



# Analysis and Design of Online Ordering System of Padang Cuisine

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**Abstract**— *Restaurants Putra Minang have a lot of customers every day. For customers who only want to order but his stay with the distance of the Restaurants Putra Minang far enough for this was done by phone. Ordering by phone is not effective because customers don't know menus are provided and the price offered by restaurants. This research aims to build an online food ordering system design so that the submission of information becomes more rapid, accurate and customers can order food by looking at the menus and prices provided restaurants online. With the building of this system, then the customer easily find information on Restaurants Putra Minang and can do ordering food anywhere and anytime so that it can increase the number of customers and increase revenue Restaurant Putra Minang.*

**Keywords**— *Online Order, Ordering Food, Padang Cuisine, E-Commerce, Restaurants Putra Minang*

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## I. INTRODUCTION

Advances in information and communication technology develops very quickly, in the twentieth century has seen a great change in the field of Information and Communication Technology (ICT), and progress will continue until the future. Initially, the technology is slowly growing. But along with the progress of human civilization and culture, is now rapidly expanding technology[1].

The development of the internet and the changes in technology over the last few years has raised new ways to communicate, which is now as a new form of business transactions [2]. E-Commerce refers to the execution of a business transaction or managerial activities conducted with the use of the internet. E-commerce model and its application has been widely used in the business environment, a new, more dynamic innovation called referred to as E-business, E-business appeared to advance the application of E-commerce by simplifying interaction business over the web [3].

Virtual store gradually replaced physical company because information technology excellence that drive the development of e-market. Because the virtual store significantly reduces operating costs and expenses and also customers can easily make a purchase without limitation of time and place [4]. By utilizing the existing features in the web that provide media that has a function that can provide a wealth of information about the products and responsive to customers, the design of user interface must be an important consideration for shows the quality of the e-commerce site itself [5].

Online booking now greatly needed because it is very efficient and save time. Based on the research, there are 7 factors that affect consumer decisions in making a purchase online food include : consumer and access limitations, desires and limitations of the technology, product and price, flexibility, efficiency, convenience, as well as economic and social. The factors that have the greatest impact on consumers in the purchase of food online is a factor limitations and access, it can be seen from a few things, namely the unavailability of food at home, can't make their own food, the distance far enough, and busy so couldn't leave work [6].

Restaurant putra minang often receive good orders from customers or organizations who were having a big event. During this time for booking by the customer which are quite far from the restaurants go to directly to do with the location or over the

phone. That way is not effective because necessary information customers is extremely limited. Therefore, by making use of internet media to meet the needs and the delivery of information quickly, accurately, and have spacious easy so far for the customer can place an order online for fast.

## II. METHOD

The development of rapid data collection gives us a wide range of data. This makes the analysis that was done manually is more difficult [7]. Research on data collection method using surveys and interviews. This is done to look at marketing management available today. Marketing management is a structured activity relationships based on the program the company [8].

A good quality of service will get a positive value in the eyes of the customers and the customers will give good feedback. So much better quality of service, then the purchase process simple se must be made possible. Online ordering makes it easy for consumers to order food. In making this system required a method to get a major problem, such as:

### A. Method of PIECES Analysis

PIECES is a method of analysis that is used to get the trees with more specific issues [9]. The PIECES make it possible to improve maintenance on an ongoing basis through the development of Human Resources (HR) [10]. In this framework there are 6 PIECES of variable evaluation, include:

1) *Performance*: Performance is the first variable in PIECES framework. This variable is useful to see whether the procedure can still be improved its performance and how reliable a system in the processing of data in order to produce the desired information and achieved the expected goals.

2) *Information*: The information generated from the information systems must have a value that is useful. It is necessary to take a decision in an organization or company.

3) *Economic*: This variable becomes a benchmark for companies to determine whether the procedure is currently running can be increased or lowered its cost benefits.

4) *Control*: A good system is a system that is accompanied with a good security and control. If a system is very weak so vulnerable was attacked by the party from outside the irresponsible will mess up the system.

5) *Efficiency*: Information systems that are used must have an increased operating efficiency and superior compared to manual systems.

6) *Service*: The quality of service to consumers not to be ignored. Companies need to think about the quality of service is user friendly for the user so that the user can feel satisfied going to a service provided by the company.

### B. Software Engineering

In building a system required a method used to collect the data, such as literature study, observation, analysis, and design of system requirements. For the development of a system using the method of SDLC (System Development Life Cycle). SDLC is cyclical methodologies, phase cycle is repetition, so that changes can be made to the design in the next cycle [11]. The process of developing of the system, then this study has followed SDLC[14]. SDLC can also be defined as a process of how a system can support the needs in business processes by means of design, create, and submit the results to user.

Waterfall model is a systematic model, composed of some work in building a software . In the method waterfall there are 5 stages, include : requirement analysis and definition, systemand software design, implementation and unit testing, integration and system testing, and operation and maintenance. Below are the stages in the waterfall model [12].

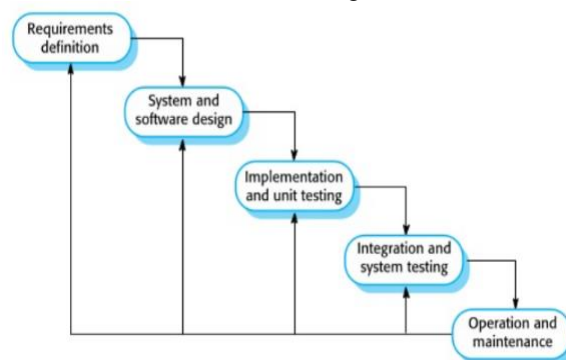


Fig. 1 Ian Sommerville's Waterfall

1) *Requirement Definition*: Steps to determine the features and objectives it set up a system, by means of observing and consulting with users. All this serves as the specification of the system.

2) *System and Software Design*: This step is the step to design a system and also to identify the system software and its relations between the systems.

3) *Implementation and Unit Testing*: In this step of a design has been completed under the terms agreed upon. Then it was realized into a programming language. Each unit is tested to find out whether these units meet specifications.

4) *Integration and System Testing*: The next step, each unit programs associated with other units and ascertain whether those systems have been eligible agreed.

5) *Operation and Maintenance*: The step where the system is already used. And in this step also carried out maintenance or fix the error on a system and doing development as well as the addition of new features.

C. *UML (Unified Modeling Language)*

UML is a set of tools used to describe design on a system or software that aims to facilitate the continuous application development. Unified Modeling Language provides various diagrams, such as use case diagram and activity diagram[13].

1) *Use Case Diagram*

At the step of design using object oriented model. UML (Unified Modeling Language) is a modeling language for the system or software with object orientation. The purpose of the modeling system is to affect a simplification of a complex permasalahan problems so it can be easily understood and learned.

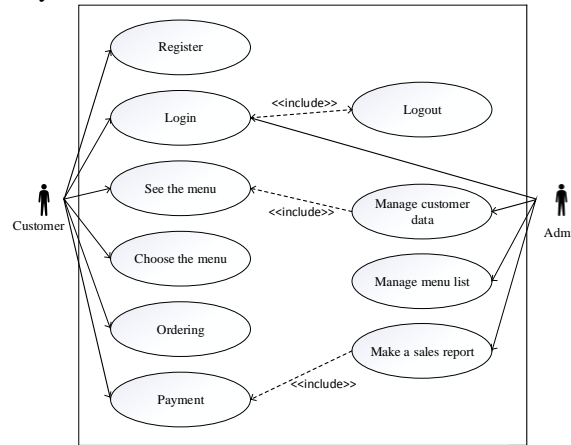


Fig. 2 Use Case Diagram

From Fig. 2 is an illustration of the proposed use case diagram. There are 2 main actors, is a customers and admin. Customers can see the menus provided by the restaurant putra minang. Customers can place an order online but must register first in the website to login. Admin is tasked with managing the restaurant putra minang website, such as managing customer data, managing menu lists and making sales report.

2) *Class Diagram*

Class Diagram is a model that describes the structure and description of the class as well as the relation between class.

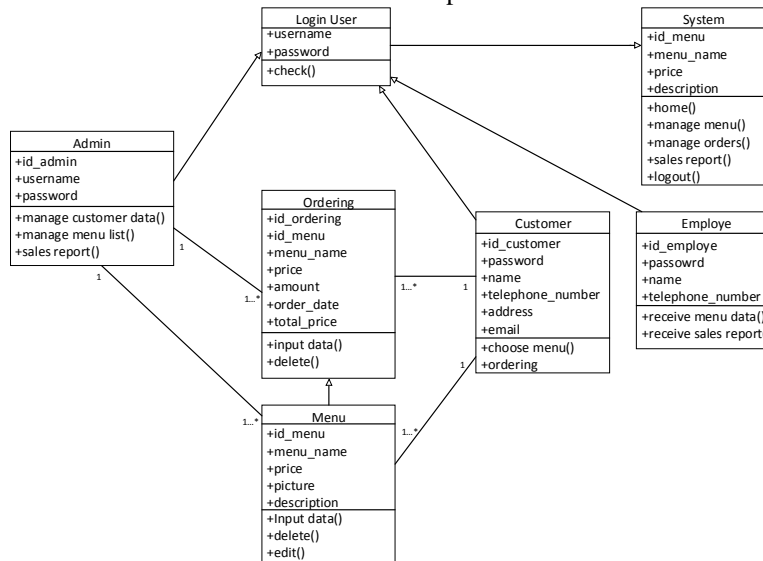


Fig. 3 Class Diagram

3) Activity Diagram

Activity Diagram is a diagram of significant other found in the UML are used to describe the dynamic aspects of a system and business processes.

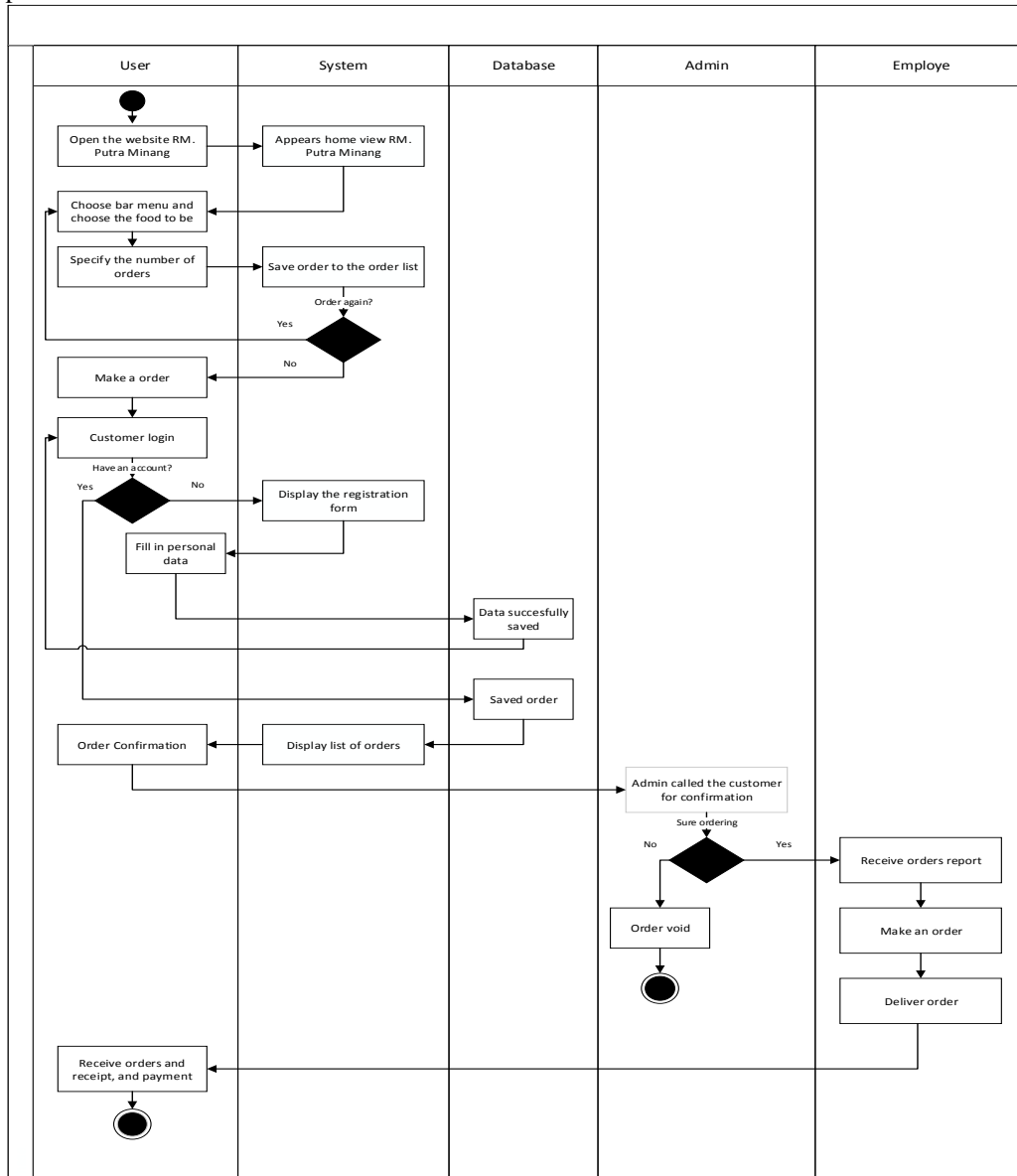


Fig. 4 Activity Diagram

Picture 4 describes the activity diagram of the process of using the of restaurant putra minang website. First, customers can see the various menu dishes provided and can order as desired. After enough ordering, the customer can proceed to the ordering transaction by creating an account in advance to login. After the transaction is complete, admin will call the customer to confirm the ordering that hass been done. After that the employee on duty will make an order and deliver to the address that hass been determined. Payment made after order received by customer.

D. Database Specifications :

TABLE I  
ADMIN

No.	Field Name	Data Type	Length	Description
1	Id_admin (PK)	Int	10	Admin unique code
2	Username	Varchar	50	Admin username account
3	Password	Varchar	50	Admin password

In the admin table consists of three fields, that is `id_admin` which is the admin code, `Username` is the name of the admin, and the password is admin password.

TABLE II  
CUSTOMER

No.	Field Name	Data Type	Length	Description
1	<code>Id_customer</code> (PK)	Char	11	Customer unique code
2	<code>Name</code>	Varchar	50	Customer name
3	<code>Password</code>	Varchar	50	Customer password
4	<code>Email</code>	Varchar	50	Customer e-mail
5	<code>Address</code>	Varchar	50	Customer home address
6	<code>Telephone_number</code>	int	13	Customer phone number

In the customer table consists of six fields, that is `id_pelanggan` (primary key) which is the customer code, `name` is the name of the customer, `password` is the customer's password, `email` is the customer's active email, `address` is the customer's home address, and `telephone_number` which is the active phone number that is used by employee.

TABLE III  
RESTAURANT EMPLOYEE

No.	Field Name	Data Type	Length	Description
1	<code>Id_employee</code> (PK)	Char	11	Employee unique code
2	<code>Name</code>	Varchar	50	Employee name
3	<code>Password</code>	Varchar	50	Employee password
4	<code>Telephone_number</code>	int	13	Employee phone number

In the employe table consists of four fields, that is `id_karyawan` (primary key) which is the employe code, `name` is the name of employee, `password` is the employee's password, and `telephone_number` which is the active phone number that is used by employee restaurant putra minang.

TABLE IV  
MENU

No	Field Name	Data Type	Length	Description
1	<code>Id_menu</code> (PK)	Int	11	Menu unique code
2	<code>Menu_name</code>	Varchar	15	Name of menu
3	<code>Price</code>	int	20	Price of menu
4	<code>Picture</code>	Varchar	50	Picture of menu
5	<code>Description</code>	Varchar	50	Description of menu

In the menu table consists of five fields, that is `id_menu` which is code from the cuisine menu, `menu_name` which is the name of the cuisine menu, `price` which is the price that is offered from a menu of dishes, `picture` is a display of photographs of the dishes, and `description` which is a description of the dishes.

TABLE V  
CATERING PACKAGE

No.	Field Name	Data Type	Length	Description
1	<code>Id_package</code> (PK)	Char	11	Catering package unique code
2	<code>Package_category</code>	Varchar	20	Category of catering package
3	<code>Package_name</code>	Varchar	50	Name of catering package
4	<code>Price</code>	Int	20	Price of catering package
5	<code>Picture</code>	Varchar	50	Picture of catering package

In the catering\_package table consists of five fields, that is `id_package` (primary key) which is the code of the package catering, `package_category` which is the category of catering packages, `package_name` is the name of the catering packages, `price` is the price of the packages catering, and `picture` which is a display of photographs of the packages.

TABLE VI  
PACKAGE MENU

No.	Field Name	Data Type	Length	Description
1	<code>Id_package_menu</code> (PK)	Char	11	Package menu unique code
2	<code>Id_package</code> (FK)	Char	11	Catering package unique code
3	<code>Package_name</code>	Varchar	50	Name of package menu
4	<code>Package_description</code>	Varchar	5	Description of package menu
5	<code>Price_portion</code>	Int	20	Menu price
6	<code>Order_quantity</code>	Int	5	Quantity of customer order

The table is a breakdown of the package menu packages catering. In the package\_menu table consists of six fields, that is id\_package\_menu (primary key) which is the code from the package menu dishes, id\_package (foreign key) which is the code of the package catering, package\_name is the name of the catering packages, package\_description is description of the package catering, price\_portion is the price offered per serving, and order\_quantity which is a total customer orders.

TABLE VII  
ORDER

No.	Field Name	Data Type	Length	Description
1	Id_order (PK)	Char	11	Unique code of order
2	Id_customer (FK)	Char	11	Customer unique code
3	Order_date	Date		Date at time of ordering
4	Order_total	Int	5	Total ordering

The table order consisted of four fields, namely id\_order (primary key) which is a code of booking, id\_customer (foreign key) is the customer code, order date is the date of the booking, and order\_date is the total booking customers.

TABLE VIII  
ORDER LIST

No.	Field Name	Data Type	Length	Description
1	Id_food_order (PK)	Char	11	Unique code of order
2	Id_menu (FK)	Char	11	Menu unique code
3	Id_package (FK)	Date	11	Package menu unique code
4	Quantity	Int	5	Quantity order
5	Order_name	Varchar	50	Name of order
6	Price	Int	20	Price of menu or package
7	Order_date	Date		Date at time of ordering
8	Payment_total	Int	20	Total of payment

The table order\_list is a list of the orders made by customers. In the order\_list table consists of eight fields, that is id\_food\_order (primary key) which is the booking code from food, id\_menu (foreign key) is the code from the cuisine menu, id\_package (foreign key) is the code from the package menu, quantity is the total customer orders, order\_name is a description of the customer orders a catering package or whether it is a regular order, price is the price of the ordered menu, order\_date is the date of the booking, and payment\_total is the total price of the order is to be paid

### III. RESULTS AND DISCUSSION

On this research resulted in the design of an e-commerce system for ordering food at restaurants putra minang. Development model used in this study is a model of the waterfall which is the adoption of the software development life cycle, beginning from the stage of the analysis of the data and system requirements, system design, software testing, and software systems. But on the research methods of the waterfall which is used only until the stage doing the manufacturing system design.

#### A. Results Analysis of PIECES Method

TABLE VIII  
ANALYSIS OF PIECES

No.	Type of Analysis	Weakness of the old System	Proposed System
1	Performance	Sales report management system still uses paper media is giving rise to an error in the process, otherwise it will take a lot of time.	Using a computer -based system, use the software to process logging, and reporting sales results.
2	Information	Information required very less customers in a list or menu prices as well as the location of the restaurants.	Computer-based technology will help the process of submission of information will be more complete.
3	Economic	The costs are high enough to do a promotion by placing ads in media or for Brochure printing.	With promotions through the website will be much more optimal. Indeed in the short-term costs incurred is quite large, but in the long run will be less because the only costs for treatment.
4	Control	The old system was still anticipation towards the security of data is not optimal, so anyone can open and modify the data.	Computer-based system that will facilitate the control and safeguards so that no one can modify or delete data without using the access rights.
5	Efficiency	Employe should note the order data customers who order over the phone, so take some time in the process of recording the transaction.	Computer-based system would be much more efficient because the orders already listed on a computer screen
6	Service	The ordering process is not right because customers who just want to order a food should come directly to restaurant.	Service would be faster to acquire data that chill because using a computer.

### B. Design of System

In designing this system there are some design results that have been made. Here are some designs and explanations.

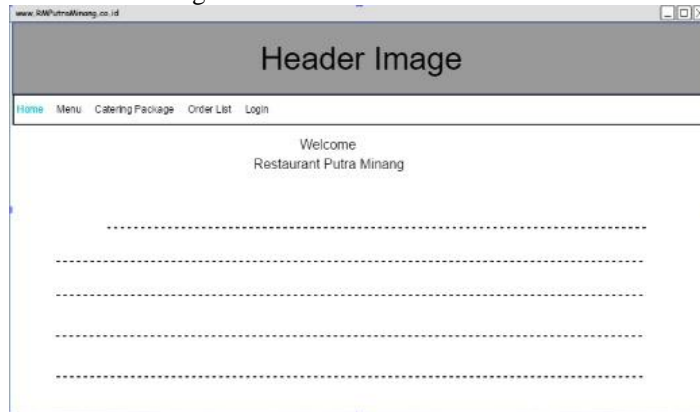


Fig. 5 Home

Figure 5 Is the main view of the website restaurants putra minang. . There are several menus within this website such as menu bar home, menu, catering packages, list of orders, and login. In the menu bar of the home there is a description of the profile and the information from restaurant putra minang.

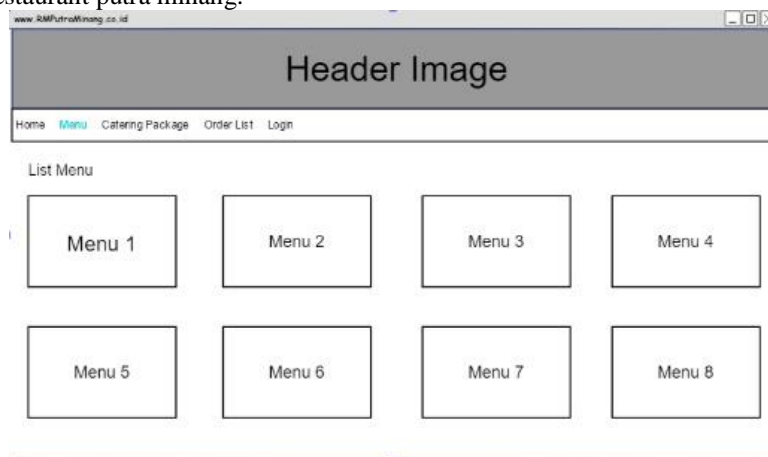


Fig. 6 Food Menu

Figure 6 is a design list view menus in restaurants putra minang. In the column of the menu there is a picture of the food and the price.



Fig. 7 Menu Details

After one click menu then the display will appear as shown above. The image above there is a picture of the food at a click as well as the description. Here customers can also enter how many of your are going to be order.

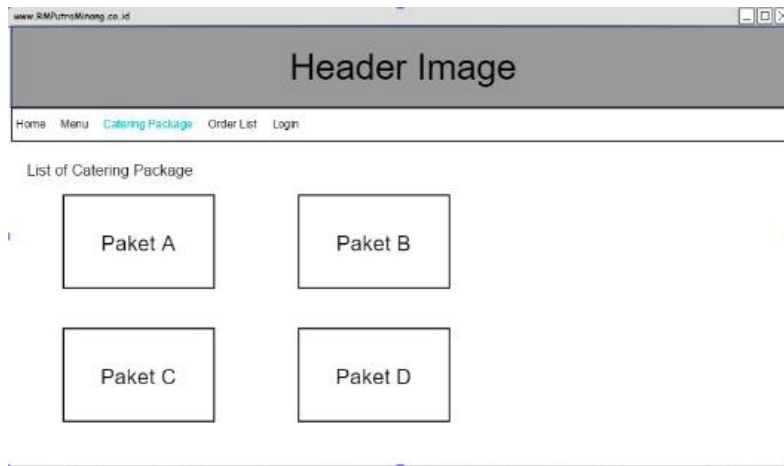


Fig. 8 Catering Package

In the display there are several catering packages catering menu can be selected by the customer. Catering packages can only be order in great numbers.

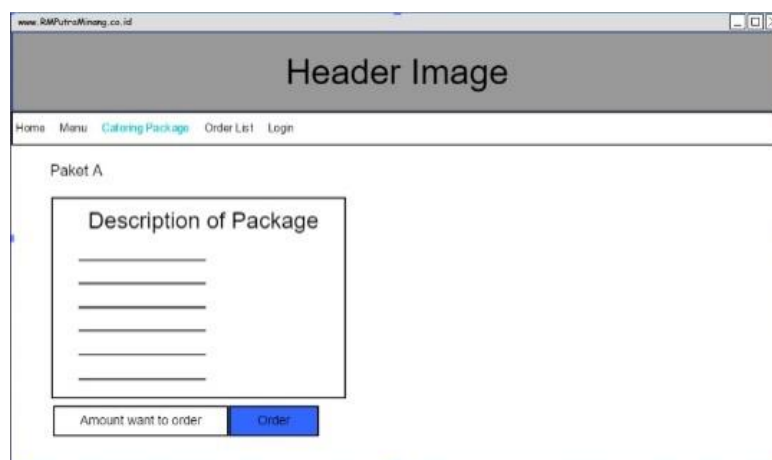


Fig. 9 Description of Catering Package

After one of the catering package is chosen then the customer can view the contents of a caterer who would like to order. Number of orders on catering orders at least 20 Pack.

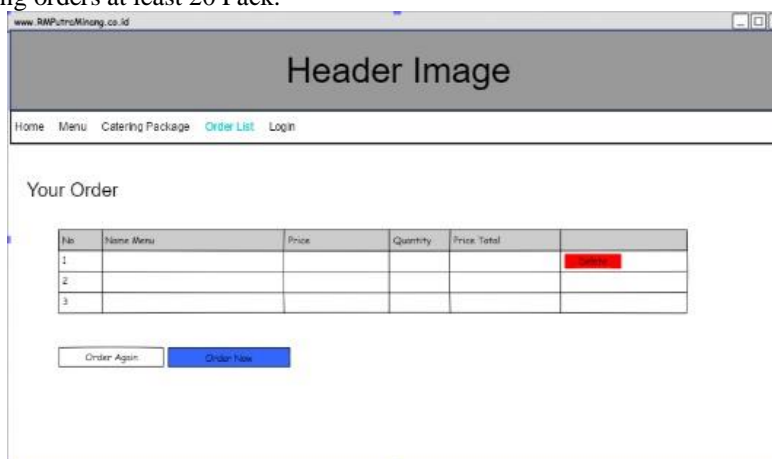


Fig. 10 Order List

In Figure 10, there is a display form list of orders made by customers. There is the name of the menu that is ordered, the price, the amount requested, and total pay. Here customers can also make a booking again with the click of a button "order again", if it is sufficient to order then click "order now".



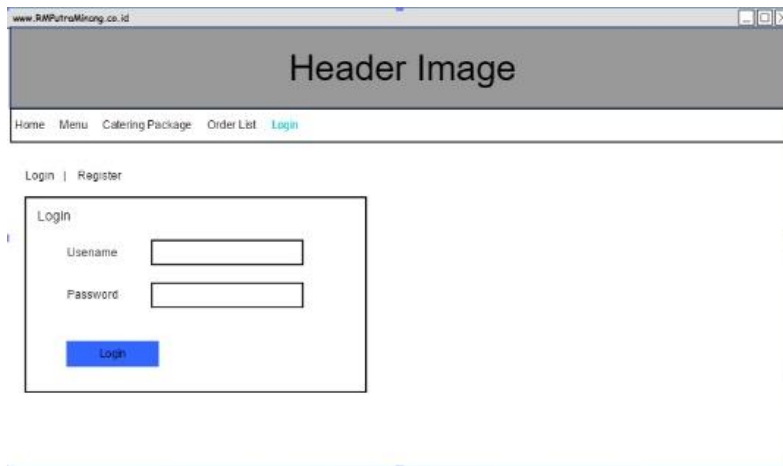


Fig. 11 Login

After customers click "order now" then the customer must login first before the order is processed by the admin. If a new customer then must do the register first.



Fig. 12 Registration

Picture 12 is a registration form for customers who do not already have an account, in the registration form there are 6 fields to fill in, username, name, address, active email, phone number, and password.



Fig 13 Forgot Password

In figure 13 is shown form forgot password. This forgot password form works for customers who have registered on the restaurant putra minang website but forget password to login. Customer must enter a registered email address after which the new password will be sent via email.

Fig. 14 Nota

In the image above is the ordering note as proof of payment.

#### IV. CONCLUSIONS

Based on the discussion above, then it can be concluded, web apps Restaurants Putra Minang can be used as a media campaign and will be more widely known so that more customers will come. Customers can also freely choose the desired menu and order it online anywhere and anytime. This can increase the income and profit of the Restaurant Putra Minang.

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