

GOOTI PASTRIES: Online Cake Ordering System

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Abstract— This paper presents the development of Gooti Pastries' web-based Cake Ordering System. Objectives included analyzing requirements, designing a user-friendly interface, implementing efficient ordering and customization features, and conducting thorough testing. The system addresses manual order recording issues, repetitive bank detail sharing, order mix-ups, and difficulty visualizing custom cakes. Using Visual Studio Code, Laravel, MySQL, PHP, and Draw.io, the system was successfully developed and evaluated, resulting in improved cake ordering experiences. Recommendations focus on scalability, customization, and mobile compatibility to meet evolving customer needs. Gooti Pastries' system demonstrates efficient service delivery and adaptability in the digital age.

Keywords— Cake ordering system, web-based platform, user interface design, customization features, testing, scalability, mobile compatibility

I. INTRODUCTION

Within a month after the Movement Control Order (MCO) was enforced on March 18 last year, online trading activity increased by 28.9 percent [1]. Since that, the number of home-based bakers on social media platforms has also surged. These bakers rely on platforms like Instagram and Facebook to sell cakes and pastries without the need for a physical store. According to a journalist, promoting their brand through quality content has become crucial [2] and can help connect with customers, increase awareness about the brand, and boost your leads and sales [3]. This project aims to introduce Gooti Pastries: Online Cake Ordering System, a web-based platform that enables users to conveniently order or customize cakes. The system addresses the lack of proper ordering systems for home-based bakers and focuses on streamlining the ordering process for ready-made, pre-order, and customized cakes.

The problem statements of the project are as follows:

- 1) Manually writing down all the order details in a book makes the procedure slow.
- 2) The seller will need to send their bank details every single time a customer confirms the order.
- 3) Possible to mix up orders with different customer.
- 4) Hard to visualize the outcome of the custom cake.

The four objectives of the project are as follows:

- 1) To study the requirements needed to develop a proper web-based ordering system for Gooti Pastries.
- 2) To design a friendly-user interface of the website for users to navigate easily.
- 3) To develop a web-based system to order and customize cake efficiently.
- 4) To test the finalized system to make some improvement and do maintenance in case an error occurred.

II. LITERATURE REVIEW

A. Web Application

Web applications are computer programs that use web browsers to perform functions [4]. They operate over the Internet using languages like JavaScript or HTML. Some require server-side processing, while others are static. Web servers handle client requests, application servers execute tasks, and databases store data. Web applications offer advantages such as no installation requirement [5] and it is accessible via browsers on any device, they stay up to date without manual updates. Data integrity is maintained, even if the system is damaged, with cloud storage [5].

B. Food Ordering System

Food Ordering System were introduced way back before. "In 1995, the first online restaurant delivery service launched, called World Wide Waiter" [6]. To enhance customer satisfaction and streamline the process, implementing an efficient ordering system is crucial. Long wait times and physical queues can deter customers from ordering. According to Maulik Pandya (2021), food ordering system helps in increased marketing opportunities and robust analytics and insights [7]. On the other hand, it lets customers avoid in-person meetings and gives an immense opportunity for restaurants to connect with users on the other hand [8]. By prioritizing an online system, service providers can reduce wait times, improve satisfaction, and minimize time and fuel wastage.

C. Existing Ordering System

There are many online ordering systems available. The websites or pages reviewed include Dian Home Baker, Cheesy Sweets, and Cake by Su.

Dian Home Baker is a home-based baker that sells cakes and pastries on Instagram.

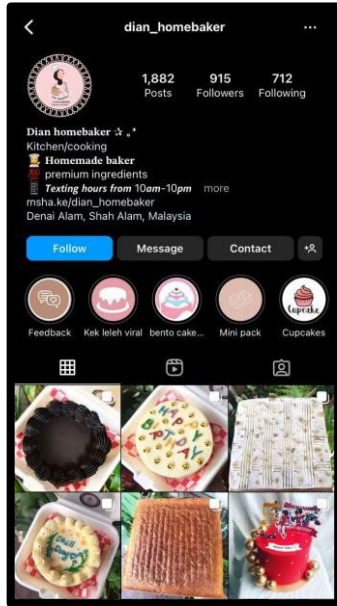


Fig. 1. Dian Home Baker Instagram

Cheesy Sweets is home-based baker that sells cakes and cupcakes on Instagram.

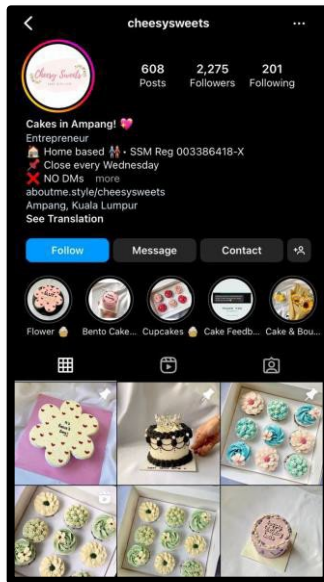


Fig. 2. Cheesy Sweets Instagram

Cake by Su is a website that provides ordering with third-party application and available online.

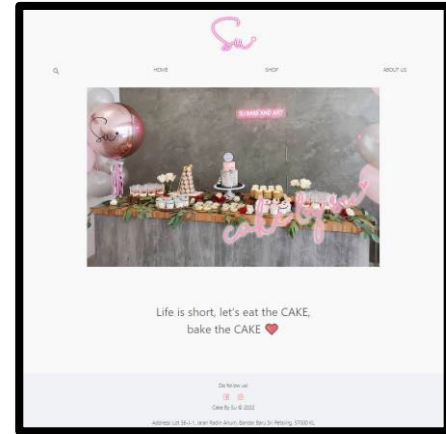


Fig. 3. Cake by Su Website

Table I: Comparison between 3 ordering system website and proposed Gooti Pastries

CASE STUDY	Web-Based System	Customization Cake Section	Method of Payment	Order Status
Dian Home Baker	Not Available	Manually Available	Manual online banking	Manual update through chat
Cheesy Sweets	Not Available	Manually Available	Manual online banking	Manual update through chat
Cake by Su	Available	Manually Available	Manual online banking	Manual update through chat
Gooti Pastries	Available	Available for Minimal Designs	Direct FPX online banking	Able to check on system

III. RESEARCH METHODOLOGY

Software development life cycle (SDLC) is a series of phases that provide a common understanding of the software building process [9]. The chosen SDLC model for this project is agile model. Agile model is an approach allowing to organize project by dividing it into multiple stages and allow regular enhancements at every phase [10].

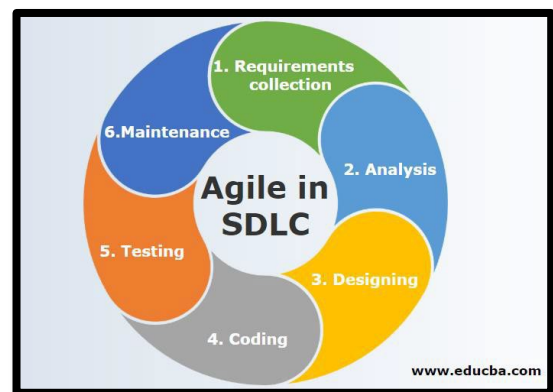


Fig. 4. Agile Model

A. Requirements

The first phase for agile model is the requirement phase. In this phase, the project title has been selected. The project title for this system is Online Cake Ordering System (Gooti Pastries). The finalization of the title was achieved through a collaborative brainstorming session with the supervisor. The proposed project title was then presented to the supervisor and received approval to proceed with the chosen title. Other than that, the Gantt chart is also needed as a guideline and reference for this project. After the title confirmation, develop a project proposal and it will be assessed by the supervisor and assessor. Once everything is confirmed, the project proposal will be submitted.

B. Planning

The planning phase involves carefully organizing and tracking the project, conducting research, gathering system requirements, comparing similar ordering systems, conducting informal client interviews, producing SRS and STP documentation, and seeking supervisor feedback for document validation.

C. Design

Next for the design phase, all the data and requirements that were collected during the requirements and planning phases will be transformed into design. UML diagrams will be developed to show the flow of the system and have a better understanding of how the system will interact with each other. In this phase, a simple storyboard and sketch of the interface of the system will also be produced and eventually will be the mock-up design of the system. Entity Relationship Diagram (ERD) will be created for the database of the system. Once all of these are done, it will be shown to the supervisor for discussion on each software design.

D. Implementation

This is the phase where all designs will be implemented into coding. The system will be developed regarding the user and system requirements. Starting with the first phase of the project, which is 30% since need to be demonstrated. Focusing on the second phase once the first phase is completed. This phase is considered as critical phase since need to make sure that all the objectives are achieved.

E. Testing

After the completion of the modules as a full system, testing will be performed. This testing phase includes unit and integration testing, system testing and system integration testing to check the error and making sure that all the functionality of the system runs well. If there are any bugs or errors, it will be fixed, and this phase will be repeated until all the functions can be used in this system.

F. Deployment

The final phase for agile model is deployment phase. This phase is when the system successfully fulfilled all the objectives and will put the project into production. Making sure that every document is complete, and the project is finalized and making any maintenance in case of any errors that occur is a very important step in this phase. This is where the system will be available for users.

IV. DESIGN AND IMPLEMENTATION

Gooti Pastries: Cake Ordering System development process is covered in this section. Requirements, design, implementation, and interfaces are all part of the process.

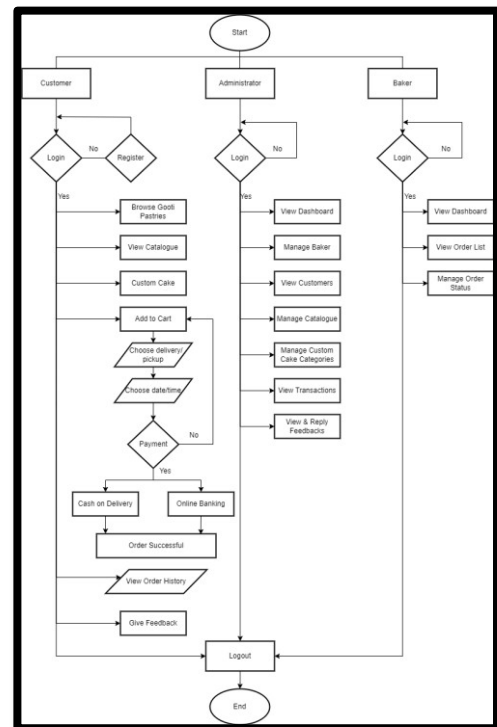
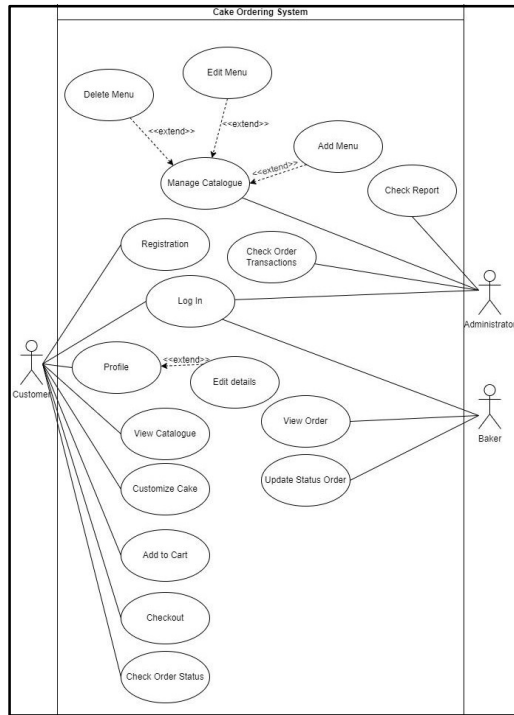
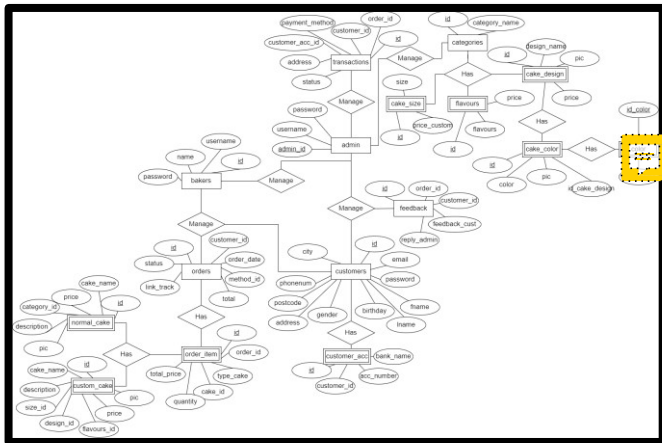


Fig. 5. Flowchart of Gooti Pastries

The flowchart shows the general overall flow of the Gooti Pastries: Online Cake Ordering System for Customer, Administrator, and Baker.



The use case diagram in Fig. 6 simplifies the  presentation of interactions between the three system actors. It illustrates the relationships between actors and use cases, which encompass various actions, services, or functions. Constructing the use case diagram accurately is essential and should be based on the user's requirements.



ERD in Fig. 7 shows the basic elements of a data structure. These entities will be implemented as the database in product development of Gooti Pastries: Online Cake Ordering System.

Fig. 8 illustrates various interfaces of the Gooti Pastries: Online Cake Ordering System. These interfaces include Log In, Catalogue, Custom Cake, Cart, Payment, Order List, Manage Catalogue, Admin Dashboard, and Update Status Order.

The collage consists of 12 screenshots from different e-commerce websites:

- Top Left:** A bakery website with a cartoon girl logo. It features a "LOG IN" form with fields for Email and Password, a "LOG IN" button, and a link for "Don't have an account? Register".
- Top Right:** A "GooT! Pastries' Catalogue" page. It displays four different pastries with their names, descriptions, and prices. A note at the top says "All items listed are pre-order".
- Middle Left:** A "Make Your Own Cake! 1-6-7" page. It shows a heart-shaped cake and allows users to customize it by choosing a flavor, design, and size. The total price is RM 240.00.
- Middle Right:** A "GooT! Pastries' Catalogue" page showing a list of pastries with their names, descriptions, and prices. It includes a "Summary" section on the right.
- Bottom Left:** A "Payment" page showing "Customer Account Details (Confirmation Details)". It includes fields for Account Number, Choose Bank, Reference, and Total Amount. There are logos for various banks like Maybank, CIMB, and HSBC.
- Bottom Middle:** A "Customer Account Details (Confirmation Details)" page showing a list of customer details and a "Confirm Payment" button.
- Bottom Right:** A "MANAGE CATALOGUE" page showing a list of products with their names, descriptions, and prices. It includes a "Update Order Details" section.
- Bottom Far Right:** A "Update Order Details (Status / Link Tracking)" page showing a list of orders with their status and tracking information.
- Bottom Far Left:** A mobile app interface showing a "RECENTLY VIEWED ITEMS" section with various food items.

V. TESTING AND RESULTS

The scope of testing for the GOOTI PASTRIES: Online Cake Ordering System includes various aspects to ensure its functionality, usability, security, performance, error handling, and user acceptance. Testing is a critically important verification method that takes up a very large portion of the resources of a project, including schedule and budget [11]. It is a list of product features, product parts, or product-related integrations that must be tested in order to build a reliable assessment of a product's quality [12].

B. Testing Approach and Techniques

The testing approach for Gooti Pastries: Cake Ordering system includes functional testing, validation testing, and user acceptance testing. These techniques ensure system operation, requirements compliance, integration, performance, security, and user experience. By conducting these tests, potential issues and deviations can be identified and resolved before deployment, ensuring a high-quality online cake ordering system for Gooti Pastries.

C. Testing Schedule

The testing schedule for Gooti Pastries: Cake Ordering system comprises two key approaches: validation testing and user acceptance testing. Validation testing occurred from 6/3/2023 to 19/5/2023, ensuring adherence to requirements and examining system performance and order processing accuracy. User acceptance testing followed from 22/5/2023 to 2/6/2023, allowing end-users to evaluate system usability, functionality, and satisfaction. By involving users in testing, the system can be optimized for user satisfaction.

D. Test Case

The test cases were thoroughly conducted for the system's functionality, ensuring that it meets the specified requirements and operates seamlessly. It includes test scenarios, pre-conditions, post-conditions, and the procedural steps of the testing process. Table II is one of the test case from whole system.

Table II: Test Case for Log In			
Tested By:	Nur Athirah binti Abdul Razak	Test level:	Functional Testing
Risk Level	High		
Test Design Technique	Use Case Testing		
Test Type	Functional Testing		
Test Case Number	TC_002		
Test Case Name	Log In		
Test Case Description	To test users, log in.		
Item(s) to be tested			
1	Email		
2	Password		
Pre-Condition: Already registered into the system.			
Post-Condition: Able to log in into the system.			
Specifications			
Input		Expected Output/Result	
Email: thirah@gmail.com		All inputs can be entered and successfully logged in.	
Password: 123			
Procedural Steps			
1	Click Log in button.		
2	Enter Email and Password		
3	Click submit.		

E. User Acceptance Testing (UAT)

UAT is a phase of software development in which the software is tested in the real world by its intended audience [13]. UAT was conducted using an evaluation form distributed before the Final Year Project 2 presentation on 2nd June 2023. There are a total of 21 respondents primarily consisted of UniKL MIIT members who represent potential customers of Gooti Pastries and also the official client for the administrator and bakers' interface.

F. Test Summary

The feedback received during UAT was generally positive, indicating that the system performed well and met user expectations as shown in Fig. 9. However, the feedback highlighted a desire of more options in custom cake section as can be seen in Fig. 10.

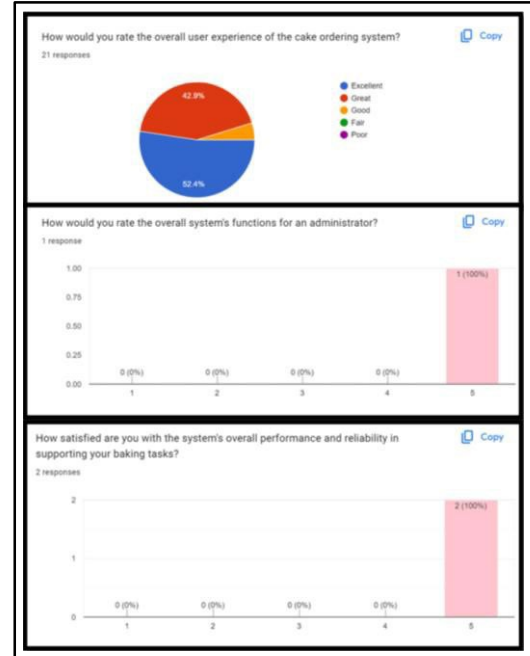


Fig. 9. User Acceptance Testing Feedbacks

In Fig. 9, the first question shows that 52.4% of the respondents, totaling 11 individuals, chose 'Excellent'. Additionally, 42.9% of the respondents, totaling 9 individuals, chose 'Great'. Furthermore, 4.8% of the respondents, totaling 1 individual, chose 'Good'. It is worth noting that the overall user experience of the system received positive feedback. Moving on to the second and third questions, both the administrator and the two bakers rated the system's functions as 5 out of 5.

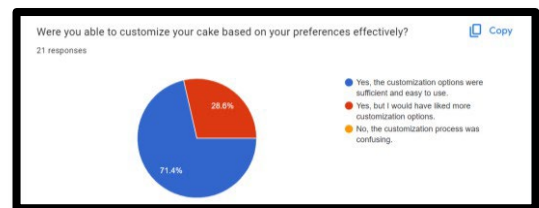


Fig. 10. User Acceptance Testing Feedback

Regarding Fig. 10, it is observed that 71.4% of the respondents, totaling 15 individuals, chose 'Yes, sufficient' as their feedback for the custom cake option. Conversely, 28.6% of the respondents, totaling 6 individuals, expressed that they would prefer more options by selecting 'Yes, but want more options'. These results indicate that the current custom cake section is considered satisfactory, but there is room for improvement by offering a wider range of customization options.

VI. CONCLUSION

The implementation of Gooti Pastries: Cake Ordering System aims to provide a seamless ordering experience and simplify order management for administrators and bakers. The manual handling of orders often leads to time-consuming processes and human errors. By adopting this system, such issues can be mitigated, resulting in time savings and improved accuracy for both parties involved. This system serves as an outstanding platform for efficient order placement, customization, and overall management, ensuring a smooth and reliable experience for customers and enhancing operational efficiency for Gooti Pastries.

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