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DELIZIA SELF SERVICE APPLICATION USING UX DESIGN AND ANDROID STUDIO

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Abstract: Delizia Self Service is a tart ordering service application using the concept of Self Service Technology (SST). In this application there are 2 kinds of prospective users, in terms of customers to order tarts who can choose directly the tarts they want and even customers can also customize tarts according to their tastes. And in terms of admin which is useful for managing products, from adding products, deleting products and modifying products. Based on its function, this application provides benefits such as providing alternative means of selling tarts, increasing sales value, increasing interest, user experience, satisfaction, and comfort of buyers when ordering tarts. This journal focuses on developing application recommendations by designing the UI/UX of the Delizia Self Service Application and realizing it using Android Studio, using the System Development Life Cycle (SDLC) method with the prototype model.
Keyword: Self Service Technology, User Interface, User Experience, Andriod Studio, System Development Life Cycle method, Prototype model.

INTRODUCTION

Self Service Technology (SST) is an interface technology that allows customers to obtain a service or transact independently like a service performed by a live employee [1]. The concept of service that started from the original face to face with services that must meet in person evolved into a trend that services can be facilitated using technology [2]. Delizia Self service is a proposed application that is used to order tarts using Self Service Technology. Delizia Self Service is inspired by McDonald's fast food restaurant which developed a self service system using technology, namely by providing a machine called Self Ordering Kiosk in conducting food ordering methods. Customers can access the custom tart SST to order tarts from choosing sponge, shape, size, finishing, toppings, decoration, and also buyers can also request according to their wishes. Customers can also access the select tart page for another option to order tarts, the difference is that on this page customers are given a choice of various examples of tart models that have been provided by the system and customers can choose the cake model and choose the size they want from the cake model, customers can also add decorations and also request according to their wishes. With this proposal, I as the author hope to be able to help Delizia Bakery & Cake in digitizing tart orders and also improving user experience, as well as the convenience of buyers who can choose tarts according to what they want in ordering tart orders, so that they can attract more attention from buyers and also increase comfort with this new user experience.

METHODOLOGY

The System Development Life Cycle (SDLC) method with the prototype model starts from collecting customer requirements for the software to be created. Then a prototype program is made so that customers are more imagined with what they really want [13]. This prototype program is evaluated by customers or users until specifications are found that match the wishes of customers or users. The prototype system allows users to find out how the system runs properly. The use of the prototyping method in this study aims to enable researchers to get an overview of the application to be built through the development stage of the prototype application first which will be evaluated by the user. Prototype applications that have been evaluated by users

will then be used as a reference for making applications that are used as final products as the output of this research [14].

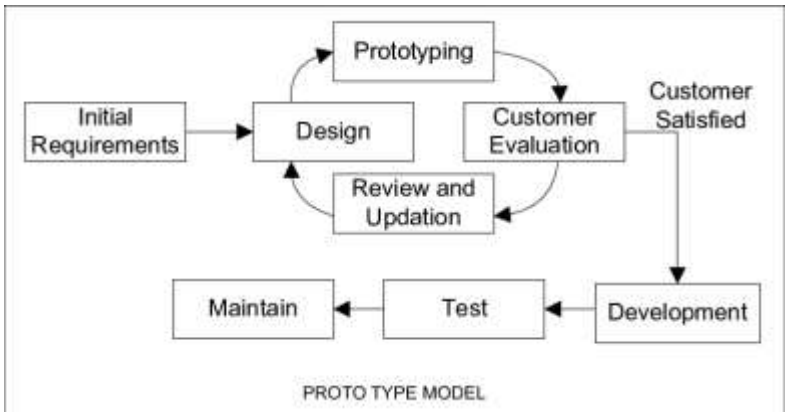

Figure 1. Prototype Model

According to Wahyu Wijaya Widiyanto (2018) the advantages of using the prototype method are[15]:

1) Customers actively participate in system development, so that the results of product development will be more easily adapted to customer wants and needs.
2) Determination of needs is easier to realize.
3) Shorten the development time of software products.
4) There is good communication between developers and customers.
5) Developers can work better in determining customer needs.
6) More time saving in system development.
7) Implementation becomes easier because the customer knows what to expect.

The advantages of the prototype method according to Wahyu Wijaya Widiyanto (2018) are[15]:

1) The analysis and design process is too short.
2) Usually less flexible in dealing with changes.
3) Although the user sees improvements with each prototype version, the user may not realize that the version was created without regard to quality and long-term maintenance.
4) Developers sometimes make implementation compromises by using irrelevant operating systems and inefficient algorithms.

According to Afghan Amar Pradipta et al. (2015) In the first stage, needs analysis and requirements definition are carried out. The needs intended here are the needs of customers / users. Then in the second stage, the prototype of the application to be built is made, starting from user interface prototyping and continuing to the preparation of architecture and components related to the application to be built. Furthermore, system development is carried out, where the application will be built according to the prototype that has been made before, and after the application has been successfully made according to the needs, the application testing process is carried out before the application is implemented [14].

RESULT AND DISCUSSION

From the results of interviews and data collection that has been done, in planning the design and proposal of the system, there are two types of users, namely customers and admins. In terms of customers, customers can access the custom tart SST to order tarts from choosing sponge, shape, size, finishing, toppings, decoration, and also buyers can also request according to their wishes. Customers can also access the select tart page for another option to order tarts, the difference is that on this page customers are given a choice of various examples of tart models that have been provided by the system and customers can choose the cake model and choose the size they want from the cake model, customers can also add decorations and also request according to their wishes. When initially accessing the application, customers do not need to log in because this application is only used to order tarts which later customers must print an order note and make

payments to the cashier. And when the store holds a discount / promotion on the purchase of tarts, the price of the tart will be cut when making payments at the cashier according to the promo held by the store.
In terms of admin, when the admin wants to access the Admin Home Page, the admin must log in first to make sure because the page can only be accessed by the admin. When you have entered the Admin Home Page, the admin can add products if there are new products that you want to add to the system, delete products if the product is deemed unfit for the market, and the admin can also change products that function to change price descriptions and product photos if there are product updates.

UI/UX

We designed the UI/UX design in order to get an idea of how the complete system looks like with its features.

a. As a Customer

- Home Page

  Customers can press the "Masuk sebagai Pelanggan" button to enter the Customer Home Page.

Figure 2. Home Page

- Customer Home Page

  In this step there are 2 menus of tart purchase types, customers can choose to directly select the type of tart or want to customize the tart they want by pressing one of the buttons according to the customer's choice.

Figure 3. Customer Home Page

- Choose Tarts - Types of Tart Models

  In this step, buyers can choose a tart model that has been provided by the company to become the basic model of the tart they will order by pressing one of the desired tart models and then the system will change to the next step.

Figure 4. Choose Tarts - Types of Tart Models

- Choose Tart - Tart Size

In this step, customers can choose the size of the cake they want according to the tart model they have chosen in the previous step by pressing according to their choice.

Figure 5. Choose Tart - Tart Size

- Choose Tart - Tart Garnish

In this step, customers can choose cake garnish according to their wishes, such as regular candles and number candles by pressing the "+" button to add the number of candles, and the "-" button to reduce the number of candles, and if the customer is finished, they can press the "Lanjut" button to proceed to the next step.

Figure 6. Choose Tart - Tart Garnish

- Custom Tarts - Choose the Type of Cake Tarts

In this step, customers can choose the type of cake they want to use by pressing the desired cake type.

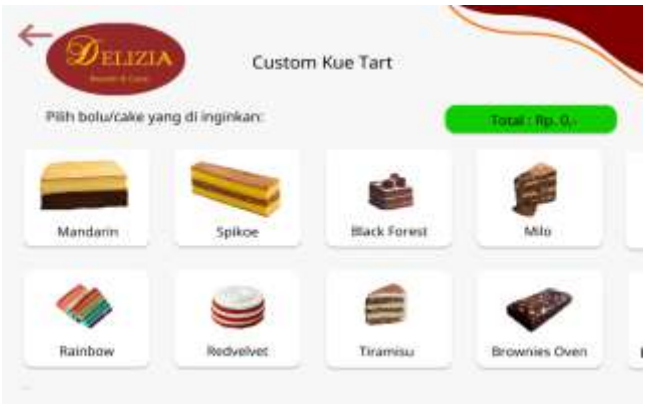

Figure 7. Custom Tart - Choose the Type of Cake Tarts

- Custom Tart - Choose Tart Shape and Size

  In this step, customers can choose the desired cake shape by pressing the desired cake shape, after that customers can also choose the desired cake size by pressing the desired size to go to the next step.

Figure 8. Custom Tart - Choose a Tart Shape

Figure 9. Custom Tart - Choose the Size of the Tart

- Custom Tart - Choose Finishing Type and Tart Finishing Model

  In this step, customers can choose the type of cake finishing they want by clicking on the desired finishing type.

Figure 10. Custom Tart - Select Finishing Type and Tart

After pressing the finishing type, customers must have a finishing model according to the type of finishing chosen by pressing the cake finishing model they want.

Figure 11. Custom Tart - Choose a Tart Finishing Model

- Custom Tart - Choose Tart Topping

In this step, customers can choose the toppings they want by clicking the type of topping they want. If you don't want to add toppings to your order, you can click the skip button on the top right of the page.

Figure 12. Custom Tart - Choose Tart Toppings

After selecting the desired topping type, the customer can select the type of topping and the number of toppings they want, and if the customer is finished inputting the toppings they want they can press the skip button to proceed to the next step.

Figure 13. Custom Tart - Choose Fruit Tart Toppings

Figure 14. Custom Tart - Choose your chocolate tart toppings

- Request

In this step, customers can make requests according to what they want, such as writing "Happy Birthday Mama". After customers type the request they want, they can choose the “Lanjut” button to go to the next step.

Figure 15. Request

- Finalize

In this step, customers can confirm that the order they have chosen is what they want, they can also change their order if they change their mind or there is a mistake in the selection. Customers can also select the wax number that has been ordered if they ordered it, and see the total price that must be paid from their order. And once the customer has finished checking their order, they can press the "Pesan" button to proceed to the next step.

Figure 16. Finalize

Figure 17. Input Candle Numbers

- Cancel Order

  In this step, the buyer can also cancel the tart order by pressing the "Batal Pesan" button on the Finalize page and can press the "Iya" button to cancel the order.

Figure 18. Cancle Order

- Print order receipt

  In this step, the customer can press the "Print" button and take the receipt to proceed to the next step.

Figure 19. Print order receipt

- Finish

In this step the customer can reprint the receipt by pressing the "Re-print" button, the customer can also complete their order by pressing the "Selesai" button to complete their order process, and the customer can make the payment process to the cashier.

b. As a Admin

- Admin Login

In this step the admin is required to enter a user name and password, and after that the admin can press the "Login" button to enter the next step.

Figure 21. Admin Login

- Admin Home Page

  In this step, the admin can choose "Tambah Produk" if the admin wants to add a product, "Hapus Produk" to delete the product, and "Ubah Produk" to change the photo, price and change the product category.

Figure 22. Admin Home Page

- Add Product

  On this page, the admin can add product photos by pressing the "Upload File" button and selecting the photo on the device, after which the uploaded photo will be displayed on the right side of the page. Admin can add a price description by pressing the "Ubah" button and adding a price. Admins are also required to add categories by selecting the "Pilih Kategori" button and entering the product into the selected category. After the admin is finished, the admin can press the "Update" button to update the product to the system.

Figure 23. Add Product

- Delete Product

  On this page the admin can delete products in the system by pressing the "Pilih Produk" button, if the product to be deleted is correct, then the admin can press the "Hapus" button to delete the product.

Figure 24. Delete Product

- Modify Product

  On this page the admin is required to choose which product to change by pressing the "Pilih Produk" button, to change the product price the admin can press the "Ubah" button and fill in the latest price of the product. The admin can change the product category by pressing the "Ganti Kategori" button and selecting the category to be selected, the admin can also change the product photo by pressing the "Ubah Foto" button and selecting the photo on the device. When finished, the admin can press the "Update" button to update the data that has been changed.

Figure 25. Modify Product

- Updated Product

  This step indicates that the product replaced by the admin has been updated, and the admin can press the "Selesai" button to return to the Admin Home Page.

Figure 26. Update Product

Delizia Self Service UI/UX Design Validation Questionnaire

After the UI has been created, we test the design to see if the design meets the wishes of customers and the company. This testing is done by giving questionnaires to several customers or prospective users and also the information technology team. Categories of answers, each of which is given a score or weight, namely the number of scores between 1 and 5, with details:

- SS answers: Strongly agree given a score of 5.
- Answer S: Agree given a score of 4.
- Answer N: Normal is given a score of 3.
- TS answer: Disagree is given a score of 2.
- STS answer: Strongly disagree is given a score of 1.
-

Table 1. Questionnaire

No.	Question
1.	The language used is easy to understand. (Clarity)
2.	Menu options and information provided by the application are easy to understand.

No.	Question
	(Clarity)
3.	The design that Delizia Self Service displays is very clear (Clarity)
4.	Desain Self Service Delizia sangat menarik (Daya Tarik)
5.	Delizia Self Service is very easy to use (Ease)
6.	Delizia Self Service takes a short time to learn. (Ease)
7.	Delizia Self Service is very easy to use for ordinary people (Ease)
8.	The menu provided by Self Service Delizia has the functions needed by users (Satisfaction)
9.	The menu layout is satisfactory (Satisfaction)
10.	Delizia Self Service makes it easy for you to order tarts (Satisfaction)

While the total and composition of the gender of respondents contained in prospective users of Delizia Self Service is dominated by men, namely 3 respondents (60%), while female respondents amounted to 2 people (40%).

Table 2. Total and Gender Composition of Respondents

Gender	Frequency	Presentation
Men	3	60%
Woman	2	40%
Total	5	100%

Questionnaire Evaluation

The results of clarity in design and language are in the range of 3.73 with a total score of 56 from 3 questions given to 5 respondents, it can be concluded that customers agree with the clarity provided by UI Delizia Self Service.

The results of the attractiveness are in the range of 4.2 with a total score of 21 from 1 question given to 5 respondents, it can be concluded that prospective users strongly agree with the attractiveness provided by UI Delizia Self Service.

The results of convenience are in the range of 3.73 with a total score of 56 from 3 questions given to 5 respondents, it can be concluded that customers agree with the convenience provided by UI Delizia Self Service.

The results of customer satisfaction related to UI are in the range of 3.86 with a total score of 58 out of 3 questions given to 5 respondents, it can be concluded that customers agree with the satisfaction provided by UI Delizia Self Service.

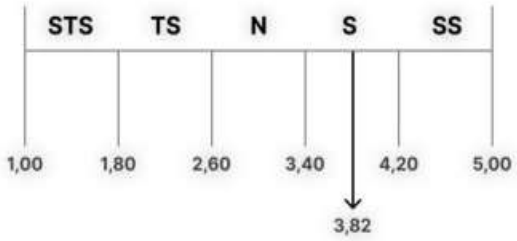

Figure 27. Scale of Total User Satisfaction

The total results of the user satisfaction scale range on UI Delizia Self Service are in the range of 3.82 which means agree, so it can be concluded that prospective user satisfaction with UI Delizia Self Service is high. The total score is 191 from the 5 respondents with an average value of 3.82.

Design Realization with Android Studio

The hardware used in building the Delizia Self Service application is to use a computer with the following specifications:

1) Processor: AMD Ryzen 5600G Radeon Graphics
2) Hardisk: 1TB
3) RAM: 8GB
4) VGA: GTX 1660 Super 6GB
5) Windows 11 Pro 64 bit

In implementing the design that has been made, it requires some software to make this application, namely:

1) Windows 11 Pro Operating System
2) Android Studio
3) Google Chrome

The development of this Design Realization is done using the Android Studio application as an android application development using the Java language. And here are the results of a successfully created layout:

- Home Page Layout

Figure 28. Home Page Layout Realization

- Customer Home Page Layout

Figure 28. Home Page Layout Realization

- Customer Home Page Layout

Figure 29. Customer Home Page Layout Realization

- Login Admin Layout

Figure 30. Login Admin Layout Realization

- Admin Home Page Layout

Figure 31. Admin Home Page Layout Realization

CONCLUSION

In accordance with the results of the discussion of the design of the Delizia Self Service application at the Delizia Bakery & Cake company, it can be concluded from this research that the SST application can be realized into a mobile-based application using Android Studio, a prototype that is built using a UI / UX approach. The suggestions that can be given related to the final results of this research are to continue the development of a complete application making system with web-based and conduct research with the latest technology.

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