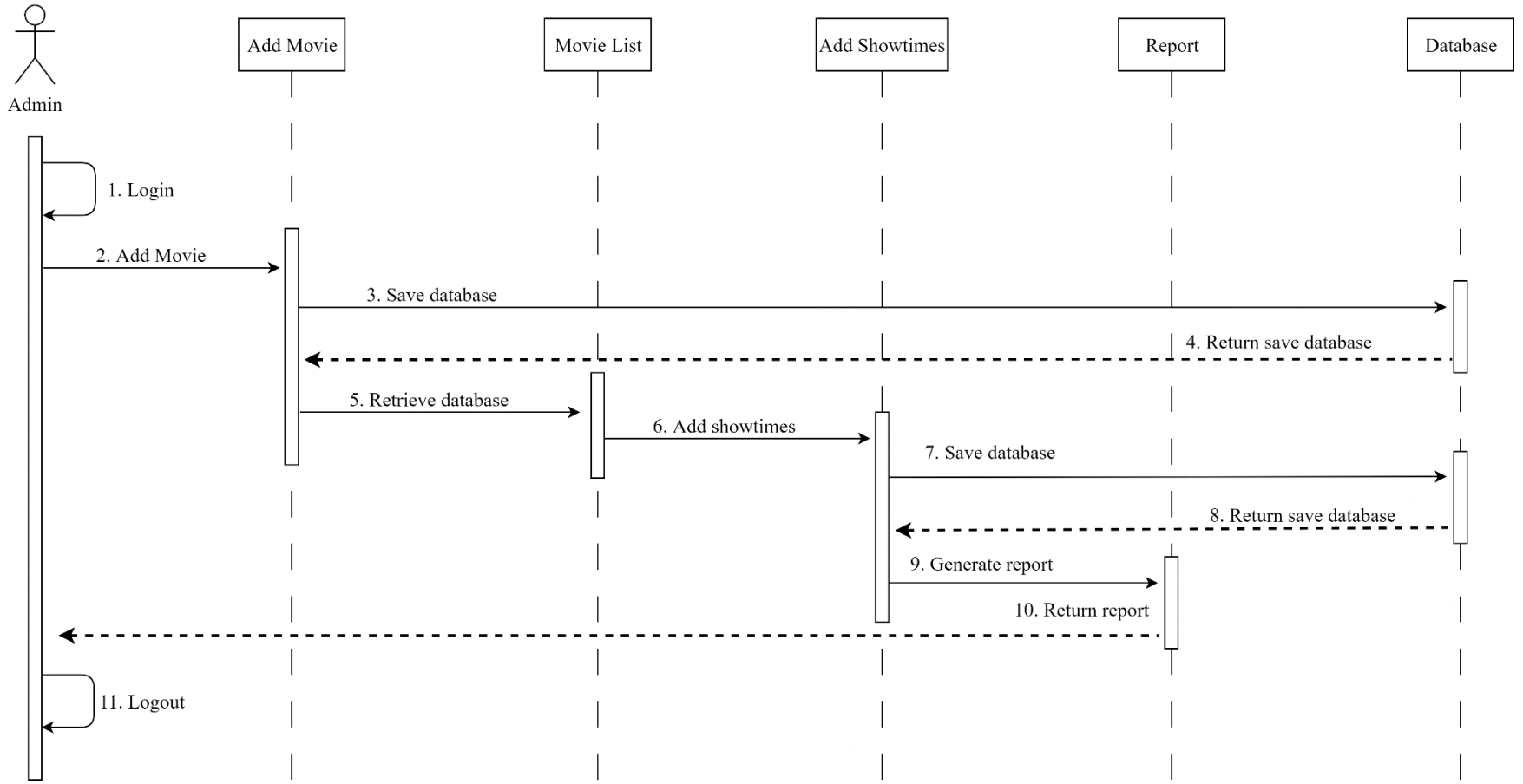


Figure 3.2.4.2 Sequence diagram of admin

3.3 Module Description

This is to describe how the module function and link to others.

3.3.1 Register module

This class is to let user to register a new account to login this application. Users need to type in their name, email address and password. Once users click on register button, system will generate an email to user's email address to check the validation of email. The content of email will consist of a link to let user click on it and verify the email address. After user verify the email address, system will save user information in Firestore Database.

3.3.2 Login module

This class is to let user or admin login to their account. They need to type in their email address and password. If the password is wrong or firebase authentication cannot find user email address, they cannot login to their account. They can select keep in signed in function. If they selected, it will save the email address and password once they logout. If users forgot password, they need to click on forgot password. System will generate an email to let user rewrite their new password.

3.3.3 Main Module

This class is about the showtime of movie and announcements of cinema. The announcements will automatically swipe to the next after 10 seconds. Users also can swipe it by themselves. Users can see the coming soon movies and now showing movies at the bottom page. The alarm manager function will also implement in this module. This function is to notify user the movie will be start after 30 minutes. So that user will not forget the timeslot he booked.

3.3.4 Add Movie Module

Admin can add the movie details on this page. The movie details are the poster of movie, title of movie, genre of movie, summary of movie, date released of movie and the trailer link from Youtube. Admin can select the poster of movie from their phone album. If the title of movie is empty, admin cannot save the details of that movie. When admin added successfully the video, the movie details will save into Firestore Database and Firebase Storage for picture.

3.3.5 Movie List Module

This class is to show all the movies which take data from Firestore Database. Users or admin can search the title of movie. When user click on search button, the query will search the results and generate to the layout. Users can select the movie if they want to book the tickets or see more details on it on another module which is movie details module. Only admin can swipe the movie to delete the movie details. It will pop up an alert dialog to confirm admin wants to delete or not. Once admin is deleted successfully, the movie details that store at Firestore Database will also be deleted. Admin also can select the movie they want to add showtimes.

3.3.6 Add Showtimes Module

Admin can select the number of halls which only have 3 halls in cinema. Admin also can select the date they want through date picker function which is calendar format. So that, admin can select the date easily. Admin also can select the time of movie which only have 4 choices which are 9am, 1pm, 4pm and 8pm. Each showtime will be added to Firestore Database. If the time and date has been selected to another movie, system will toast out this timeslot has been booked. Admin needs to choose another date and time for the movie.

3.3.7 Report Module

Admin can see the report by selecting the month he wants to see. This module contains 1 bar chart, 1 horizontal bar chart and 1 pie chart. The bar chart shows the total amount sold per movie title. The horizontal bar chart shows the total amount sold per locations. The pie chart shows the total amount sold per time. Admin also can click on a button to download an excel file to their phone. The excel file contains all the history of users in that month.

3.3.8 Movie Details Module

User and amin can see the details of movie which get from Firestore Database and Database Storage. The details of movie include the title, date released, genre and summary. User and admin can see the trailer while clicking on the play button on the top. Once they clicked on it, it will go to web browser to play the trailer on Youtube. In this module, it will have 2 buttons. 1 button is for user to book the ticket, another button if for admin to add the showtime. Only admin can add showtime and only user can book the ticket. Once they click on the button, they will go to book ticket modules or add showtimes module.

3.3.9 Book Ticket Module

System will get the showtimes data from Firestore Database. Users can select the date they want. Once they select the time, system will generate available time for users. Then, users can select the time and location of the movie. Users can click on the 'Select seat' button after selecting the timeslot they need and go to seat module to select seat.

3.3.10 Seat Module

If the timeslot has not been booked by other users, the seat layout will show all the seats in available condition. If the timeslot has been booked by other users, the seat layout will show available seats and booked seats in different color of logo. If users select the booked seat, system will toast out this seat cannot be selected. After users select the available seat and click on 'Book' button, the seat will be saved to Firestore Database in reserve condition and go to seat confirm module. In 7 minutes, this seat will become booked logo so that others unable to select the same seat. If user does not pay successfully within 7 minutes, this seat will be in available condition and can let others to select.

3.3.11 Seat Confirm Module

This class is to let users to select the number of adult and children of the seat they choose. If users buy 1 seat, they cannot choose children ticket. Children ticket should be accompanying by an adult or another child. Users can click on confirm button and go to review summary module.

3.3.12 Review Summary Module

This class is to let users to check the details of movie they booked which are title of movie, date, time, location and seat number. System will calculate the total amount users need to pay for the ticket which is RM10 per adult and RM7 per children. When there is no mistake, users can click on 'Pay' button and go to payment module.

3.3.13 Payment Module

System will go to paypal sandbox login page. Users need to login to paypal sandbox account and pay for it. Once users pay successfully, the seat status will be change to book condition in Firestore Database and go to history module.

3.3.14 History Module

In this class, it will show when the user bought the ticket and some details of movie such as title, date and time. Users can click on the movie to see further details on it. This will go to the next module which is receipt module.

3.3.15 Receipt Module

In this class, users can see the details of the movie they booked. At below page, system will generate a QR code for the user. Users need to scan the QR code before they go into cinema hall.

3.3.16 Edit Profile Module

This module is to let user edit their profile such as name, phone number, gender and address. User also can upload his profile picture. After user edit their profile, the data in Firestore Database and Firebase Storage will update automatically.

3.3.17 Account Setting Module

This module is to let user delete his account and change his account password. Once the user clicks on confirm to delete his account, the user's details will be also deleted in Firestore Database. Users need to register again if they want to book ticket. When user wants to change their password, users need to enter his old password. The system will check the old password weather is same as the password that stored in Firestore Database. If the password is the same, then user can change his password successfully.

3.3.18 Feedback Module

This module is to let user gives feedback or needs customer service. After users fill in the details, it will send the details by email application.

3.3.19 Location Module

This module shows the location list of cinemas. User can favorite the location he wants. The favorite location will be stored in database. When user refresh this page, the favorite list will not be deleted.

3.4 Conclusion

In this chapter, we discuss about the system design such as UML diagram, sequence diagram, use case diagram and activity diagram. We also discuss how the module work.

Chapter 4 Methodology

4.1 Introduction

The methodology is Rapid Application Development (RAD). RAD is a model prioritizes fast prototyping and rapid feedback over long drawn out development and testing cycles. Developer can make iterations and updates to a software quickly without needing a time to start development schedule from scratch when using RAD. RAD is more prefer not too many members rather than having more members as the communications among the members can be done quickly and the information is quick transfer when meeting. The advantage of RAD is quick delivery. This is due to each project is separate into few modules and each module is treated as separate prototype the time spent is reduced.

Figure 4.1 shows the analytic algorithm for admin to generate report. System will get data which are movie or location or time and amount from Firestore Database. Then, system will run some algorithm to calculate the total amount of movie or location or time if there have same movie or location or time. Lastly, it passed the array list to chart function to generate a bar chart or horizontal bar chart or pie chart.

```
fStore.collection( collectionPath: "Payment")
        .whereEqualTo( field: "month", month)
        .get().addOnCompleteListener((task) → {
        if (task.isSuccessful()) {
            for (QueryDocumentSnapshot snapshot : task.getResult()) {
                stitle = snapshot.getString( field: "movie");
                stotal = snapshot.getString( field: "total");
                if (movie.contains(stitle)) {
                    itotal = Integer.parseInt(stotal);
                    arraymovie = movie.split( regex: "/");
                    arraytotal = amount.split( regex: "/");
                    totals = new int[arraytotal.length];
                    for (int i = 0; i < arraytotal.length; i++) {
                        totals[i] = Integer.parseInt(arraytotal[i]);

                        if (arraymovie[i].equals(stitle)) {
                            totals[i] = totals[i] + itotal;
                            arraytotal[i] = arraytotal[i].replace(arraytotal[i], String.valueOf(totals[i]));
                        }
                    }
                    amount = String.join( delimiter: "/", arraytotal);

                } else {
                    if (movie.equals("")) {
                        movie = stitle;
                        itotal = Integer.parseInt(stotal);
                        total = total + itotal;
                        amount = String.valueOf(total);

                        arraymovie = movie.split( regex: "/");

                        arraytotal = amount.split( regex: "/");
                        totals = new int[arraytotal.length];
                        for (int i = 0; i < arraytotal.length; i++) {
                            totals[i] = Integer.parseInt(arraytotal[i]);
                        }

                    } else {
                        movie = movie + "/" + stitle;

                        amount = amount + "/" + stotal;

                        arraymovie = movie.split( regex: "/");

                        arraytotal = amount.split( regex: "/");
                        totals = new int[arraytotal.length];
                        for (int i = 0; i < arraytotal.length; i++) {
                            totals[i] = Integer.parseInt(arraytotal[i]);
                        }
                    }
                }
            }
            barChart();
```

Figure 4.1 Analytic Code for Admin Generate Report

4.2 Data Collection

Data collection is a method of gathering and analysing specific information to provide solutions to the questions and evaluate the results (Anon., n.d.)There are 2 type of requirements which are functional requirement and non-functional requirement.

4.2.1 Functional Requirement

Functional requirement defines the system behaviour under specific conditions and include the functions and features of product. The functional requirements identified are:

1. User's registration. Users can register their own account through online.
2. Movie seat reservation. Users can make ticket booking which is seat reservation through online
3. Database update when users book the ticket successful or registration of new user. The system should automatically update the database without action of admin
4. Users' feedback. The system should be able to provide a section to let users leave their feedback about the mobile application.

4.2.2 Non-functional Requirement

Non-functional requirement defines the quality attributes of the product. It is a set of standards used to judge the specific operation of a system. The attributes are:

1. Security. The system should provide a high level of security and integrity of data. Users can login to the system by validating the correct password and username while only admin can authorize to the secured page.
2. Error handling. The error of the system should be reduced and a guideline to let users know how to recover from error should be provided.
3. Performance and respond time. The system should have high performance rate when executing user's input. The respond time for highly complicated task is 50 seconds and less complicated task is between 20 to 25 seconds.

4.3 Testing

The purpose of testing is to detect the failure of this system so that the defects will be discovered and corrected. There are four types of testing process to test different problems in this proposal.

4.3.1 Test Plan of User

No.	Data Input	Expected Output	Actual Output	Success / Fail
1	Verify the email address before login.	Toast message: Please verify your email address	Toast message: Please verify your email address.	Success
2	Check the email address is valid when login.	Toast message: The email address is not registered.	Toast message: The email address is not registered.	Success
3	Check the email address is not equal to admin email address.	Show 'Book' button.	Show 'Book' button.	Success
4	Check the seat is booked and reserved.	Show seat layout with dark blue colour of logo	Show seat layout with dark blue colour of logo	Success
5	Check the seat is available	Show seat layout with grey colour of logo	Show seat layout with grey colour of logo	Success

6	Check the time limit is exceed 7 minutes.	Show seat layout with book and available condition.	Show seat layout with book and available condition.	Success
7	Check the time limit is not exceed 7 minutes.	Show seat layout with book, reserve and available condition.	Show seat layout with book, reserve and available condition.	Success
8	Check payment is success.	Change seat reserve condition to book condition.	Change seat reserve condition to book condition.	Success
9	Delete account	Alert Dialog: Confirmation to delete or not	Alert Dialog: Confirmation to delete or not	Success
10	Send feedback email.	Toast message: The email has been sent successfully.	Toast message: The email has been sent successfully.	Success
11	Change user password.	Check the correct old password.	Check the correct old password.	Success
12	Search movie list.	Show correct movie.	Show correct movie.	Success
13	Buy 1 ticket.	Cannot select children ticket.	Cannot select children ticket.	Success

Table 4.3.1 Test plan of User

4.3.2 Test Plan of Admin

No.	Data Input	Expected Output	Actual Output	Success / Fail
1	Check the email address is valid when login.	Toast message: The email address is not registered.	Toast message: The email address is not registered.	Success
2	Confirm the movie selected want to delete.	Alert Dialog: Confirmation of delete movie.	Alert Dialog: Confirmation of delete movie.	Success
3	Check the email address is equal to admin email address.	Show 'Add Showtimes' button.	Show 'Add Showtimes' button.	Success
4	Before adding movie poster must include title of movie.	Error message: Enter the title of movie.	Error message: Enter the title of movie.	Success
5	Search movie list.	Show correct movie.	Show correct movie.	Success

Table 4.3.2 Test plan of Admin

4.4 Tools to Use

There are some tools should be needed in this mobile application which is deploy at Android server.

Table 4.4 .1 shows the tools for hardware. There are 3 type tools needed in this project which is operating system, RAM and hard disc storage.

Operating system	32/64 bit
RAM	8GB and above
Hard disc storage	300GB and above

Table 4.5.1 Hardware tools

Table 4.4.2 shows the tools for software. There are 4 types of tools needed in this project which are operating software system, Android Studio, Android SDK tools, Android Platform Version and Firebase Console to store database. Android Studio, Android SDK tools and Android Platform Version are used to create a mobile application including the design of user interface. Firebase Console is a platform to store a database of user or system.

Operating system	Windows 8/10
Android Studio	Version 4.5.3 and above
Android SDK tools	27 and above
Android Platform Version	API 29
Firebase Console	

Table 4.4.2 Software tools

4.5 Implementation issues and challenges

It is a common situation that we faced some implementation and challenges during the implementation phase. The issue is it is hard to get data inside the cloud storage of Firebase. This is due to it has several ways to obtain the data and we did not know about which way is most suitable for those data. The next issue is we did not know how to make the design more user-friendly when designing the user interface of application. This is because we cannot meet our friends and obtain our friends' suggestions during this Covie-19 period.

4.6 Conclusion

In this chapter, it discussed the system design diagrams and how the module works.

Chapter 5 Project Review

5.1 Introduction

This chapter is to discuss how the application looks. It will be shown by screenshot of Android Studio Emulator which is Pixel 3 XL.

5.2 User Interface

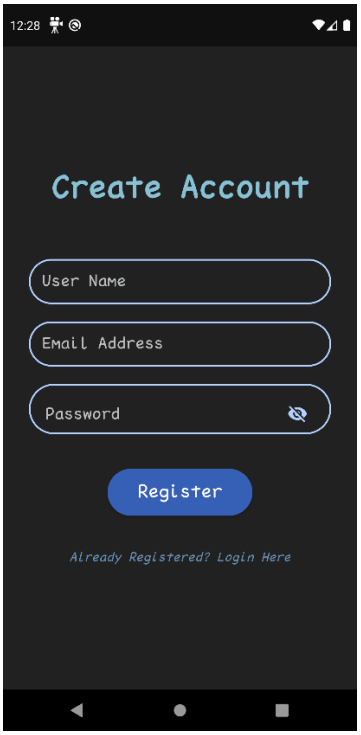


Figure 5.2.1 User Register Page

Figure 5.2.2 User Login Page

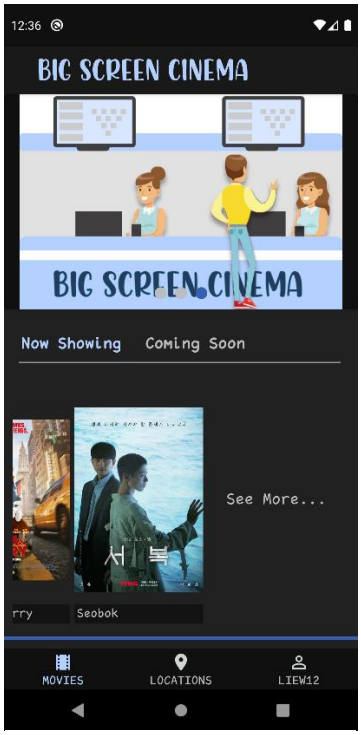


Figure 5.2.3 User Main Page

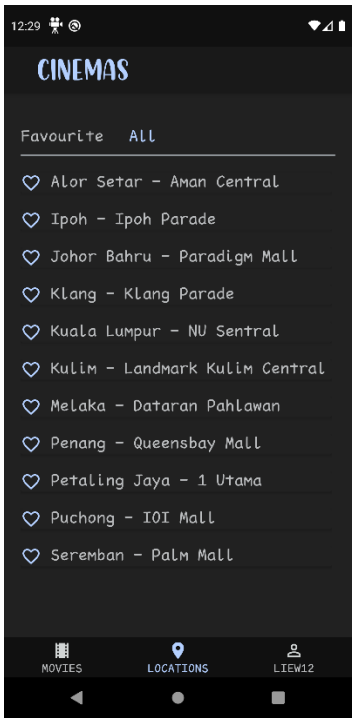


Figure 5.2.4 User Location Page

Figure 5.2.5 User Favourite Location Page

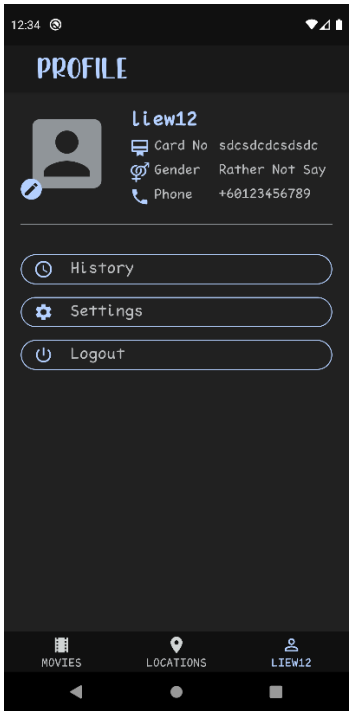


Figure 5.2.6 User Page

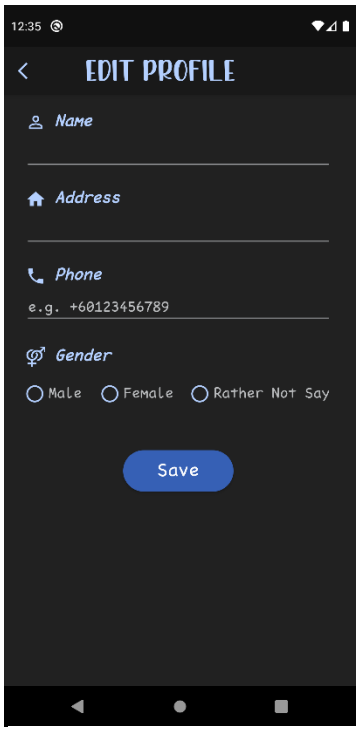


Figure 5.2.7 User Edit Profile Page

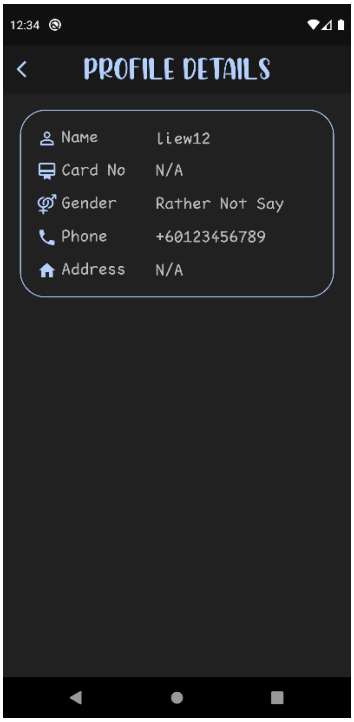


Figure 5.2.8 User Profile Details Page

Figure 5.2.9 User Profile Photo Page

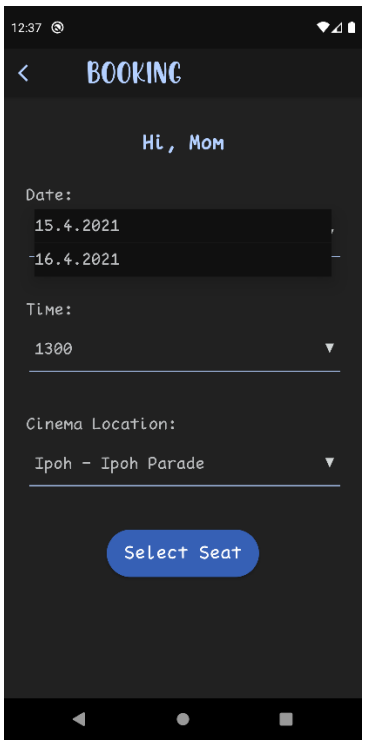


Figure 5.2.10 User Select Date Page

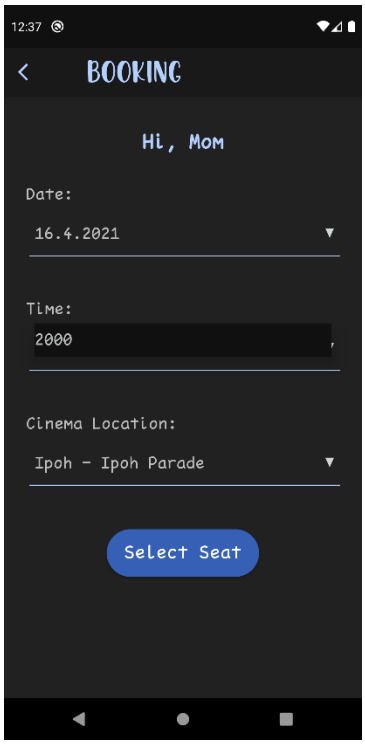


Figure 5.2.11 User Select Time Page

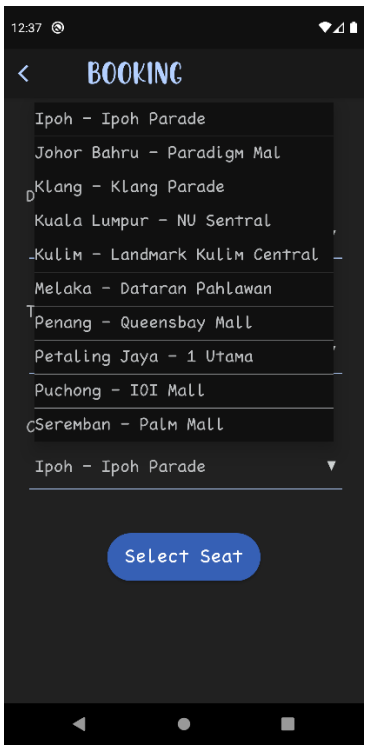


Figure 5.2.12 User Select Location Page

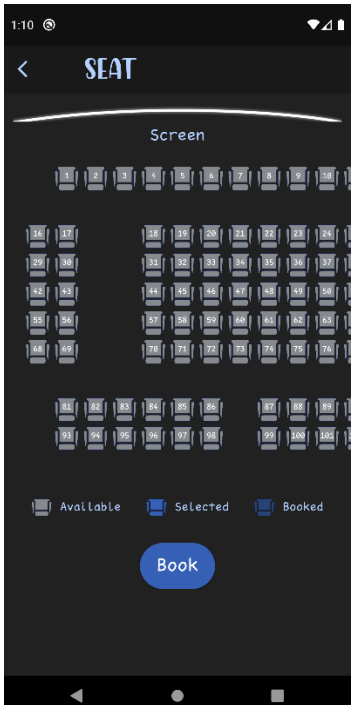


Figure 5.2.13 User Seat Page

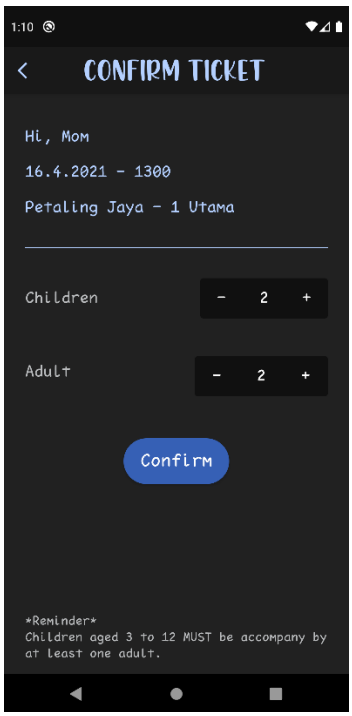


Figure 5.2.14 User Seat Confirm Page

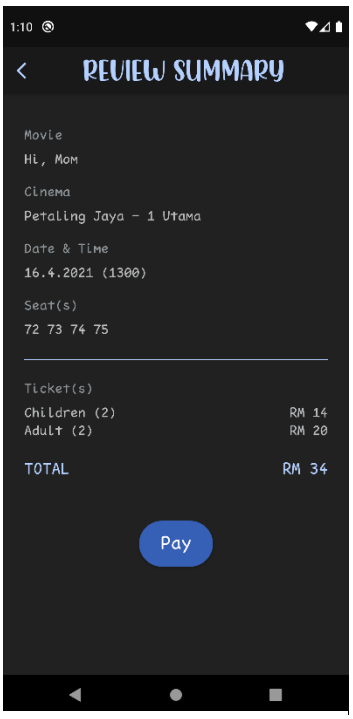


Figure 5.2.15 User Seat Confirm Page

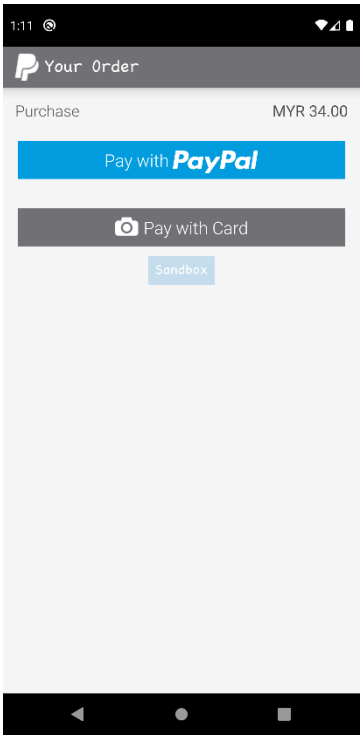


Figure 5.2.16 User Payment Page

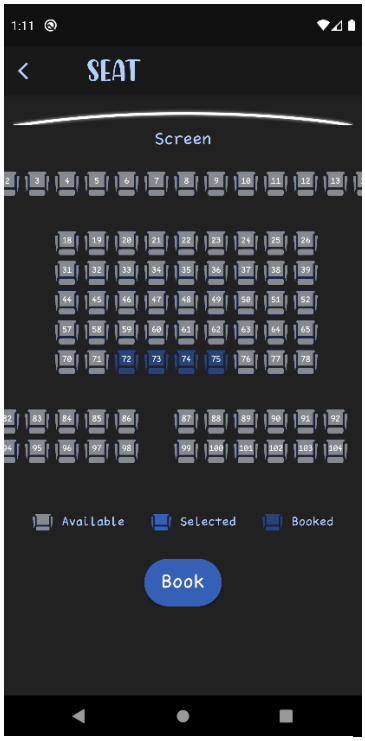


Figure 5.2.17 Seat change Page

Figure 5.2.18 User History Page

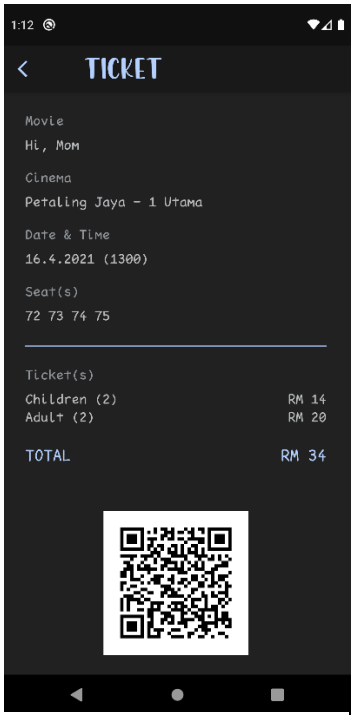


Figure 5.2.19 User Receipt Page

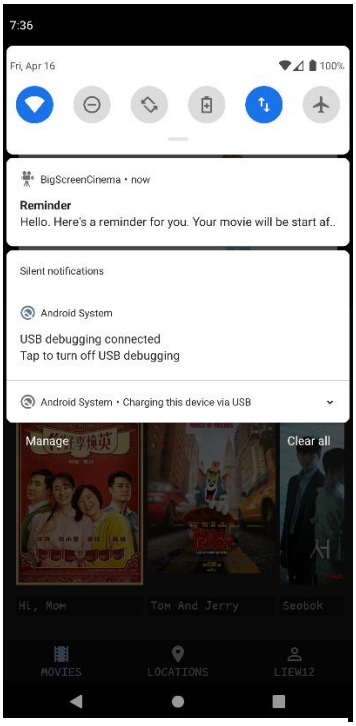


Figure 5.2.20 User Alert Time Page

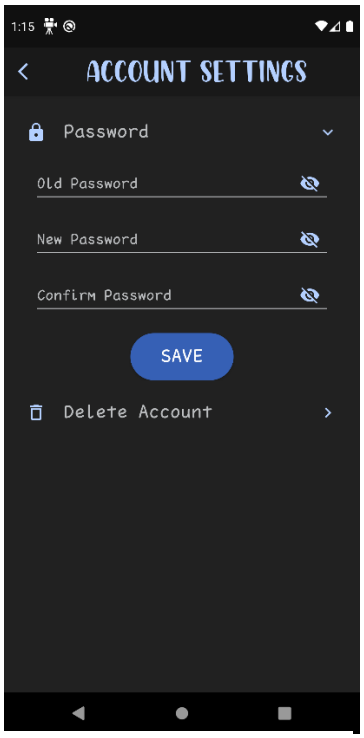


Figure 5.2.21 User Change Password Page

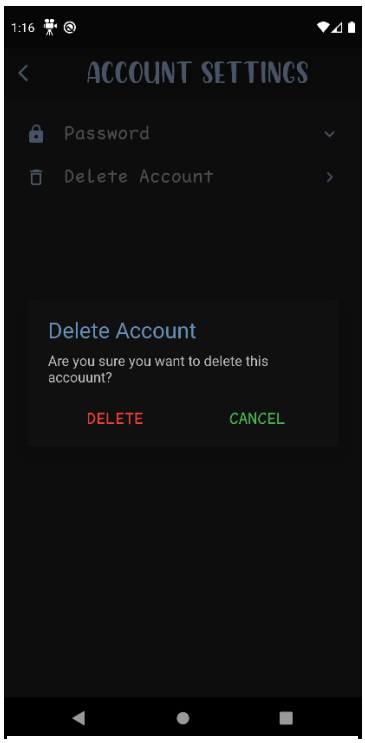


Figure 5.2.22 User Delete Account Page

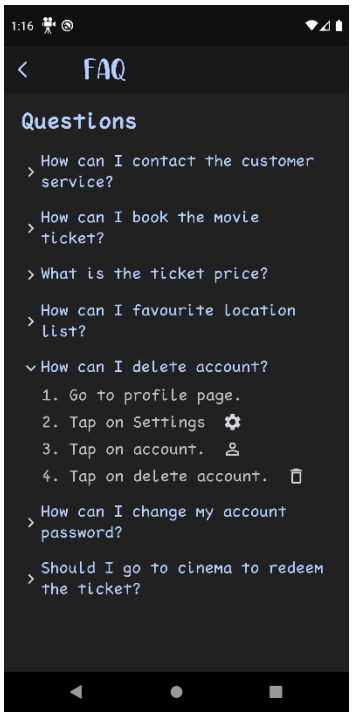


Figure 5.2.23 User Question Page

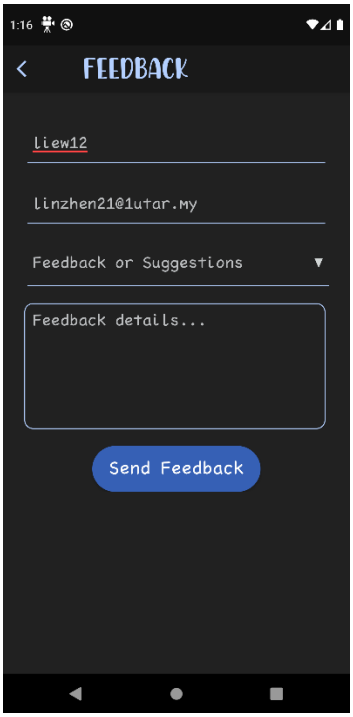


Figure 5.2.24 User Feedback Page

Figure 5.2.25 User About Us Page

5.3 Admin Interface

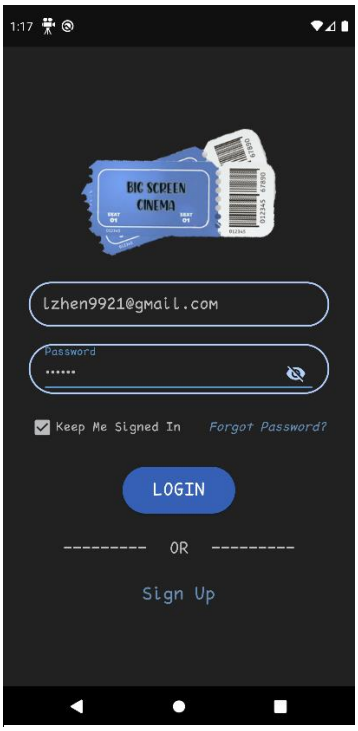


Figure 5.3.1 Admin Login Page

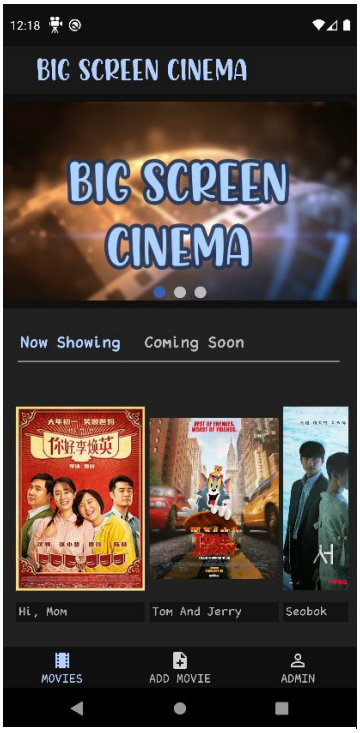


Figure 5.3.2 Admin Main Page

Figure 5.3.3 Admin Movie List Page

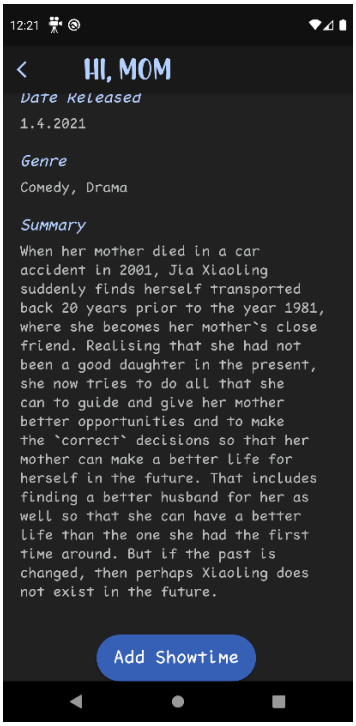


Figure 5.3.4 Admin Movie Details Page

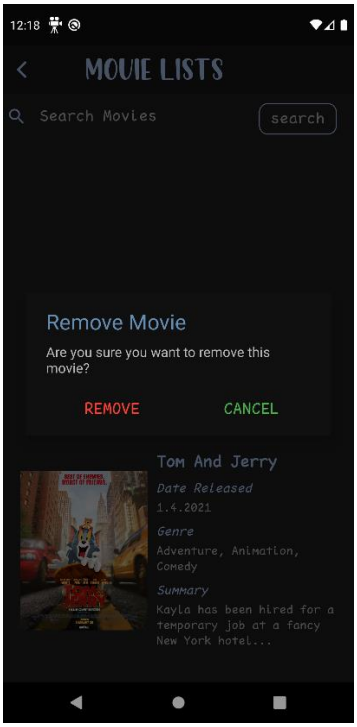


Figure 5.3.5 Admin Delete Movie Page

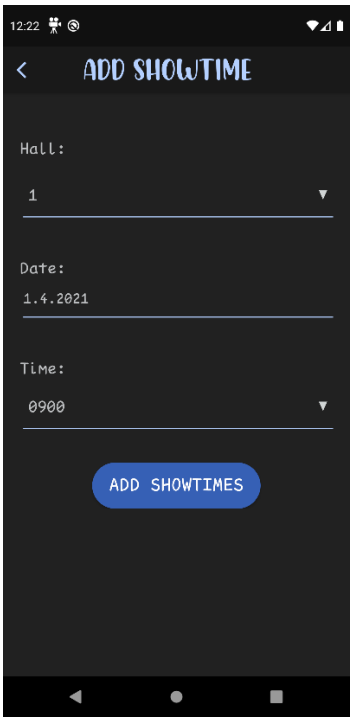
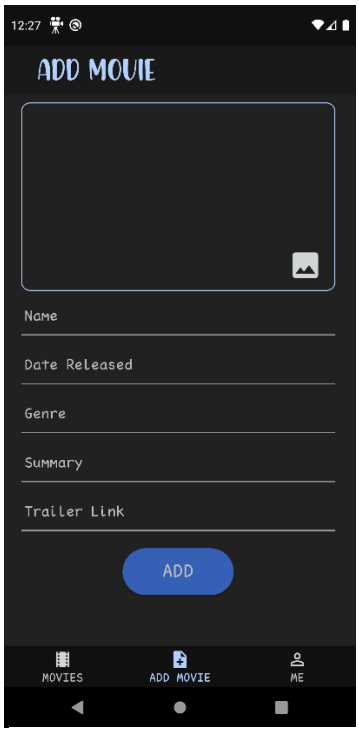


Figure 5.3.6 Admin Add Showtimes Page



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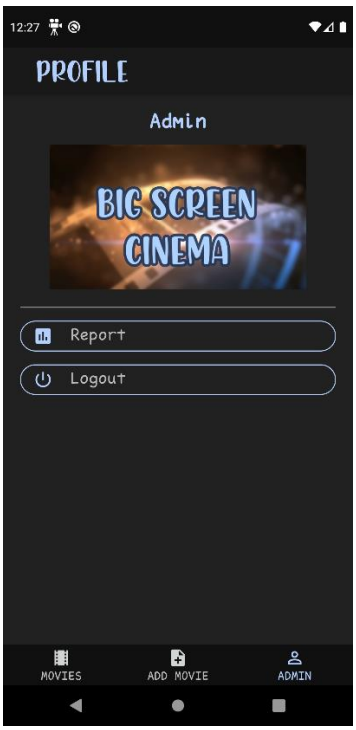

Figure 5.3.8 Admin Page

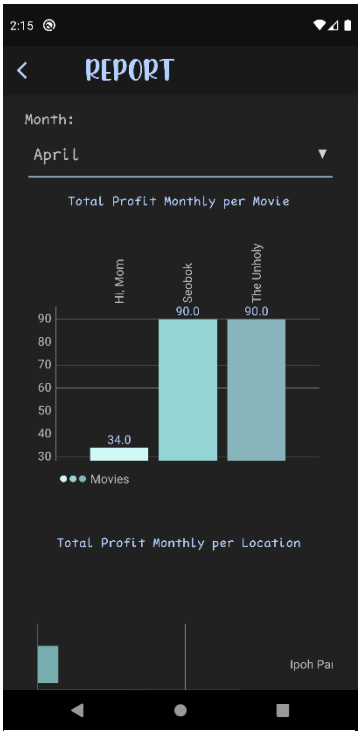

Figure 5.3.9 Admin Report Bar Chart Page

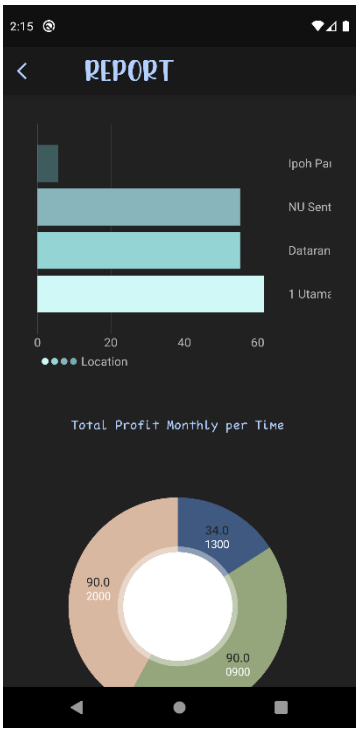

Figure 5.3.10 Admin Report Horizontal Bar Chart Page

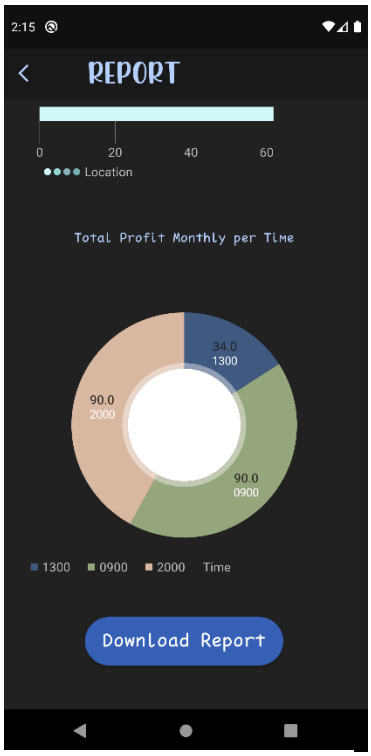

Figure 5.3.11 Admin Report Pie Chart Page

Figure 5.3.12 Admin Download Report Page

Chapter 6 Conclusion

6.1 Introduction

This chapter is about the limitation of our project and some future recommendation for our project. It also discussed about the findings.

6.2 Findings

The first problem statement of cinema ticket booking system is time-consuming. This is because of they need to queue up for at least 15 minutes to buy a ticket especially at the cinema which located inside shopping mall as there are many people in the shopping mall. The next problem is there are no notifications come out when the tickets are sold out. Customers need to always go to cinema counter to check the available time of some famous movies as the movie maybe sold out. The last problem is the payment method. In the year of 2020, many customers prefer e-payment rather than cash as the corona virus will be spread through everything when that thing being touched by someone.

The objective of this project is to minimize the problems of buying ticket at cinema counter. With this project, most of the people will buy the ticket through this application. It is because it is more convenient rather than go to cinema to buy. Through this application, user can see the showtimes of movies and book the ticket easily as they can see which date is fully booked or which timeslot they want. User also can favourite the cinema location. User can edit their profile details such as profile photo, name, phone number and gender. User can change their password if they feel that the password is not secure and delete their account if they do not want to use it again. User can check the history of when they booked and system will generate a alarm alert to user before 30 minutes movie starts. Thus, the objective of this project is archived.

By applying the algorithm, admin can calculate the total amount with different category which are movie title, cinema location and time easily. Thus, admin can analyse which category has the highest amount they sold.

6.3 Limitation

The first limitation is it only have 4 timeslot per day can choose. User cannot choose the time other than 9am, 1pm, 4pm and 8pm. Admin also cannot add the time other than those time. The second limitation is all the cinema locations has the same time, date and seat layout to show movie. Admin cannot choose which time is for what location. The third limitation is user cannot filter the movie list. He just can search the title of movie. The fourth limitation is user cannot check his rewards. User needs go to cinema to check the rewards. The fifth limitation is user cannot pay through PayPal sandbox. This is due to PayPal Sandbox internal server error.

6.4 Future Recommendation

The first recommendation is admin can add any time other than 9am, 1pm, 4pm and 8pm. Thus, user has more choice to choose the time that they are free. The second recommendation is to add filter movie function, so that user can easily filter the genre they want to see. The third recommendation is to add nearby location. This is to let user check the nearest cinema is located at where and user can go to the nearest one. The fourth recommendation is to change the payment method to a more suitable one. This is because many people having this problem which is internal server error while logging to PayPal sandbox in application.

6.5 Conclusion

Although this project now has some limitations, it can be solved by future. There are many ways to solve it in future. In this project, I had learned how to save and retrieve data from Firecloud Database. I also learn how to manage my time well. I also learnt how to archive a function in easier code.

Bibliography

Addis E. et al., 2014. Mormor Cinema Online Movie Ticket Booking System. p. 99.

Anon., 2015. *Longbow.* [Online]
Available at: http://www.longbow.com.my/news_details2579.html?nid=7
[Accessed 17 October 2020].

Anon., 2017. *Uk Essays.* [Online]
Available at: ukessays.com/essays/computer-science/online-cinema-reservation-system-computer-science-essay.php
[Accessed 23 July 2020].

Anon., 2019. *export.gov.* [Online]
Available at: export.gov/apex/article2?id=Malaysia-E-Commerce#:~:text=Current%20Market%20Trends,their%20devices%20to%20shop%20online.
[Accessed 23 July 2020].

Anon., 2020. *Wikipedia.* [Online]
Available at: https://en.wikipedia.org/wiki/List_of_cinemas_in_Malaysia#:~:text=The%20first%20cinema%20in%20Malaysia,transformed%20into%20a%20cultural%20centre.
[Accessed 16 October 2020].

Anon., n.d. *formplus.* [Online]
Available at: https://www.formpl.us/blog/data-collection-method
[Accessed 11 October 2020].

Anon., n.d. *Golden Screen Cinemas.* [Online]
Available at: https://www.linkedin.com/company/gscinemas?trk=similar-pages_result-card_full-click
[Accessed 23 July 2020].

BIBLIOGRAPHY

Anon., n.d. *MBO Cinemas.* [Online]
Available at: linkedin.com/company/mbocinemas
[Accessed 23 July 2020].

Anon., n.d. *TGV Cinemas.* [Online]
Available at: https://www.linkedin.com/company/tgv-cinemas-sdn-bhd?trk=similar-pages_result-card_full-click
[Accessed 23 July 2020].

Baweja, S., 2009. Online Cinema Ticket Booking System. p. 71.

Commission, M. C. a. M., 2018. Internet Users Survey 2018. pp. 12-14.

Degree, J., n.d. *The Debit Card Benefits You Never Knew Existed.* [Online]
Available at: https://www.ublocal.com/debit-card-benefits-never-knew-existed/
[Accessed 22 July 2020].

Gaille, B., 2018. *13 Electronic Wallets Advantages and Disadvantages.* [Online]
Available at: https://brandongaille.com/13-electronic-wallets-advantages-and-disadvantages/
[Accessed 23 July 2020].

Jamaludin, A., 2011. *Cinema Online.* [Online]
Available at:
https://www.cinema.com.my/articles/news_details.aspx?search=2011.bukitrajaonline_4569
[Accessed 16 October 2020].

Kennan, M., 2019. *Pros & Cons of Cash Vs. Credit Cards.* [Online]
Available at: https://budgeting.thenest.com/pros-cons-cash-vs-credit-cards-26465.html#:~:text=Cash%20Advantages,fees%20when%20you%20carry%20cash.
[Accessed 22 July 2020].

Mehta, P., 2013. GUI: Movie Ticket Booking System. p. 34.

BIBLIOGRAPHY

Nkrumah, J. K., 2011. An Online Cinema Booking/Ticket Purchasing System. p. 12.

Nwakanma I.C. et al., 2015. Online Bus Ticket Reservation System. p. 17.

Pritchard, J., 2020. *Pros and Cons of Debit and Credit Cards.* [Online]
Available at: https://www.thebalance.com/should-you-spend-with-debit-or-credit-cards-315480
[Accessed 22 July 2020].

Rahman, R. A., 2009. MBO Ticket M-Booking System. p. 24.

Tally, M., 2019. [Online]
Available at: https://www.meridiankiosks.com/self-service-kiosks-are-transforming-the-ticketing-process/
[Accessed 8 August 2020].

Vapulus, 2018. *Advantage and Disadvantage of E-Wallet.* [Online]
Available at: https://www.vapulus.com/en/advantages-and-disadvantages-of-e-wallet/
[Accessed 23 July 2020].

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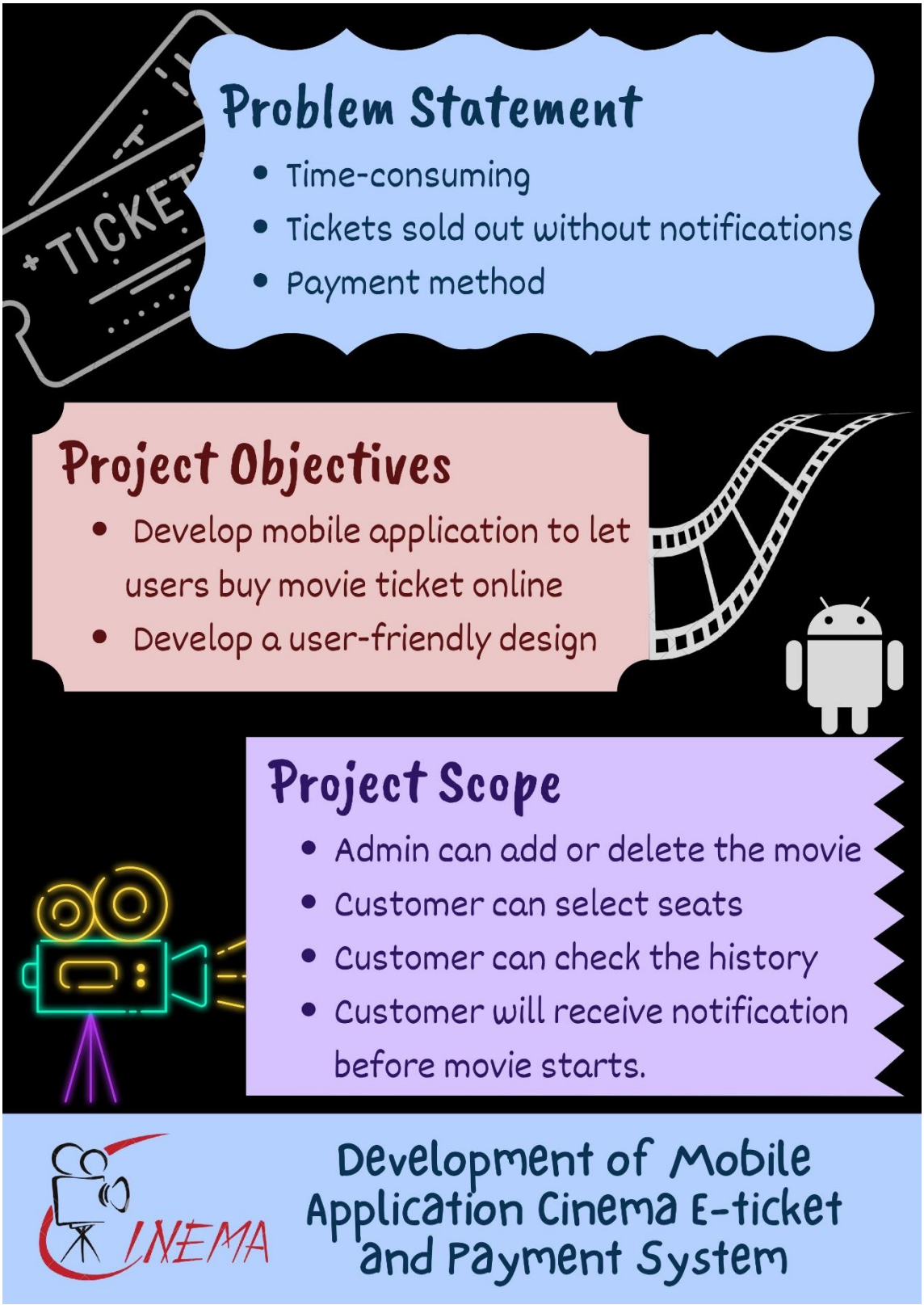

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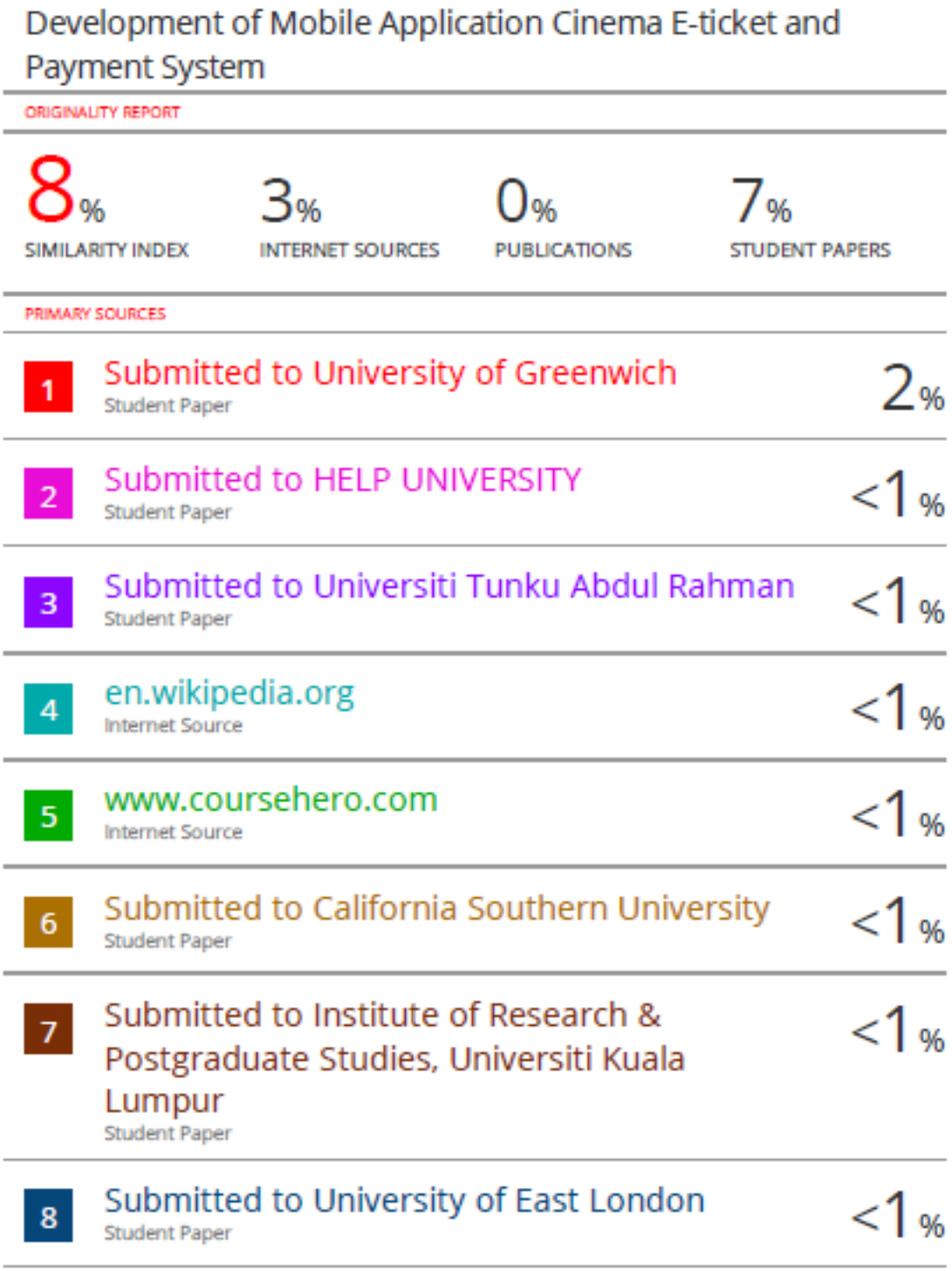

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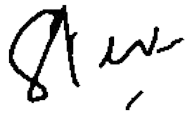

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Date: 15.04.2021

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Project Title: Development of Mobile Application Cinema E-ticket and Payment System	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

- User can select date, time to book the ticket

2. WORK TO BE DONE

Admin add showtimes

3. PROBLEMS ENCOUNTERED

-

4. SELF EVALUATION OF THE PROGRESS

-

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FINAL YEAR PROJECT WEEKLY REPORT

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Project Title: Development of Mobile Application Cinema E-ticket and Payment System	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

- Admin can delete movie from movie list
- Admin can add showtimes
- Modify the way to let user choose date and time which is take data from Firestore Database.

2. WORK TO BE DONE

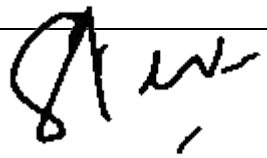
Seat layout

3. PROBLEMS ENCOUNTERED

The seat layout cannot link with Firestore. It is to change the layout after user booked the seat.

4. SELF EVALUATION OF THE PROGRESS

-



Supervisor's signature

Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project I / Project II)

Trimester, Year: 3, 3	**Study week no.: 7**
Student Name & ID: Mabellyn Liew LinZhen 1702984	
Supervisor: Mr. Phan Koo Yuen	
Project Title: Development of Mobile Application Cinema E-ticket and Payment System	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

- Seat layout is shown correctly with selected seat, unselected seat, booked seat and reserved seat.
- Seat layout has a countdown timer

2. WORK TO BE DONE

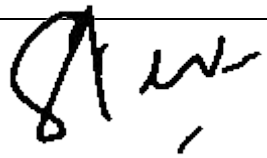
- Calculate the ticket price
- Send a notification to remind user before the movie starts

3. PROBLEMS ENCOUNTERED

- The seat layout cannot link with Firestore. It is to change the layout after user booked the seat.
- Showtimes

4. SELF EVALUATION OF THE PROGRESS

Check again the code if cannot get data from Firestore Database.



Supervisor's signature

Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project I / Project II)

Trimester, Year: 3, 3	**Study week no.: 9**
Student Name & ID: Mabellyn Liew LinZhen 1702984	
Supervisor: Mr. Phan Koo Yuen	
Project Title: Development of Mobile Application Cinema E-ticket and Payment System	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

- User can select the type of ticket which are adult or children
- If user book the ticket successfully, it will show an alarm alert to remind user before 30 minutes the movie starts.

2. WORK TO BE DONE

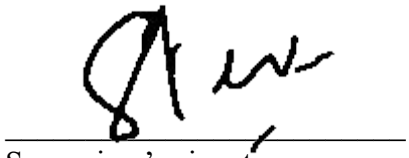
- Admin report
- User history and receipt

3. PROBLEMS ENCOUNTERED

- For the part remind user, I choose wrong method which is notification manager instead of alarm alert to do at first and cannot get expected result.

4. SELF EVALUATION OF THE PROGRESS

-



Supervisor's signature

Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project I / Project II)

Trimester, Year: 3, 3	**Study week no.: 11**
Student Name & ID: Mabellyn Liew LinZhen 1702984	
Supervisor: Mr. Phan Koo Yuen	
Project Title: Development of Mobile Application Cinema E-ticket and Payment System	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

- Admin can generate report based on the month he needs. Admin can see 4 types of report which are bar chart, horizontal bar chart, pie chart and excel file.
- Users can see their history.
- Users can see their receipt with QR code that is a pass to enter the cinema hall.

2. WORK TO BE DONE

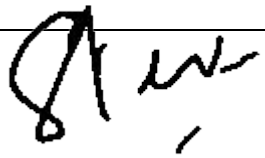
Payment gateway

3. PROBLEMS ENCOUNTERED

-

4. SELF EVALUATION OF THE PROGRESS

-



Supervisor's signature

Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project I / Project II)

Trimester, Year: 3, 3	**Study week no.: 13**
Student Name & ID: Mabellyn Liew LinZhen 1702984	
Supervisor: Mr. Phan Koo Yuen	
Project Title: Development of Mobile Application Cinema E-ticket and Payment System	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

- Fake payment gateway (PayPal Sandbox)
- User and admin can search movie title at movie list

2. WORK TO BE DONE

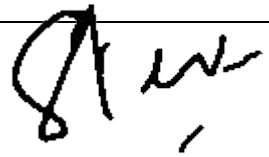
Report Chapter 1-6

3. PROBLEMS ENCOUNTERED

Cannot login to PayPal Sandbox after implementation this service due to the internal server error.

4. SELF EVALUATION OF THE PROGRESS

-



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Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project I / Project II)

Trimester, Year: 3, 3	**Study week no.: 15**
Student Name & ID: Mabellyn Liew LinZhen 1702984	
Supervisor: Mr. Phan Koo Yuen	
Project Title: Development of Mobile Application Cinema E-ticket and Payment System	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

- Add more user FAQ
- Report Chapter 1-6

2. WORK TO BE DONE

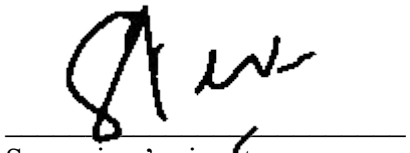
-

3. PROBLEMS ENCOUNTERED

-

4. SELF EVALUATION OF THE PROGRESS

-



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