

ADVERTISING PLATFORM



LEE JONG FENG

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

BORANG PENGESAHAN STATUS LAPORAN

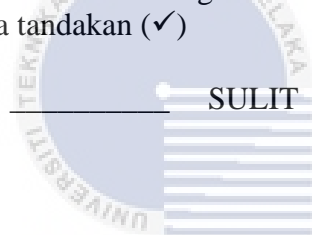
JUDUL: [ADVERTISING PLATFORM]

SESI PENGAJIAN: [2020 / 2021]

Saya: _____[LEE JONG FENG]_____

mengaku membenarkan tesis Projek Sarjana Muda ini disimpan di Perpustakaan Universiti Teknikal Malaysia Melaka dengan syarat-syarat kegunaan seperti berikut:

1. Tesis dan projek adalah hakmilik Universiti Teknikal Malaysia Melaka.
2. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan untuk tujuan pengajian sahaja.
3. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan tesis ini sebagai bahan pertukaran antara institusi pengajian tinggi.
4. * Sila tandakan (✓)



_____ SULIT

(Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysia seperti yang termaktub di dalam AKTA RAHSIA RASMI 1972)

_____ TERHAD

(Mengandungi maklumat TERHAD yang telah ditentukan oleh organisasi / badan di mana penyelidikan dijalankan)

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

_____ TIDAK TERHAD

(TANDATANGAN PELAJAR)

Alamat tetap: 8H, JALAN TEMEDAK
96000 SIBU, SARAWAK

(TANDATANGAN PENYELIA)

Maslita

Nama Penyelia

Tarikh: _____30/8/2021_____

Tarikh: _____30/8/2021_____

CATATAN: * Jika tesis ini SULIT atau TERHAD, sila lampirkan surat daripada pihak berkuasa.

ADVERTISING PLATFORM

LEE JONG FENG



This report is submitted in partial fulfillment of the requirements for the Bachelor of Computer Science (Software Development) with Honours.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2021

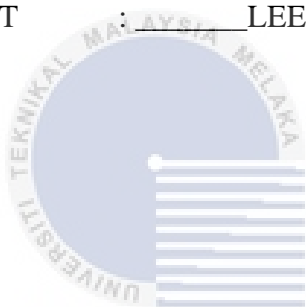
DECLARATION

I hereby declare that this project report entitled

[ADVERTISING PLATFORM]

is written by me and is my own effort and that no part has been plagiarized
without citations.

STUDENT : _____ LEE JONG FENG _____ Date : _30/8/2021_____



اوتنوم سته تیکنیکا ملایسا ملاک
I hereby declare that I have read this project report and found

this project report is sufficient in term of the scope and quality for the award of
Bachelor of [Computer Science (Software Development)] with Honours.

SUPERVISOR : _____ *Maslita* _____ Date : _30/8/2021_____

([NAME OF THE SUPERVISOR])

ACKNOWLEDGEMENTS

Firstly, I would like to take this opportunity to declare and express my deepest appreciation to my supervisor, Ts. Maslita Binti Abd Aziz for spending her precious time to give her guidance and motivation throughout the completion of entire project. Under her supervision, I had learnt lot of valuable knowledge and ways to solve problems. Despite that, she is busy with her daily jobs and duties as a lecturer. However, she still willing to guide me along in this project. Therefore, I am here to show my beloved appreciation to her for guiding me with her patience and I feel grateful to have her as my supervisor in my final year project.

Besides, I would like to thank my caring course mates and friends who always spend their time to help me although they are busy with their own tasks too. Apart from that, I appreciate them for their assistant and sharing of good programming knowledge and ideas that help to complete my project when facing problems.

Finally, my deepest gratitude goes to my grandparents, Lee Ai Haw and Shu Tuang Eng for fully supporting me from mentally and financially throughout my studies in UTeM. Their endless support has extended courage for me to complete my degree life.

ABSTRACT

Due to the pandemic of COVID-19, most of the shops and business processes need to be stopped immediately to avoid the spreading of coronaviruses through physical contact. In case, most of the entrepreneur faced with the problems of insufficient funds to remain their business anymore. Again, online platform is quite important in case to move the business process remotely. Therefore, an advertising platform is necessary to help in cooling down the pandemic and promoting the business process of certain merchants if they wished to do so. Through the advertising of their business in the platform provided, merchants can sustain their business in the hardship period. However, there is seldom platform for them to advertise and invest at the same time to get their investment worth. Most of the platforms take care of their own profits instead of maximize the merchants benefits. Besides, consumers always leave bad impressions to advertisements because it tends to pop up when people watching movies or using applications. A proper solution is significant to resolve the image of advertising in the deepest of their mind. In case, an advertising platform is introduced and developed as a solution of the problems outlined. During the development, agile methodology has been used. By using the system developed, the profits of all parties, which are admin, merchants and consumers will be emphasized and covered where admin can earn from merchants subscriptions and merchants can get the attentions from consumers which make their investment comes true. In conclusion, the proposed system will resolve the problems faced by the merchants and it is vital especially this pandemic of COVID-19.

ABSTRAK

Disebabkan wabak COVID-19, kebanyakan kedai dan proses perniagaan terpaksa untuk dihentikan segera untuk mengelakkan penyebaran coronavirus melalui hubungan fizikal. Sekiranya, kebanyakan pengusaha telah menghadapi masalah kekurangan dana untuk meneruskan perniagaan mereka lagi. Selain itu, platform dalam talian menjadi peranan penting sekiranya dapat memindahkan proses perniagaan secara atas talian. Oleh itu, suatu platform periklanan diperlukan untuk membantu menenangkan wabak dan mempromosikan proses perniagaan peniaga tertentu jika mereka mahu melakukannya. Melalui pengiklanan perniagaan mereka di platform yang disediakan, pedagang dapat mempertahankan perniagaan mereka dalam masa kesulitan. Walau bagaimanapun, kekurangan platform untuk mereka beriklan dan melabur untuk mendapatkan nilai pelaburan mereka pada masa yang sama. Sebilangan platform hanya mengurus keuntungan mereka sendiri dan bukannya untuk memaksimumkan keuntungan peniaga. Di samping itu, pengguna selalu meninggalkan kesan buruk pada iklan kerana iklan akan muncul tiba-tiba ketika mereka menonton filem atau menggunakan aplikasi. Penyelesaian yang tepat adalah mustahak untuk menyelesaikan gambaran iklan dalam lubuk fikiran mereka. Oleh itu, platform periklanan diperkenalkan dan dikembangkan sebagai penyelesaian masalah. Semasa proses pengembangan, metodologi agile telah digunakan. Dengan menggunakan sistem yang diciptakan, keuntungan semua pihak, terutamanya admin, pedagang dan pengguna akan ditekankan dan dilindungi di mana admin dapat memperoleh langganan pedagang dan pedagang dapat mendapat perhatian dari pengguna yang membuat pelaburan mereka menjadi kenyataan. Kesimpulannya, sistem yang dicadangkan akan menyelesaikan masalah yang dihadapi oleh peniaga dan sangat penting terutama wabak COVID-19 ini.

TABLE OF CONTENTS

	PAGE
DECLARATION.....	II
ACKNOWLEDGEMENTS.....	III
ABSTRACT	IV
ABSTRAK	V
TABLE OF CONTENTS.....	VI
LIST OF TABLES	X
LIST OF FIGURES	XI
LIST OF ABBREVIATIONS	XIII
LIST OF ATTACHMENTS.....	XIV
CHAPTER 1: INTRODUCTION.....	1
1.1 Introduction.....	1
1.2 Problem Statement	1
1.3 Objective	2
1.4 Scope.....	2
1.5 Project Significance	4
1.6 Expected Output.....	5
1.7 Conclusion	5

CHAPTER 2: LITERATURE REVIEW AND PROJECT METHODOLOGY . 6

2.1	Introduction.....	6
2.2	Facts and findings	6
	2.2.1 Domain	6
	2.2.2 Existing System	7
	2.2.3 Technique	8
2.3	Project Methodology.....	8
	2.3.1 System Development Life Cycle.....	8
	2.3.2 Database Life Cycle.....	10
2.4	Project Requirements	11
	2.4.1 Software Requirement	11
	2.4.2 Hardware Requirement.....	12
	2.4.3 Other Requirements	13
2.5	Project Schedule and Milestones	13
2.6	Conclusion	14

CHAPTER 3: ANALYSIS..... 15

3.1	Introduction.....	15
3.2	Problem Analysis	15
3.3	Requirement Analysis.....	16
	3.3.1 Data Requirement	17
	3.3.2 Functional Requirement.....	27
	3.3.3 Non-functional Requirement	28
	3.3.4 Other Requirement.....	29
3.4	Conclusion	29

CHAPTER 4: DESIGN	30
4.1 Introduction.....	30
4.2 High-Level Design.....	30
4.2.1 System Architecture.....	30
4.2.2 User Interface Design	31
4.2.3 Database Design	38
4.2.3.1 Conceptual Database Design	38
4.2.3.2 Logical Database Design	39
4.3 Detailed Design.....	39
4.3.1 Data Flow Diagram.....	39
4.3.2 Physical Database Design.....	40
4.4 Conclusion	41
CHAPTER 5: IMPLEMENTATION.....	42
5.1 Introduction.....	42
5.2 Software Development Environment Setup.....	42
5.3 Software Configuration Management.....	45
5.3.1 Configuration Environment Setup.....	45
5.4 Version Control Procedure	46
5.5 Implementation Status	46
5.6 Conclusion	47
CHAPTER 6: TESTING	48
6.1 Introduction.....	48
6.2 Test Plan.....	48

6.2.1	Test Organization.....	48
6.2.2	Test Environment.....	48
6.2.3	Test Schedule.....	49
6.3	Test Strategy	49
6.3.1	Classes of tests.....	49
6.4	Test Design	49
6.4.1	Test Description.....	49
6.4.2	Test Data.....	50
6.5	Test Results and Analysis	50
6.6	Conclusion	51
CHAPTER 7: PROJECT CONCLUSION.....		52
7.1	Observation on Weaknesses and Strengths.....	52
7.2	Proposition for Improvement.....	52
7.3	Project Contribution.....	53
7.4	Conclusion	53
REFERENCES.....		54
APPENDICES		58

LIST OF TABLES

	PAGE
Table 2.1: List of Software	11
Table 2.2: List of Hardware	12
Table 2.3: Gantt Chart	13
Table 3.1: Admin Table	17
Table 3.2: Merchant Table	17
Table 3.3: Consumer Table	18
Table 3.4: Advertisement Table.....	18
Table 3.5: Check-In Table.....	19
Table 3.6: Extended Plan Table.....	20
Table 3.7: Favourite Table	21
Table 3.8: Invite Table.....	21
Table 3.9: Merchant Subscription Table	22
Table 3.10: Payment Plan Table	23
Table 3.11: Payment Plan Subscription Table	23
Table 3.12: Subscribe Merchant Table	24
Table 3.13: Voucher Table	25
Table 3.14: Voucher Consumer Table	26
Table 3.15: Non-functional Requirement	28
Table 5.1: Progress of the development status	46
Table 6.1: Test Case Table Template	49

LIST OF FIGURES

	PAGE
Figure 2.1: Agile Model (Azmee, no date)	9
Figure 3.1: Basic Flow of Current System	16
Figure 3.2: Zero-level Data Flow Diagram	28
Figure 4.1: Advertising Platform Architecture Design	31
Figure 4.2: User Interface for Login Page	32
Figure 4.3: User Interface for Admin Main Page	32
Figure 4.4: User Interface of Update Profile	33
Figure 4.5: User Interface of Change Password	33
Figure 4.6: User Interface of Insert Payment Plan	34
Figure 4.7: User Interface of View Payment Plan	34
Figure 4.8: User Interface for View Voucher	35
Figure 4.9: User Interface of Add Advertisement	35
Figure 4.10: User Interface of View Advertisement	36
Figure 4.11: User Interface of Add Voucher	36
Figure 4.12: User Interface of View Voucher	37
Figure 4.13: User Interface of Subscribe Payment Plan	37
Figure 4.14: Conceptual Data Model for Advertising Platform	38
Figure 4.15: Logical Data Model for Advertising Platform	39
Figure 4.16: Detail Data Flow Diagram	40
Figure 4.17: Document Data Model for Advertising Platform	41
Figure 5.1: Logo of Vue.js	42
Figure 5.2: Logo of Node.js	43
Figure 5.3: Logo for Visual Studio Code	43
Figure 5.4: Logo for Android Studio	44

Figure 5.5: Logo for MongoDB..... 44



LIST OF ABBREVIATIONS

SDLC	-	System Development Life Cycle
DBLC	-	Database Life Cycle
ERD	-	Entity Relationship Diagram
SQL	-	Structured Query Language
DBMS	-	Database Management System
IDE	-	Integrated Development Environment
UML	-	Unified Modelling Language



اونيورسيتي تيكنيكل مليسيا ملاك

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

LIST OF ATTACHMENTS

PAGE



CHAPTER 1: INTRODUCTION

1.1 Introduction

Advertising is important in a business process because it helps introducing a new product, expansion of market, competes with other merchants, increases sales and etc (Chand, no date). It determines the image and way of life and it impacts our thinking and attitude towards world (Frolova, 2014). Therefore, advertising becomes the important part in marketing strategies because the market is controlled by consumers and merchandises have to persuade and attract consumers for selling their product. A good advertising process may yield better business process where merchants should take concern onto it (Rossler, 2017). However, the advertising process is not quite easy because the merchants need to select the proper media and do some planning, research and buying.

1.2 Problem Statement

Recent years, digital channels come in and allow human beings to connect, share and collaborate like never before and these channels defined a new marketing environment full of challenges (Elawadi, 2016). Select the platform to advertise is another major concern which may affect the worthiness of the payment paid to promote the business. Multiple platform available will request the merchants to pay a lot of fees to multiple platform which really costly and it requires feasibility studies on whether the advertisements posted on the social media comes with same business value. Most of the merchants will post some stories and upload to the social media, but these advertisements tend to be ignored by most of the social media users. Those users do not dislike advertisements, but they simply do not notice them or no interest

onto that (Hadija, Barnes and Hair, 2012). Someone who hate advertisement will add on some ads block extensions to block all of advertisements to enhance their using experiences onto social media (Willner, 2018). Hence, they need more attractive to catch their attentions onto these advertisements to realize the business value of the merchants. It's safe to bet the ad-to-sales ratio of major merchants have risen accordingly in the same period, and the rising cost of capturing consumer attention has driven smaller merchants without deep pockets (Thales S., 2015). Sometimes, the advertisements occurred are not related to a particular user, and once he needs to view some latest meals come out from food fast restaurants, he is unable to filter the advertisements available and only focus on his own interest. Another problem to discuss is the necessity of proper management onto the advertising process. The admins should be provided a proper management system for them to operate and do maintain and made the advertising process more flexible.

1.3 Objective

The objectives of this project are

- To design a solution to facilitate the merchants, admins and consumers
- To develop a web-based system as a platform for merchants and admins and a mobile application for consumers
- To test the system for efficiency and user satisfaction in term of usability by the merchants, admins and consumers

1.4 Scope

a) Target User

This project is target for admin, merchants and consumers. Admin and merchants will be using the web application developed to ease the management tasks whereas consumers will be using mobile application developed for convenience.

b) Operating System

Android and Windows are the operating system used for advertising platform. Android is a mobile operating system developed by Google to

be used for touchscreen devices. Nowadays, it powers the cellphones, tablets, watch, TV and etc. Android had maintained its popularity as leading mobile operating system with 71.93 percent in controlling the mobile market (S. O’Dea, 2021).

c) Modules to be developed

- Upload new or edit and remove old advertisements

Merchant is allowed to insert a new advertisement, edit or remove the existing advertisements.

- Manage the payment plan

Admin is allowed to manage the payment plan available for the merchants to make payment for subscription.

- Manage the extended payment plan

Admin is allowed to manage the extended payment plan available for the merchants to extend their current subscribed plan either in time or advertisement count.

- Manage vouchers

Merchant is allowed to offer vouchers for consumers to claim by using their collected coins.

- Subscribe to merchant pages

Consumer is allowed to subscribe to the merchant pages as they like.

- Share advertisements

Consumer is allowed to share the advertisements to others by using the invitation link.

- Invite friends with referral code

Consumer is allowed to invite friends by using his referral code and earn points from that.

- Check-in

Consumer is allowed to check-in every day to earn coins which can be used to claim vouchers.

- Add advertisements to favorite

Consumer is allowed to like and add the advertisements to favorite for referencing.

d) Deliverable

The deliverables of this project are the literature review, project methodology, analysis, design, implementation, testing and finally the complete of Advertising Platform.

1.5 Project Significance

After the project implementation, the web-based system will provide a platform for merchants to promote their business needs and admin will be able to manage the entire platform in simple clicks. The wider view provided by web-based system enables the management process to be simpler for admin and merchants. From the point of view of consumers, they can watch the advertisements and win some coins rewards from the application offered. With that, it reveals the business value of the merchant to spend on advertising in the platform provided.

1.6 Expected Output

This advertising system is expected to provide the admins to manage the overall advertising system to make it more flexible. For admin management level, he can filter and only permits and approves the proper merchant page to be created and do some simple management onto the payment plan where the plan provided might be different depends on the current market trending and strategies. Besides, this developed platform is expected to catch the attention of the consumers in using the application frequently which encourages the worthiness of the merchants to promote their new goods or products in this platform. Not only that, consumers find it good in using the modules developed and hence reveals the business value to be developed.

1.7 Conclusion

This chapter includes the brief introduction to the proposed title of advertising platform and describes the problem statements and the objectives to be achieved. The basic design of the modules is roughly distributed in the project scope. The next chapter will mainly discussing the literature review of the entire trend of the advertising environment in real time applications. Besides, the suitable project methodology in the development process will be clarified in the next chapter too.

CHAPTER 2: LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

This chapter aims to discuss on the related works regarding researching onto types of advertising and how its popularity in few years. The literature will describe in details on the channels of advertising. It will act as the short conclusion onto the current trends of advertising nowadays and how advertising aids in promoting the businesses to the next level. Besides, the existing systems are studied and these founding are useful in developing the advertising platform.

2.2 Facts and findings

Facts findings are the process of collecting information related to a topic, or referring to the preliminary searches to understand a topic better (*What is fact-finding? Definition and examples - Market Business News*, 2021). It helps in deep investigation onto the topic by referring to the existing documents, researches and observations done by others previously. Some sampling techniques such as questionnaires or interviews are useful in gathering the user feedbacks and experiences in using related applications. Fact-findings can help in analyzing the direction to develop and implement the current existing system into further improvement. Section below describes the facts and findings related to this project.

2.2.1 Domain

Advertising consists of all activities which involved in presenting ideas and mindsets to an audience, either it can be a non-personal, sponsor identified, paid-for

message about a product or organization (ruchjain02, 2015). With advertising, modern business enterprises can expand their business values by introducing their new products or entering or lighting competition a new market. Traditionally, advertising can be done in print media, direct mail or some broadcast media such as radio or television (De Vries, Gensler and Leeflang, 2017). However, the evolution of Internet technology bring lots of available platform for the advertiser to promote their products and services through social medias. This can be known as digital marketing as well where people in this generation tends to engage more in social medias. No matter the advertising is in the form of digital or traditional, each medium has its own merits and demerit.

In term of traditional marketing, it may produce faster results if the advertisement is well placed to the target audience and some older generation still trust offline purchasing because of the high number of frauds that occur in online purchasing environment which cause people reluctant to trust the information displayed (Dania TODOR, 2016).

The advantages of digital advertising are because of its ease of understanding and its impactful. This is due to the prevalence of the TV commercial already becomes the daily routines for most people's day to live. Besides, it seems like these digital advertising can be kept as permanent where people can refer back the advertisements easily when it is necessary. The high adaptability of contents offers by digital advertising make the advertisements look more interesting and hence it attracts more people and hit the market values (Ma and Du, 2018).

2.2.2 Existing System

Till date, there are some advertising platforms available online can be used to explore your market values or post your advertisement. Some brief examples of existing systems in advertising domain are Admixer, Network and SmartHub. Admixer.Network is a comprehensive stack advertisement serving for large publishers and different types of advertisement networks. With Admixer.Network, users can create advertisements based on the campaign provided to target audience based on timeframe, devices, browsers or even countries and regions. Users are allowed to build their own DMP for behavioral targeting, age, gender and interests.

SmartHub is a hosted, maintained and market-ready technologies solution that enables rapid deployment of advertisements (*SmartHub Reviews 2021: Details, Pricing, & Features / G2, 2021*). It enables achieve control and transparency of media-trading and configures advanced trading rules to encourage a more profitable programmatic environment. Apart, users can adjust the media buying and selling according to the individuals needs which is a great feature embedded.

2.2.3 Technique

The main concern of the merchants or advertisers to upload and place the advertisements in a platform are the feedbacks from the consumers and the profit they might earned from that. Let's say if the platform does not have any points to attract the consumer, then the advertisements will not hit the market values brought. Therefore, the developed system will focus onto the user experiences. With the experiences, the developed system will introduce some features to attract the consumer's attractions in using this application which can hit the advertisers' expectations.

2.3 Project Methodology

Project methodology provides standard approach or guidelines to be used in implementing a project (*Project Management Methodology*, no date). It is important from the project initiation stage, planning, executing and the final closing stage. In this project, the project methodology includes the system development life cycle (SDLC) and database life cycle (DBLC). They aid in transform the ideas and opinions to be developed into modules of entire systems.

2.3.1 System Development Life Cycle

In this project, agile model is used as the SDLC model. It is a software development process framework which helps in responding to the unpredictable of software building process through incremental and iterative workloads (*Main Stages in Agile project*, no date). The agile iterative helps in short-time span project with minimal planning rather than spending long time to plan (Azme, no date). With agile methodology, the overall project risks can be minimized and the project developed can be adopted more quickly.