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WEB-BASED SALES INFORMATION SYSTEM AT CAKI CAKE KARAWANG RESTAURANT

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Abstract

The developments in information and communication technology now is rapidly, particularly in the technology website that can be used on mobile. This technology is not only used by private businesses but the businesses use this technology too, one example is a place of business or a restaurant. The restaurant business person should have a strategy different from other businesses, so it can always be remembered by visitors of the restaurant. For a restaurant businesses can use technology which can help speed up the process of performance, and provide a difference that can attract the attention of visitors. Generally, the restaurant is a form of business that provides a variety of foods and beverages. Every restaurant must serve many orders, if applying the manual booking process will have an impact on the accumulation of orders that are not structured notes, mistakes in writing the order on the name of the menu or the amount of the order. Therefore, by applying the technology developed at this time into the restaurant booking system is expected to control the activities of the booking process to minimize errors. Methods undertaken to produce information with a waterfall model, namely requirements analysis software which then design programs that translate into code generation with PHP web script, JavaScript, JQuery, CSS and framework bootstrap then conducted testing programme and support software are maintenance programs. With the digitalization process can reduce errors presentation sequence order and able to provide information regarding the status of orders.

Keywords: *the application sales system; website*

Abstrak

Perkembangan teknologi informasi dan komunikasi saat ini pesat, khususnya di website teknologi yang dapat digunakan di mobile. Teknologi ini tidak hanya digunakan oleh bisnis swasta tetapi bisnis juga menggunakan teknologi ini, salah satu contohnya adalah tempat usaha atau restoran. Pebisnis restoran harus memiliki strategi yang berbeda dari bisnis lain, sehingga selalu dapat diingat oleh pengunjung restoran. Untuk bisnis restoran dapat menggunakan teknologi yang dapat membantu mempercepat proses kinerja, dan memberikan perbedaan yang dapat menarik perhatian pengunjung. Umumnya, restoran merupakan bentuk usaha yang menyediakan berbagai makanan dan minuman. Setiap restoran harus melayani banyak pesanan, jika menerapkan proses pemesanan manual akan berdampak pada akumulasi pesanan yang bukan catatan terstruktur, kesalahan dalam menuliskan pesanan pada nama menu atau besaran pesanan. Oleh karena itu, dengan menerapkan teknologi yang dikembangkan saat ini ke dalam sistem pemesanan restoran diharapkan dapat mengontrol aktivitas proses pemesanan untuk meminimalisir kesalahan. Metode yang dilakukan untuk menghasilkan informasi dengan model waterfall yaitu

requirements analysis software yang kemudian merancang program yang diterjemahkan ke dalam pembuatan kode dengan PHP web script, JavaScript, JQuery, CSS dan framework bootstrap kemudian melakukan program pengujian dan software pendukung adalah program maintenance. Dengan proses digitalisasi dapat mengurangi kesalahan, urutan presentasi, urutan dan mampu memberikan informasi mengenai status pesanan.
KataKunci: sistem, penjualan aplikasi, situs web.

I. INTRODUCTION

The development of technology that is increasingly high demands easier, faster and more practical services. Mobile media is one of the important aspects as a technology that provides many advantages and many conveniences compared to other information technologies. Coupled with using client-server technology, the system is getting better so that a system is made that is quite cheap but still effective in working on food menu orders. Quite a lot of benefits can be obtained from both parties, the restaurant benefits from the low service costs incurred but is able to provide services that have not existed before, starting from providing menu information to restaurant consumers. On the consumer side, restaurants benefit from energy and time, so that they become easier to order menus for both food and drinks.

Currently, the information processing at the CAKI CAKE restaurant is still manual so that it produces an inefficient and effective output, in the processing of customer order menus is still recorded in the order note and then given to the kitchen and cashier for the process of processing dishes and recapitulation of bills. Therefore, there are often difficulties in managing orders such as determining which orders are processed or delivered first and the need for time to do calculations manually which can cause queues which of course can worsen the quality of service with the increasing number of visitors.

According to Anggun, et al[1]. (2015:50) In his journal, the use of stationery and paper media will trigger several obstacles that can arise, namely the delivery of customer orders to other parts (kitchen and cashier) can take a long time because the distance between the parts varies, the farther the distance between the customer's desk to the kitchen and the cashier, the longer the distance that must be traveled by the waiter.

With the problems faced by the CAKI CAKE restaurant, it requires the presence of a website. This is very important because the existence of a website can help convey detailed product and price information to consumers. It is hoped that it will be able to answer the problems faced by the CAKI CAKE restaurant so that it can support restaurant performance to be more efficient and increase trust and provide satisfaction for consumers.

II. LITERATURE REVIEW

2.1 Basic Concepts of Information Systems

According to Azahra Sutanto in Puspitawati et al. (2011:15) stated that "information systems are components of subsystems that are interconnected and work together harmoniously to achieve one goal, namely processing data into information.".

According to Burch and Grudnitski in Puspitawati et al. (2011:20) stated that the information system consists of components that he calls the term building block, namely:

1. Input Block

   Input that represents data that enters the information system. Inputs here can include methods and media to capture the data to be entered, which can be basic documents.
2. Blok Model (*Model Block*)

   It consists of a combination of procedures, logic and mathematical models that will manipulate the input data and data stored in the database in a predetermined way to produce the desired output.
3. Blok Keluaran (*Output Block*)

   The product of an information system is an output that is quality information and documentation that is useful for all levels of management and all system users.
4. Blok Teknologi (*Technology Block*)

   Technology is a "toolbox" in an information system that is used to receive input, create models, store and access data, generate and send outputs and help control the system as a whole. Technology consists of 3 main parts, namely technicians (humanware or brainware), software and hardware.
5. Blok Basis Data (*Database Block*)

   It is a collection of data that is interconnected, stored on computer hardware and used by software to manipulate it.
6. Blok Kendali (*Control Block*)

   Some controls need to be designed to prevent breakdowns, possible system failures.

2.2 Konsep Dasar Model Pengembangan Sistem

According to Rosa and M. Shalahuddin (2013:28) explained that "the waterfall SDLC model is often also called the sequential linear model or the classic life cycle". There are 5 stages in this method, including: analysis, design, program code, testing, and maintenance.

Here are the stages in software development with the waterfall method:

1. Analysis

   The process of collecting needs is carried out intensively to specify the needs of the software so that it can be understood what kind of software is needed by the user. The specifications of the software requirements at this stage need to be documented.

2. Design

   Software design is a multi-step process that focuses on the design of software program creation including data structures, software architecture, interface representations, and coding procedures. This stage translates the software requirements from the needs analysis stage to the design representation so that it can be implemented into a program at a later stage. The resulting software design at this stage also needs to be documented.

3. Program Code Generation

   The design must be translated into the software program. The result of this stage is a computer program according to the design that has been made at the design stage.

4. Testing

   Testing focuses on the software in terms of logic and functionality and ensures that all parts are tested. This is done to minimize errors and ensure that the output produced is as desired.

5. Pemeliharaan (*Maintenance*)

   It is possible that a software changes when it has been sent to the user. Changes can occur due to errors that arise and are not detected when testing or software has to adapt to the new environment. The support or maintenance stage can repeat the development process starting from the specification analysis stage to new software changes.

2.3 Basic Programming Concepts

According to Sugiyono (2005:14) it is explained that "The definition of structured programming is an action or method to organize and create program codes so that they are easy to understand, easy to test and easy to modify".

There are several things that are the purpose of structured programming, namely:

1. Improve program reliability
2. The program is easy to read and can be traced if there are any errors.
3. Simplify program complexity
4. Simplify program writing
5. Improve program quality and productivity

In the creation of structured programming, there are several criteria that must be met so that a program can be called structured programming, including:

1. Expressiveness

   A good programming language should be clear in describing the algorithm being created.

2. Definites

   A programming language can be defined from the existence of syntax and semantics and a good programming language must be consistent and not double meaning

3. Data types and their structure

   A good programming language must be able to support various types of data (Integer, Real, String, Boolean and so on) as well as data structures (Array, Record, File and so on).

4. Modularity

   A good programming language must have subprogram facilities, so that a large program can be worked on by several programmers simultaneously which can later be easily combined into just one module.

5. *The Presence of Inputs*

   A good programming language should be able to support different types of file models such as Sequensial, random, index and so on in the input and output process.

6. Portability

   A programming language that can be used on various different types of computer machines, so that it can be machine independent. The portability of a program is determined by the program's dependence on a computer machine or operating system, so the more effort is required to move the program, so that the dependence on the machine will have a great impact on the use of input and output devices, for example when accessing a file or file.

7. Efficiency

   A programming language that can regulate the number of program instructions in limiting processing travel time, regulating the amount and type of data input used and the amount of memory the program uses.

8. Interactive

   A good programming language should be easy to learn and teach to the user and easy to understand about the process that the program is doing.

9. Common

A good programming language should have a wide range of programming applications so that it can be a versatile language.

Structured programming must follow established rules and techniques. There are several ways or techniques in making structured programming, including:

1. Modular programming

Modular programming typically uses subroutine statements, which are sets of commands that perform limited tasks. For example, in Pascal language and using procedures and functions.

Criteria for modular programs:

a. The program is broken down into modules
b. Each module has its own tasks and functions
c. Each module is written separately from the other modules, so that the program is easy to find faults with.
d. Each program has a main program module, to control all the submodule processes that occur, including sending program controls to the submodules to perform certain tasks and functions.
e. Each submodule returns control of the program to the main module when it finishes its task.

2. *Top-down programming*

Define the first running main module program, then call other modules (sub-modules) to perform tasks and also to terminate the program's process. The criteria for top-down programming can be in the form of a HIPO (Hierarchy plus Input-Process-Output) diagram.

2.4 *Unified Modelling Language (UML)*

According to Rosa (2013:13) "UML (Unified Modeling Language) is one of the language standards that are widely used in the industrial world to define requirements, make analyses and designs, and describe architectures in object-oriented programming".

The abstraction of the basic concepts of UML consists of structural classification, dynamic be- haviour and model management. According to Yulianta and Mursanto (2010:115) "Unified Modeling Language (UML) is used as the main notation to describe and document the system being built".

1. Usecase Diagram

According to Rosa (2013:155) "Usecase is a modeling for the behavior of the information system to be created". A usecase describes an interaction between one or more actors and the information system to be created. Roughly speaking, usecases are used to find out what functions exist in an information system and who has the right to use those functions.

1. *Activity* Diagram

According to Rosa (2013:161) "Activity Diagram describes the workflow or activity of a system or business process or menu in software".

Activity diagrams have a role similar to flowcharts, but the difference with flowcharts is that activity diagrams can support parallel behavior while flowcharts cannot. An activity diagram is a special state diagram, where most of the previous states (internal processing) are present. Therefore, an activity diagram does not describe the internal behavior of a system and the interactions between subsystems exactly, but rather describes the processes and paths of activity from the top level in general.

2.Component Diagram

According to Rosa (2013:148) "Component diagrams are made to show the organization and dependencies between the groups of components in a system". A component that can access the service is called an export interface while the one that accesses it is called the import interface. Component Diagrams describe the structure and relationships between software components, including dependencies between components.

Software components are models that contain code, both source code and binary code, both library and executable, both at compile time, link time, and run time. Generally, components are formed from several classes and/or packages, but can also be from smaller components. A component can also be an interface, which is a collection of services that a component provides to other components.

2. *Deployment* Diagram

According to Rosa (2013:154) "Deployment diagrams show the configuration of components in the application execution process". Deployment Diagrams can also be used to model the following:

a. *An embedded system that describes the design of device nodes and hardware.*
b. Client/server system.
c. Distributed system.

d. Re-engineering the application.

The hardware part is the node, which is the name of all types of computing resources. There are two types of notes, namely processor and device. A processor is a node that can execute a component while a device cannot. Devices are hardware such as printers, monitors and other hardware.

2.5 *Entity Relation Diagram (ERD)*

Entity Relation Diagram (ERD) or also known as Entity-Relationship Diagram (E-R Diagram) is a model that describes the relationship between data in a database based on the basic objects of data that have relationships between relationships. According to Fatansyah (2007:79) it is stated that the Entity-Relationship Model which contains the components of the entity set and the set of relations, each of which is equipped with attributes that present all the facts of the real world that we are reviewing, can be described more systematically by using the Entity-Relationship Diagram.

"Entity Relation Diagram is the main data modeling tool and will help organize the data in a project into entities and determine the relationships between entities" (Simarmata and Janner, 2010:67).

The symbolic notations in the Entity Relation Diagram that can be used are:

1. Entity

   It is depicted with a rectangular box and is used to indicate a group of people, places, objects or concepts and so on that indicate where data is recorded or stored.

2. Relationships or Relationships

   It is depicted with a diamond-shaped square or rhombus with lines connecting to related entities. So relationships are named with verbs. A relationship or relationship denotes the abstraction of a set of relationships that relate between different entities.

3. Attribute

   It is depicted in an elliptical shape. Attributes indicate the characteristics of each entity or something that describes the entity or relationship. So attributes are said to be elements of entities and relationships. From each entity attribute there is one attribute that is used as a key. Some of these types of keys include: Primary key, Candidate key, Composite key, Secondary key, Alternate key and Foreign key.

4. Tingkat Hubungan (*Cardinality*)

   The Entity Relation Diagram (ERD) also shows the level of relationships that occur, in terms of events or the lack of relationships between entities.

2.6 Logical Relationals Structures (LRS)

According to Kusrini (2007:18), "The relational model is a collection of tables to represent data and the relationships between these data". Each table is made up of columns and each column has a unique name. Logical Relationals Structures (LRS) are formed with record type numbers. Some types of records are depicted by a rectangular square and with a unique name.

2.7 Related Research

In the process of data processing and menu presentation, it is necessary to use a tool in this case in the form of a computerized application that can simplify and speed up the menu ordering information system at CAKI CAKE Karawang. The following are some previous research reviews (journals) that can strengthen the reason for the creation of a food menu ordering information system at CAKI CAKE Karawang, including:

According to Christanto et al. (2012:39) in their journal that "In the era of modernization, information technology plays a very important role in the progress of a food court. To spur this progress, information technology can be used to obtain fast, precise and accurate information. Therefore, a device is needed to increase efficiency and productivity, in connection with this, the use of mobile phones is inevitable, related to the accuracy and speed of data processing so that information systems can be produced that are useful for foodcourts and customers. “

According to Jevri Setia Nugroho et al. (2014:127) in his journal that "By utilizing smartphone or tablet technology which is currently becoming a technological trend, the implementation of consumer ordering in restaurants can become more regular and more accurate, in addition to saving paper because menu orders are recorded digitally."

III. RESEARCH METHOD

3.1 Data Collection Techniques

a) Observation

The author collected information from direct observation of the activities of the CAKI CAKE restaurant related to the problem of ordering the dish menu. The results of these observations were immediately recorded by the author and from the observation activities a process was obtained in restaurant activities.

b) Interview

The author conducted a direct interview with the owner of the CAKI CAKE restaurant to get complete information, then the author conducted a question and answer method regarding all activities related to ordering dishes at the restaurant.

c) Literature Study

Literature study methods, such as books, journals and internet media regarding the creation of websites and other readings that are in accordance with the topic being discussed.

3.2 System Development Model

a) Software Needs Analysis

At this stage, the author observes every problem that exists at the CAKI CAKE restaurant, especially the problem in ordering the dish menu, then defines the problem. Then the author describes the system that is already running at the CAKI CAKE restaurant and provides recommendations for improvement, improvement or even replacement of the system that is already running, by creating this website, so that the software applied can run effectively and efficiently. The software that the author uses in designing this web is PHP, JavaScript, JQuery, CSS web scripts and bootstrap frameworks with MySQL databases.

b) Design

At this stage, design the processes and system needs related to application development. In this phase, the software to support the system includes designing the system using UML, designing the user interface, user management, file management, designing input outputs and creating web security designs and using ERD databases.

c) *Code generation*

Code generation is the stage of translating system designs that have been created into commands that are understood by computers using structured methods.

d) *Testing*

Testing is a program testing stage using black box testing to ensure that the system is made according to its design and functions can be used properly.

e) *Support*

This stage is the selection of supporting facilities for software and hardware support specifications so that it helps in designing the CAKI CAKE Restaurant Web has an important role so that what is the purpose in building a web according to the goals that the author uses this time, namely, software: Microsoft Windows 7 Ultimate 32-Bit,

Xampp Version 1.8.2, Dreamweaver CS 5 and Hardware: Intel Core-2 Duo Processor, 2 GB Memory, 500 GB Hard Disk and 14' Monitor.

IV. RESEARCH RESULT AND DISCUSSION

4.1 Use Case

4.1.1 Use case diagram Sisfo Restaurant Sales page of waitress

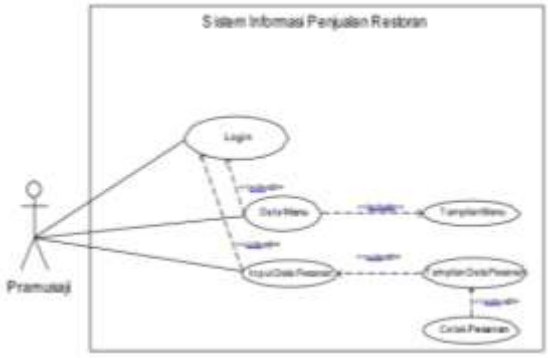


Figure 2. Use case diagram Waitress

4.1.1.1 Use case diagram Sisfo Restaurant Sales admin page.

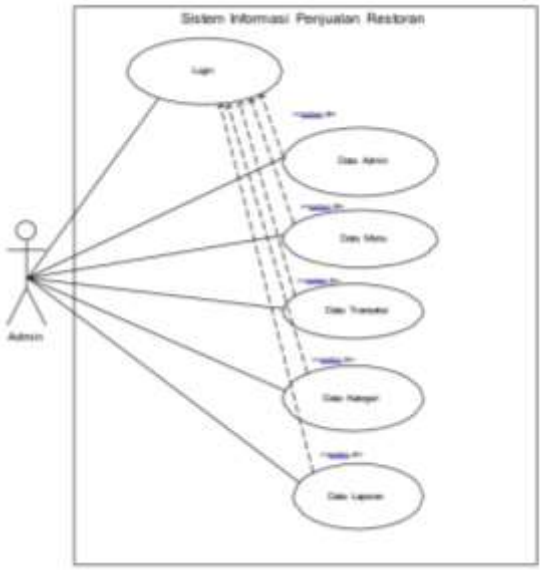


Figure 3. Use case diagram Admin page

4.1.1.2 Use case diagram running online Kitchen page

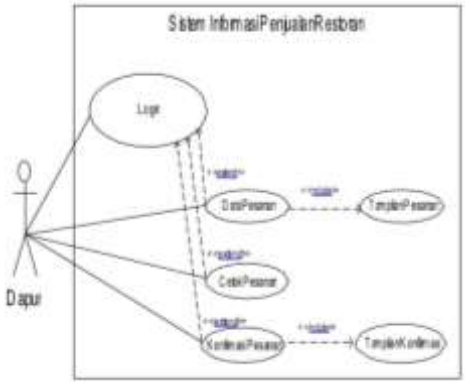


Figure 4. Use case kitchen page diagram

4.2 Activity Diagram

a) Master Data Input Admin Activity Diagram

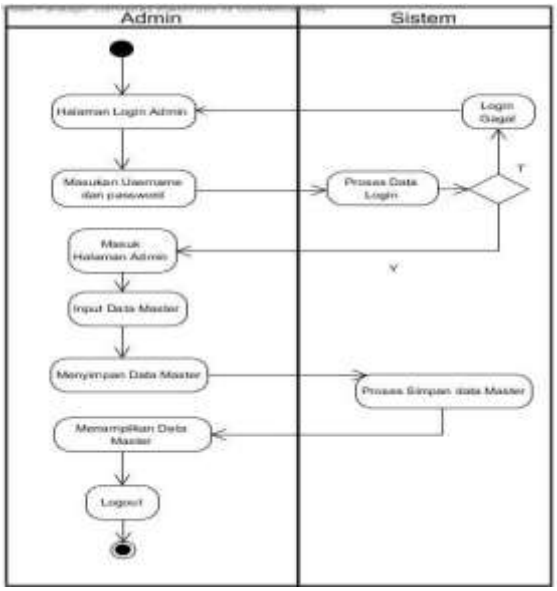


Figure 5. Activity Diagram Admin Data Input Master

b) Activity Diagram Booking Waitress Page

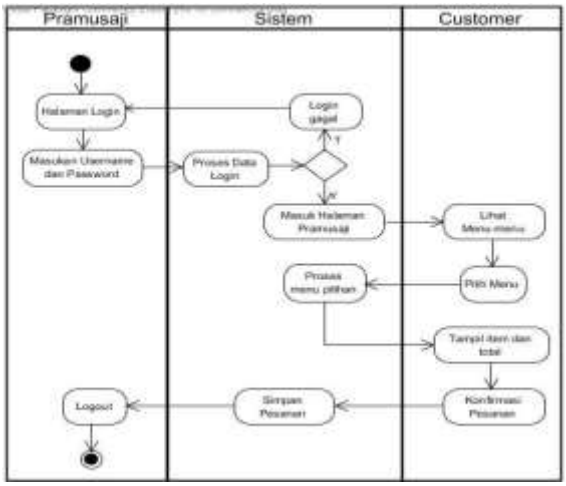


Figure 6. Activity Diagram Waitress Booking

c) Activity Diagram Kitchen Page

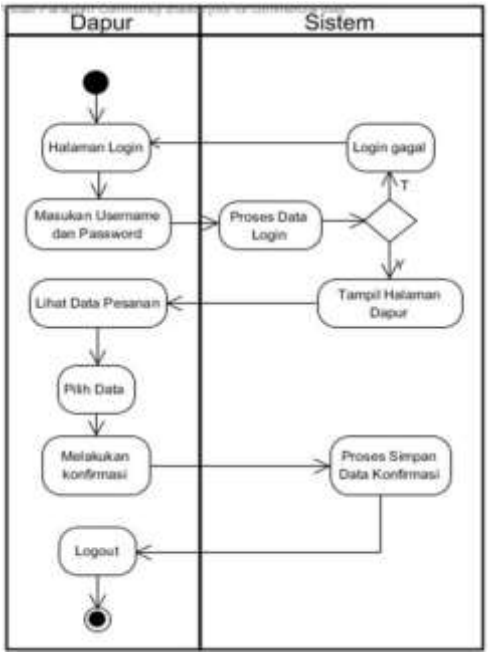


Figure 7. Activity Diagram Kitchen Page

d) Activity Diagram Transaction Admin

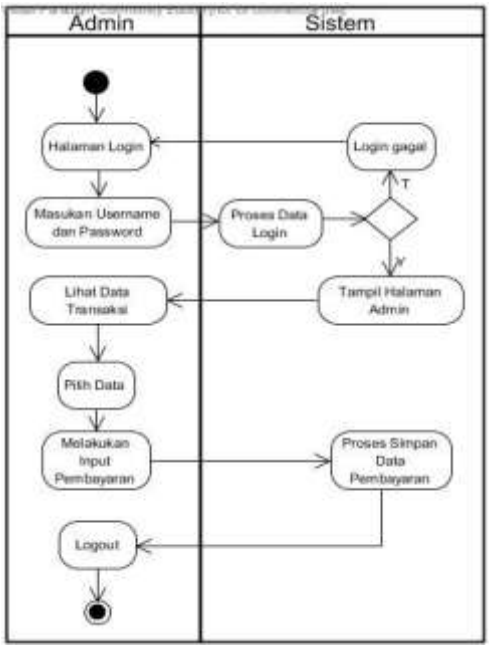


Figure 8. Activity Diagram Transaction Admin

e) Activity Diagram Admin Report

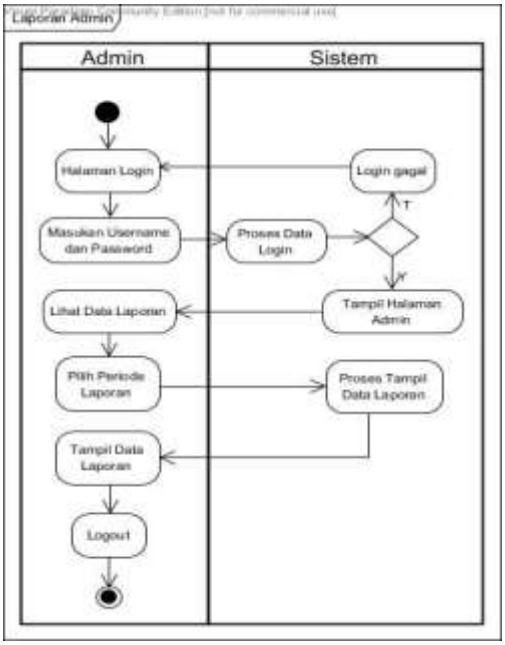


Figure 9. Activity Diagram Admin Report

4.3 Database

a) Entity Relationship Diagram

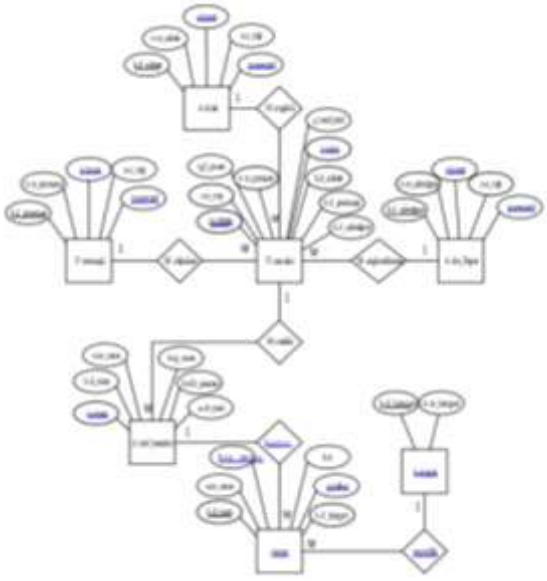


Figure 10. Entity Relationship Diagram

b) Logical Record Structure

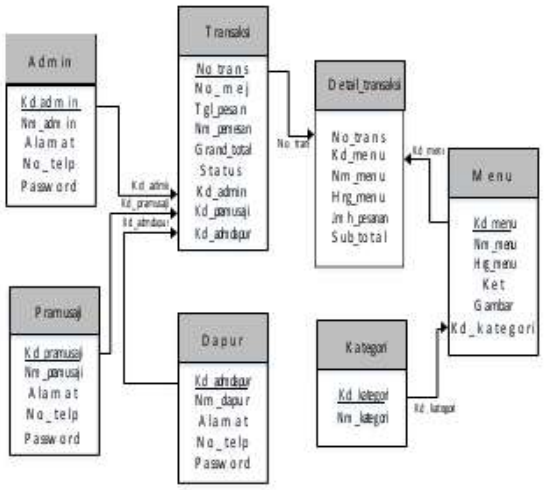


Figure 11. Logical Record Structure

Restaurant Sales Information System

4.4 Component Diagram

Describe the allocation of all classes and objects into components in the physical design of a software system. This diagram shows the arrangements and dependencies between software components such as source code, binary code and executed components.

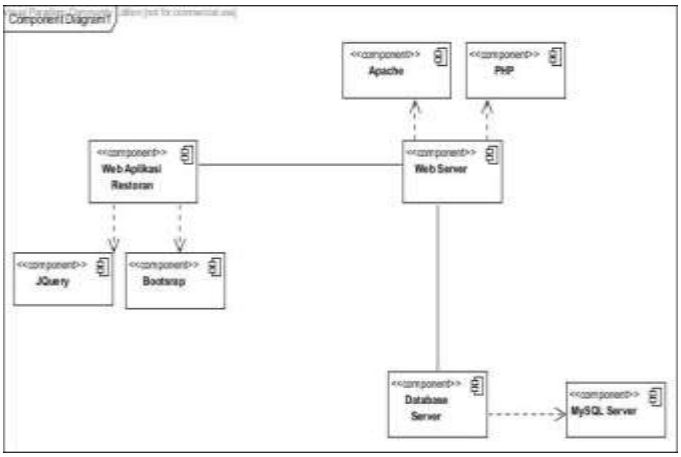


Figure 12. ***Component Diagram***

4.5 Deployment Diagram

The deployment diagram provides an idea of how the system will physically look. The system is represented by nodes, where each node is represented by a cube. The line connecting the two cubes shows the relationship between the two nodes. Here's a picture of the Deployment Diagram:

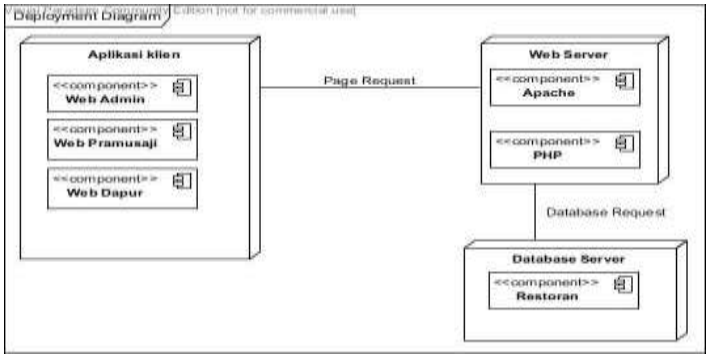


Figure 13. ***Deployment Diagram***

4.6 User Interface

a) Login Form View

Figure 14. ***Waitress Login View***

b) Waitress Page View

Figure 15. Waitress Page View

c) Order Data Page View

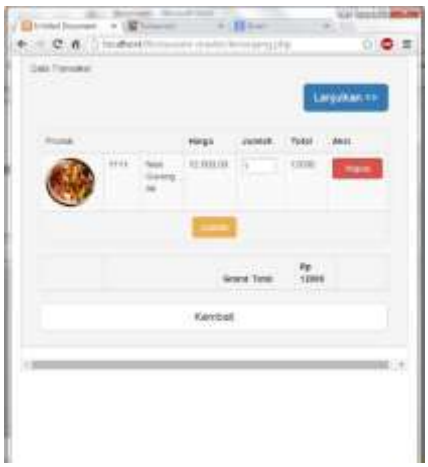
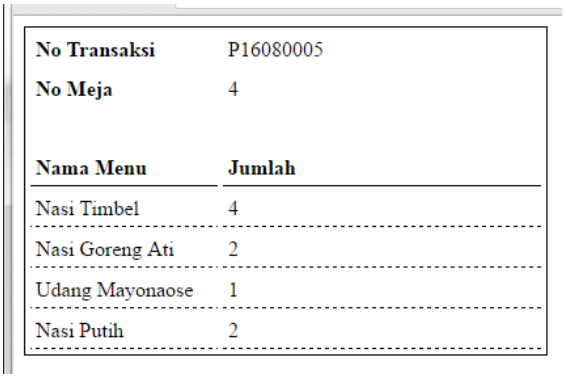


Figure 16. Order Data Page View

d) Kitchen Page Display

Figure 17. Kitchen Page Display

e) Order Print Form View



No Transaksi	P16080005
No Meja	4

Nama Menu	**Jumlah**
Nasi Timbel	4
Nasi Goreng Ati	2
Udang Mayonaose	1
Nasi Putih	2

Figure 18. Order Print View

V. CONCLUSSIONS

Some conclusions that can be drawn from Caki Cake Restaurant and the application of the system to the problems that exist in the design of the Sales Information System at Caki Cake Restaurant are as follows:

1. Consumers can order menus easily just by choosing a menu that looks more interactive and informative.
2. Simplify the ordering process received by the kitchen and cashier in the order of presentation and collection of the order fee.
3. Accelerate the performance of each part in the ordering process, presentation and billing of costs and order reports.
4. The design of the sales information system at the caki cake restaurant is expected to provide solutions to the problems faced by the caki cake restaurant.

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