

## QUEUE SYSTEM ANALYSIS FOR CIVIL SERVANTS' RICE DISTRIBUTION BASED ON WEB PLATFORM AT THE WAMENA POST OFFICE, PAPUA PEGUNUNGAN



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### Abstract

This research aims to create and evaluate a queue system for the distribution of rice quotas to civil servants (PNS) at the Wamena Post Office in the mountainous province of Papua. The study will utilize a User-Centered Design approach, encompassing phases such as user needs analysis, prototype design, website development, and user testing and evaluation. The results of the implementation and testing of the civil servants' rice quota queue system application at the Wamena Post Office indicate that the development of the application can be successful through the integration of both web and Android application platforms. Through this integration, the queue system has successfully transformed into a directly integrated and real-time online queue system. It aims to enhance the efficiency and effectiveness of public services for civil servants and the community when obtaining goods and services at the post office.

**Keywords:** Rice queue, Application, Web

## INTRODUCTION

With the advancement of knowledge and information technology, human desires and needs have become increasingly dependent on them. As a result, information technology has become a primary driver for efficiency and effectiveness in various public services. In the context of public administration, queue management plays a crucial role in ensuring quality service to the community. However, some public service institutions need to provide optimal queue services, leading to frequent customer complaints. Therefore, the researcher selected the Wamena Post Office from several public service organizations as a sample for research. Wamena Post Office is a provider of public services, including infrastructure and public administration services in the mountainous region of Papua.

This research aims to analyze the queue system for the distribution of rice quotas to civil servants at the Wamena Post Office. The researcher observed that the current system for distributing civil servants' rice quotas is conventional and needs to be more effective and efficient, causing people in line to spend a considerable amount of time waiting to be served, sometimes up to a week. Additionally, the distribution process is often hindered by unorganized queues, causing delays and inconvenience. This results in frustration and anxiety among the waiting population.

Therefore, this research proposes the implementation of a real web-based queue system with an Android version through a user-centered development approach. The development method is chosen because, although the post office has been serving the community with a web-based system for a long time, the old system lacked a rice quota queue feature accessible to customers. This research introduces a web-based queue system with an Android version equipped with user-friendly features for both customers and post office employees. The implementation of this queue system allows for the effective and efficient distribution of civil servants' rice quotas, simplifying the process for users (Zuliansyah et al, 2022).

In this context, web-based technology emerges as a potential solution to improve queue management at the Wamena Post Office. Websites can provide comprehensive information to the public, and by utilizing a web-based queue system with an Android version, the distribution process of civil servants' rice quotas can be managed more

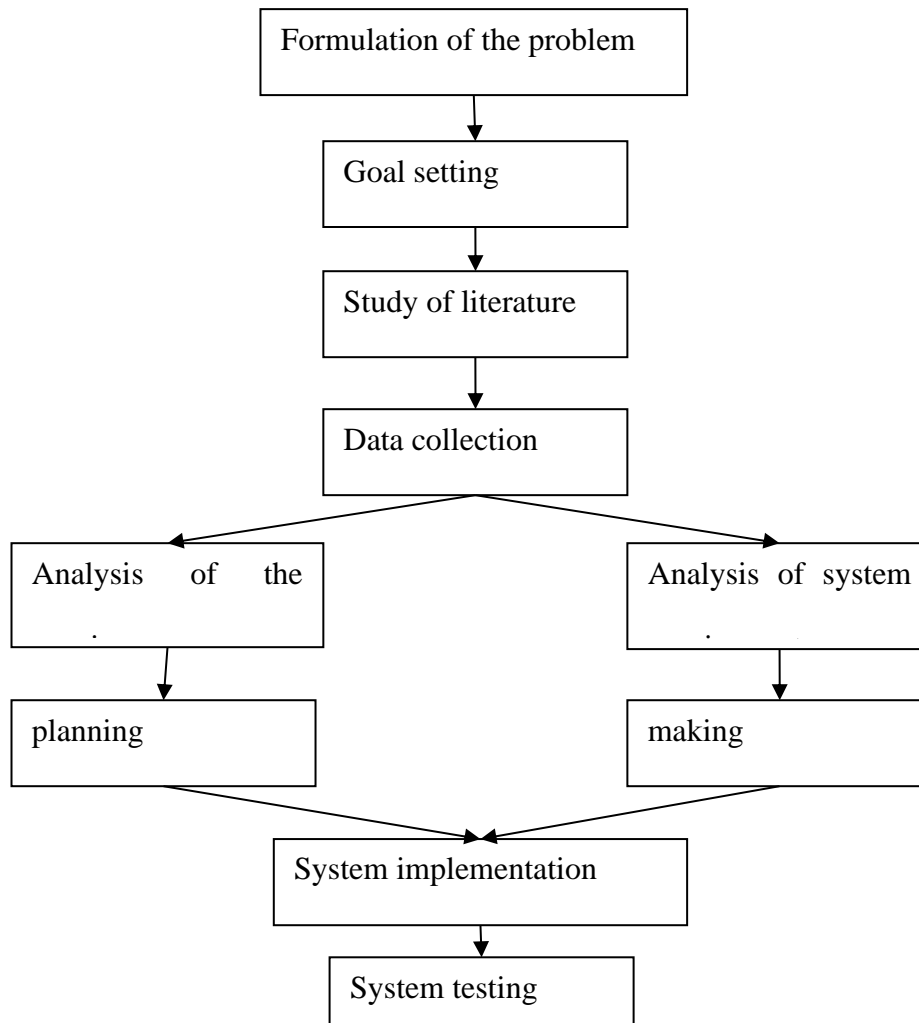
effectively and efficiently. The web-based system allows open access to information, enabling users to access it from anywhere without sacrificing other responsibilities (Rahmi & Nasutiin, 2023). The Android version ensures easy use on various mobile devices.

However, before implementing such a solution, a thorough analysis is needed to understand the needs and challenges faced by the Wamena Post Office. Therefore, this research focuses on analyzing the information queue system for civil servants' rice distribution at the Wamena Post Office. The research object is chosen because the Wamena Post Office is centrally located in the capital of the mountainous province of Papua, serving as a benchmark for seven surrounding districts.

This research aims to conduct a comprehensive analysis of the civil servants' rice queue system at the Wamena Post Office, Papua Mountains. Through an integrated approach between information technology and public administration, this research will explore various aspects, including distribution processes, queue management policies, and the community's experiences in queuing for rice quotas. The research not only aims to provide an in-depth understanding of the challenges faced by the Wamena Post Office but also intends to formulate a framework as a basis for the development of an easily usable queue system. Thus, the results of this research are expected to make a significant contribution to improving public services, particularly in the faster, easier, and more targeted distribution of civil servants' rice quotas across the eight districts of the Papua Mountains province.

## **RESEARCH METHOD**

This research will employ a user-centered design approach, encompassing phases such as user needs analysis, prototype design, website development, and user testing and evaluation. This approach allows designers to focus on user needs and preferences, ensuring that the designed website meets user expectations and provides a positive user experience (Design, 2020). There are several stages in the research process for creating the rice distribution information system, as depicted in Figure 1.



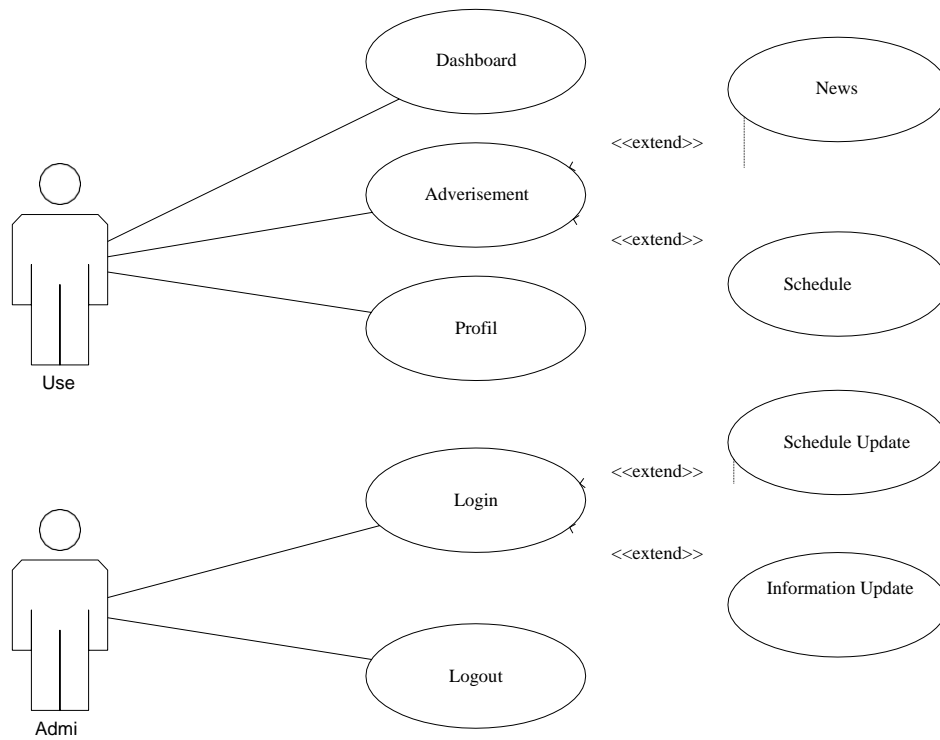
**Figure 1**  
**Research Stages**

### **Research Design**

Several models can describe the research flow. In this case, the author uses four models to determine the system to be built. These models will act as a guide for creating the system so that it does not deviate from what was planned. The models used include: a) Use Case Diagram; b) Activity Diagram; c) Sequence Diagram

### **Use Case Diagram**

Use case diagrams describe the activities carried out by users and admins in interacting with the website to be built (Fauzan et al., 2019). Figure 2 is the design of a Use case diagram for a rice distribution information system.

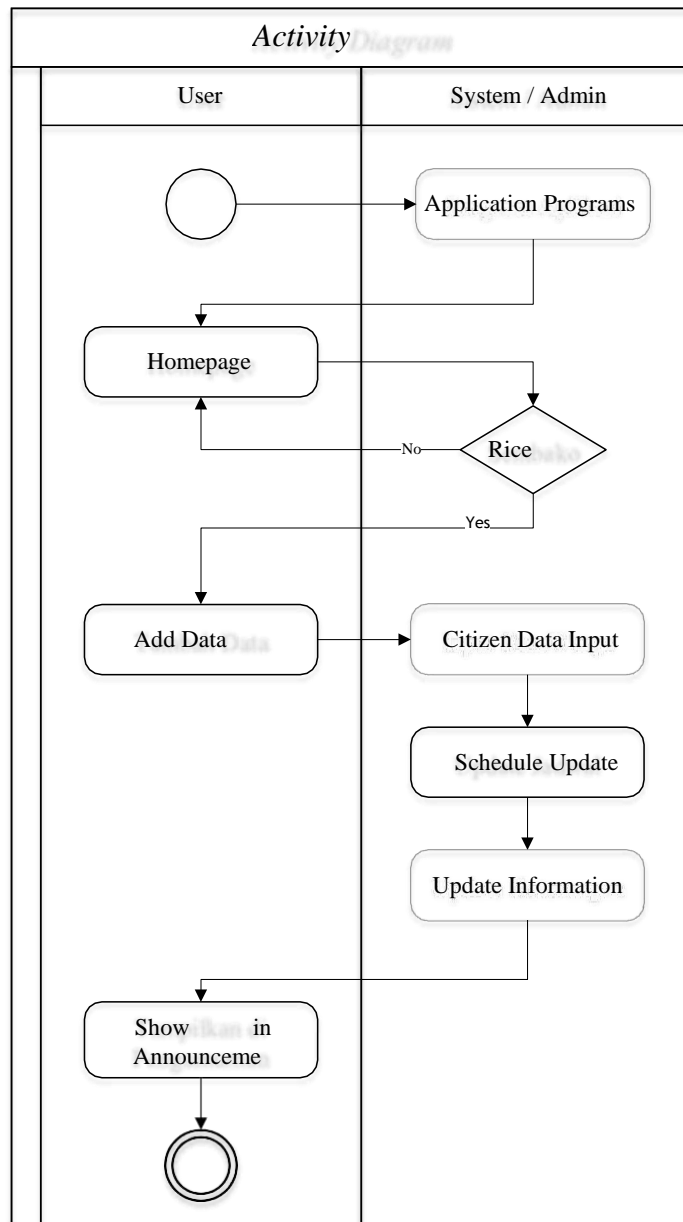


**Figure 2**  
**Use case diagram for the rice information system**

Figure 2. explains that users can access the system and view the features in the system. One of them is that users can see announcements when the rice distribution takes place.

### Activity Diagram

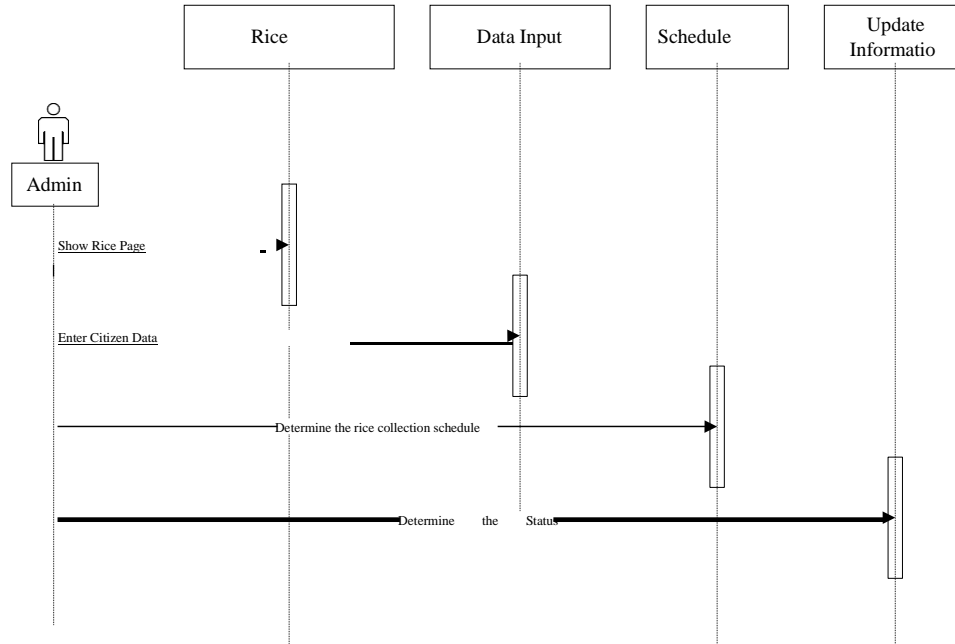
Activity diagrams explain the activities carried out by users on the system (Al-Fedaghi, 2021). Figure 3. is the activity diagram.



**Figure 3**  
**Activity diagram for the Rice information system**

### Sequence Diagram

The Sequence Diagram is the sequence of work carried out by the admin in determining the rice collection schedule. Figure 4. is the Sequence diagram used in this research.



**Figure 4**  
**Sequence Diagram of the Rice Information System**

### Population and Sample

The population of this research is potential users of the website to be designed. The research sample will be selected through a purposive sampling technique, where users who have various backgrounds, needs, and levels of experience in using websites will be included in this research. The sample should also include people who may face web accessibility challenges, such as users with disabilities.

### Research Instruments:

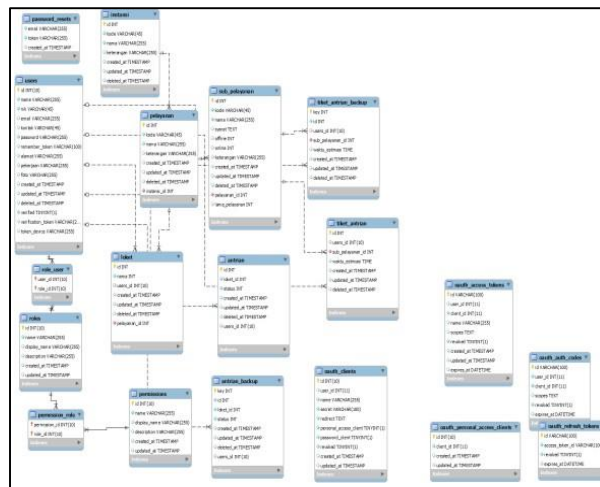
The research instrument will include several tools and methods, including: a) User Interviews: Involves interviews with users to understand their needs, preferences, and expectations for the website; b) Prototype Development: Designing a website prototype to be used for user testing; c) User Testing: Users will be asked to use a website prototype and provide feedback on their experience. This testing may involve specific tasks designed to test the functionality and usability of the website.

User Satisfaction Questionnaire: After testing, users will be asked to fill out a user satisfaction questionnaire to measure the extent to which they are satisfied with the design and functionality of the website.

## RESULTS AND DISCUSSION

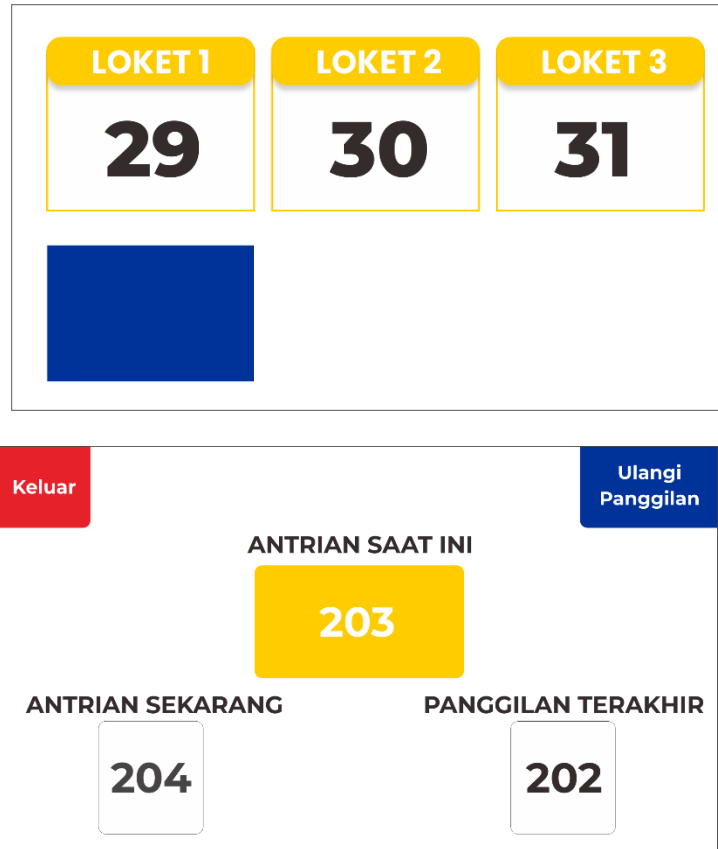
### System planning

At this stage, the researcher first designs the database according to the business process that has been created in the prototyping model (Polydoropoulou et al., 2020). The database design is made in the workbench application model as in Figure 5. The database model created is then implemented in the MySQL relational database management system (RDBMS) so that it can be used to develop the system as a whole.



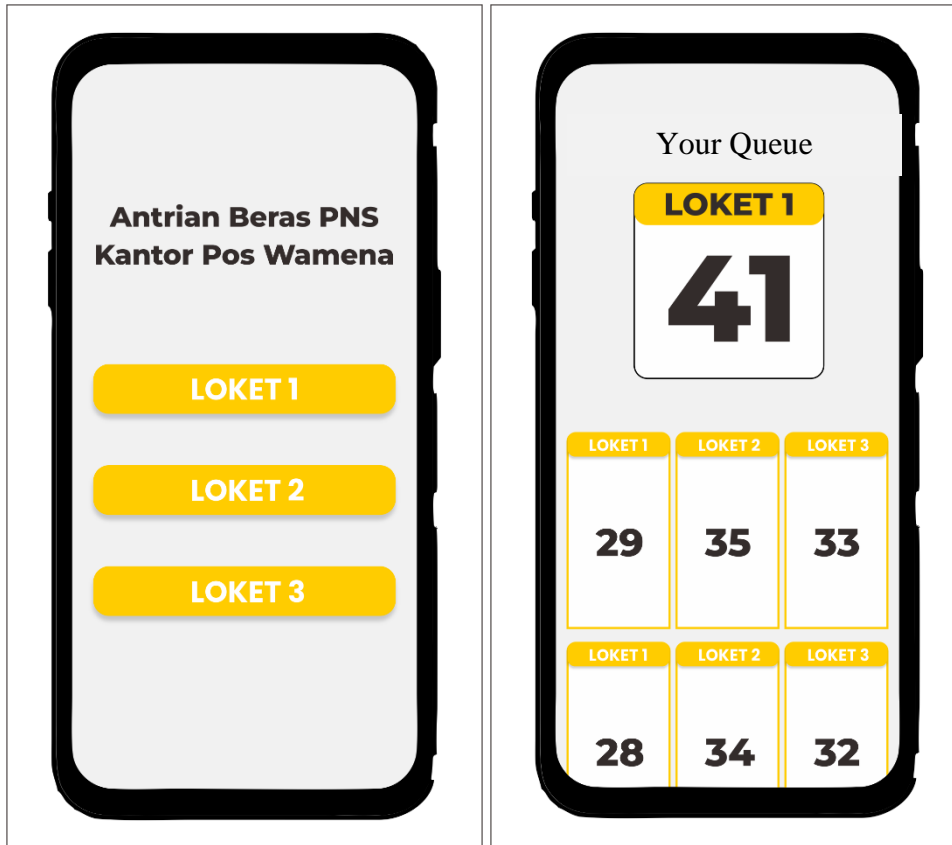
**Figure 5**  
**Database Model Design**

After the database has been successfully designed, the next step is to design the web application user interface for the rice ration queue system for civil servants in Wamena City. User interface design uses mockup applications such as Pencil to get an initial picture of the web application. The results of the user interface design can be seen in Figure 6.



**Figure 6**  
**Web Queue Application User Interface Design**

After designing the user interface, the researcher then designs the user interface design for the Android application. The Android application is used by users of the Rice queue service. So it is hoped that this Android application will have an attractive appearance and be easy for users to understand. The Android application user interface design can be seen in Figure 7.



**Figure 7**  
**Android Application User Interface Design**

1) Administrator page

This page contains system settings specifically for online queues in public service malls in the form of several counters, number of services, officer login, users, and so on. The administrator page display can be seen in Figure 8.

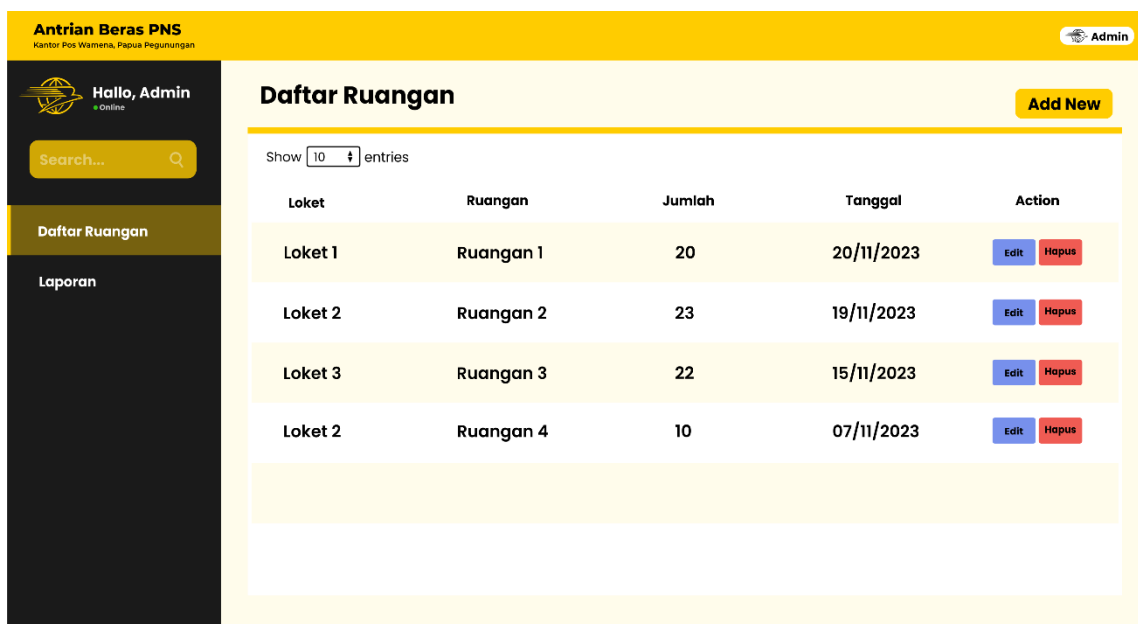
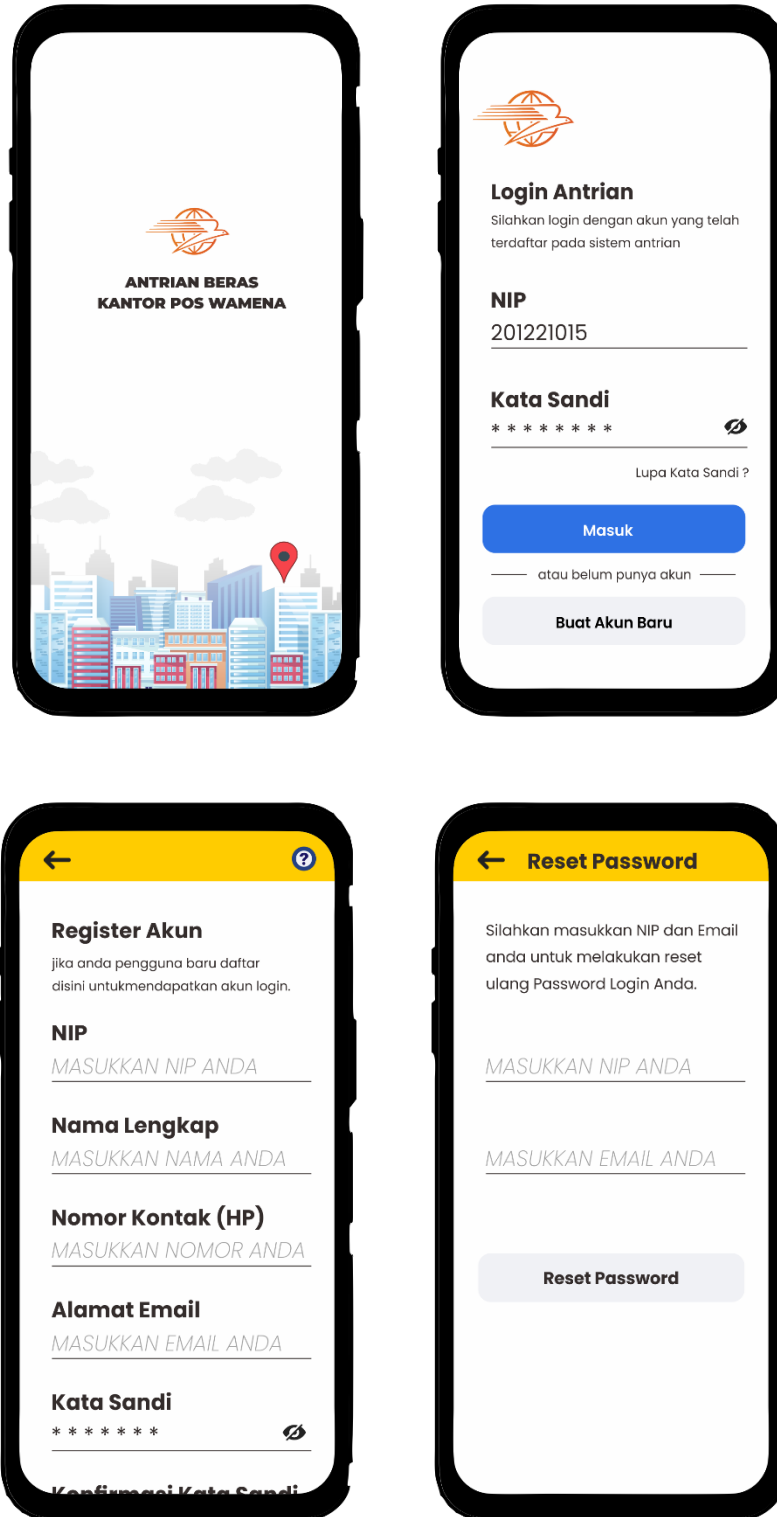


Figure 8. Online queue administrator page

## 2) Android Register/Login User

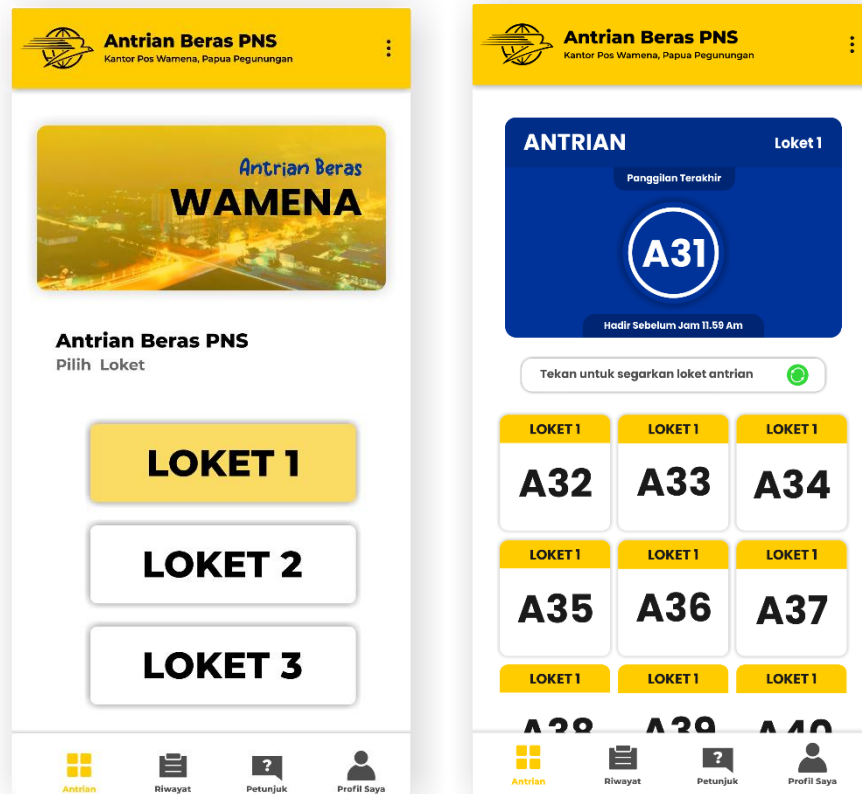
This is the user's Android application interface for registering and entering the civil servant rice ration queue system at the Wamena post office. By using this application, every citizen can immediately get a queue number online without having to come first. The user registration/login display can be seen in Figure 8.



**Figure 8**  
**Android Register/Login user**

### 3) Android service data and user queue

This is an Android user application interface that is used to retrieve queue numbers online and view the numbers called online. This Android application is connected directly to a web-based application system that runs at the public service mall office. The queue service interface displays as in Figure 9.



**Figure 9**  
**Android Service Data and User Queue**

### System Testing

System testing was carried out to determine the extent of success of the civil servant rice ration queuing system at the Wamena post office. This testing process is carried out by

evaluating the input and output produced by the application. The test results can be seen in Table 1.

**Table 1**  
**Test Results Table**

No	Testing Case Studies	Test Result
1	Loads and displays login	Succeed
2	Login process into the application	Succeed
3	Displays the queue menu page after successful login.	Succeed
4	Displays the current queue list in real time	Succeed
5	Take the queue	Succeed
6	Get regular queue notifications	Succeed
7	View the history of queues that have been made	Succeed
8	Exit the queue application	Succeed

Based on Table 1, it can be seen that the application of the civil servant rice queue system at the Wamena post office has been successful in testing.

## CONCLUSION

Based on the results of system implementation and testing of the civil servant rice ration queuing system application at the Wamena post office, a conclusion can be drawn, namely that the development of the civil servant rice ration queuing system application at the Wamena post office can be created by integrating the web with an Android application so that the queuing system can be an online queuing system that is integrated directly and in real-time to help the community's service needs.

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