



Faculty of Computer Science and Information Technology

OPENTOWN: DESA ILMU NIGHT MARKET ANDROID APPLICATION

Mohamad Shahril Bin Abd Halim

Bachelor of Computer Science with Honours (Software Engineering)

2023

OPENTOWN: DESA ILMU NIGHT MARKET ANDROID APPLICATION

MOHAMAD SHAHRIL BIN ABD HALIM

This project is submitted in partial fulfillment of the
requirements for the degree of Bachelor of Computer
Science with Honours

Faculty of Computer Science and Information Technology

UNIVERSITI MALAYSIA SARAWAK

2023

DECLARATION OF ORIGINALITY

I hereby declare that this research together with all of its content is none other than that of my own work, with consideration of the exception of research-based information and relative materials that were adapted and extracted from other resources, which have evidently been quoted or stated respectively.

Signed,



.....
MOHAMAD SHAHRIL BIN ABD HALIM

Faculty of Computer Science and Information Technology

25 January 2023

Universiti Malaysia Sarawak.

UNIVERSITI MALAYSIA SARAWAK

THESIS STATUS ENDORSEMENT FORM

TITLE OPENTOWN: DESA ILMU NIGHT MARKET ANDROID APPLICATION

ACADEMIC SESSION: 2022/2023

MOHAMAD SHAHRIL BIN ABD HALIM

(CAPITAL LETTERS)

hereby agree that this Thesis* shall be kept at the Centre for Academic Information Services, Universiti Malaysia Sarawak, subject to the following terms and conditions:

1. The Thesis is solely owned by Universiti Malaysia Sarawak
2. The Centre for Academic Information Services is given full rights to produce copies for educational purposes only
3. The Centre for Academic Information Services is given full rights to do digitization in order to develop local content database
4. The Centre for Academic Information Services is given full rights to produce copies of this Thesis as part of its exchange item program between Higher Learning Institutions [or for the purpose of interlibrary loan between HLI]
5. ** Please tick (√)

- CONFIDENTIAL (Contains classified information bounded by the OFFICIAL SECRETS ACT 1972)
- RESTRICTED (Contains restricted information as dictated by the body or organization where the research was conducted)
- UNRESTRICTED


(AUTHOR'S SIGNATURE)

Permanent Address

NO 3H Lorong Kemuyang Timur, 51B-1,
Taman Kenari Kemuyang, 96000, Sibul,
Sarawak

Date: 24 July 2023

Validated by


(SUPERVISOR'S SIGNATURE)

TS. ABUL MANSUR BIN HAI, CPM, CITL
SEMIPROFESOR BAHAS
SOFTWARE ENGINEERING PROGRAMME
FACULTY OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY
UNIVERSITI MALAYSIA SARAWAK

Date: 24 July 2023

Note * Thesis refers to PhD, Master, and Bachelor Degree

** For Confidential or Restricted materials, please attach relevant documents from relevant organizations / authorities

ACKNOWLEDGEMENT

I want to start by expressing my sincere thanks to my supervisor, Ts. Abdul Rahman bin Mat, for all of his help, direction, advice, recommendations, support, and supervision throughout my final year project. Second, I want to convey my sincere appreciation to Mdm. Hamizan binti Sharbini, my examiner, for her helpful criticism and input on my final year project. Additionally, I would like to express my gratitude to Professor Dr. Wang Yin Chai, the organizer of the Final Year Project, for his direction and coordination throughout the process.

In addition, I want to express my gratitude to my university, Universiti Malaysia Sarawak (UNIMAS), and to my faculty, the Faculty of Computer Science and Information Technology (FCSIT), for giving me the opportunity to learn new things throughout my studies. In addition, I want to sincerely thank my friends for always being willing to offer their wisdom and support me when I needed it. Finally, I want to thank my family and parents for their unending love, support, and encouragement during this course.

ABSTRACT

The modern human lifestyle has been changed by smartphones. This is due to "Mobile Applications," which are Internet applications created especially to support smartphone users online. The majority of us always need quick updates, thus mobile applications may assist customers in promptly providing information. This generation's technical advancements have made work easier and saved time and effort. The "OpenTown: Desa Ilmu Night Market Android Application" is a groundbreaking mobile solution specifically designed to streamline the customer experience at Desa Ilmu Night Market. The problem of time-consuming decision-making and purchases is prevalent, as customers often struggle to select and buy food, beverages, and other items efficiently. Evaluating alternatives and comparing costs further adds to the time-consuming process. By developing this innovative mobile application, customers will be able to place orders with ease, eliminating worries about time constraints. The application provides a convenient platform for customers to order items from Desa Ilmu Night Market at any time, ensuring a seamless and flexible shopping experience. With multiple stalls available in the application, a wide range of items is offered to cater to various customer preferences. Customers can easily view the available options without physically visiting each stall. Additionally, tracking order status is simplified through the application, keeping customers informed about the progress of their purchases. To further enhance the user experience, the payment method utilized in the application is by cash upon self-collecting the order. This approach ensures a smooth transaction process, reducing the potential for human errors during order placement and recording by the stall owners. This application offers a user-friendly platform for customers to place orders seamlessly. It not only enhances customer satisfaction but also provides stall owners with an efficient means of recording and fulfilling orders, making it a significant advancement.

ABSTRAK

Gaya hidup manusia moden telah diubah oleh telefon pintar. Ini disebabkan oleh "Aplikasi Mudah Alih," iaitu aplikasi Internet yang dicipta khas untuk menyokong pengguna telefon pintar dalam talian. Majoriti daripada kita sentiasa memerlukan kemas kini pantas, oleh itu aplikasi mudah alih boleh membantu pelanggan memberikan maklumat dengan segera. Kemajuan teknikal generasi ini telah menjadikan kerja lebih mudah dan menjimatkan masa dan usaha. "OpenTown: Aplikasi Android Pasar Malam Desa Ilmu" ialah penyelesaian mudah alih yang inovatif yang direka khusus untuk menyelaraskan pengalaman pelanggan di Pasar Malam Desa Ilmu. Masalah membuat keputusan dan pembelian yang memakan masa adalah berleluasa, kerana pelanggan sering bergelut untuk memilih dan membeli makanan, minuman dan barangan lain dengan cekap. Menilai alternatif dan membandingkan kos menambah lagi proses yang memakan masa. Dengan membangunkan aplikasi mudah alih yang inovatif ini, pelanggan akan dapat membuat pesanan dengan mudah, menghapuskan kebimbangan tentang kekangan masa. Aplikasi ini menyediakan platform yang mudah untuk pelanggan memesan barangan dari Pasar Malam Desa Ilmu pada bila-bila masa, memastikan pengalaman membeli-belah yang lancar dan fleksibel. Dengan pelbagai gerai tersedia dalam aplikasi, pelbagai jenis barangan ditawarkan untuk memenuhi pelbagai pilihan pelanggan. Pelanggan boleh melihat pilihan yang ada dengan mudah tanpa melawati setiap gerai secara fizikal. Selain itu, status pesanan penjejakan dipermudahkan melalui aplikasi, memastikan pelanggan dimaklumkan tentang kemajuan pembelian mereka. Untuk mempertingkatkan lagi pengalaman pengguna, kaedah pembayaran yang digunakan dalam aplikasi adalah secara tunai apabila pesanan itu diambil sendiri. Pendekatan ini memastikan proses transaksi yang lancar, mengurangkan potensi kesilapan manusia semasa penempatan pesanan dan rakaman oleh pemilik gerai. Aplikasi ini menawarkan platform mesra pengguna untuk pelanggan membuat pesanan dengan lancar. Ia bukan sahaja meningkatkan kepuasan pelanggan tetapi juga menyediakan pemilik gerai dengan cara yang cekap untuk merekod dan memenuhi pesanan, menjadikannya satu kemajuan yang ketara.

Table of Contents

Declaration	i
Thesis Status Endorsement Form	ii
Acknowledgement.....	iii
Abstract	iv
Abstrak	v
Table of Contents	vi
List of Tables.....	xii
List of Figures	xiv
Chapter 1: Introduction.....	1
1.1 Introduction	1
1.2 Problem Statement	2
1.3 Objectives.....	3
1.4 Methodology	4
1.5 Scope	7
1.6 Significance of Project	8
1.7 Project Schedule	8
1.8 Expected Outcome	10
1.9 Thesis Outline	10

1.10	Summary	10
	Chapter 2: Literature Review.....	11
2.1	Introduction.....	11
2.2	Foodpanda.....	12
	2.2.1 Overview	12
	2.2.2 Features	13
	2.2.3 Advantages and Disadvantages of Foodpanda.....	13
2.3	GrabFood	14
	2.3.1 Overview	14
	2.3.2 Features	15
	2.3.3 Advantages and Disadvantages of GrabFood	15
2.4	Golden Screen Cinemas (GSC)	16
	2.4.1 Overview	16
	2.4.2 Features	17
	2.4.3 Advantages and Disadvantages of GSC.....	17
2.5	Comparison on Related Works and the Proposed System.....	17
2.6	OpenTown: Desa Ilmu Night Market Android Application (Proposed System).....	18
2.7	Summary	18

Chapter 3: Requirement Analysis and Design	19
3.1 Introduction.....	19
3.2 Requirements Analysis	19
3.2.1 Method for gathering requirements	20
3.2.2 List of required requirements for the proposed system	20
3.2.2.1 Analysis of Current Method	20
3.2.2.2 Analysis on Proposed Application	21
3.2.2.3 Software Requirements	22
3.2.2.4 Hardware Requirements	23
3.3 System Design	23
3.3.1 Overview	24
3.3.2 Context Diagram (CD)	24
3.3.3 Data Flow Diagram (DFD) Level-0	26
3.3.4 Entity Relationship Diagram (ERD)	28
3.3.5 Data Dictionary	29
3.3.6 Interface Design	31
3.4 Summary.....	41

Chapter 4: Implementation	42
4.1 Introduction.....	42
4.2 Implementation Tool.....	42
4.2.1 Android Studio	43
4.2.2 Firebase	44
4.3 OpenTown: Desa Ilmu Night Market Android Application Prototype	45
4.3.1 System Hierarchy Module.....	45
4.3.2 Registration Module For Stall Owner	46
4.3.3 Login Module For Stall Owner	48
4.3.4 Item Module For Stall Owner	50
4.3.5 Order Module For Stall Owner	51
4.3.6 Order Receipt Module For Stall Owner	52
4.3.7 Registration Module For Customer	53
4.3.8 Login Module For Customer.....	54
4.3.9 Order Module For Customer	55
4.3.10 Order Receipt Module For Customer.....	58
4.3.11 Login Module For Admin	59
4.3.12 Payment Module For Admin.....	60
4.3.13 Report Information Module For Admin.....	61
4.4 Summary	62

Chapter 5: Testing	63
5.1 Introduction.....	63
5.2 Functionality Testing	63
5.2.1 Stall Owner Register Test.....	64
5.2.2 Stall Owner Login Test	65
5.2.3 Stall Owner Reset Password Test.....	66
5.2.4 Stall Owner Manage Stall Status Test.....	67
5.2.5 Stall Owner Manage Item Test.....	68
5.2.6 Stall Owner Manage Order Test.....	70
5.2.7 Customer Register Test	71
5.2.8 Customer Login Test	72
5.2.9 Customer Place Order Test.....	73
5.2.10 Customer Track Order Test.....	74
5.2.11 Customer Provide Rating Test	74
5.2.12 Update Profile Details Test	75
5.2.13 Admin Login Test	75
5.2.14 Admin Manage Stall Owner Test.....	76
5.2.15 Admin Manage Stall Type Test.....	77
5.3 Summary.....	78

Chapter 6: Conclusion & Future Work	79
6.1 Introduction.....	79
6.2 Contribution	79
6.3 Limitation.....	80
6.4 Future Work.....	80
References.....	81

List of Tables

Table 2.1: Advantages and Disadvantages of Foodpanda	13
Table 2.2: Advantages and Disadvantages of GrabFood.....	15
Table 2.3: Advantages and Disadvantages of GSC	17
Table 2.4: Comparison on Related Works and the Proposed System.....	17
Table 3.1: Software Requirements.....	22
Table 3.2: Hardware Requirements	23
Table 3.3: Data Dictionary User	29
Table 3.4: Data Dictionary Item	29
Table 3.5: Data Dictionary Order	29
Table 3.6: Data Dictionary Payment.....	30
Table 3.7: Data Dictionary Receipt	30
Table 5.1: Stall Owner Register Test.....	64
Table 5.2: Stall Owner Login Test.....	65
Table 5.3: Stall Owner Reset Password Test.....	66
Table 5.4: Stall Owner Manage Stall Status Test	67
Table 5.5: Stall Owner Manage Item Test	68
Table 5.6: Stall Owner Manage Order Test.....	70
Table 5.7: Customer Register Test.....	71
Table 5.8: Customer Login Test	72
Table 5.9: Customer Place Order Test	73
Table 5.10: Customer Track Order Test	74
Table 5.11: Customer Provide Rating Test.....	74
Table 5.12: Update Profile Details Test.....	75
Table 5.13: Admin Login Test	75

Table 5.14: Admin Manage Stall Owner Test	76
Table 5.15: Admin Manage Stall Type Test.....	77
Table 6.1: Objective and Achievement of Proposed System	79

List of Figures

Figure 1.1: Waterfall Model	5
Figure 1.2: Schedule for each task for Final Year Project I	8
Figure 1.3: Gantt Chart for Final Year Project I.....	9
Figure 1.4: Schedule for each task for Final Year Project II	9
Figure 1.5: Gantt Chart for Final Year Project II	9
Figure 2.1: Foodpanda Application	12
Figure 2.2: GrabFood Application.....	14
Figure 2.3: GSC Application	16
Figure 3.1: Context Diagram (CD)	24
Figure 3.2: Data Flow Diagram (DFD) Level-0	26
Figure 3.3: Entity Relationship Diagram (ERD)	28
Figure 3.4: Homescreen	31
Figure 3.5: Sign Up Stall Owner	32
Figure 3.6: Sign Up Customer	33
Figure 3.7: Login Stall Owner	34
Figure 3.8: Login Customer.....	35
Figure 3.9: Stall List	36
Figure 3.10: Item List	37
Figure 3.11: Cart Information	38
Figure 3.12: Payment Information.....	39
Figure 3.13: Order Information	40
Figure 4.1: Android Studio Logo.....	43
Figure 4.2: Firebase Logo.....	44
Figure 4.3: System Hierarchy Module.....	45

Figure 4.4: Stall Owner Registration	46
Figure 4.5: Pending Verification	46
Figure 4.6: Pending Approval.....	46
Figure 4.7: Email Verification	46
Figure 4.8: Stall Owner Login	48
Figure 4.9: Stall Owner Profile.....	48
Figure 4.10: Reset Password.....	48
Figure 4.11: Email Reset Password	48
Figure 4.12: Add Item.....	50
Figure 4.13: Edit Item	50
Figure 4.14: New Order	51
Figure 4.15: Order Status	51
Figure 4.16: Order Receipt	52
Figure 4.17: Customer Registration.....	53
Figure 4.18: Upload Photo.....	53
Figure 4.19: Customer Login.....	54
Figure 4.20: Customer Profile	54
Figure 4.21: Stall List	55
Figure 4.22: Stall Detail.....	55
Figure 4.23: Item List	55
Figure 4.24: Item Detail.....	55
Figure 4.25: View Cart	56
Figure 4.26: Confirmation Order	56
Figure 4.27: Track Order	56
Figure 4.28: Order Receipt	58
Figure 4.29: Admin Login	59

Figure 4.30: Payment Type.....60

Figure 4.31: Stall Type 61

Figure 4.32: Stall Owner Approval.....61

CHAPTER 1

INTRODUCTION

1.1 Introduction

Desa Ilmu Night Market is an area reserved for stall owners selling their items such as food, drinks, and other items. Usually, this night market will only be open in the evening every Friday and Saturday every week and it is estimated that almost 130 stalls will be operating. So far, it is seen that there are still many stall owners who have not done business online. With the increase in the number of vehicles and customers who come to the night market regardless of the various groups, it is seen that there are more and more disorganized because it causes the customers to have to crowd when they want to choose or buy food, drinks, other items. A trivial issue that customers often face in this regard is spending too much time choosing or buying food, drinks, and other items, and this problem occurs every week. Furthermore, according to Utusan Malaysia, the impact of the Covid-19 pandemic is felt strongly by small businesses, especially hawkers, and night market stall owners.

Given the increasing advancement of technology, it has become a necessity to make improvements to existing systems to be more efficient and convenient for users. The main problem of stall owners is that they do not appear in the virtual market when they have item and good products. For example, night market stall owners are visited by the same customers every week because they want to buy the items they offer. However, after the implementation of movement restrictions, customers no longer have the opportunity to get the items or food they want because the night market site is not allowed to operate. If the items is in the virtual market, it will make it easier for customers to find it. The shortcoming of the

current method is that it does not have a systematic data storage or database to store all the information related to stall sales. Therefore, an efficient application for Desa Ilmu Night Market is needed to overcome this tedious process by using the order execution of items sold online.

This process is the same as in the GrabFood and FoodPanda applications for the process of collecting items on your own. This system will ensure convenience to stall owners in helping to increase their sales which so far only depend on not online. This also needs to be done with the use of an application based on the customer's Android application that can be used on a smartphone to facilitate the buying and selling process between the customer and also the stall owner indirectly.

1.2 Problem Statement

These are some of the problems encounter when selling and purchasing food, beverages, and other commodities is been done using manual approach:

Costly

Numerous apps, such GrabFood and FoodPanda, provide self-collection options or are comparable to takeout. However, when the delivery service is included, many customers must pay a high price that appears to be the same price. This is due to the application's fee rate, which is fairly expensive and burdensome to both customers and stall owners.

Lack of product information

There are thought to be 130 stalls at the Desa Ilmu Night Market that provide a variety of foods, beverages, and other items. But many stall owners still fail to display the names and prices of the items they are selling. Additionally, it would be challenging for customers to select and research the numerous items offered for sale at Desa Ilmu Night Market in order to compare them before making a purchase.

Time consuming

Particularly at this time of the Covid-19 epidemic, when all customers are required to strictly follow every SOP that has been established, the scenario in the night market can become extremely chaotic and out of control. Customers will be forced to swarm and take a long time to select and purchase food, beverages, and other items as a result. Customers also require more time to view and evaluate the alternatives and costs of the food, beverage, or other items they wish to purchase.

1.3 Objectives

1. Develop a better platform for stall owners.
2. Provide a product search option for customers.
3. Design an application that can display a list of the items.

The numbered list above shows the goals that need to be achieved when developing the application. The main objective of this project is to develop a better platform for stall owners to solve selling issues by creating an Android application that can be used to list out their food, drink, and other things available at the night market at an affordable price online. Other than that, the objective is to design an application that can display a list of the items that will be offered, together with actual images of the items and complete item information. The application should be able to provide a product search option so that customers can quickly choose and order food, drinks, and other items and notify the stall owner of the list of item that has been ordered.

1.4 Methodology

The methodology refers to the theoretical analysis that researchers or developers use as guidance when working on a project. The waterfall methodology was selected since this project is more focused on the development of software than on planning. Project management using the waterfall paradigm is a sequential, linear process. It is divided into a number of distinct stages. Every phase has a beginning and an end, and no phase may begin until the previous phase is finished. The waterfall process prevents you from going back to a prior stage. Starting afresh from phase one is the only method to return to a phase. The six steps that make up the waterfall model are requirements analysis, system design, implementation, system testing, system deployment, and system maintenance.

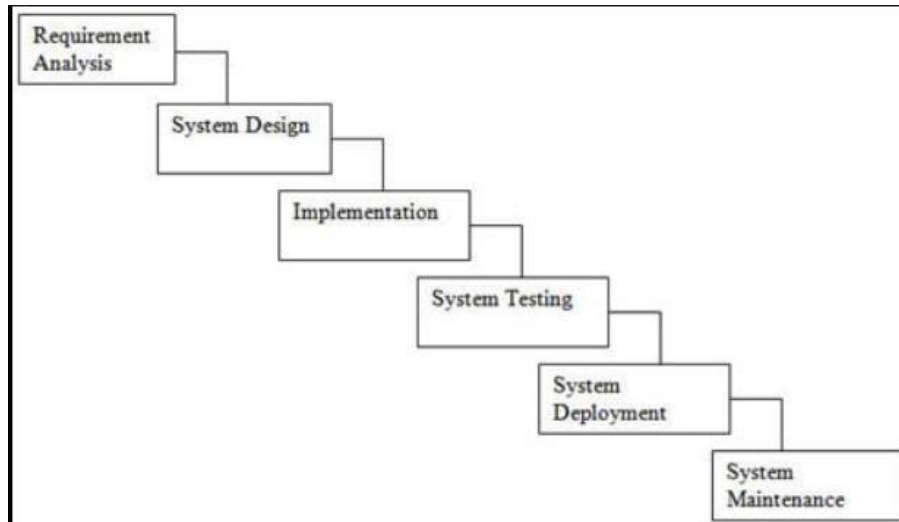


Figure 1.1: Waterfall Model

- **Phases in Waterfall Model**

Requirements Analysis

We should compile thorough information regarding the requirements for this project at this time. This data may be gathered in a variety of ways, including interviews, surveys, and collaborative brainstorming. We should have a requirements document that has to be created before the conclusion of this phase, and the project requirements should be clear.

System Design

Next is the system design phase. We may design the system based on the given specifications. Although no coding is done during this stage, we must specify specifications such as the required hardware or programming language.

Implementation

The implementation phase, this stage involves coding. Using the knowledge gained in the earlier phase, we may produce a useful application. Code is often written in discrete chunks and integrated at the conclusion of one phase or the start of another.

System Testing

For the testing phase, the application may start being tested after the code is complete. Any issues are meticulously found and reported by testers. The project might need to go back to phase one for reevaluation if significant problems show up.

System Deployment

The application must now be submitted for deployment or release because it is finished during delivery or deployment phase.

System Maintenance

Lastly, the customer has received and is utilizing the application. We might need to develop fixes and updates when problems show up to fix them. Again, significant problems can call for a return to step one.