



Queuing System Design On Android-Based Bank Teller Method Using Multi Channel - Single Phase

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ABSTRACT

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This research was conducted because of the frequent problems of queuing at company services such as banks, so that there are things that are not profitable between customers and banks. This problem Generally Occurs Because it is caused by the need for services performed by customers that are exceeding capacity, which makes the customer have to wait in line for some time to be served. The time-consuming queuing system will harm both parties for the customer and the bank. The purpose of this research is to create a mobile-based online queuing system using the mobile web applications and to get a queue number, so that customers no longer have to come in advance to the queue and can use the time to queue practically. This application is expected to reduce the long queues on bank services and the service process works better and more efficiently. It is hoped that this system will provide benefits and impact on the satisfaction of customers and the bank. This system implements a single phase roomates multi-channel method can use more than one teller and only has one queue number. Thus Spake the teller can serve the queue number without having to wait for other tellers to serve the customer, so that it can reduce the queue that Occurs in the bank.

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1. Introduction

The world of banking has become a necessity for people on benefits umumnya. Karena many people use the products in banking. savings accounts, time deposits, mutual funds and others. Customers expect their funds to safe and well-managed by the manager of the bank. Competition among banks also can not be avoided, so that each bank vying to innovate to improve the quality of services. [4], Queue is an event that often occurs in everyday life. Queue is in a wait state services for large companies such as banks which have public service, the customer or the customer is a very big investment. Generally the queues caused by the need of service that exceeds the ability (capacity), causing the customers who come can not immediately to be served and had to wait a few minutes or hours [1]. History queuing system is less help in overcoming the problem - a problem that sering occur in public service especially at the bank teller queue. Bank teller very useful for bank customers. problems that occurred at the same bank teller as the problems faced by the public service as well, namely the queue that can not be predicted by the customer. Previous system harming customers' time should come queue queue number. In designing the new system, expected to solve problems that occur at the bank teller and can help reduce paper usage and can help the preservation of trees and nature. The development of this system is in need in today's era, where people can use smartphones to conduct any activities, ranging from public transportation reservations, maaanaan, and could to do other work. In a previous study done by the Margin Parera about the





application system queue numbers of bank customers to service customer service based on Android (case study: pt Bank Pembangunan Maluku) discusses the problems that occurred in the service queue at the bank, by using Visual Basic 6.0 and develop in JSON to support the database. [1] This study only makes the application display only Developing a legacy system into a queue to add a queuing system can be accessed via the mobile web. The development of this system is in need in today's era, kaarena not all customers want to download an application that will add storage in memory smartphone customers. Showing mobile web system that has the same function as the app is very helpful customer to continue to use without having to download them.

2. Research methods

Application queues by using Multi-Channel Single Phase is the application of counter queues that are commonly used in perbank's, where there are two or more service facilities are fed by a single queue, [3] but the data retrieval service on both the teller are combined because the model queue system applied a multiple channel queuing system model of single phase. Where customers will be served only to form a queue but will be served by one of the two tellers. [6]

A. Multi-Channel Single Phase

Applying multi-channel to create more than one service of the same. This implementation can help to reduce the burden on the queue at the teller and implement a single phase queue for one service in order to avoid mistakes when taking a queue number on one service and does not interfere with other services queue number.

Multi-Channel Single Phase that there are two or more service facilities fed by a single queue. An example is a queue at a bank with several tellers, ticket or ticket purchase is served by several counters, payments on the cash register. [5]

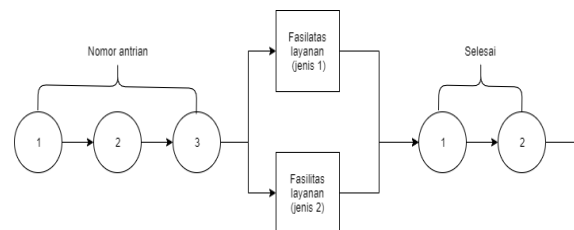


Image 1, Flowchat Multi-Channel Single Phase

The picture above is a multi-channel application on single phase that occurs at a bank teller. Every customer who takes the queue number will be waiting in the call queue numbers on the service teller A or B. The development of this system is expected to reduce queues at the bank teller, especially at the bank that is close to the office.

3. Results and Discussion

The results of this study aims to assist customers in making transactions at the bank. Through this application the customer will get a queue number via his smartphone. With this system, the bank and the customer is very helpful in the queue problem, so the queue can be overcome. Through this application the customer can get a queue number online and can immediately get the number as well as time saving services to customers who normally have to queue manually. This application can improve productivity in providing service and convenience to bank customers in the queue process teller services, which previously had to pay attention to the current state of the state crowded and now through this app customers can minimize the long queues when rush hour.





3.1. User views

Figure 2, Queue Number Registration Form



Figure 3. In the Queue Number Email

In the user view are forms to fill in your name and email address (Figure 2). Form the name aims to determine the name of customers who register themselves or who will come to the bank. While the e-mail address is aimed at a system that will send a queue number, destination and time to the teller counter via personal email addresses of customers. In (Figure 3) is the email address of customers who already perform a registration AntrianKu. Customers get a queue number 2 intended to counter 2 on 09-01-2020, at 11:21, which will be examined by the teller 2. So that customers just come directly to the bank at the time that has been specified without having to wait in line.

3.2. views Admin

On the web admin, has two versions have different views. The difference there is when admin or teller who has logged in over the web. To see his two versions distinguish only its function only. At the time of login as admin or manager, admin can access all the data and the system will run. Meanwhile, when logged in as a teller, can only view and run queue according to the data contained in the system. In each teller can only be run as a teller functions and can not run the function teller others. However, the excess can see another teller queue number. Here is the look and the menu contained on the web admin:

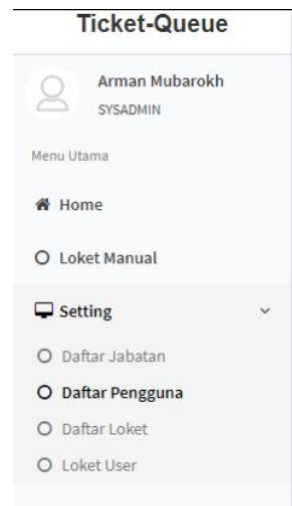


Figure 4. Menu Display on Admin

- a) menu Home
Aims to head home menu branches and tellers to monitor seta see a queue data that has been taken by the customer. In this menu only teller who can run the queue, while administrators can only see the queue.
- b) counters Manual
On the menu for customers who do not do queues online on the application, so it must follow manually queue numbers were taken on the machine queue at the bank. The menu also has the same function as the home menu. Only manual queue is less effective for people who do not have that much time to wait in line at the bank.
- c) menu Settings
The menu is only displayed when logged branch head. Because in the menu only manager who can to change the number of tellers and counters required. On the menu there is also a sub-menu that is in it, the sub menu each has a different function. Here's a list of sub-menus contained within the settings menu:
 - 1) List Position
This menu lets you enter data untu know how many positions are left in the bank, for example in a bank there are two positions, namely office admin and office as a teller
 - 2) User List
This menu only dibuthkan for inputting data and teller admin who will run this system. In this menu as well as the core system. Because in this menu the number of tellers is determined by the admin will determine again whether the number of tellers admin created will reduce the amount of queuing or not.
 - 3) List of counters
Register counter is made to adjust to the large number of existing teller, as made 3 and 2 counter online user counter.
 - 4) User counters
This menu is the finishing stage to make a queuing system, by applying the teller and counters into one interconnected, for example: 1 will use the teller counter 1 and so on until the number of tellers and counters that have been created by an amount determined by the bank.

4. Conclusion

The conclusions of this research is that the problem occurs in the conventional company mainly banks are queuing customer service issues to get to the teller. This can occur due to excess capacity in the services carried out by the customer or client. Therefore this research is to make the application queue number system based on mobile customers, so that customers or clients can utilize practically queuing



time. These applications use this application method using a multi-channel single phase. Queue algorithm concept follows the Poisson process that has a multi-Teller and single phase or a single queue. With this method may help minimize queuing problems are often found in banks and service processes work better and more efficiently.

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