Article

Analysis of Food Ordering Information Systems and Web-Based Digital Payments for Cafes

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A B S T R A C T

Cafe is a place of business engaged in culinary. Currently, the café is a place that is quite in demand by all circles, because it can be used as a place to relax or do assignments for students. However, many cafes have difficulty in serving reservations and still use conventional systems. With a menu ordering information system and web-based digital payments applied to this café, it aims to speed up the menu ordering process, facilitate payments with digital wallets and make the ordering process more efficient. With this information system, café sales report data becomes computerized, so that data can be stored properly. The method used in this study uses data collection methods, namely by observation, interviews, and literature studies. As for system development using a methodology or prototype approach. Based on the research conducted, it produced a menu ordering information system and web-based digital payments using PHP and Mysql. And from testing the system with blackbox testing conducted by 2 testers, the system made was able to make the ordering process at the café more efficient.

I. INTRODUCTION

The development of information technology is something that is needed by many people, be it institutions, organizations or companies where the existence of information technology can help manage business processes, business development, especially those that are still developing in order to manage their agencies better. Because the development of the business world today is increasingly dense, the need for information systems must be owned by an agency characterized by the use of computers and the internet in every company in its business [1]–[3].

One of the uses of information technology in a café is a menu ordering information system. This system is a way to make it easier for customers to order menus automatically. Cafes that still use manual methods for ordering food and beverages where waiters still use paper and pen as a medium to record orders, in this manual system it is known that there are many obstacles, including the existence of orders that are duplicate in order due to the accumulation of order notes, especially when crowded visitors, pens or papers run out[4].With the internet and computer networks, an agency can quickly and efficiently use an automated system using computer technology that can facilitate the ordering process [5]–[7][8].

In tests conducted at cafes kolam.id [8], The implementation of the web-based menu ordering system implemented is proven to help the menu ordering process with the evaluation results reaching 94.55% of respondents who chose strongly agreed. It was concluded that the built system is very well received by employees and customers of the café[9]–[13].

In addition, many cafes have difficulty serving food and beverage menu orders, the difficulty in question is that customers wait too long to get the ordered menu so that it does not provide comfort for customers. Waiters also have difficulty when asking for orders from customers that are recorded manually. And in terms of time, the lack of efficiency in recording the order menu manually allows errors in making orders[11], [11], [14].

With research questions: how can an online menu ordering system reduce the occurrence of errors and speed up the process of ordering made in cafes? Will the existence of an online menu ordering system be more effective in terms of making orders?; How can the system always update the menu stock inventory?.

II. LITERATURES REVIEW

The research approach to be used in research is a qualitative approach. As for application development using the prototype approach model, where the process of the prototype approach is as follows [10], [15]–[17] :
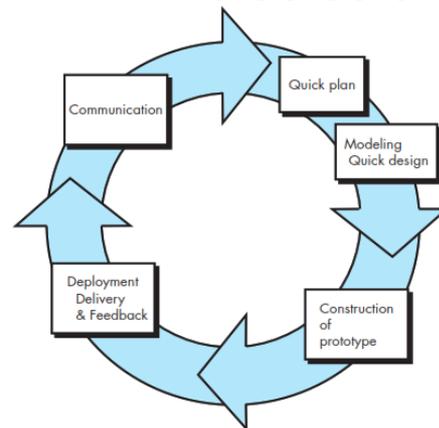

Figure 1. Protoype Approach

a. Communication

Communicate with the café and customers to understand the software expected by users and the limitations of the software. Information can be obtained through interviews, discussions, or direct surveys. Information needs to be analyzed to get the data needed by users.

b. Quick Plan & Modelling Quick Design

Create a system design that can help define the required devices and system

requirements to define the overall system architecture.

Figure 2. Home design

c. Construction of Prototype
Coding the system that has been designed according to the design made in the previous stage. Create a blueprint of the developed program.
Food ordering script example

```php
<?php
// Variable initialization
$foodItems = array(
'1' => array('name' => 'Nasi Goreng', 'price' => 15000),
'2' => array('name' => 'Mie Ayam', 'price' => 12000),
'3' => array('name' => 'Sate Ayam', 'price' => 10000),
'4' => array('name' => 'Bakso', 'price' => 8000),
);

// Process data if there is an order delivery request
if ($_SERVER['REQUEST_METHOD'] === 'POST') {
// Retrieve data from a form
$selectedFood = $_POST['food'];
$quantity = $_POST['quantity'];

// Validate input
if (!empty($selectedFood) &&
!empty($quantity) &&
is_numeric($quantity) && $quantity > 0) {

// Calculate the total order price
$totalPrice = $foodItems[$selectedFood]['price'] * $quantity;

// Display order results
echo "Pesanan Anda:<br>";
echo "Makanan: " . $foodItems[$selectedFood]['name'] . "<br>";
echo "Jumlah: " . $quantity . "<br>";
echo "Total Harga: Rp " . $totalPrice;
// Addendum: Here, you can add logic to send orders to the ordering system or perform other actions accordingly.

// Stop script execution
exit();
}
}
?>

<!DOCTYPE html>
<html>
<head>
<title>Pemesanan Makanan Online</title>
</head>
<body>
<h1>Pemesanan Makanan Online</h1>
<form method="post" action="<?php echo $_SERVER['PHP_SELF']; ?>">
```

```
<label                for="food">Pilih
Makanan:</label>
<select name="food" id="food">
<?php foreach ($foodItems as $id =>
$foodItem) : ?>
<option    value="<?php    echo    $id;
?>"><?php  echo  $foodItem['name'];
?></option>
<?php endforeach; ?>
</select><br><br>
<label
```

Testing the system that has been made to find out the shortcomings and errors that occur by testing so that when implemented the system is ready to use using blackbox testing.

Data analysis

Analysis techniques are important in a study because they will conclude the results of the study. For how to analyze using Requirement Elicitation to determine what functions are needed in making programs.
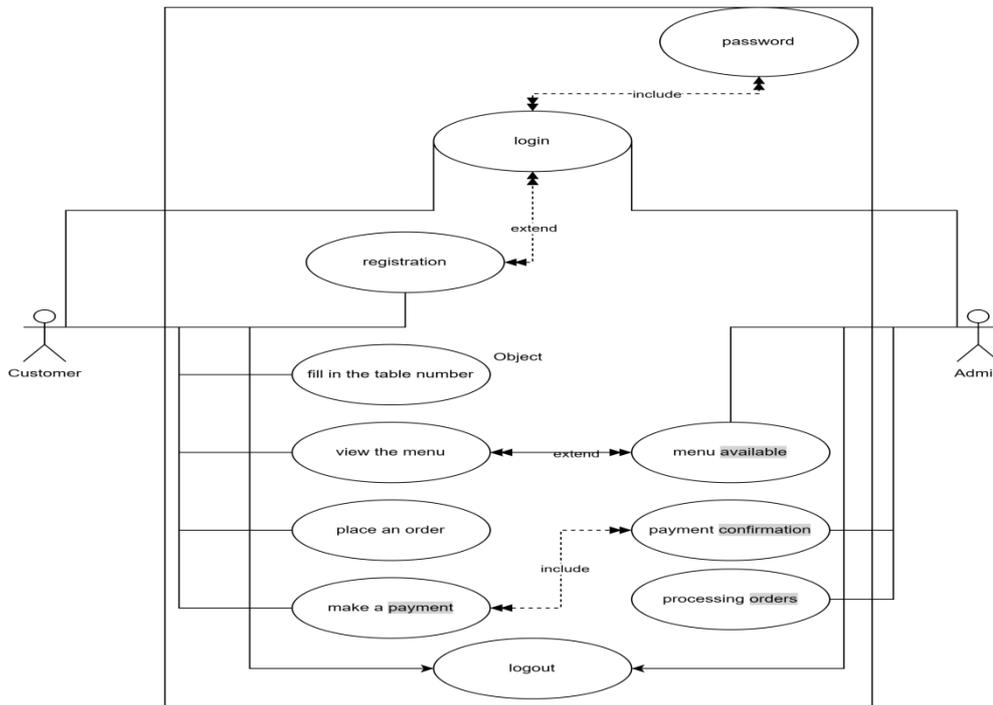

Figure 3. Use Case

```
for="quantity">Jumlah:</label>
<input               type="number"
name="quantity"          id="quantity"
min="1"><br><br>
<input type="submit" value="Pesan">
</form>
</body>
</html>
```
d. Testing

III.   METHODS

Cafe Admin registers or logs in using the registered password after that inputting the available menu also confirms payment from the customer then processed to the order, while the customer enters the table number, views the food menu, places an order, makes a payment.

The café management system is a sophisticated yet user-friendly platform that streamlines operations for both the café administrators and are notified when their food is ready to be served. Post-meal, they have the option to provide feedback or rate their experience,

Figure 4. Menu Utama Pelanggan

customers. For the admins, the system begins with a secure login process, following which they can effortlessly manage the café's menu by adding, editing, or removing items as per availability. The platform is also equipped with a payment confirmation feature, allowing admins to verify and process customer payments efficiently, whether they are made via credit card, e-wallet, or cash. Once payment is confirmed, the order is processed and communicated to the kitchen. Moreover, the system provides comprehensive table management capabilities, enabling admins to monitor the occupancy and order status of each table. An added functionality includes generating detailed sales reports, facilitating better business decision-making through trend analysis.

For customers, the system offers an intuitive interface where they can enter their table number upon arrival, granting them access to a digital menu complete with images and prices.

They can place their orders directly through the system, including any specific requests or dietary preferences, and then proceed to a secure and convenient digital payment. Customers can track the status of their orders in real time and

contributing to the café's continuous improvement in service and menu offerings. Additionally, the system can be used to promote special deals or discounts, enhancing customer engagement and satisfaction.

IV. RESULT

On this page, users of the Goffe Coffe service will be presented with a menu provided by our party where previously users scanned QR at their respective order tables. On the menu there are several types of drinks and food provided as well as several menus from user transactions.

The picture above is a list of bookers (based on the ordering desk) and food and beverage orders from café visitors, here we can see the status of payments and transactions from the date and total payment.

Table 1. Scenario List

Code	Scenario Name	Description
1	Initial view	Run the application by scanning the barcode into the login view
2	Authentication Process	Register and login
3	Home Navigation	Display the home page
4	Selecting the Menu	Select a product from the menu list

5	Your Order	View details of a selected order
6	Order History	Visit the history view of orders that have been placed
7	Booking Transaction	Perform the order purchase process
8	Payments	Make a payment

9	Tes Browser	Access the system with another browser

1) Positive Scenario

Table 2. Positive Scenario Tester

Code	Information	Step	Expected Result	Actual Result	Pass/Fail
1	Accessing the System	Open a browser and type in the website address or scan the barcode	The initial display appears, namely the *customer's*home page	The customer's*home* display appears	Pass
2	Authentication Process	Open the login page, admin can Register an account then login on the login page	The Login Page appears, and the user can do the Login and Register process	Login Page Appears	Pass
3	Navigasi Home	Click the home navigation on the home screen after logging in	Bring up the initial view of the system	Stay on home view	Pass
4	Selecting the Menu	Click buy on the product displayed in the menu list	The clicked product goes to your order	The viewpoints to your order and displays the order clicked	Pass
5	Your order	Open your order navigation	Bring up the order that has been selected	Orders displayed	Pass
6	Order History	Click the order history navigation	Displays the history of orders that have been placed by customers in previous transactions	View the history of orders that have been placed	Pass
7	Booking transaction	Perform the order process, confirm the order that has been selected	Go to the payment display after filling in the table number	Fill in the table number and then go to the payment page	Pass
8	Payments	Making payments on the system	Direct the user's digital wallet if you choose payment with a digital wallet, if cash will complete the payment	Digital payment has not been connected to the user application, if cash appears pop up please pay at the cashier	Pass
9	Tes Browser	Perform system access with microsoft edge browser	Displays the same view as chrome browser	Displays the same view as chrome browser	Pass
10	Accessing the System	Open a browser and type in the website address or scan the barcode	The initial display appears, namely the *customer's* home page	The customer's *home* display appears	Pass
11	Authentication Process	Open the login page, admin can Register an account then login on the login page	The Login Page appears, and the user can do the Login and Register process	Login Page Appears	Pass
12	Home	Click the home	Bring up the initial view of	Stay on home	Pass

	Navigation	navigation on the home screen after logging in	the system	view	
13	Selecting the Menu	Click buy on the product displayed in the menu list	The clicked product goes to your order	The viewpoints to your order and displays the order clicked	Pass
14	Your order	Open your order navigation	Bring up the order that has been selected	Orders displayed	Pass
15	Order History	Click the order history navigation	Displays the history of orders that have been placed by customers in previous transactions	View the history of orders that have been placed	Pass
16	Booking transaction	Perform the order process, confirm the order that has been selected	Go to the payment display after filling in the table number	Fill in the table number and then go to the payment page	Pass
17	Payments	Making payments on the system	Direct the user's digital wallet if you choose payment with a digital wallet, if cash will complete the payment	Digital payment has not been connected to the user application, if cash appears pop up, please pay at the cashier	Pass
18	Tes Browser	Access the system with firefox browser	Displays the same view as chrome browser	Displays the same display as the chrom browsere	Pass

2) Negative Scenario

Tabel 3. Negative Scenario Tester 1

Code	Information	Step	Negative Condition	Expected Result	Actual Result	Pass/Fail
1	Accessing the System	Open a browser and type in the website address	Incorrect accessed url	The webpage doesn't open	The webpage doesn't open	Fail
2	Authentication Process	Open the login page, admin can Register an account then login on the login page	Login with the wrong username or password	The webpage will ask you to enter your username and password correctly	The webpage asks to enter the username and password correctly	Fail
3	Home Navigation	Click the home navigation on the home screen after logging in	Internet not connected	The browser display displays the information "No internet connection" and the home page does not open	The browser display displays the information "No internet connection" and the home page does not open	Fail
4	Selecting the Menu	Click buy on the product displayed in the menu list	Products that are clicked out of stock	The system does not continue processing the transaction	Sistem tetap melanjutkan proses transaksi	Fail

5	Your order	Open your order navigation	Haven't put any menu in the shopping cart	The browser display displays the information "your order is empty, please order first"	Display "your order is empty, please order first"	Fail
6	Order History	Click the order history navigation	Haven't made a purchase yet	Browser display displays an empty orders table	Display an empty orders table	Fail
7	Booking transaction	Perform the order process, confirm the order that has been selected	Not filling in table numbers	Browser display does not proceed on payment processing	Back to booking page	Fail
8	Payments	Making payments on the system	Insufficient customer digital wallet balance	The system does not complete the payment from the customer	The system still completes the payment and shows the receipt	Fail
9	Tes Browser	Access the system with another browser	Using the default android browser	There are system features that don't appear	System navigation buttons don't appear fully	Fail
10	Accessing the System	Open a browser and type in the website address	Incorrect accessed url	The webpage doesn't open	The webpage doesn't open	Fail
11	Authentication Process	Open the login page, admin can Register an account then login on the login page	Login with the wrong username or password	The webpage will ask you to enter your username and password correctly	The webpage asks to enter the username and password correctly	Fail
12	Home Navigation	Click the home navigation on the home screen after logging in	Tidak ada internet	The browser display displays the information "No internet connection" and the home page does not open	Home page doesn't open	Fail
13	Selecting the Menu	Click buy on the product displayed in the menu list	Products that are clicked out of stock	The system does not continue processing the transaction	The system continues to process transactions	Fail
14	Your order	Open your order navigation	Haven't put any menu in the shopping cart	The browser display displays the information "your order is empty, please order first"	Display "your order is empty, please order first"	Fail
15	Order History	Click the order history navigation	Haven't made a purchase yet	Browser display displays an empty orders table	Display an empty orders table	Fail
16	Booking transaction	Perform the order process, confirm the order that has been selected	Not filling in table numbers	Browser display does not proceed on payment processing	Back to booking page	Fail
17	Payments	Making payments on	Insufficient customer digital	The system does not complete the	The system still completes	Fail

		the system	wallet balance	payment from the customer	the payment and shows the receipt	
18	Tes Browser	Access the system with another browser	Using the default android browser	There are features that don't appear	System navigation does not appear full	Fail

V.   CONCLUSION

Based on the results of the discussion from the previous chapter, the author can draw the following conclusions: a web-based menu ordering and digital payment information system can help in the transaction process at cafes to be more effective and efficient; This web-based digital menu ordering and payment information system allows transactions to be carried out online; make it easier for customers to see the menu offered and can avoid mistakes found in conventional systems; Web-based digital menu and payment information system allows streamlining the ordering and payment process at the café.

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BIOGRAPHY

Shendra Jatmikho, has completed his Bachelor studies in the field of Information Systems with a GPA of 3.62 at Buddhi Dharma University in 2022.

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