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Overcoming The Buildup Of Queues By Carrying Out The Concept Of Self-Service Using Responsive Web-Based Applications

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Abstract. With today's technological advances, all things can be done with the internet, one of which is a web-based food and beverage menu self-order system. This system was created to make it easier for waiters and customers in the ordering process. Because of the problems that occur today, namely the queue in the ordering process and busy waiters who make customers neglected. Therefore, this system was designed to facilitate service, and waiters no longer need to record food menus manually, customers can also order menus directly through the system without having to queue. Before designing the system, an analysis is carried out first, in the design of the system is designed with a quantitative method where researchers take the necessary data and information by conducting direct interviews with related parties. This system will be designed in the form of a responsive website and designed using the PHP programming language and MySQL which is used as a database storage. With the final result, this system can help and facilitate the ordering process and data collection of incoming orders. And the system can run according to the needs of restaurants and customers who use this system.

Keywords: Self order, ordering, website, food, restaurant, internet.

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1. Introduction

In line with the times where there is a lot of competition [1] which can cause many companies to have to improve better services [2] to realize customer satisfaction. Therefore the company must have a good ordering system [3], because ordering is the initial activity that consumers always do before the buying process [4]. Several things can trigger a decrease in consumer satisfaction with a restaurant, such as decreased taste, increased prices, poor service systems, or technological competition that has begun to spread to the use of the internet because currently, the internet acts as a broad information and communication suggestion [5].

One of the most widely used forms of internet application is the website, with a website someone can get the desired information quickly, easily, and efficiently [6] and can be seen by anyone connected to the internet network [7]. The rapid dissemination of information is also an advantage of a website [8].

In addition, with the development of technology today, many activities require technology to facilitate work [9]. A web-based menu ordering information system also helps in improving the sales strategy created. With this system, customers will get the right information without taking much time [10].

In addition, a good restaurant must have good service as well as serving food quickly and correctly [11]. In providing services to customers, sometimes restaurants experience difficulties in the process of data collection of food and drinks ordered by customers when crowded [12]. Then in that situation, it will also trigger a queue of customers [13] and the waiters are also required to work fast. With these demands can cause waiters to be less concentrated and result in errors, such as delivering the wrong food order to the customer's table and recording the wrong food menu. As well as recording menus that are still manual [11] such as using stationery [14] also causes the ordering process to take longer and is prone to errors in writing orders [15]. In the end, errors that occur can interfere with the serving process, resulting in a decrease in the reputation of the restaurant [11].

Seeing the various problems that occur above, a web-based food and beverage ordering self-order application system is designed. As for previous research that has been done before in designing a web-based food and beverage ordering system that is used as a reference in this study, among them:

a. In research conducted by Dinni Indriani, Asep Saeful, dan Ardi Taryanto (2021) with the title "Perancangan Sistem Informasi Pemesanan Makanan Berbasis Web di Foodcourt RSKIA Bandung". The results obtained from the research literature that has been carried out are the creation of a website with 2 types of actors including admin and cashier. With admin access, namely managing menus, order processes, reports, and managing expenses. Cashier access is tasked with managing the order process and managing expenses [16].
b. Other research is conducted by Heri setiawan, Wanti Rahayu, and Indra Kurniawan (2020) with the title "Perancangan Aplikasi Pemesanan Makanan dan Minuman Padarumah Makan Cepat Saji D'Besto". The results obtained from this research are the creation of a website with one user, namely Admin, who can only access the website and customers still place orders manually. Access owned by the admin includes managing the menu, making transactions, and recapitulating orders [17].

From From previous research references, we can see that a website-based food and beverage ordering application system can facilitate the process of ordering food menus [18]. However, from the customer side, they still place orders manually and maybe this can trigger queues of customers in the menu ordering process. That way this system can be developed again by adding access features for customers so that customers can directly order food using the existing system. Based on the previous explanation, a web-based food and beverage ordering self-order application system was designed, and developed with the PHP programming language and the web-based food and beverage ordering system PHPmyAdmin to manage MySQL databases as a database repository. One important aspect of using phpMyAdmin is information security in database management because phpMyAdmin offers security features that can help protect databases from attacks and unauthorized access [19]. This system is made in the form of a responsive web to make it easier for customers to use the system. This system is also designed with three user accesses, namely Admin, Cashier, and Customer. With admin access, they can manage all available activities including managing menus, placing orders, making payments, and managing reports. Then for the access given to the cashier, namely viewing the menu, placing orders, making payments, and managing reports. While the access given to customers can only see the menu and place orders. The purpose of designing this system is to assist customers in the food ordering process so that customers do not have to queue for a long time. In addition, it also makes it easier for employees to record and manage incoming orders so that there are no errors in order data, besides that employees can also perform other tasks without having to go to each customer to record orders.

2. Methods

In this research, the method used is using qualitative research methods. The qualitative method is a research technique that uses narratives or words to explain and describe the meaning of each

particular social situation. In qualitative research, the researcher is the key instrument to interpret and interpret every phenomenon, symptom, and certain social situation. Therefore, researchers need to master the theory to analyze the gaps that occur between theoretical concepts and the facts that occur [20]. By using this qualitative method, we can take the information needed through the interview process directly to the relevant parties. The interview process is carried out so that the data obtained is to the desired needs. In this study, there are several stages of research which are divided into several stages including identification, collecting data by conducting an interview process, designing a system, results, testing, and finally there are evaluation results and conclusions.

2.1 Data Collection

The data used in this study is a list of food menus along with prices, which will later be used in the system to fill in the menu list. The data is obtained using an interview method where researchers will collect the information needed through questions that will be asked by researchers to restaurant owner sources such as when the company was founded, the level of restaurant crowds, previous ordering systems, and the price of each food menu.

2.2 System design

The system that will be proposed is a self-order application for web-based food and beverage ordering. This aims to make it easier for customers to carry out the food ordering process, that way customers do not need to queue or wait for the waiter to come to record the menu they want to order. Then the cashier also makes it easier for employees to calculate orders. As well as making it easier for employees to collect data on orders that have been made. The details of this system are that newly arrived customers can directly order food menus through the web system. After the customer places an order, the customer is then directed to pay for the order at the cashier by showing the order number. Then the cashier will see the order amount and the customer can immediately complete the payment. After the order is paid off, the order will be processed by the kitchen according to the menu that has been ordered. Finally, when the order is cooked the order is ready to be served to the customer.

3. Results and Discussion

3.1 Results

The result of the designed system is a responsive website so that users can open the website using a cellphone. The result of the designed system is a food menu ordering system that can be done online when the customer is at the restaurant. The results of this system can facilitate customers in ordering food menus and employees in recording incoming orders.

On the website created there are several features including for admins can access the menu, order, user, and report features. Then cashiers can access the menu, order, and report features. Meanwhile, customers can only access the menu and order features. Then the process of inputting, updating, and deleting from several existing features. The results of the implementation of the system that has been made can be run using the Google Chrome browser. The implementation of the interface on the system can be seen in the following figure:

3.1.1 Home view

The following is a home view of the system that can be made. This can be seen in Figure 1 which shows the appearance of the entire page and shows the responsive website display.

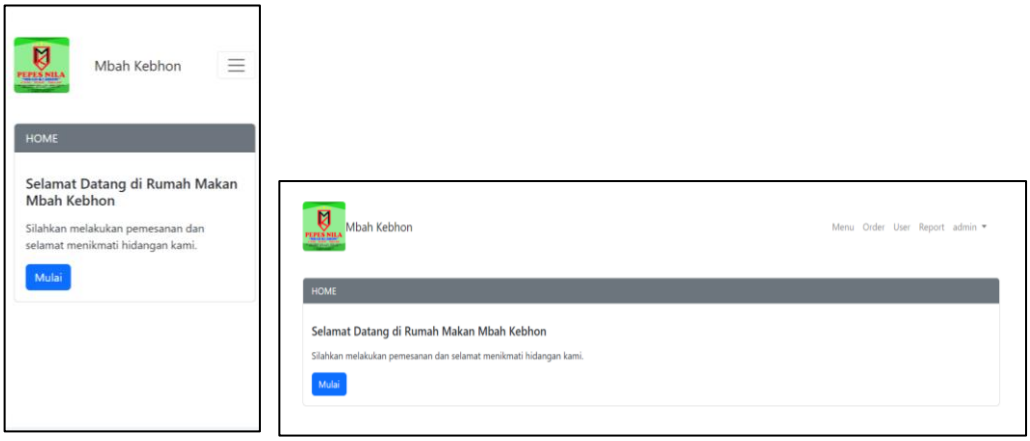

Figure 1 Website view

The main display shows a selection of features that can be seen by the user, namely the menu, order, user, report, and status features for the admin. While the main display for cashiers displays menu, order, report, and status features. For customers on the main page displays menu, order, and status features.

3.1.2 Menu View

On the menu page display will display a list of menus and buttons to add menus, view menu details, edit menus, and delete menus can only be accessed to log in as admin, but if logged in as a cashier and customer the add menu button does not exist. Cashiers and customers can only see the menu that is displayed only, for details of the display can be seen in Figure 2.

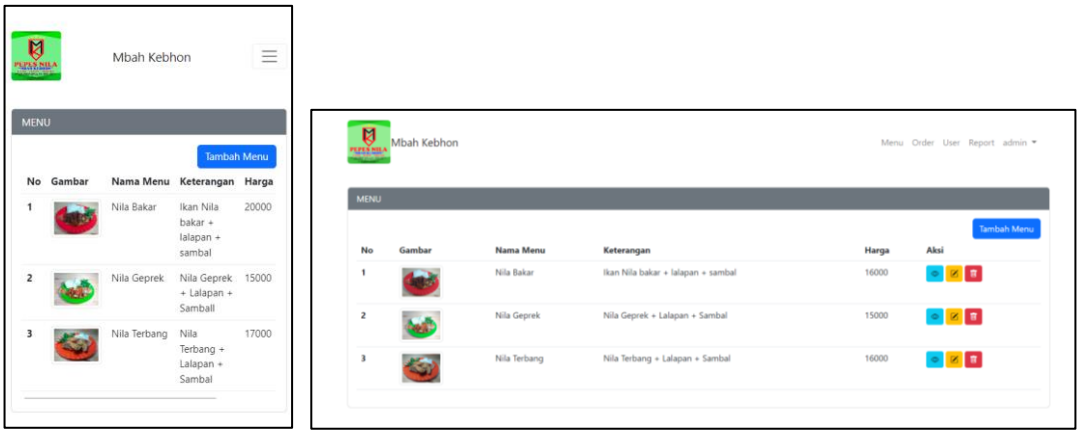

Figure 2 Menu view

3.1.3 Order view

On the Order page, customers can add, edit, or delete menus that have been added previously. The order page can be seen in Figure 3.

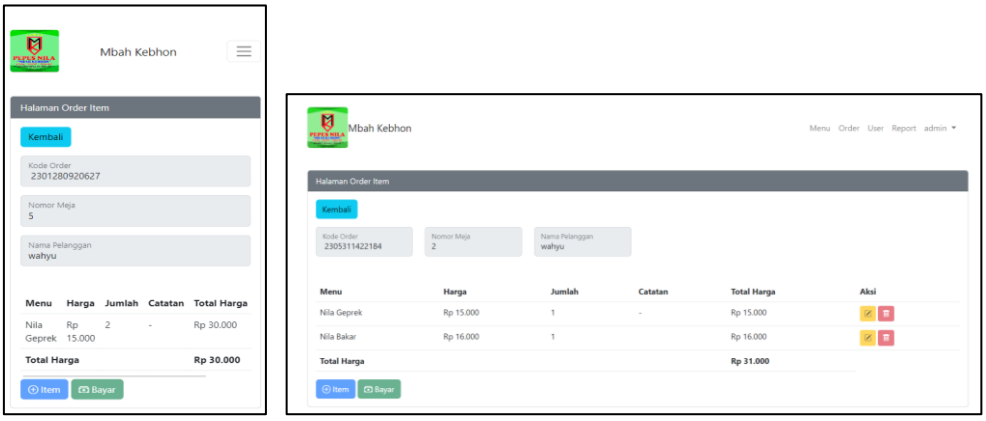

Figure 3 Order view

3.1.4 *Report view*

On the report feature page can only be accessed by admins and cashiers, the report page only displays orders that have been paid. For more details on the report page display can be seen in Figure 4.

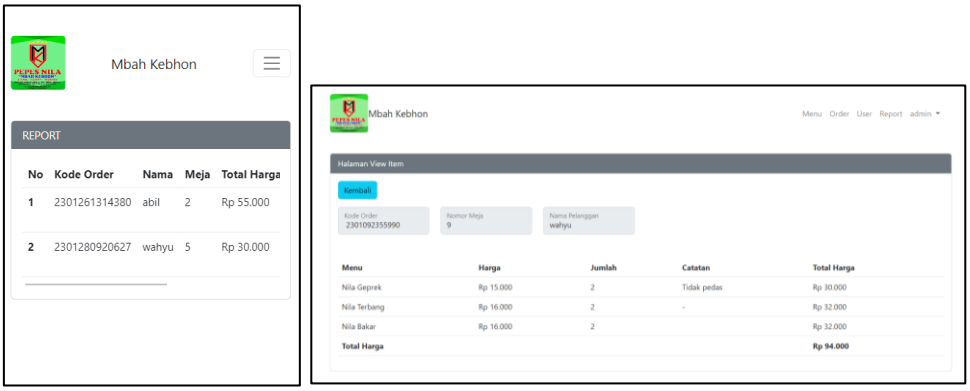

Figure 4 Report view

3.1.5 *Database*

In this research, the data used in the designed system is stored using the phpMyAdmin database. So that the website that has been designed must always be connected to the database so that users can input data, display data, edit data, or delete data. The database created to store data from this system can be seen in Figure 5.

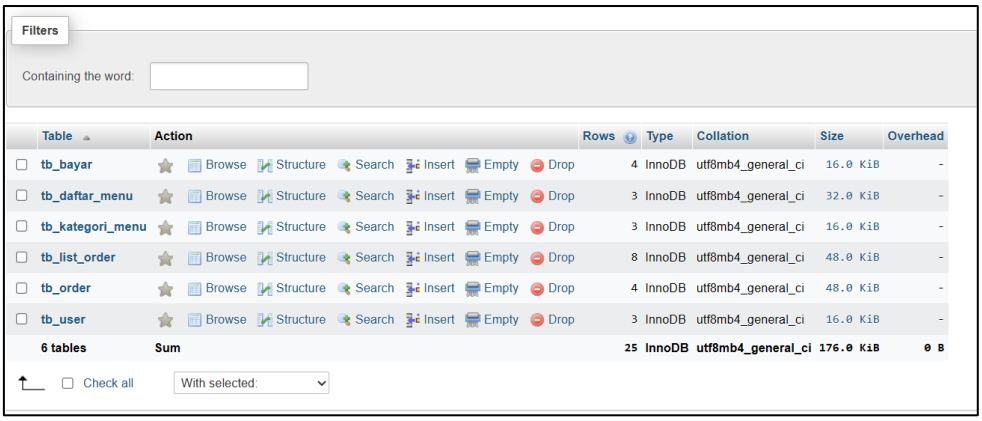

Figure 5 Database

3.2 Testing

This testing process is carried out to test the feasibility of the system and minimize the occurrence of failures in the system. The following is a table of test results on the system created.

3.1.2 Menu Feature Testing

Testing on the menu feature is done to test the button command whether it can run according to its function or not. And the table of test results on the menu feature can be seen in table 1.

Table 1 Menu Feature Testing

Incoming Data	Expected	Observation	Conclusion
Menu list input	Data is successfully saved when pressing the save change button on the add menu form.	Button input can perform its function well.	Accepted
Edit menu list	Data is successfully edited after pressing the save button on the edit menu form.	The save button can perform its function properly.	Accepted
Delete menu list	Data is successfully deleted after pressing the delete button.	The delete button can perform its function properly.	Accepted
View Menu Details	Successfully display the entire data when pressing the view button.	The view button can perform its function properly.	Accepted

3.1.3 Order Feature Testing

Testing on the menu feature is done to test the button command whether it can run according to its function or not. The table of test results on the order feature can be seen in Table 2.

Table 2 Order feature testing

Incoming Data	Expected	Observation	Conclusion
Order Input	Data is successfully saved when pressing the save change button on the add order form.	Button input can perform its function well	Accepted
Edit order	Data is successfully edited after pressing the save button on the edit order form.	The save button can perform its function well.	Accepted
Delete menu list	Data is successfully deleted after pressing the delete button.	The delete button can perform its function well.	Accepted
View Menu Details	Successfully display the entire data when pressing the view button.	The view button can perform its function well.	Accepted

3.2.3 User Feature Testing

Testing on the user feature is done to test the button command whether it can run according to its function or not. The table of test results on user features can be seen in Table 3.

Table 3 User feature testing

Incoming Data	Expected	Observation	Conclusion
Input user	Data is successfully saved when pressing the save change button on the add menu form.	Button input can perform its function properly.	Accepted
Edit user	Data is successfully edited after pressing the save button on the edit menu form.	The save button can perform its function well.	Accepted
Delete user	Data is successfully deleted after pressing the delete button.	The delete button can perform its function well.	Accepted
View user	Successfully displaying overall data when pressing the view button.	The view button can perform its function properly.	Accepted

Conclusions

The conclusion that can be drawn from the research on the implementation of a web-based food ordering self-order application system that has been carried out is that the creation of a web-based food and beverage ordering self-order application system can make it easier for customers and employees to carry out the ordering process and order data collection. The results of trials conducted on a web-based food ordering self-order application system can run well. How ever there is still a need for development to make users more comfortable, such as the need to change the UI display so that it can look more attractive and make users comfortable in using this system.

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