

Design and Build a Website for Catering Sales and Orders Using Web Engineering

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Abstract— Ordering catering is a consumer activity to order products in the form of food packages. At this time, catering orders in the Garut area are still done manually. Consumers see a list of products through brochures, even though consumers do not necessarily know the shape of the product written in the brochure, it will make it difficult for consumers to determine which product to choose, and these difficulties will make consumers have to meet with the owner of the catering frequently which will hinder time and drain costs. The existence of technology encourages researchers to build a catering ordering website that is expected to facilitate consumers in the catering ordering process. Consumers can find out the list and pictures of the products provided, which can be facilitated in determining the product to be selected. Consumers can also save time and costs because there is no need to repeatedly meet with the catering owner to find out the products' details. The method used in the development of this application is the Web Engineering method with the stages of communication, planning, modeling, and deployment, using the PHP programming language, HTML, using the Codeigniter framework, and bootstrap and with MySQL database management by testing the Black Box Testing application. The research results are in the form of a catering sales and ordering website, which can help consumers find out information about the products provided by the catering party, including prices, descriptions, and pictures. You can also order catering products for certain activities or events, and this website can manage the incoming products and orders.

Index Terms— Catering; Codeigniter; PHP; Product; Website.

I. INTRODUCTION

The business in the catering sector is currently growing. In the Garut area, for example, it was found that several catering entrepreneurs who previously worked in one of the leading caterers opened their catering businesses. Catering is a service sector business that provides or serves food orders for various purposes according to customer demand [1].

Ordering catering is a consumer activity to order products in the form of food packages. At this time, catering orders in the Garut area are still done manually. To order catering, consumers first see a list of products and packages through a brochure provided by the

catering owner. This method must be more straightforward for consumers to determine which product to choose. The limitations of the images in the brochure can make consumers not know how the form of the product list written on the brochure. The limitations of the price list contained in the brochure can also make it difficult for consumers to choose what products to take. Consumers will need help to compare prices between products the catering party provides. This ignorance makes consumers frequently meet or communicate with catering owners to ask questions about the shape of the products in the brochure. This is quite time-consuming for consumers who have to prepare various things for the continuity of an event. In addition, meeting with catering owners can also cost money for some consumers who come from outside areas far from city roads. The distance traveled by consumers who are far outside the area makes consumers need to incur transportation costs or more costs to meet the catering owner.

The existence of technology encourages researchers to build a catering ordering website that is expected to facilitate consumers in the catering ordering process. The method used in the development of this application is the Web Engineering method, using the PHP programming language, HTML, using the Codeigniter framework, and bootstrap and MySQL database management by testing the Black Box Testing application.

Researchers refer to several research journals about online catering services that existed previously, namely research conducted by [2]. This research aims to expand the sales information network and introduce Ummi Nisa's catering by creating a website. The second study was conducted by [3]. This study aims to find out the flow of catering orders at Cimahi catering at this time and to build a catering application based on Android Mobile at Cimahi catering. The third research was conducted by [4]. This study aims to expand the sales information network and several menu packages offered by Ratu Catering. The catering ordering system is expected to facilitate the ordering process by Riau Catering and consumers. The fourth research was conducted by [5]. This study aims to facilitate the recording and reporting of the catering business. The

fifth study was conducted by [1]. This research aims to make the work of catering management more effective and efficient. The sixth study was conducted by [6]. This research aims to create software selling typical fabrics that can increase the income of Palembang typical fabric artisans and promote Palembang typical fabrics in the eyes of the world. The seventh study was conducted by [7]. This research aims to provide information about culinary tourism starting from culinary information, the first location for tourists to access the application equipped with a route to culinary places and to help culinary business activists as a promotional medium for their culinary companies.

II. METHODOLOGY

This research has a framework of thought which is the activity stage in the application design process which is presented in the form of a diagram so that it is easy to read and understand the direction of the flow of this research. The following are the stages of the application design process activity in this study:

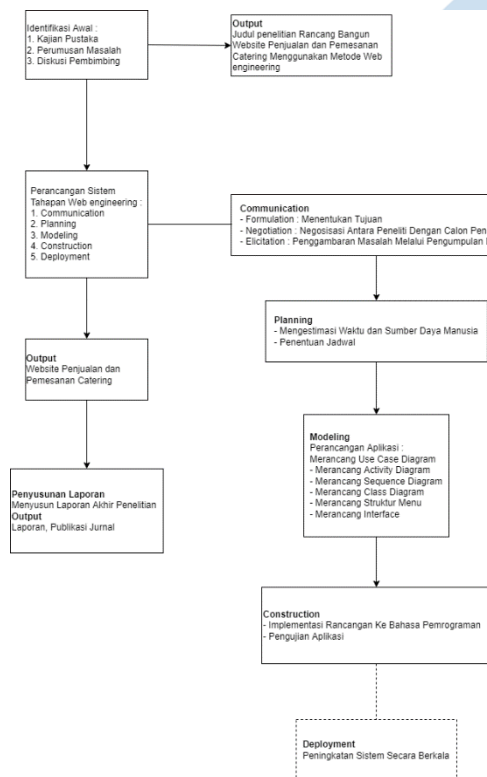


Fig. 1. Thinking Framework

The framework is a stage of activity in the application design process which is presented in the form of a diagram, so that it is easy to read and understand the direction of the flow of this research. The following is an explanation of the framework of Figure 1:

The first stages of research activities are as follows:

- Literature review, at this stage the activity carried out is the collection of previous research

journals related to the topic under study.

- Problem formulation and data collection, at this stage the activity carried out is to formulate the problems found in the field based on a questionnaire.
- Supervising discussion, at this stage the activity carried out is a discussion to determine the topic or method to be taken and collect data obtained from the questionnaire.

The output of the first stage is the research title, namely Design and Build a Website for Sales and Catering Orders Using the Web Engineering Method.

The second stage is application design using web engineering methods with the stages namely Communication, Planning, Modeling Construction, and Deployment:

- Communication, at this stage the activity carried out is to determine the purpose of the application design and determine who will use the application. Furthermore, negotiations between developers and potential users, and describe the problem from the research data.
- Planning, at this stage the activities carried out are estimating the time for application design and determining human resource requirements.
- Modeling, at this stage the activities carried out are designing use case diagrams, activity diagrams, sequence diagrams, class diagrams, creating menu structures, and designing user interfaces.
- Construction, at this stage the activities carried out are building applications or implementing designs into programming code and testing applications.
- Deployment, at this stage the activities carried out are running applications that have been built.

The output of this second stage is a website for sales and catering orders.

The last stage is the preparation of the final report of the research, with the output at this stage is reports and publications of journals and posters.

As for database on websites designed using MySQL, MySQL is a DBMS (Database Management System) using SQL (Structured Query Language) commands that are widely used today in making web-based applications [16].

III. RESULTS AND DISCUSSION

A. Communication

In the first stage, problems were found in the catering ordering business process.

1. Literature review, based on reference research, the process of ordering catering manually can consume customers' time in placing orders.
2. Questionnaire, after the assessment activity in the reference journal, then proceed with data collection through questionnaires or questionnaires in order to strengthen the source of the research conducted. In this study, there were 30 respondents from several areas with an average age of 40 years who were experienced in catering orders with details of the results 70% of customers knew about products and prices through brochures and 30% of customers found out from the catering owner. As many as 43% of customers immediately know the product variants in the brochure and 57% who cannot know it immediately. As many as 36% of customers feel that brochures are very easy to choose products and 64% consider brochures to be less helpful. As many as 50% of customers feel they are a burden by frequently meeting the catering owner and 50% do not make it a burden. As many as 80% of customers or catering owners often come to each other's places and 20% do not often have meetings. As many as 70% of customers feel that meetings are a time constraint and 30% are not time constrained. As many as 63% of customers find meetings to be cost-effective and 37% do not find them expensive. As many as 60% of customers feel that distance from the catering owner is an obstacle and 40% do not consider distance as an obstacle. Then 83% of customers agree with the catering booking website and 17% disagree with the website.

Based on a literature review and research questionnaires, it is found that the purpose of website development and actors who will use this catering sales and ordering website are obtained. The purpose of the development of this website is to build a catering booking website so that consumers can find out information about the products provided by the catering party which includes prices, descriptions, and pictures, and consumers can place orders for products, so that consumers do not have to often meet the catering owner in placing orders. Actors who will use this website are customers and catering owners.

B. Planning

At this stage the activities carried out are estimating the time for web design and determining human resource needs. This activity produces an estimated web design time table which is shown in Figure 2.

TABLE I. ESTIMATED WEB DESIGN TIME

No	Kegiatan / Aktivitas	Februari		Maret		April		Mei		Juni		Juli		Agustus				
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
1	Perancangan Aplikasi																	
	a. Communication																	
	1) Identifikasi Masalah																	
	2) Menentukan Tujuan																	
	3) Menentukan Aktor																	
	b. Planning																	
	1) Estimasi Waktu																	
	2) Estimasi Biaya																	
	3) Menentukan Sumber Daya Manusia																	
	c. Modeling																	
	1) Merancang Use Case Diagram																	
	2) Merancang Activity Diagram																	
	3) Merancang Sequence Diagram																	
	4) Merancang Class Diagram																	
	5) Merancang Struktur Menu																	
	6) Merancang User Interface																	
	d. Construction																	
	1) Implementasi Ke Bahasa Pemrograman																	
	2) Pengujian Aplikasi																	
	e. Deployment																	
	1) Menjalankan Aplikasi																	

The communication stage is estimated to last for three weeks, the planning stage is estimated to last three weeks, the modeling stage is estimated to last one month and two weeks, the construction stage is estimated to last one month and one week, and report preparation is estimated to last three months.

The human resources in this study are:

1. Rd. Erwin Gunadhi R, M.T. as the first guide
2. M. Rikza Nasrulloh, M.Kom. as the second guide
3. Epril Mohamad Rizaludin as a researcher
4. Respondent.

C. Modeling

At this stage the activity carried out is the design of UML (Unified Modeling Language) to create an initial picture of the system based on the problems and results of data collection that has been done previously. The system depiction is implemented into use case diagrams, activity diagrams, sequence diagrams, class diagrams, and user interface designs.

1) Use Case Diagram

Tokenization is an activity of splitting an entire text into small units, also known as tokens. In this paper, we will use the tokenization concept already pre-trained from each transformer model we will use.



Fig. 2. Use Case Diagram

Use Case Diagram, used to find out what functions exist in the system and who can use these functions can be seen in Figure 2.

2) Activity Diagram

Activity diagrams explain the interaction between the user and the system to model the system according to the use case. The login activity diagram can be seen in Figure 3.

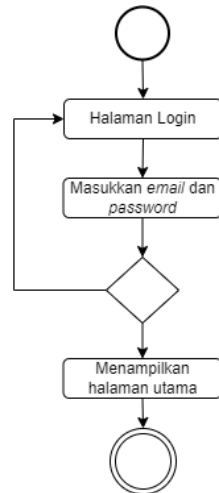


Fig. 3. Activity Diagram Login

3) Sequence Diagram

Sequence diagrams describe the interaction of objects in the use case by describing the life time of the object with messages sent and received between objects. The login sequence diagram can be seen in Figure 4.

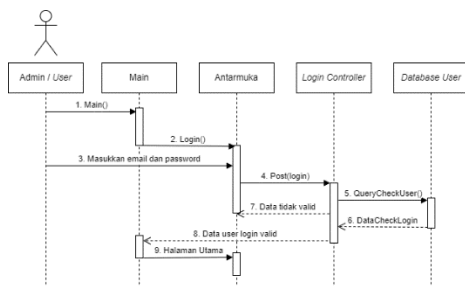


Fig. 4. Sequence Diagram Login

4) Class Diagram

Class diagrams are used to display several classes that exist in the software system to be developed. Class diagrams show the relationships between classes in the system and how they relate to each other to achieve a goal. Figure 5 is a class diagram of a catering sales and ordering website.

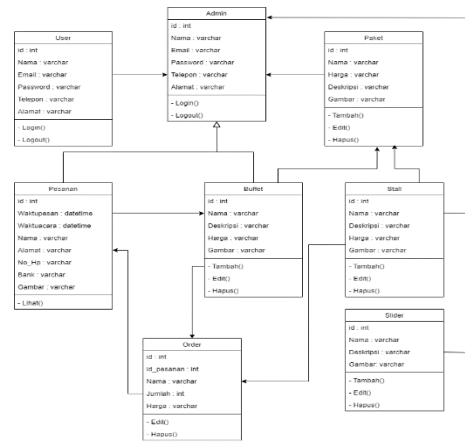


Fig. 5. Class Diagram

D. Construction

At this stage is the implementation of the design into a programming language and web testing.

1) Design Implementation

a) Register View

To place an order, the user must first create an account via the register page. In registering, the user fills in his full name, email, phone number, address, and password. On this page there is also a button in the form of text that can be selected if the user already has an account. The display of the register can be seen in Figure 6.

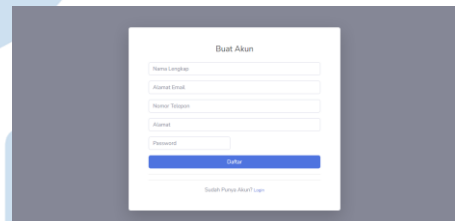


Fig. 6. Register View

b) Login View

After the user has an account, to be able to access the web and be able to place an order, the user must login by filling out the username and password form. On this page there is also a button in the form of text that can be selected if the user does not have an account or to create an account. The login display can be seen in Figure 7.



Fig. 7. Login View

c) Home View

This page is the main page of the web catering sales and reservations. This page contains a navbar menu that is interconnected with their respective pages, landing pages and several products with package categories. The home display can be seen in Figure 8.



Fig. 8. Home View

d) Product List View

This page contains a list of products provided by catering. The product includes the name, price, picture and product description. On this page the user can add products to the cart and can also view product details by selecting the detail button. Product display can be seen in Figure 9.

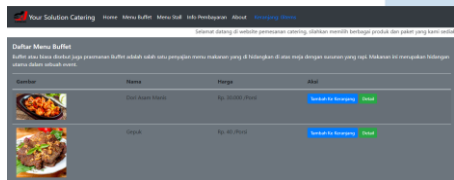


Fig. 9. Product List View

e) Cart View

This page contains the products that the user has ordered. The user can delete the filled cart, continue shopping and select checkout, when the user selects the checkout button, it will then go to the checkout page. The cart display can be seen in Figure 10.



Fig. 10. Cart View

f) Checkout View

This page contains a bill or order form, the user fills in the order time, event time, name, phone number, address, and bank account. The checkout display can be seen in Figure 11.



Fig. 11. Checkout View

g) Dashboard Admin View

This page is a page that only admins can access. On this page the admin can manage products such as adding, changing, or, deleting products. Admin also accepts orders from users through this page. This page consists of user data, category data, stall menu data, sales reports, orders, and pictures. The admin dashboard view can be seen in Figure 12.



Fig. 12. Dashboard Admin View

2) Black Box Testing

Blackbox testing tests based on existing activities on the web and this stage serves to find out whether the activities on the web can run according to their functions without any errors occurring. The test results can be seen in Table 2.

TABLE II. BLACK BOX TESTING

Activity	Test Class	Expected Results	Conclusion
Register	Register	Create an account by filling in your full name, email, phone number, address, and password.	In accordance
Login	Login	Access the website using the registered username and password through the register	In accordance
Showing Product	Product display by category	Product display by category	In accordance
	Product detail view	Displays the details of the product selected by the user	In accordance
Product Order	Add product to cart	Add ordered products to cart.	In accordance
	Show Cart Page	Displays a cart page with product order	In accordance

Activity	Test Class	Expected Results	Conclusion
		data that has been ordered	
	Showing Checkout Page	Showing checkout page	In accordance
	Uploading Proof of Payment	Save the image file uploaded by the user into the database	In accordance
Category Management	Showing Category	Showing Category data	In accordance
	Add Category	Add category data	In accordance
	Edit Category	Edit selected category data	In accordance
	Delete Category	Delete the selected category	In accordance
	Product Show	Display product data	In accordance
	Add Product	Add product data	In accordance
	Edit Product	Edit the selected product data	In accordance
	Delete Product	Delete the selected product data	In accordance
	Showing Image	Showing image data	In accordance
	Add Image	Add image data	In accordance
	Edit Image	Edit the selected image data	In accordance
	Delete Image	Delete the selected image data	In accordance
	Show Orders	Display order data	In accordance
	Show Order Details	Show order details	In accordance
	Edit Order	Edit the selected order data	In accordance
	Delete Order	Delete the selected order	In accordance

E. Deployment

This stage is running the application by the user, the following are the results of the analysis obtained after the user runs the website for sales and catering orders. This stage is carried out by consumers using the web and then filling out a questionnaire containing questions about the web. This test was carried out on 10 consumers with the result that 100% of users can find out the shape of the product through images available on the web, 100% of consumers know product details through detailed features and 100% of consumers can find out product prices when choosing their own products to order. In addition, 100% of consumers felt that they did not need to go to a catering place to place an order and 97% of consumers felt that they did not need to often ask about product details to the catering owner, 95% of consumers found it easy to use the web and 5% found it difficult to use it.

F. Discussion

The Table 3 is an analysis of the results of the discussion with previous similar studies:

TABLE III. ANALYSIS OF RESEARCH RESULTS WITH PREVIOUS RESEARCH

No	Research Title	Research Scope	Discrepancy
1	Sistem Informasi Pemesanan Catering Pada Maya Berbasis Java	This study discusses the flow of catering orders at Cimahi Catering.	The method used in previous research is a quantitative approach with the Java programming language, while the current research uses a web engineering method using the PHP programming language.
2	Pengolahan Bisnis Catering Ummi Nisa Medan Berbasis Web	This study discusses Ummi Nisa's catering business in Medan	The method used in previous research is data analysis and system design analysis, while the current research uses web engineering methods
3	Perancangan Aplikasi Pemesanan Catering Berbasis Mobile Android	This research focuses on designing a catering ordering application	The method used in the previous research was the extreme programming method, while the current research uses the web engineering method
4	Sistem Aplikasi Pemesanan Catering Pada Ibu Holipah	This research only focuses on Mrs. Holipah's catering business	The method used in previous research is the grounded method (grounded research) using the Java programming language, while the current research uses the web engineering method with the PHP programming language programming language.
5	Sistem Informasi Catering di Ratu Catering Berbasis Web	This study discusses the flow of catering orders at Ratu Catering	The method used in previous research is the SDLC waterfall method, while the current research is a web engineering method
6	Penggunaan Metode Web Engineering Dalam Aplikasi Penjualan Kain Khas Palembang	This study discusses the sale of typical Palembang fabrics	The application that was built in previous research is a cloth sales application, while the current research is building a catering sales application
7	Rancang Bangun Aplikasi Web Katalog Produk Wisata Kuliner Berbasis	This research focuses on mapping culinary tourism	Previous research discussed culinary tourism mapping, while research

IV. CONCLUSIONS

Based on the results of the research, it can be concluded that with a website that is designed and built, consumers can find out information about the products provided by the catering party, including prices, descriptions, and pictures. This certainly overcomes the problems related to the limitations mentioned in the introduction to this study. Not only that, consumers can order catering products for certain activities or events, and this website can manage incoming products and orders.

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