# DESIGN OF TRUPER MOBILE APPLICATION AS A SHOPPING SERVICE PROVIDER IN THE SCOPE OF PERTAMINA UNIVERSITY

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***Abstrak*—With the existence of smartphones, humans can now do various things easily through the support of mobile applications on smartphones. In recent years, there have been various applications providing food and beverage delivery services in Indonesia with many users due to easier access to smartphones, varied products, transaction benefits, and various payment methods. Most of the other reasons users of the delivery service application use it because the time and distance traveled. According to the data obtained from the distribution of online questionnaires to students of the 2021 Computer Science program at Pertamina University, as many as 90% of respondents also experienced difficulties in purchasing food or drinks in the campus cafeteria with the most reason being a short rest period. So, the design of the TRUPER mobile application, which stands for Pertamina University Trust, was carried out to be the solution to the problem. The TRUPER application aims to facilitate buying and selling activities between the first party (campus community) and the second party (campus canteen) through third parties (community / campus canteen) by connecting the three parties to carry out buying and selling activities. In the process of designing this application, it is carried out with the Prototype method, this method is carried out by developing the application briefly based on data obtained from the user's wishes and evaluated by the user until it is considered satisfactory.**
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***Keywords***: Mobile Application; Delivery Services; Pertamina University

## I. INTRODUCTION

### A. *Background*

Since the advent of digital technology, many new innovations and breakthroughs have emerged in people's daily lives. For example, the emergence of technology that is in the hands of humans in general, namely smart phones or better known as smartphones. With the existence of smart phones, humans can now do various things easily. This can be done easily through the support of mobile applications on smart phones.

In recent years, there have been various food and beverage delivery service applications in Indonesia. These apps have a large number of users due to the easy access to smartphones, variety of products, transaction benefits, and various payment methods. Most of the other reasons that users use the application are due to many things, one of which is time and distance. This is similar to what is experienced by some Pertamina University students,

especially in the Computer Science Study Programme class of 2021, based on a survey conducted by distributing questionnaires online, it was found that 90% of the 20 respondents said it was difficult when buying food or drinks in the canteen with the most reason, namely short break time with a percentage of 55% [7]. Seeing this incident, an opportunity arises to solve these problems using mobile applications or applications on smart phones as has been discussed a little earlier.

A mobile application design with the name TRUPER, which stands for Trust Universitas Pertamina. This application is designed with the aim of facilitating buying and selling activities between the first party (UPer community) and the second party (UPer canteen) through a third party (community / Uper canteen) by connecting the three parties to carry out buying and selling activities. By means of the first party contacting the second party to select the desired product, then the second party contacts the first party or looks for a third party to deliver the selected product. Thus, TRUPER application users can more easily carry out buying and selling activities at Pertamina University.

### *B. Problem Statement*

There are several problems that can be taken based on the background of the problem described above. From existing data, as many as 90% of Computer Science 2022 study programme students have difficulty in purchasing food or drinks in the campus canteen [7]. So, in order to overcome this difficulty, something is done to be a solution to the problem. The creation of the TRUPER mobile application is considered to be a solution to help students use entrusted services to shop at the campus canteen.

### *C. Writing Objectives*

The creation of this application is expected to help the Pertamina University community to overcome the problems that have been described. The objectives of writing this research, namely:

1) Designing the TRUPER mobile application.
2) Helping buying and selling activities in the campus canteen into a shuttle service.
3) Streamline the buying and selling activities of the Pertamina University community in the campus canteen using mobile applications.

### *D. Benefits of Writing*

Then, there are the expected benefits of writing this proposal, namely:

1) Providing solutions to problems related to purchasing food or drinks at the Pertamina University canteen for students who have difficulty being directly at the canteen.
2) Providing additional income for students who receive services from the commission earned.
3) Providing opportunities for students to create new startups within Pertamina University.

## II. PREVIOUS RESEARCH

### *A. Literature Review*

In designing applications, there must have been many different types of approaches, methods, and discussions used in providing the final results in previous studies. With various objectives and desired results, differences in the functionality of an application are inevitable. Therefore, previous studies are reviewed to compare their contents which are useful to be a complement, guide, and reference needed.

Research by Hidayat and his friends, students of the Informatics Engineering Study Programme, Faculty of Engineering, Hamzanwadi University in 2022 with the title "Android-Based

MSME Product Online Titip Application". This research was conducted with the same intention, namely to connect between MSME shop owners and consumers through the same media, namely mobile applications to make buying and selling transactions easier. There are other similarities in this research, namely applications with product entrustment services that are sold through android-based mobile application media. Unlike the author's research, the method used in previous research was a qualitative method by means of observation and interviews with sellers and MSME shop owners, but unfortunately there was no further explanation regarding the description of the observation and interview methods carried out. In the end, it is still necessary to add new features and socialise the application to users to optimise the use of the application.

Research by Meitri and friends, students of Pertamina University and BINUS University in 2020 with the title "Web-Based Payment System at Pertamina University Canteen". This research aims to help make the buying and selling transaction process easier at the Pertamina University canteen with the same method, namely by designing a transaction application through a digital wallet. Unlike the author's research, they collected data using qualitative methodology, namely by observation and interviews. However, the results of this application are still considered unsatisfactory, this is because a payment system that is integrated with other digital wallets is still needed.

Research conducted by Fauzi and his friends, students of the Information Systems Study Programme, Telkom University Bandung in 2018 with the title "Designing Website-Based Printing Services Marketplace Applications". The intention of this research is to create a special marketplace for printing services in the same way, namely designing the application. Unfortunately, in the design, no interviews or surveys were conducted to find out user needs. The use of this application can be used to search for various printers and compare prices, and printing managers can also promote their services to a wider range of consumers.

### *B. Table 3C2S (Compare, Contrast, Criticize, Synthesize, dan Summarize)*

TABLE I

| *Penelitian* | *Compare* | *Contrast* | *Criticize* | *Summarize* | *Synthesize* |
|---|---|---|---|---|---|
| Hidayat et al. (2022) | **Designing an application for** product entrustment services at MSME stores. | The data collection method uses **qualitative methodology**, namely by means of observation and interviews. | Does not explain what data was taken from observations and interviewsa | The creation of the application can connect between MSME shop owners and consumers to make buying and selling transactions easier. However, additional features and socialisation are still needed to optimise the use of the application.<br>It is necessary to add new features that are appropriate and make transactions between shop owners and consumers easier. | Overall, all of these studies aim to solve the problems presented by each author using application media with various approaches, methods, and different discussions. |
| Meitri et al. (2020) | **Designing an application** to make the buying and selling transaction process easier at Pertamina University canteen. | To design a web-based **canteen payment application**.<br><br>The data collection method uses **qualitative methodology**, namely by means of observation and interviews. | Integration with other digital wallets is still required. | Using a web-based application to reduce queues and facilitate the buying and selling transaction process at the Pertamina University canteen. | |
| Fauzi et al. (2018) | **Designing a** printing service marketplace application to facilitate the search and price of services offered. | **To design** a printing service marketplace application. | No observations, interviews, or surveys to users to obtain data related to application needs. | This printing marketplace application is a new breakthrough where users can search for various printers and compare prices, and printing managers can also promote their services more widely. | |

## III. METODOLOGI DAN PEMBAHASAN

### *A. Data Collection*

In the process of designing this application, it is carried out using quantitative methods. Quantitative research is a method to test certain theories by examining the relationship between variables [5]. These variables are measured - usually with research instruments - so that data consisting of numbers can be analysed based on statistical procedures.

Data collection is carried out using several methods to complete all the information and data needed in designing this application, including:

#### *1) Data Primary*

The author first collects information from users and then the information is used to design the application. To collect this information, a survey was conducted by distributing online questionnaires to students of the 2021 Computer Science Study Programme. The definition of the questionnaire method is a written statement used to obtain information from respondents in the sense of reports about themselves or things they know [6].

TABLE II

| Difficulties | Difficulties Reason | Registering Method | Account Category | Features |
|---|---|---|---|---|
| • Yes<br>• No | • Long travelling distance<br>• Short break time<br>• Long queue<br>• Reluctant to find a location<br>• Tired | • Number HP<br>• Account SIUP<br>• Email UPer (ex: xxxxxxxxx@student.universitaspertamina.ac.id) | • Category 1<br>• Category 2<br>• Category 3 | • Menu list at UPer Canteen<br>• Choosing a payment method<br>• Time allocation arrived<br>• Displaying couriers who are willing to make deliveries<br>• Order history<br>• Display of courier charges and tipping<br>• Rating the courier or canteen<br>• Chat with Courier and Canteen |

*2) Data Secondary*

The author also collects and reviews related previous research to add the necessary information. The data and information taken from previous research is the result of in-depth reviews and analyses using the technique of critically reviewing previous research. The results will be used as a reference to develop the research conducted.

### *B. Data Analysis Technique*

At the time of collecting the information and data needed, it was deemed sufficient. Furthermore, the information and data are analysed for the implementation of application design using the Prototype method. This Prototype method is a short application development and initial evaluation by users until it is considered satisfactory. The Prototype method is considered flexible because the results can be revised continuously until the final result is considered satisfactory. This prototype method has several stages that must be passed, namely;

*1) Requirements Gathering and Analysis*

This section defines and analyses the application needs in detail by interviewing users to find out the system requirements.

*2) Quick Design*

When the needs of the application have been determined and analyses have been conducted, a quick design for the application is designed. This quick design is not a detailed design and can help in developing a prototype.

*3) Build Prototype*

Rapid design modifications to form a first prototype that represents the working model of the application required by the user.

*4) User Evaluation*

Users conduct a thorough evaluation of the prototype which is expected to identify the strengths and weaknesses of the application. Feedback and suggestions were collected from the users and provided to the developers.

*5) Refining Prototype*

The prototype should be refined and developed with additional information provided by the user. This process continues until the user is satisfied with the results provided.

*6) Implementation and Maintenance*

The application is finally evaluated as well as regular maintenance to prevent large-scale failures and functionality of the application.

## IV. DISCUSSION AND RESULTS

### *A. Application Design*

In order to gather information about the features needed for the application, the author conducted a survey to students of Pertamina University's Computer Science study programme. This survey aims to gather information about the features needed to facilitate students in ordering food at the campus canteen. Based on the results of the survey, several key features needed by the application were identified, such as a list of menus from the canteen to be displayed in the application, various payment methods, display of delivery fees combined with the total cost of the order, and a short message feature for communication with the food delivery person regarding the order. This will help to ensure that the app effectively addresses the problem of difficulty in purchasing food or beverages at the campus canteen and fulfils the needs and preferences of users.

### *B. Features of the Application*

The creation of the application begins with selecting the necessary features through a survey on programme design. There are several features that the author chooses as the main menu in this TRUPER, namely:

*1) Menu*

The main feature of this application is to display a menu list that has been synchronised with the menu list in the UPER canteen so that users can choose the menu they want. These menus will be saved to the database and will be updated when the options are still available or have been sold out so that the application will always update the status of the selected menus.

*2) Payment Method*

Payment methods can be made directly Cash on Delivery, or online through the TRUPER application by transferring

gopay to the courier. Buyers are required to make a transfer with a nominal value that matches the total purchase.

*3) Purchase History*

This application also allows users to review the history of purchases that have been successfully made by displaying the time of purchase, selected menus, payment methods, and the total price of the purchase.

*4) Live Chat Courier and User*

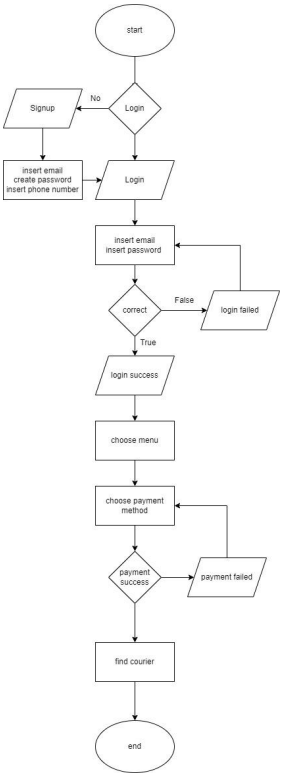
This application also adds a live chat feature to facilitate communication between users and couriers who are delivering user orders. This feature is also made for order changes that will be updated by the courier if the available menus do not match the special requests by the user.

### *C. Application Flowchart*

The flow of the programme or the process of activities to be carried out by users can be seen as follows:

1. Users open the TRUPER application and log in or register an account if they don't have an account.
2. Users choose the food or drink they want to buy from the menu list displayed in the application.
3. User enters the delivery address and selects a payment method.
4. User confirms their order and the total cost, including shipping costs, is displayed.
5. Users receive a confirmation of their order and a text message from the delivery person with details of their order.
6. Users can track their order status in real-time using the tracking feature.
7. After the order has been delivered, users can rate their experience and provide feedback about the services provided using the feedback feature.
8. Users can repeat the process to create new orders as needed.

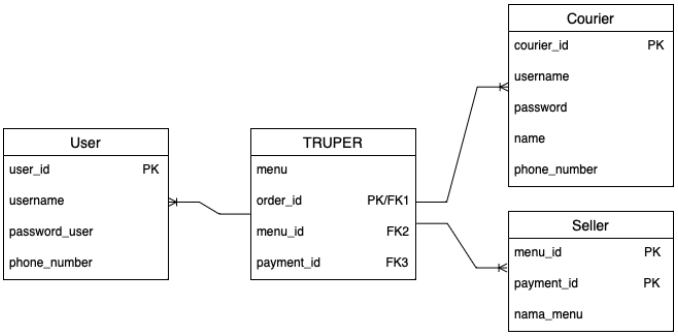
The program flow is designed to make it easy for users to place orders, track order status, and provide feedback on their experience. The visualization of the flow can be seen as below.




### *D. Database Application Model*

TRUPER has a database to store data that is required in the purchase and transaction process. The user entity will store data containing user_id, username, password, and user phone number. The user entity can have many values to be connected to the TRUPER entity, thus using the Many to One relationship. The TRUPER entity contains information about the menu list, order_id, menu_id, and payment_id, which will contain data about orders and transactions. The courier entity will contain information about courier data and order data that is connected to the application, thus using a Many to One relationship between the courier entity and TRUPER. The Seller entity contains information about order data and menu lists, as well as payment methods that can be used and will be managed by TRUPER, thus using a Many to One relationship between many sellers and the TRUPER application. The TRUPER application's database

model can be represented as in the following picture.




With a well-organized database system, the TRUPER application will be able to operate smoothly and efficiently, as well as facilitate the management of ordering and transaction data. This will make the ordering and transaction process faster and easier, as well as facilitate decision-making and data analysis for the development of the TRUPER application..

*E. Application Prototype*

From the design of the TRUPER mobile application, a user interface prototype is developed. This prototype consists of several key features including:

*1) Homepage Display*

The homepage is the initial display or the first thing displayed when the user opens the application. On the home page itself there are several menus that serve as user navigation, namely the login menu, sign-in menu and call center menu.


*2) Sign-Up Display*

The sign-in page is used to create a new account, when the user selects the sign-in menu, there are some data that must be filled in to create a TRUPER account.


*3) Display of Successful Sign-In and Login*

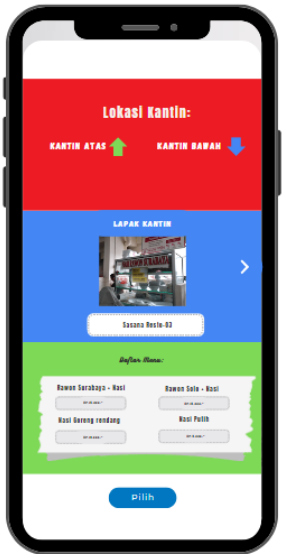
When the account creation process is successful, there will be a pop-up indicating that the account creation has been completed and the user can use the account in the login menu.


*4) Login Menu Display*

To log in to the account owned, the user is required to fill in some personal information for the authentication process.

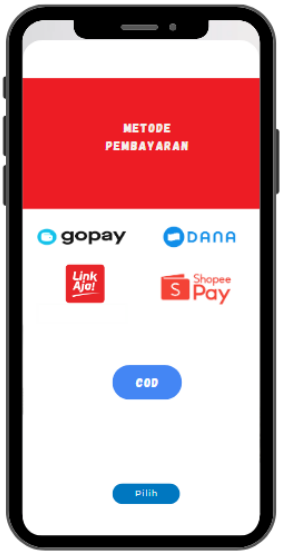

*5) Order Menu Display*

In the ordering menu there is an option for canteen location, trading stalls and available food menu. The prices of each menu are also displayed.



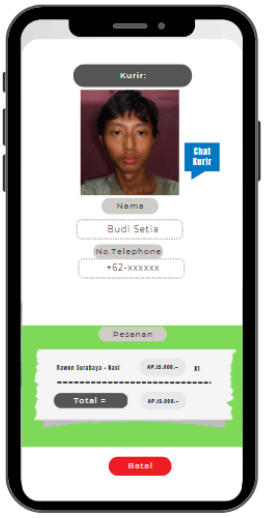

*6) Payment Menu Display*

After the user has finished selecting the chosen food or drink menu, the user can then choose the payment method.




*7) Order Display*

After the ordering process is successful, there is an order page consisting of the courier's identity, the price of each item, the total price and the cancel order menu. There is also a chat feature, where the user can send messages to the courier.




The flow of the program is in the form of the process of the activities carried out by the user can be seen below.

## V. CONCLUSION AND SUGGESTIONS

This article explains the design and development of a mobile application called TRUPER, which stands for Trust Pertamina University. The application aims to provide services for buying and selling food and drinks on campus. The article highlights that the main problem discussed is the difficulty of students in buying food or drinks in the campus canteen due to the short break time. This application connects the campus community, campus canteen, and society to carry out buying and selling activities. The application design is done using the Prototype method, where the application is developed based on data obtained from user needs and evaluated by users until it is considered satisfactory.

In conclusion, this article presents a solution to a problem faced by students in purchasing food or drinks in the campus canteen by proposing the development of TRUPER, a mobile application that connects the campus, campus canteen, and community for buying and selling activities. This solution aims to make buying and selling activities easier and provide comfort for students.

## REFERENCES

[1] Hidayat, F., Sadali, M., & Sudianto, A. (2022). Aplikasi Titip Online Produk UMKM Berbasis Android. Infotek: Jurnal Informatika dan Teknologi, 5(1), 128-137.

[2] Meitri, A., Fetrick, D., Maya, D., Qory, M., Isnaeni, N., Kurniawan, A. C., ... & Redi, A. P. (2020). Sistem pembayaran berbasis web di kantin Universitas Pertamina. Go-Integratif: Jurnal Teknik Sistem dan Industri, 1(01), 34-52.

[3] Sari, N. N. K., Putra, P. B. A. A., & Christian, E. (2019). Rancang Bangun Aplikasi Mobile Learning Tenses Bahasa Inggris. Jurnal Teknologi Informasi: Jurnal Keilmuan dan Aplikasi Bidang Teknik Informatika, 13(2), 37-46.

[4] Fauzi, R., Wibowo, S., & Putri, D. Y. (2018). Perancangan Aplikasi Marketplace Jasa Percetakan Berbasis Website. Fountain of Informatics Journal, 3(1), 5-11.

[5] Creswell, J. W., & Creswell, J. D. (2017). Research design: Qualitative, quantitative, and mixed methods approaches. Sage publications.

[6] Suharsimi, A. (2006). Metodelogi Penelitian. Yogyakarta: Bina Aksara.

[7] Nugraha, A. V. (2022). Survey Aplikasi Truper. https://forms.gle/CDWGkx8BPXudppp68