



## Café Amazon Malaysia Online Ordering System

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**Abstract:** Cafe Amazon is a chain of coffee shops in Malaysia with wide selection of goods that are associated with coffee. Customer needs to queue up to the cashier to make an order and the staff needs to key in the order into the points of sale(pos) system. Thus, the objective is to develop a web-based for the customers and stakeholders which can help streamline the ordering process . In terms of methodology, the waterfall method is used in this project. PHP, HTML ,CSS, and JavaScript are used for the web-based system and MySQL for the database. Through this Cafe Amazon Malaysia Online Ordering System, customer make an online order while the staff manage the product and receive the order online. This approach may improve business performance and customer service for stakeholders.

**Keywords:** Online Ordering system, Web-based system, waterfall methodology

### 1. Introduction

Cafe Amazon Malaysia is a food and beverage industry that can be found in Persiaran Bandaraya, Plaza Azalea, Seksyen 14, 40000, Shah Alam, Selangor. Their main product is coffee drinks and pastries as side products. Since more businesses and companies have started to follow the up-to-date technology system, developing an online food ordering system for this café would help them to improve their business operation and provide better customer service. The problems identified are that customers need to make an offline order which queues up in front of the cashier and starts making an order while the staff shall key in the order details into the café POS (point of sale) system. Another problem is that the café does not have a proper online ordering system, so customers tend to make an order through WhatsApp, which is inefficient. Next, using the existing food ordering system like FoodPanda and Grab would involve costs interrupting the café margin sale.

This project objective is to analyze and design a Café Amazon Malaysia online ordering system (CAMY OS) using an object-oriented approach, develop the CAMY OS using a web-based approach, and perform functional testing and user acceptance testing for the developed system. This system shall be designed as a web-based system for the stakeholders and the customer of Café Amazon Malaysia. The scope of this system would be for the employee and customers of Café Amazon Malaysia. This system includes 9 modules: login module, service type module, manage catalogue module, view menu module, search menu module, manage order module, payment module, a report module, and a feedback

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module. Based on two target users, they may use the same module but with distinct functions depending on their authorization level.

## 2. Related Work

### 2.1 Online Food Ordering System

Online food ordering system provide a variety of cutting-edge features that assist customers and cafes in overcoming challenges such as lengthy wait times, traffic, misunderstandings in communication, delivery delays, and dealing with customer complaints[1]. Online food ordering system enables customers to make orders for food delivery or pickup from restaurants, cafés, and other food companies via a website or mobile app. Customers may find it more convenient to use online food ordering systems, which enable them to make orders from their personal computers or mobile devices rather than having to phone the restaurant or physically visit the establishment. They may also be useful for cafes, as they may make it possible for the cafe to attract a greater number of customers and simplify the processes of ordering food and making payments.

### 2.2 Web-Based System

A web-based system is a software application that can be accessed via the Internet using a web browser, thereby eradicating the need for specialized software installations. Users can access the system from any device with a web browser and an internet connection, providing simplicity and usability. As the software is administered on a central server, the centralized nature of web-based systems enables simple maintenance and updates. In addition, web-based systems are highly scalable, accommodating an increasing number of users without requiring significant infrastructure modifications. In addition, they provide enhanced data security and backup procedures, ensuring the safety and integrity of user data.

### 2.3 Comparison between Existing System

**Table 1: Comparison of 3 Existing System with Proposed System**

Features	1 McDonald's	2 KFC	3 The Chicken Rice Shop	4 Café Amazon Malaysia Online Ordering System
System Type	Mobile based & Web based	Mobile based & Web based	Web based	Web based
Login Module	Available	Available	Available	Available
Service Module	Available	Available	Available	Available
Search Module	Not Available	Not Available	Available	Available
Catalogue Module	Available	Available	Available	Available
Order Module	Available	Available	Available	Available
Payment Module	Available	Available	Available	Available
Report Module	Available	Available	Available	Available

Table 1 shows the comparison of 3 existing systems to proposed project which is McDonald's, KFC, and The Chicken Rice Shop. This comparative analysis centers on the online ordering system of Café Amazon Malaysia, evaluating its features and capabilities within the fast-food industry. The system, which is accessible on web platforms, consists of a login module for personalized experiences, a service module for efficient customer support, a search module for streamlined navigation, and a comprehensive catalogue module exhibiting a vast array of products. With an order module, a payment module, and a report module, Café Amazon's system provides consumers with an enhanced online ordering experience with convenience and accessibility.

### 3. Methodology/Framework

This section discusses the methodology and techniques used to achieve the project's objectives. The methodology for developing software is referred to as the software development life cycle, and it is utilized in a variety of domains, including various technical professions, industrial fields, and others. Numerous scholars and practitioners from all over the world have examined and investigated this topic, and as a result, they have generated a great deal of different models, each of which has its own set of advantages and disadvantages[4]. The purpose of the methodology is to clearly outline the methods used and analyze the information gathered to assist the development process.

#### 3.1 Waterfall Methodology

The waterfall methodology is a strategy for producing software that employs a sequential and downward-flowing approach to the several phases that comprise the software development life cycle (SDLC). The Waterfall methodology, which consists of separate stages and well-documented baseline requirement specifications, is still extensively employed today, particularly in contractual offshore software development projects[5]. The waterfall method was chosen to produce the CAMY OS because it provides a clear and structured mechanism for advancing through the various phases of the development process. The waterfall model is seen as providing a well-defined set of criteria and indications of needs before to initiating the planning and implementation phase of the project, therefore it gives a basic plan of the project prior to initiating the sequential implementation of the project[6]. Moreover, this technique is especially well suited for projects with well-defined objectives and a consistent scope since it permits a comprehensive examination of requirements up front and a more predictable development process.

**Table 2: Software development activities and their task**

Phase	Activity	Output
Requirement	<ul style="list-style-type: none"> <li>- Determine the project schedule, activities, and output.</li> <li>- Research project field study.</li> <li>- Interview with stakeholder.</li> <li>- Comparison with existing system</li> <li>- Analyse system function based on module.</li> </ul>	<ol style="list-style-type: none"> <li>1. Gantt Chart</li> <li>2. Functional and Non-functional requirement</li> <li>3. Technology concept and used</li> </ol>
Design	<ul style="list-style-type: none"> <li>- Design use case</li> <li>- Design System Database</li> <li>- Design User Interface</li> </ul>	<ol style="list-style-type: none"> <li>1. Use case diagram</li> <li>2. Use case specification</li> <li>3. Activity diagram</li> <li>4. Sequence diagram</li> <li>5. Database Scheme Table</li> <li>6. User interface</li> </ol>
Implementation	<ul style="list-style-type: none"> <li>- Implement system code</li> <li>- connect system with database</li> </ul>	<ol style="list-style-type: none"> <li>1. System Prototype</li> <li>2. Test case</li> </ol>
Testing	<ul style="list-style-type: none"> <li>- Identify bugs and issues</li> </ul>	<ol style="list-style-type: none"> <li>1. Test case specification</li> </ol>

Phase	Activity	Output
	- Unit testing	2. Test Plan
	- System testing	3. Test Result
	- Acceptance testing	

Table 2 provides an overview of the various development phases and the specific tasks involved in each phase, along with the corresponding outputs or deliverables generated during the software development life cycle.

### 3.2 System requirement Analysis

Functional requirements are the qualities or characteristics that a software system must possess in order to execute its intended purposes. These requirements are essentially instructions for what the system must accomplish, and they are typically articulated in terms of actions or specific outputs that the system must generate. It's the first and most important step in developing good software since customers won't accept a product that doesn't meet their functional requirements, even if it performs well in other areas[7].

**Table 3: Functional Requirements**

No	Module	Description
1.	Login	The system shall allow new user to register into the system. The system shall permit users to log in with a registered username and password. The system shall alert the user for any invalid input. The system shall redirect the user to their respective home page after successful login.
2.	Service Type	The system shall display a choice of service type. The system shall allow customer to choose to 'dine in' or 'take away'.
3.	Manage Catalogue	The system shall allow staff to create a product including specifying the name, description, price, and images. The system shall allow staff to delete a product. The system shall allow staff to update a product details.
4.	View Menu	The system shall display all product in the menu.
5.	Search Menu	The system shall allow users to search a product in menu.
6.	Manage Order	The system shall allow customer to create an order. The system shall allow customer to select product. The system shall allow customer to add product in order. The system shall allow customer to update their order. The system shall allow customer to delete a product in their order. The system shall display the order details made by the customer. The system shall allow staff to read the order. The system shall allow staff to update the order.
7.	Payment	The system shall allow customer to make payment. The system shall allow customer to choose type of payment. The system should allow customer to view the payment details.
8.	Sales Report	The system shall generate summary of sales report. The system shall display the summary of sales report.
9.	Manage feedback	The system shall allow customer to create feedback. The system shall display feedback to user.

Table 3 shows a list of functional requirements for this system. The provided module descriptions outline various functionalities of a system. The system includes features such as user registration and login, service type selection, managing a product catalogue, viewing the menu, order management, payment processing, generating sales reports, and managing user feedback. These modules collectively facilitate user interaction, product management, order processing, and feedback handling within the system. Overall, the system aims to provide a comprehensive solution for customers, staff, and administrators involved in the business process.

Non-functional requirements, on the other hand, are constraints and characteristics that a system must possess to be used. They are more descriptive of how the system should behave or function than of specific actions or outputs.

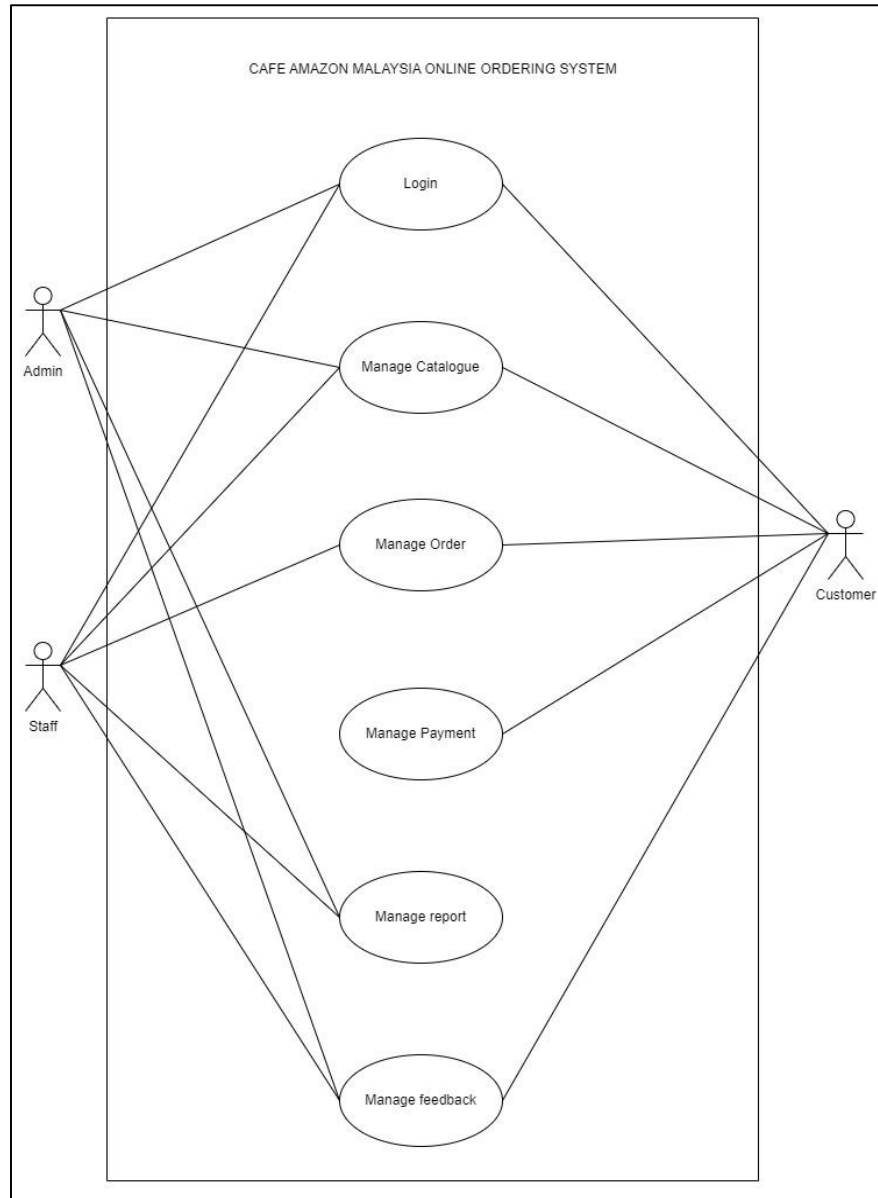
**Table 4: Non-Functional Requirements**

No	Requirement	Description
1.	Performance	The system should be usable at all times. The system response time is should not be more than 1 minute.
2.	Usability	The general appearance and flow of the application are easily understood by all type of users.
3.	Compatibility	All menu in the system should be easy to use for user.
4.	Security	The system should be user friendly. The system should have login mechanism. User information is secure

Table 4 shows a list of non-functional requirements that emphasise the performance, usability, compatibility, and security of the system. The system is expected to always be usable with a responsive interface and a response time of no more than one minute. To accommodate all categories of users, the application should have an intuitive appearance and user-friendly navigation. It should also be compatible with multiple platforms and devices. Regarding security, the system should include a login mechanism to guarantee user authentication and protect user data. Overall, these requirements strive to provide system users with a dependable, user-friendly, and secure experience.

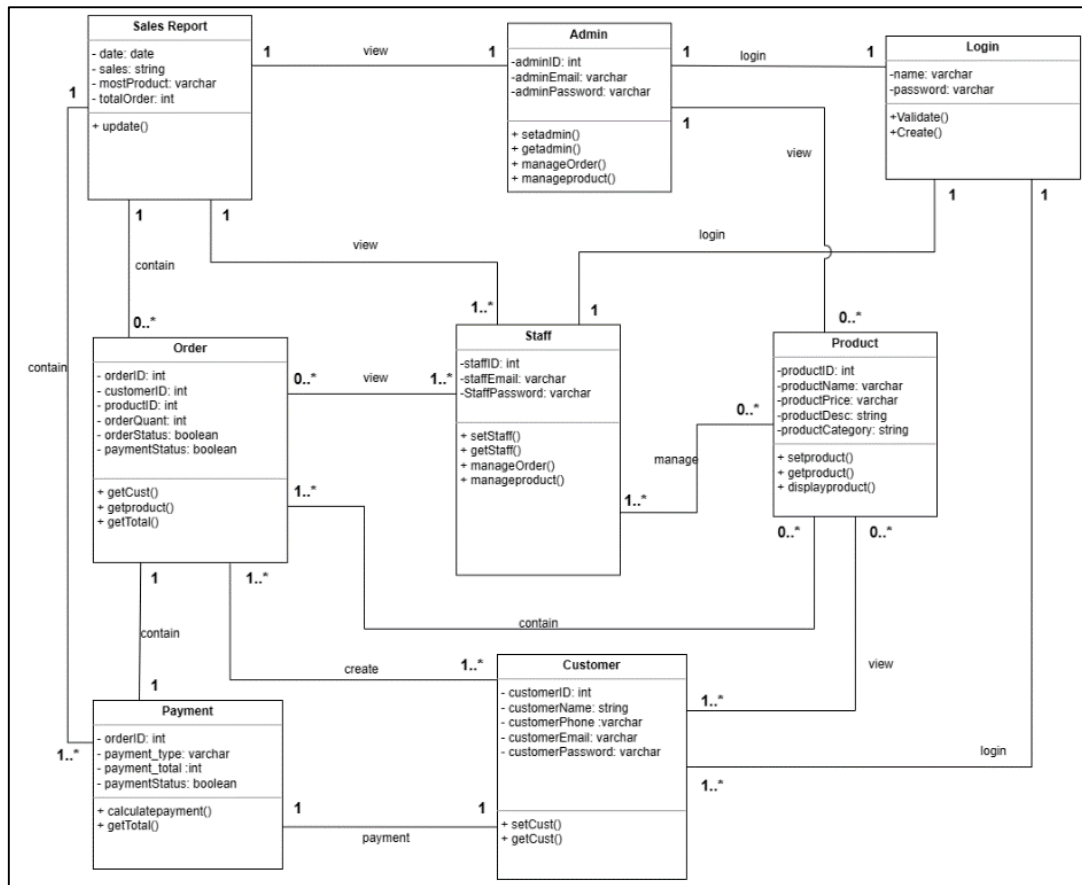
### 3.3 Analysis

Studying the system, including its processes, components and requirements is called system analysis to gain understanding of how the system operates and how can the system be improved. The goal of system analysis is to understand the system thoroughly, so that its weaknesses or problems can be identified and thus develop plans to address those issues with improvement of efficiency and effectiveness of the system. System analysis is considered an important step in designing and developing of new systems as well the maintenance and the improvement of existing system.



**Figure 1: Use Case Diagram**

Figure 1 displays the use case diagram that represents the overall activity that involved in Café Amazon Online Ordering System. The purpose of this diagram is to illustrate the dynamic parts of the system.



**Figure 2: Class Diagram**

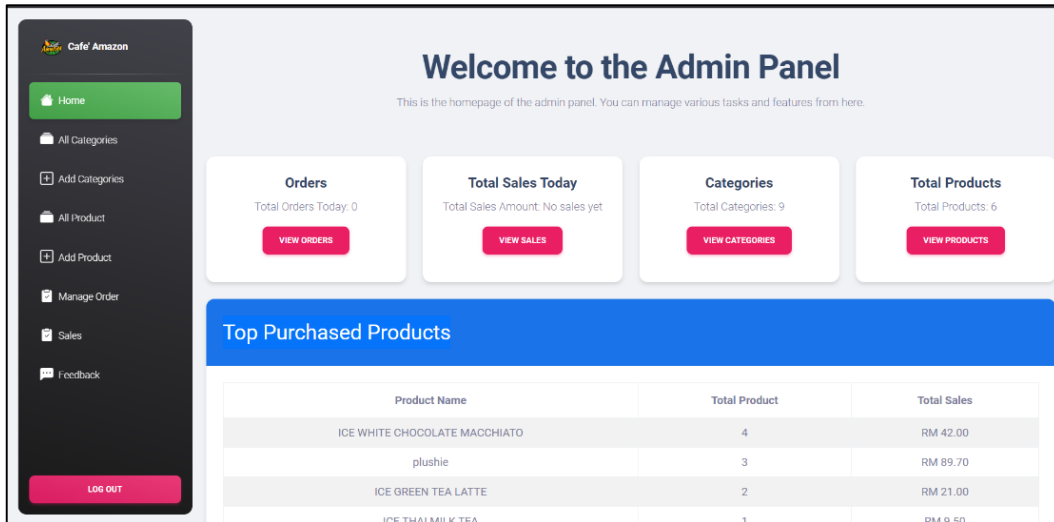
Figure 2 presents the standard layout of this system, which includes a total of 8 different classes. The creation and visualization of object-oriented systems may be accomplished through the use of graphical language and visualization techniques known as class diagrams. Due to the fact that the object-oriented methodology was used for this project, the class diagram methodology was selected to model the classes involved in this project.

#### 4. Results and Discussion

This section describes the outcomes of the system development process, including the implemented features, user feedback, performance evaluation, and the system's overall efficacy. The results are analyzed and interpreted to provide valuable insights into the system's functionality, user satisfaction, and development opportunities. Through this exhaustive analysis, we hope to provide valuable insights into the system's development journey, identify areas for refinement, and make suggestions for enhancing the system's overall performance and user experience.

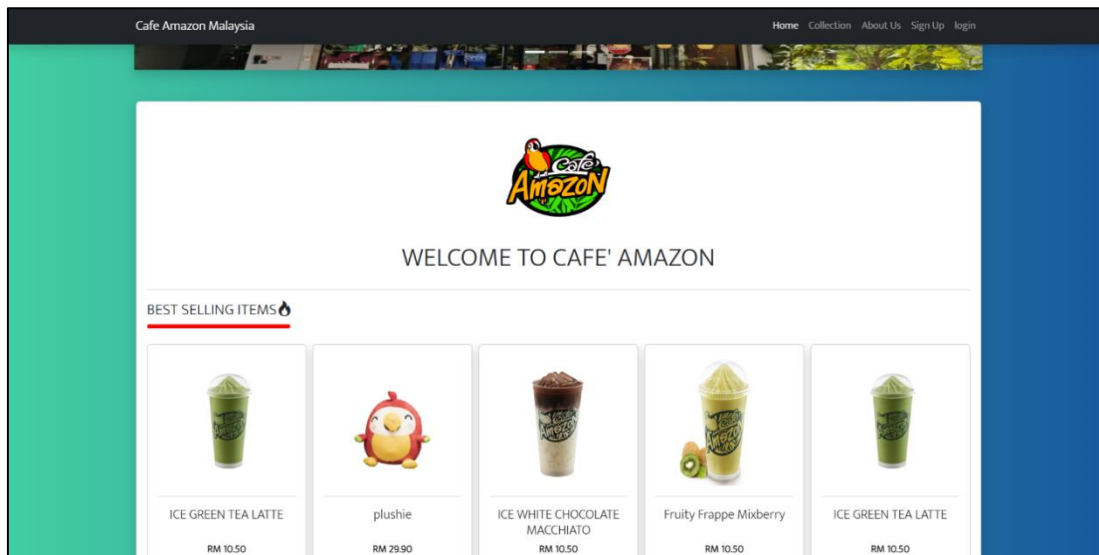
##### 4.1 System Development

Focusing on the implementation of the system interface, the project's objective was to design and develop a user-friendly and intuitive interface that suits the specific needs of the intended audience. The results demonstrated a well-executed implementation, as the system's user interface was intuitive and efficient. Users were able to navigate the system and complete duties without difficulty. The interface design displayed the system's functionalities effectively and increased user engagement.



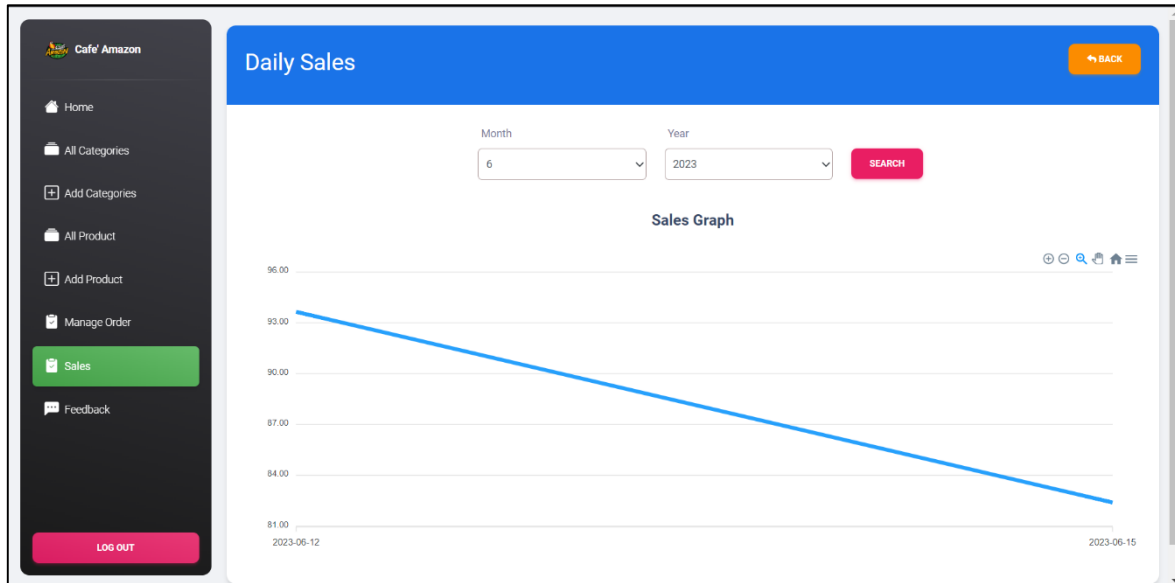
**Figure 3 Admin and Staff homepage.**

Figure 3 shows the home page for staff and managers. This interface gives them access to the different administrative functions they need to handle and keep an eye on the system.



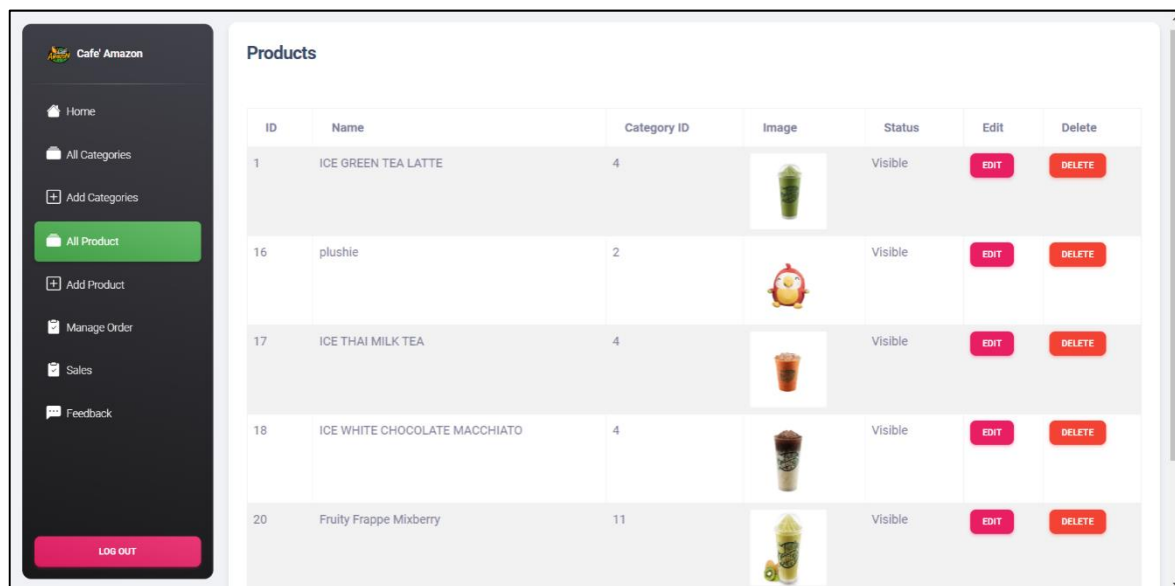
**Figure 4: Customer homepage**

Figure 4 shows the customer site, which is made to be easy for customers to understand and use. It's easy to navigate and get to key features, so customers can look at goods, place orders, and see what they've bought in the past.



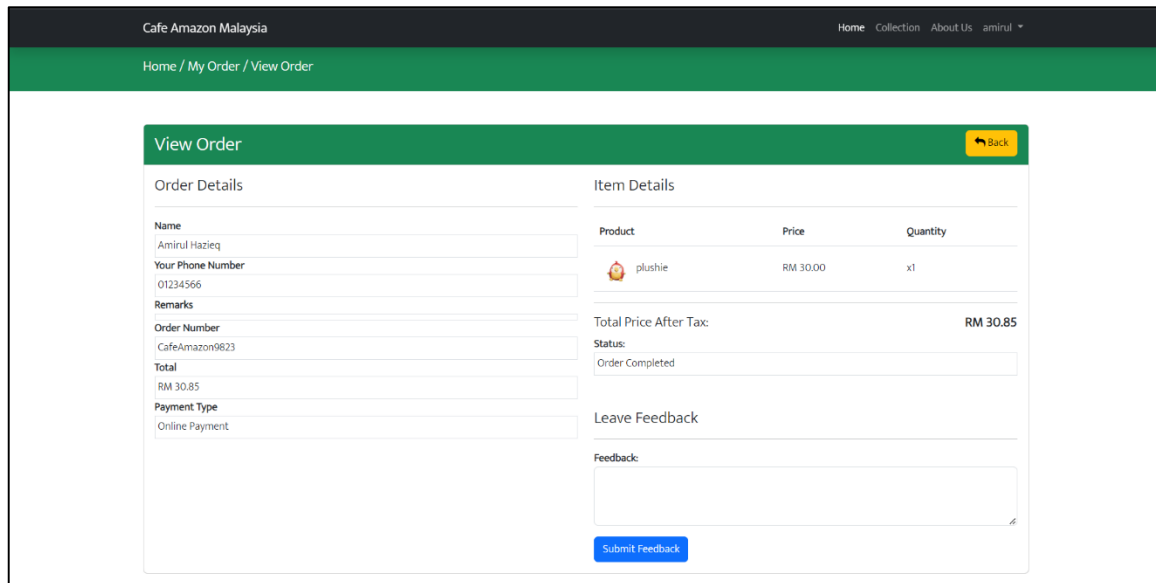
**Figure 5: Sales Report for Admin and staff**

Figure 5 shows the interface for the sales report, which was made for managers and staff. This interface gives users a lot of information about sales, which they can then analyze and use to make choices.



**Figure 6: Manage catalogue interface.**

Figure 6 shows the manage catalogue interface, which gives managers and staff a central place to manage the product catalogue. Users can easily add, change, or remove goods, which keeps the catalogue up-to-date and well-organized.



**Figure 7: Order Details interface.**

Figure 7 shows the order details interface, which admins and staff can use to see and handle information about specific orders. This interface gives a single view of all the information of an order, which makes it easier to process orders and help customers.

#### 4.2 System Testing

Executing a test case requires establishing the necessary preconditions, providing the test case inputs, observing the outputs, contrasting these with the expected outputs, and then verifying the expected postconditions to determine whether the test was successful [7]. A comprehensive system testing strategy was utilized to ensure the success of the assurance. The testing procedure involved the execution of a variety of test cases, each of which was designed to evaluate particular aspects of the system's functionality.

**Table 5: Test Cases**

Test Case ID	Test Case Description	Status (pass/fail)
TC-001	Login	
TC-001-001	New customer able to register into the system	Pass
TC-001-002	The users able to log in with a registered username and password.	Pass
TC-001-003	The system alert user when entering wrong credentials during login	Pass
TC-001-004	System able to redirect to home page once user login	Pass
TC-002	Manage Catalogue	
TC-002-001	Staff able to view, add, update, delete categories	Pass
TC-002-002	Staff able to view, add, update, delete products	Pass
TC-002-003	Customer able to browse categories and product	Pass
TC-002-004	Admin able to view categories and product	pass
TC-003	Manage Order	
TC-003-001	Customer able to browse product	Pass

Test Case ID	Test Case Description	Status (pass/fail)
TC-003-002	Customer able to add product to order	Pass
TC-003-003	Customer able to remove product from order	Pass
TC-003-004	Customer able to update quantity product in order	Pass
TC-003-005	Customer able to make an order and display message	Pass
TC-003-006	Customer able to view order details	Pass
TC-003-007	Staff able to receive order from customer	Pass
TC-003-008	Staff able to view order details made by customer and update status	Pass
TC-004	Payment	
TC-004-001	Customer able to make payment	Pass
TC-004-002	Customer able to choose type of payment	Pass
TC-004-003	Customer able to view payment details	pass
TC-005	Sales Report	
TC-005-001	The system able to generate daily sales report	Pass
TC-005-002	The system able to display sales report	Pass
TC-006	Manage Feedback	
TC-006-001	Customer able to create feedback once order completed	Pass
TC-006-002	The system able to display feedback to staff and admin	pass

Table 5 shows the test cases that has been through exhaustive testing and analysis, which result the system demonstrated exceptional performance, passing each and every test case.

#### 4.3 User Acceptance Testing

Acceptance testing is the research conducted by consumers prior to adopting a Product's functionality; it is also known as User Acceptance Testing. Typically, cases from actual examples of the final consumer are covered on this test [8]. User acceptance is a crucial success factor for the adoption of IT, and it can be adequately explained, accurately foretold, and effectively managed through a variety of relevant factors [9]. By using this method, it can reduce the number of test cases, shorten test execution durations, and enhance demand satisfaction efficiency [10]. To verify stakeholder satisfaction and system readiness, a comprehensive test form has been provided for stakeholders to complete. The test form in appendix A (figure 8a & 8b) shows a comprehensive collection of test cases that covered a variety of functionalities and user interactions. Through meticulous execution and evaluation, all listed test cases were effectively validated, indicating a high level of system performance and meeting stakeholder expectations.

**Table 6: Overall System Testing Results According to Test Cases**

Test Case ID	Total Test Case	Total Pass
TC-001	3	3
TC-002	3	3
TC-003	8	8
TC-004	3	3
TC-005	1	1
TC-006	2	2

From the results in table 6, it is evident that the system performed exceptionally well in meeting the specified requirements. All test cases listed in Table 6, including TC-001, TC-002, TC-003, TC-004, TC-005, and TC-006, achieved a 100% success rate. This indicates a high level of system reliability and adherence to the desired outcomes. These positive testing outcomes provide strong evidence of the system's robustness and its ability to meet the objectives set forth by the stakeholders.

## **5. Conclusion**

Cafe Amazon Malaysia problems that were discovered can be remedied as a result of the system's development. The objective of this project is to develop a prototype of an online ordering system for Cafe Amazon Malaysia that would streamline the entire ordering process. The method eliminates the need for customers to wait in line at the cashier as they can now place orders using their mobile devices. The implementation of an online ordering system also helps increase sales at the café because it is accessible to a wider range of customers, including those with disabilities or mobility issues who may find it difficult to place an order in person. This makes the online ordering system an important factor in the overall success of the business and technology that should exceed user expectations and contribute to the growth of the company.

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**Appendix A**

USER ACCEPTANCE TESTING  
CAFÉ AMAZON MALAYSIA ONLINE ORDERING SYSTEM

PURPOSE:

The purpose of user acceptance testing for the Cafe Amazon Online Ordering System is to gather feedback from end users to assess if the system meets their needs, expectations, and business requirements, while also identifying any potential issues or areas for improvement before the system is officially implemented.

Please (√) on the spaces given:

Test Case ID	Test Case Description	Pass	Fail	Comments
<b>TC-001 Login</b>				
TC-001-002	The users able to log in with a registered username and password.	√		
TC-001-003	The system alert user when entering wrong credentials during login	√		
TC-001-004	System able to redirect to home page once user login respectively.	√		
<b>TC-002 Manage Catalogue</b>				
TC-002-001	Staff able to view, add, update, delete categories	√		
TC-002-002	Staff able to view, add, update, delete products	√		
TC-002-003	Admin able to view categories and product	√		
<b>TC-003 Manage Order</b>				
TC-003-001	Customer able to browse product	√		
TC-003-002	Customer able to add product to order	√		
TC-003-003	Customer able to remove product from order	√		
TC-003-004	Customer able to update quantity product in order	√		
TC-003-005	Customer able to make an order and display message	√		
TC-003-006	Customer able to view order details	√		
TC-003-007	Staff able to receive order from customer	√		

**Figure 8(a): User Testing and Evaluation Forms CAMY OS**

Test Case ID	Test Case Description	Pass	Fail	Comments
TC-003-008	Staff able to view order details made by customer and update status	✓		
<b>TC-004 Payment</b>				
TC-004-001	Customer able to make payment	✓		
TC-004-002	Customer able to choose type of payment	✓		
TC-004-003	Customer able to view payment details	✓		
<b>TC-005 Sales Report</b>				
TC-005-001	Admin and Staff able to view sales report	✓		
<b>TC-006 Manage Feedback</b>				
TC-006-001	Customer able to create feedback once order completed	✓		
TC-006-002	The system able to display feedback to staff and admin	✓		

Agreed by,



Name: AHMAD ZAID

Position: Store Manager

**Figure 8(b): User Testing and Evaluation Forms CAMY OS**

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