



Faculty of Computer Science and Information Technology

## **MOBILE-BASED APPLICATION OF CAR RENTAL FOR UNIMAS**

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(56588)**

Bachelor of Computer Science and Information Technology with Honors  
(Software Engineering)

2020

# **MOBILE-BASED APPLICATION OF CAR RENTAL FOR UNIMAS**

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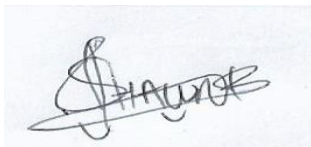
This project is submitted in partial fulfilment of the  
requirements for the degree of  
Bachelor of Computer Science and Information Technology

Faculty of Computer Science and Information Technology  
UNIVERSITI MALAYSIA SARAWAK  
2020

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Faculty of Computer Science and Information Technology  
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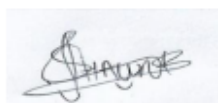
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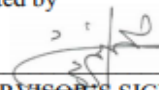
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## **ABSTRACT**

Currently, most of the students of UNIMAS that having a transportation problem will rent a car from people in Facebook group that can be either student or outsider. However, it is not safe for the student to rent a car from outsider and the time to rent a car is quite slow. To solve this problem, a mobile-based application of car rental for UNIMAS has been developed as a platform for UNIMAS students to rent transportation, for student to rent out their car and effectively manage the car rental service in UNIMAS. Users and admin can log in to the application by entering their email and password. With the help of this application, students can search for available car and rent out their car at anytime using their smartphones. The methodology used to build this application is Mobile Application Development Life Cycle (MADLC).

## **ABSTRAK**

Pada masa kini, kebanyakan pelajar UNIMAS yang mengalami masalah pengangkutan akan menyewa kereta dari orang di Facebook yang mana boleh menjadi pelajar atau orang luar. Walau bagaimanapun, adalah tidak selamat untuk pelajar menyewa kereta daripada orang luar dan masa untuk menyewa kereta agak perlahan. Untuk menyelesaikan masalah ini, aplikasi sewa kereta untuk pelajar UNIMAS telah dibangunkan sebagai platform untuk pelajar UNIMAS untuk menyewa pengangkutan atau menyewakan kereta mereka dan dapat menguruskan perkhidmatan sewa kereta secara berkesan di UNIMAS. Pengguna dan pentadbir boleh log masuk ke dalam aplikasi dengan memasukkan emel dan kata laluan mereka. Dengan bantuan aplikasi ini, pelajar boleh mencari kereta yang ada dan menyewakan kereta mereka pada bila-bila masa hanya menggunakan telefon pintar mereka. Metodologi yang digunakan untuk membina aplikasi ini ialah Kitaran Hayat Pembangunan Aplikasi Mudah Ahli (MADLC).

## **CHAPTER 1: INTRODUCTION**

### **1.1 Introduction/ Background**

Car rental or car hire is a place where people can rent car for short periods of time, generally from few hours to a few weeks. It is also to serve people who require a temporary vehicle such as those who do not own their own car and travelers who are out of town.

Car rental is used all around the world for them to travel from place to place. It is whether travelling for business, journeying or simply on holiday where car rental services are very helpful. The car rental system already existed in the previous year where people rent cars for their personal reasons. Today, car rental became more popular as the years pass by, especially in the developed and developing countries.

In this project, the Mobile-based Application of Car Rental was developed in order to assist and help the UNIMAS students. This application was for UNIMAS student only which allows them either to rent their car or to find a car. In addition, the process of renting a car was faster since they able to see the availability of the car.

## **1.2 Problem Statement**

The current method of this problem was students that having a transport problem will rent a car from people in the Facebook group which can be a student or outsider. It also takes time for the student to rent a car since they cannot see the availability of the car and the car might be unavailable. In addition, the student also need message the person and wait for their reply to book a car. Moreover, the students that have their own car and want to do the car rental service cannot guarantee their car safety. This was because their car might be stolen by outsider who impersonate as a student. Therefore, this project was to overcome the stated situation.

## **1.3 Scope**

The scope of this project was to make an Android mobile platform that mainly design for UNIMAS students only so that they can either rent their car or find a car without posting on Facebook page. Moreover, UNIMAS students can look for their specific car with specific rate of the car.

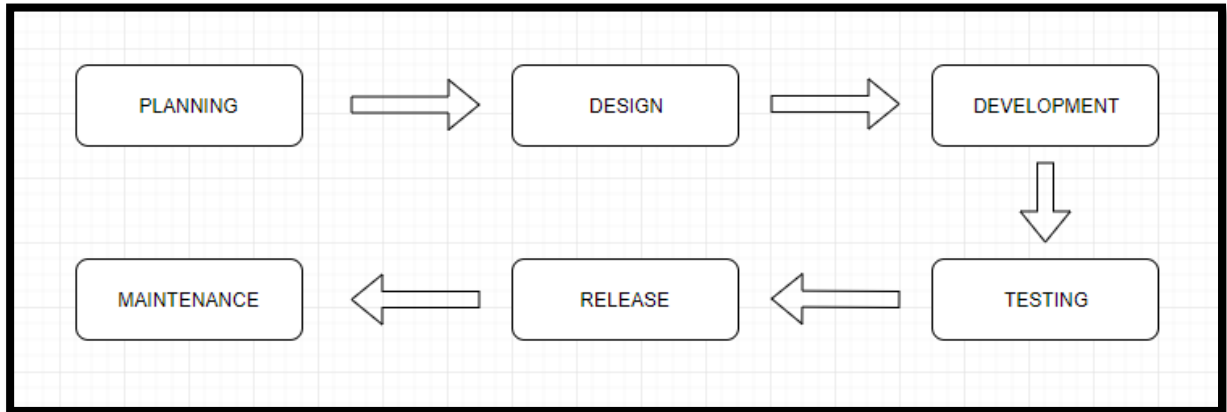
## **1.4 Aims and Objectives**

The aim for this project it to design and develop a mobile-based application for UNIMAS students. The objectives of this project are highlighted based on the problem statements, which were:

- To develop a mobile application that acts as a platform for student to rent transportation
- To design a mobile application for student that have their own car to rent out for others student
- To evaluate the effectiveness of car rental service in UNIMAS

## 1.5 Brief methodology

In order to achieve the objectives of the project and build a successful mobile application, the Mobile Application Development Life Cycle (MADLC) is chosen as the methodology for this project. This is because the portability and ease to use make the usability of mobile application extremely simple with gradually less learning curve.



*Figure 1.1: Phases of MADLC (Kaur & Kaur, 2015)*

According to Kaur and Kaur (2015), they stated that from the perspective of a mobile device, MADLC is just the representation of the conventional System Development Life Cycle (SDLC).

Firstly, planning phase is where developers are required to define the goal of the project. List of requirements is needed to confirm whether the requirement can be transformed into features of an application. Gathering requirements can be done by distributing questionnaire.

Next is designing phase. At this phase, prototyping and refinements of the project are needed. This phase is where developers decide on how to portray the features. After designing, it is the development phase where activities of building the application are included. Besides that, the user interface of the application will be built based on the design at the prototyping phase.

Testing phase needs to be done where the mobile-based application is tested to find out problems or errors that were made during and after the development phase. After making sure the mobile-based application is error-free and have obtained feedbacks from students, the mobile-based application is ready to be used.

Release phase is where developers decide to release the application for other student to use this application as their car rental application.

Lastly is the maintenance phase where if there is any error or improvement need to be done, the developer will fix and come up with the new update.

### **1.6 Significance of project**

The Mobile-based Application of Car Rental for UNIMAS has the chance to solve the existing problem of car rental services that was done manually because by using this application, students of UNIMAS does not need to worry about the car they rent to since it only rented to the students. Therefore, outsider did not have the chance to register for this application. In addition, students able to see the availability of the car, cost of the car and description of the car before they book for it.

### **1.7 Project Schedule**

The project schedule description and Gantt chart of the project is show in Appendix A for reference.



## **1.8 Expected Outcome**

The Mobile-based Application of Car Rental for UNIMAS is expected to be a well managing of car booking application. There should only be use by the students of UNIMAS. Moreover, there should be able to view the type of car, search available car, condition of the car and description of the car. User also able to add, update and delete their car and cancel booking. Lastly, students that have their own car able to rent it to the students of UNIMAS by using this application.

## **1.9 Project Outline**

### **Chapter 1: Introduction**

In this chapter, the mobile-based application of car rental will be described to give a clearer vision and understanding about the project. This chapter consists of introduction, problem statement, scope, objectives, brief methodology, significant of project, schedule of the project, expected outcome and summary.

### **Chapter 2: Literature Review**

In this chapter, a research will be conduct on the current system and make comparison of selected existing mobile application that similar with the mobile application. This chapter will also identify the limitations of existing application and discussed about how to improve the current system to the mobile-based application.

### **Chapter 3: Requirement Analysis and Design**

In this chapter, the methodology that used to build the mobile-based application will be discussed in detail. This chapter will also be discussed about the requirement analysis and database design.

## **Chapter 4: Implementation**

Chapter 4 focuses on the implementation of the mobile-based application and testing.

## **Chapter 5: Evaluation**

Chapter 5 focuses on testing of the functional and usability in developing the mobile application.

## **Chapter 6: Conclusion and Future Works**

Chapter 6 concludes the development of the mobile-based application, discusses the limitations and future work.

### **1.10 Summary**

In conclusion, Chapter 1 will give an understanding of the Mobile-Based Application of Car Rental for UNIMAS in details. The main object of this chapter is to build a mobile-based application of car rental for students of UNIMAS. The project come out with a mobile-based Android application that could help the targeted user which is the students of UNIMAS in car rental service. The project used Mobile Application Development Life Cycle (MADLC) as the methodology to build the application.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1 Introduction**

The purpose of this chapter is to review and make comparison of the selected existing applications that similar with the current application.

In recent years, most of car rental companies are often found in web-based application and flyers which they promote their car there. However, with the development of technology, car rental companies started to have their own car rental application which is easier and faster than before to rent a car. Presently, the students of UNIMAS will rent a car from people in Facebook group called “Kereta Sewa UNIMAS” and “WhatsApp” group that posted about car rental.

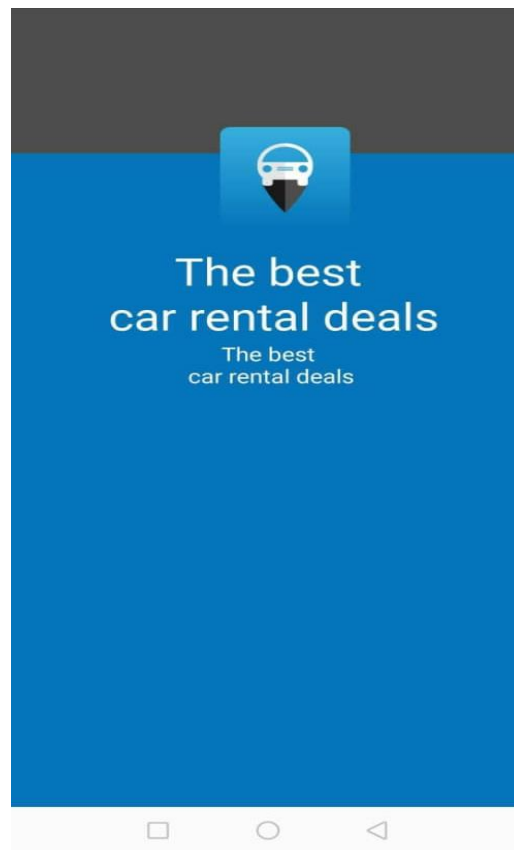
The disadvantage about this type of car rental is that the car renter or rental can be outsider which cannot guarantee the safety of the students’ car and the student itself. Moreover, since they need to call or message the person in order to rent a car, the process of renting a car is slow. They also need to ask and wait for the availability of the car. Therefore, this mobile-based application of car rental is way to help and assist the UNIMAS student in renting car. Moreover, only students of UNIMAS can use this application to be the car owner to rent their car for the students.

## 2.2 Review on existing applications

In this section, three existing applications had been chosen to be reviewed and compared. To identify the similarities, advantages, and disadvantages of the chosen application. The features of the existing and current application will also be discussed.

### 2.2.1 Rental24H

Rental24H is a global company providing cars for rental 24/7 almost anywhere in the world which work every day so that users can compare prices for renting cars of the leading agencies in the location users need. This application also easily books a car they like based on the type of car they want.



*Figure 2.1: View of Homepage for Rental24H*

**Reserve A Car**

Pick-up Location  
City, State or Airport Code...

Pick-up Date and Time  
May 14, 2019, 11:00 PM

Return Location  
May 15, 2019, 11:00 PM

Enter Discount    Show Me All

Use Rewards Points ☐ NO

Continue

Figure 2.2: View of Booking Car for Rental24H

**Rental24H**

Kuching - Airport  
21 May, 10:00 - 23 May, 10:00

Edit

Filter 0 Sort

Free cancellation on all cars

11 cars | Sort by: Recommended

**Proton Saga or similar**  
Economy  
5 Passenger(s)  
2 Bag(s)  
Full to Full  
PICKUPTYPE.MEETANDGF  
RM 437  
**RM 207 /day**  
Total RM 415

**Proton Persona or similar**  
Compact  
5 Passenger(s)  
3 Bag(s)  
Full to Full  
PICKUPTYPE.MEETANDGF  
RM 489  
**RM 232 /day**  
Total RM 464

Figure 2.3: View of Available Cars for Rental24H

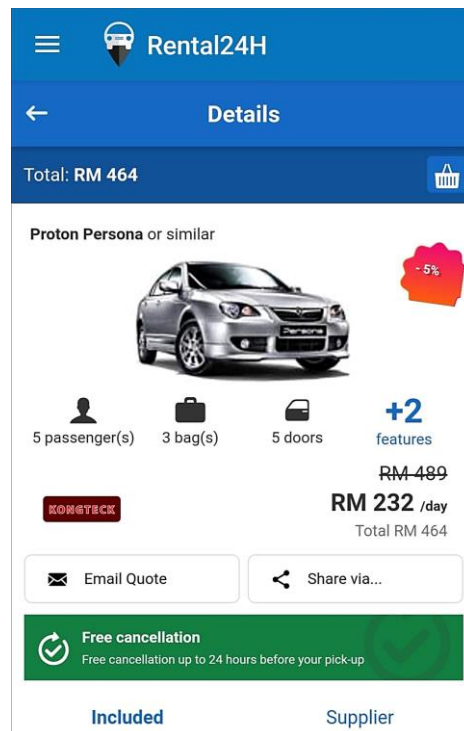


Figure 2.4: View of Car Details for Rental24H

The screenshot shows the 'Payment' page, which is divided into two sections: '1. Review' and '2. Driver Details'. The '1. Review' section shows the car hire fee of RM 464 and the total of RM 464. A note states: 'Please note the amount payable today will be charged in EUR based on today's exchange rate (RM 464 = EUR 99.09)'. The '2. Driver Details' section asks for the lead driver's name, email, country code, phone, and age. The form includes input fields for 'First Name \*', 'Surname \*', 'E-mail \*', 'Country code \*' (with a dropdown menu showing '+60'), 'Phone \*', 'Country/Region \*' (with a dropdown menu showing 'Malaysia'), and 'Flight number (optional)'. There are also buttons for 'Driver's age' (18 - 24, 25 - 70, 71+) and a checkbox for 'I'd like to receive emails with special offers and travel product information. Customers can opt-out at any time.'

Figure2.5: View of Booking Form for Rental24H

3. Secure payment

MasterCard Maestro VISA

digicert Trusted SECURE All payment transactions are 128-bit SSL encrypted

Card Number \*  
Card Number

Name (as it appears on the card) \*  
Name on card

Card Expiration Date \*  
Month Year

Security Code \*  
CVC

Click "Pay" to complete your booking and agree to the [Rental conditions, Terms and Conditions](#) and our [Privacy policy](#).

✓ Free cancellation ✓ Secure payment

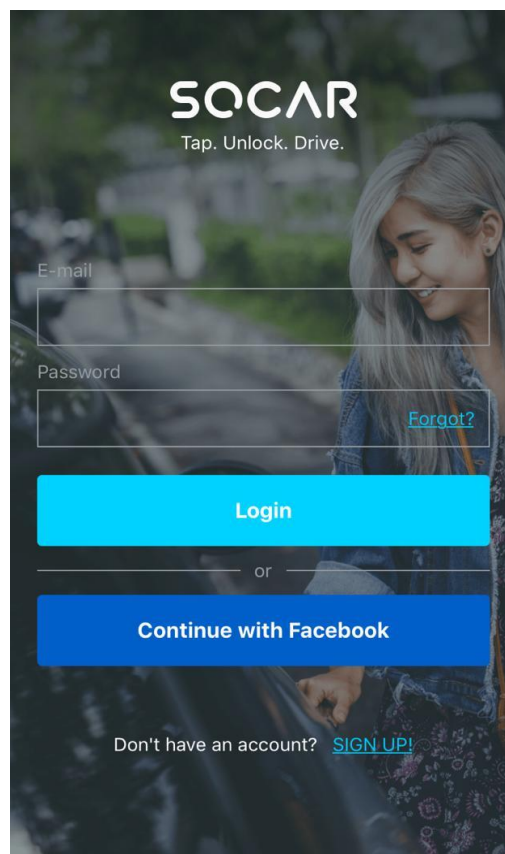
Pay RM 464

*Figure 2.6: View of Payment Form for Rental24H*

Firstly, in order to rent a car using Rental24H application, user will need to place the pick-up and return details such as location, date and time as shown in Figure 2.2. After filling the details, user will see type of available cars where user can select a car based on their prices and type of cars as shown in Figure 2.3. Then, user able to view the details of the car they selected as shown in Figure 2.4. Lastly, user need to fill the driver details and payment details as shown in Figure 2.5 and 2.6. The features for this application are user can place a pick-up location, return location. User also can select car that they desire based on the prices and car types. However, this application only able to book a car per day, user cannot book car per hour. In addition, the car can only be sent to certain location which is when the location selected is not suitable, it will show no available car.

### 2.2.2 SOCAR MY

SOCAR is a car-sharing platform that allows customer to book a car that suits their needs by hour, day or week through using mobile application. SOCAR Malaysia provide the convenience and flexibility of driving a car without the commitments of owning one. With a variety of cars to suit every occasion and purpose, user can locate, book and unlock the car user want through an easy-to-use mobile app.



*Figure 2.7: View of Login Page for SOCAR MY*