Design of Ordering Information System for MSME Food Processed Products Using FIFO Method Based on Android

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Article Information

ABSTRACT

The development of the current era will always be followed by increasingly modern technological developments so that this will affect the life of individuals or groupsTechnology also helps MSMEs (Micro, Small and Medium Enterprises) to run business units owned by individuals or few people by generating certain revenues and profits. Mine Cakery is one of the SMEs in the city of Medan. Mine Cakery is a business that sells cakes or bread which is located at Jl. Aluminum 1 Tanjung Mulia. Mine Cakery In carrying out its business, it makes pre-order options for several orders, such as Birthday Cake, Wedding Cake etc. However, in the ordering process, the owner of the mine cake shop has difficulty processing orders when customers pre-order and there are too many orders, making it easy for the Mine Patisserie to determine which order to serve first. After the above issue, we need an Android-based application that will be used to process pre-orders. The application will be developed using the FIFO (First In First Out) method. Android-based applications are implemented using the Kotlin programming language and data is stored in the firebase database where the development method is Rapid Application Development. The research results will address the needs of Minecake and the pre-ordering process can be carried out systematically using the FIFO method.

1. INTRODUCTION

Current developments follow increasingly modern technological developments, thus affecting the lives of individuals or groups. Frequent use of the internet can increase trust in technology and the online shopping sector[1][2]. Technology development helps

individuals and groups complete tasks demonstrated by their individual skill and achieve excellence and credible complex results[3][4]. Technology can also help MSMEs (micro, small and medium enterprises) to run their businesses[5][6]. MSMEs (Micro, Small and Medium Enterprises) is a business entity owned by an individual or several people by generating a certain amount of income and profit.[7] The general function of MSMEs is to drive the economy and strengthen society[8].

Mine Cakery is one of the SMEs in the city of Medan. Mine Cakery is a business that sells cakes or bread which is located at Jl. Aluminum 1 Tanjung Mulia. Mine Cakery In carrying out its business, it makes pre-order options for several orders, such as Birthday Cake, Wedding Cake etc. However, in the ordering process, the owner of the mine cake shop has difficulty processing orders when customers pre-order and there are too many orders. Make it easy for the mine patisserie to determine which order to serve first.

Similar research was also conducted by Gea Viska with the title "Design and Build of Online Goods Sales Transaction Recapitulation Application at Kogoma Store"[9]. This research was conducted at a Kogoma store where the store's ordering system was based on pre-orders.. This application features sales reports, manage orders, manage products and transactions. Previous research was developed based on the web where the application was not explained with certainty whether it could be accessed online or not. However, the research that will be carried out now is developed based on Android, and uses the Firebase database. The Firebase database is accessible online, so the user transaction process happens in real-time as transactions are recorded. Firebase has extensive libraries for most web and mobile platforms and integrates with many other frameworks such as Node, Java and Javascript.

Now that we've covered the issue above, we need an Android-based application that will be used to process pre-orders[10]. Android is an working gadget for Linux-primarily based totally cellular gadgets that consists of an working gadget, middleware, and applications. Android offers builders an open platform to construct applications [11]. This application can be developed using the Kotlin programming language. Kotlin is a modern, statically typed programming language used by over 60% of professional Android developers to help improve productivity, developer satisfaction and code security [12].

The application will be developed using the FIFO (First In First Out) method[13]. With this technology, it is expected that pre-order information can be computerized so that work becomes more efficient[14]. FIFO is a single-line, single-level queuing system, meaning that the system has one service provider and one service type, and those being served exit the queuing system[15].

Based on the description above, a final project project is submitted with the title "Design of an Information System for Ordering Processed Food Products for MSME Using the Android-Based FIFO Method".

2.   RESEARCH METHOD

Rapid Application Development (RAD) is a software process model that emphasizes short development lifecycles. RAD is a fast-adaptive version of the waterfall model with component design. RAD combines general application development and prototyping techniques with various design techniques to accelerate system/application development [10], [12]. Once you understand RAD concepts, you can see that you can use RAD methods to develop applications in a relatively short period of time. [18], [19]. According to the RAD methodology below, the application development steps for each application development phase are shown in the figure below.
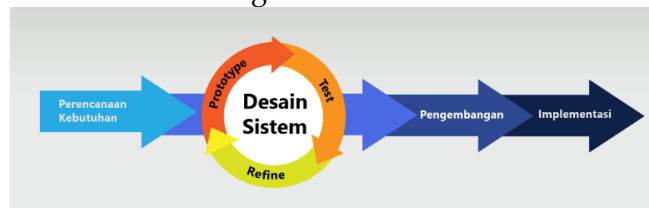

Figure 1. Rapid Application Development Flow

2.1   User Requirements Designing

Design and analysis meet user needs to identify the purpose of the application or system that is geared towards solving business problems. The data collection used in the research below uses descriptive methodologies aimed at determining the processes used to meet research and writing integrity, namely:

1. **Observation**
    Minecakery's observations were conducted by observing a customer's pre-order process to demonstrate an ongoing business process.
2. **Interview**
    Interviews were also conducted to obtain more detailed data regarding the system running on Minecakery. Related to this, the writer conducted an interview with the owner of Minecakery
3. **Literature Study**
    Literary research is done by observing various studies such as articles, journals, and literature on this subject of study.

2.2   System Design

Design and completion stage. Use the system's decision support group to help users approve plans. Developers and owners of minecakery meet to discuss the design of the system to build the workflow of the system.

2.3   Development

System designs created and approved at this stage will be converted into beta versions of apps until final release. At this stage, developers should continue their development activities and integrate them with others while considering user and customer feedback. If the process goes well, the developer can proceed to the next stage, but if the application to be developed does not meet the requirements, the developer returns to the system design stage.

2.4   Implementation

This phase is the phase where the programmer implements the system design that was approved in the previous phase. Before the system is implemented, the program is first carried out a testing process in which errors in the system to be developed are identified. At this stage it is usually done by providing feedback on the system being built and asking for the developer's approval of the system being built.

3.   RESULTS AND DISCUSSION

3.1 System Requirements Design

This application uses two diagrams, a use case diagram and an entity relationship diagram, to illustrate the system requirements. A use case diagram is a way of summarizing the details of a system and the users within that system. It is generally shown as a graphical representation of the interactions between the various elements of the minecake system.[20].
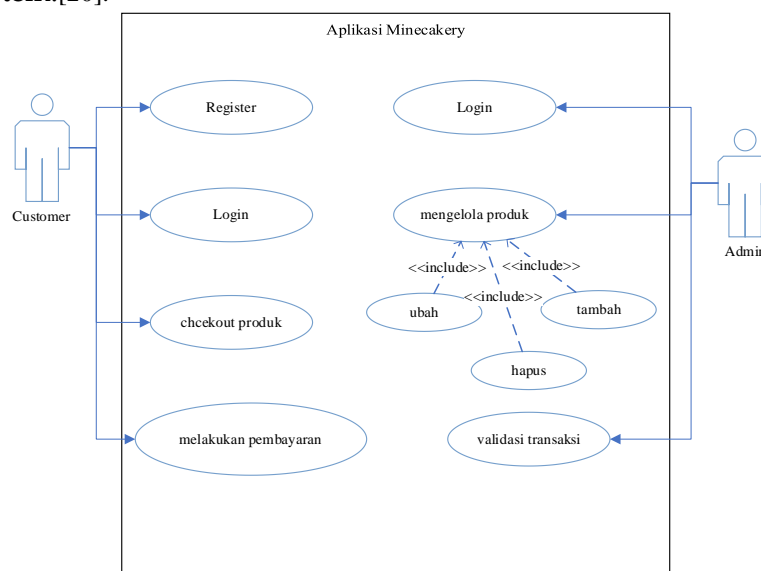

Figure 2. Use Case Diagram Minecakery System

Entity-relationship diagrams provide a visual starting point for database design that can also be used to determine information system requirements for Minecakery. Even after deploying a relational database, the ERD still serves as a reference point. this diagram shown in figure 3.
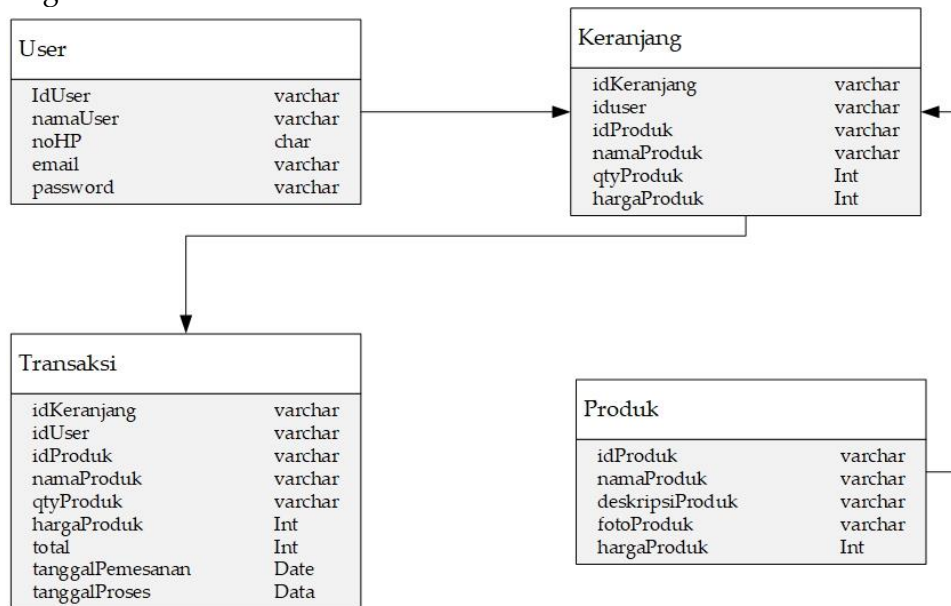

Figure 3. Entity Relationship Diagram Minecakery

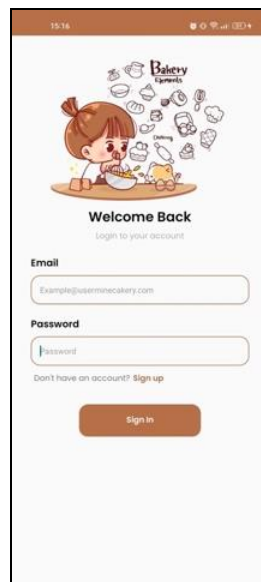### 3.2 Implementation

3.2.1 Login

Figure 4. Login

This page will be used by the customer/admin to login to the minecakery application. Where the customer/admin enters his email and password first before entering other features of the minecakery application.
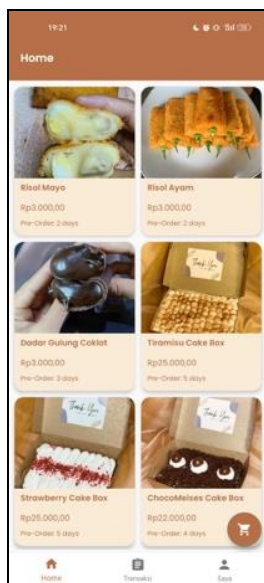
3.2.2 Home

Figure 5. Home

The customer product page will display the products in the minecakery cake shop. This product will display a photo, product name and the unit price of the product.
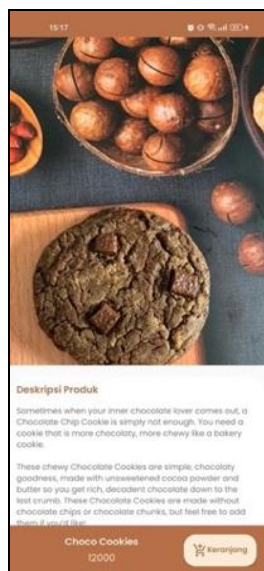
3.2.3 Product Detail

Figure 6. Product Detail

The product detail page will display a full description on the minecakery product. This page describes the product in full along with the price and name of the product where the detailed product will also have a feature to add the product to the cart.
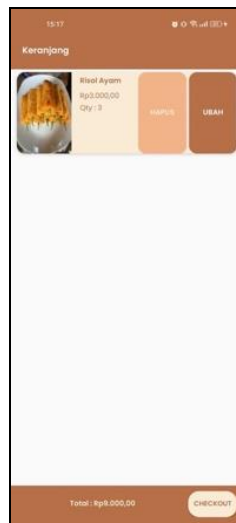
3.2.4 Shopping Cart

Figure 7. Shopping Cart

The shopping cart page will display a list of products that will be purchased by the customer/user. Where this page also displays the total expenditure that will be paid during the transaction process later.
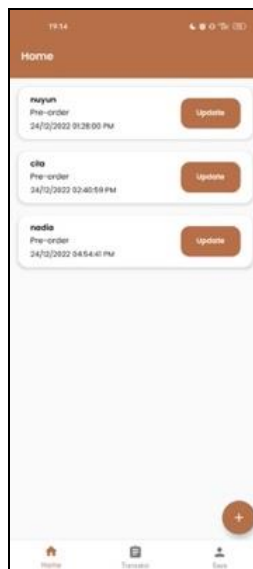
3.2.5 Home Admin

Figure 8. Home Admin

When entering the home page, the admin will immediately be shown the list of pre-orders in the application.

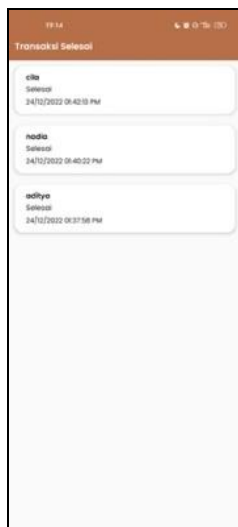### 3.2.6   Transaction Completed Admin

Figure 9. Transction Completed Admin

When the order-making process is complete, the customer must pay the remaining transaction bill to the admin. When the remaining bill has been paid, the admin will change the process status to complete.
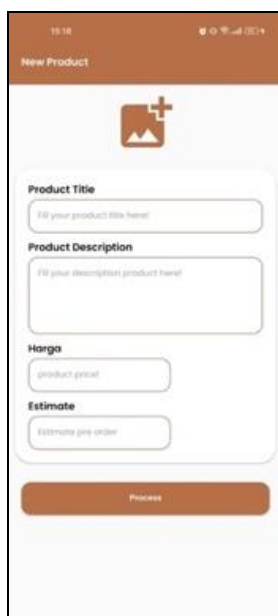
3.2.7   Add New Product

Figure 10. Add New Product

This page explains how the admin enters the product into the application. To enter a product into the application, the admin must enter an image, product name, product description, and product price.

3.2.8   Delete/Update Product

Figure 11. Delete/Update Product

This page is used to delete and modify products. In changing the product, the contents that can be changed are the product name, product description and product price.

4.   CONCLUSION

Based on the research results, the design of MSME processed food ordering information system was developed using Android-based FIFO method. It was able to solve the problem of pre-ordering minecakery confectionery using a development process using the RAD (Rapid Application Development) method. gives maximum results. Importantly, the system is able to meet the needs of both users/customers and administrators in carrying out the pre-order transaction process in Minecakery Confectionery. Software system testing is associated with RAD methods and can be done well and smoothly overall. This system could be an excellent pre-order medium when processing pre-orders by users/customers. After testing, an application was created that can display transaction information in an orderly fashion, allowing administrators or users/customers to easily pre-order Minecakery at her pastry shop.

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