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DEVELOPING AN ANDROID-BASED SERVICE APP FOR VENDORS PROJECT

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ABSTRACT

Currently, the role of service provision is crucial, especially for providers in the field of electronic service services that offer mobile and fast services. Speaking of service provision, particularly in the city of Cianjur, there are many shortcomings in terms of service quality, especially in electronic equipment services such as television repairs, refrigerators, washing machines, mobile phones, and so on. There is also a lack of effective means to market their services, with some still relying on print media. With the advancement of information technology, people have increasingly turned to the internet (online) or Android smartphones to fulfill their various needs. The development of an Android-based service vendor application aims to assist service providers in marketing their services. This research adopts the waterfall method for system development because it provides a clear sequence in solving application problems. As a result, an application is produced that can act as an intermediary between service technicians and customers in need of services. The reliability of the application is also tested through blackbox testing

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1. INTRODUCTION

Technology and information systems have transformed everything [1]. Their usage in simplifying processes truly helps to make things faster and easier, thereby becoming more beneficial when applied in business operations [2]. Their role is not limited to just one business sector but can be applied to service provision, information dissemination, finance, and so on [3].

In the role of service provision, technology and information systems are very important, especially for service providers operating in fields such as electronic service, which is highly demanded by customers. Information about the quality of service is crucial, along with good service delivery [4]. Therefore, customer service activities are needed to give users the opportunity to express their satisfaction or dissatisfaction. Good service attracts users to utilize the services provided by the provider [5].

Service provision in the city of Cianjur faces many shortcomings in terms of service quality, such as electronic service quality and the time required for completion. Another issue is that promotional methods are not efficient for service providers in marketing their services. To raise public awareness, advertising (promotion) is necessary, but service providers still use simple methods like printed media (leaflets, brochures) containing information, which is insufficient to attract users to utilize the services. On the other hand, technology and information systems are rapidly advancing, and people now prefer to seek information through mobile devices such as smartphones connected to the internet (online) [6]. Searching for information via smartphones is increasingly popular because smartphones are inexpensive and easy to carry anywhere [7]. The affordability of smartphones is due to the open-source nature of the Android mobile operating system. As a result, the Android operating system currently dominates 80% of the global mobile operating system market share, surpassing iOS and Windows Phone.

Therefore, the researcher is interested in conducting a study and developing an application using Android Studio to design a service application project for Android-based vendors. This is aimed at the owners of electronic service providers in Cianjur. The goal is to make it easier for service providers to introduce the services they offer so that the public understands what services are provided, the types of services, and the service procedures, thus creating a distinct

advantage for each service provider [8]. Additionally, for users, it provides accurate information about the service specifications from providers and informs them about the nearest electronic service providers, making the process more efficient and effective for delivering or picking up serviced electronic items.

2. METHOD

The following are the implementation steps for this research, following the outlined sequence:

A. Research Method

Action research is a form of research design. In action research, the researcher describes, intervenes, and explains a social situation while simultaneously making changes or interventions for improvement or participation [9]. From a traditional perspective, which is the problem-solving research framework, there is collaboration between the researcher and the client to achieve the goals [10].

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B. Waterfall Model

The Waterfall Model, known as the classic life cycle, is a systematic process model. The approach begins with client requirement specifications and user needs (requirements), followed by planning, modeling, construction, and deployment in a sequential and cumulative manner [11].

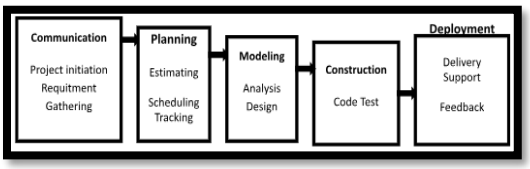

Figure 1. Waterfall Model

1. Communication

In this stage, software requirement analysis and data collection from customers, as well as gathering additional data from journals, articles, and the internet, are conducted [12].

2. Planning

The planning process involves continued communication, resulting in user requirement documents outlining the user's desires for the software, including the plans to be executed [13].

3. Modeling

Modeling translates the requirements into a software plan estimated before coding begins. The process focuses on data structure planning, software architecture, interface representation, and procedural details. This results in a document called software specification [14].

4. Construction

Construction is the process of creating code. Coding involves translating designs into a computer-readable language. Programmers translate user-requested transactions. This stage is the actual software development phase, meaning computer usage is maximized at this point. After coding is completed, testing of the system is conducted. The goal of testing is to identify errors for correction.

5. Deployment

This stage marks the final phase of software or system development. After analysis, design, and coding, the system is ready for use by the users. Subsequently, regular maintenance of the developed software is carried out. The advantage of the waterfall model is that it is still considered useful despite being outdated.

3. RESULTS AND DISCUSSION

At this stage, it is the implementation of the research method or the planned application development.

A. System analysis and design

1. System Analysis

System analysis is conducted through various analyses related to the developed vendor application. System analysis is defined as the decomposition of a complete system into its component parts with the purpose of identifying and evaluating the needs and expectations so that improvements can be proposed. In designing this application, there are issues that need attention, namely designing server connections, receiving data from the server, and sending data to the server.

2. System Design

In this design, the general condition of the system being used is considered. Generally, Android connects to the server by sending and receiving data messages to interact with the server.

a. Use case diagram

It is a UML diagram model used to describe the expected functional requirements of a system. Below is the use case diagram for the vendor application.

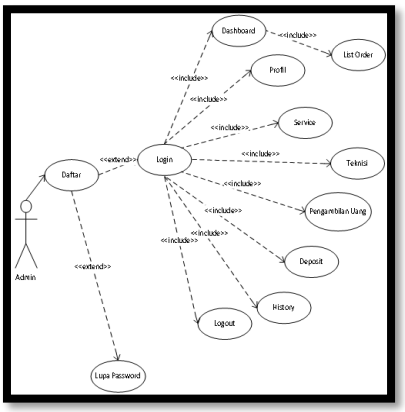

Figure 2. Use case diagram

b. Activity diagram

In this application, there are: Activity diagram list, Activity diagram login, Activity diagram dashboard, Activity diagram list order, Activity diagram profile, Activity diagram service, Activity diagram technician, Activity diagram cash withdrawal, Activity diagram deposit, Activity diagram history, Activity diagram forgot password, Activity diagram login, Activity diagram dashboard, Activity diagram list order, Activity diagram profile, Activity diagram history, and Activity diagram forgot password. Below is the activity diagram for forgot password.

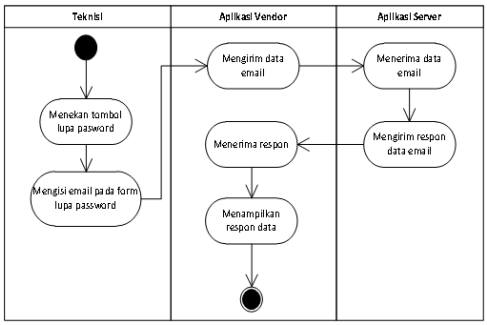

Figure 3. Forgot Password Activity Diagram

c. Database Design

In the application design, the researcher vendor uses MySQL database as the data storage. The following tables are designed for the vendor application database: Vendors, Users, Vendor_Users, Vendor_Wallets, Service_Categories, Withdrawals, Vendor_Service_Ratings, Vendor_Services, Forgot_Passwords, Account_Verifications, and Deposits. Below is the database table for Deposits.

Table 1. Deposit

Nama kolom	Tipe
id	bigint(20)
Vendor_id	bigint(20)
kerek	text
Atas_nama	Varchar(100)
lampiran	Varchar(100)
diperbarui	timetamp
status	Varchar(30)
jumlah	Decimal(30,2)

d. Interface Design

Consists of: login, Admin name list, Vendor identity list, Menu, dashboard, order list, profile, service list, technician page, cash withdrawal, history, technician menu, dashboard, Order detail list, Technician history. Here is an example interface design for the Admin name list interface.

B. System Implementation & Testing

1. Implementation

Implementation involves transferring program logic into an application or programming language to produce the required application. Meanwhile, interface implementation refers to translating the designed interface into the form and appearance of pages (menus). The results of interface design implementation are presented as follows: login, admin name list, vendor identity list, admin menu, dashboard, order detail list, admin profile, service list, technician, cash withdrawal form, deposit, admin history, technician menu, technician dashboard, technician order detail list, and technician history. Here is the implementation for the admin name list interface.

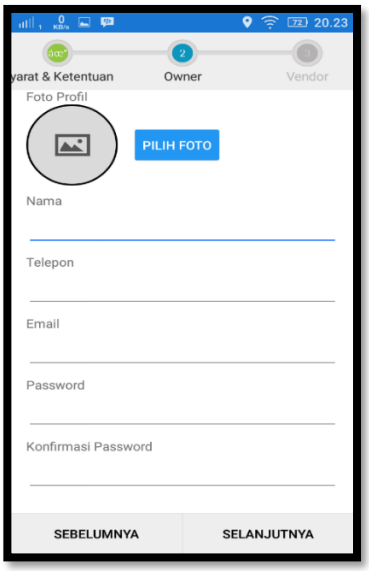

Figure 5. Admin List

2. System testing

Important parts when developing an application. Testing is carried out to obtain a quality level and measure weaknesses of the built system.

a. Testing plan.

Testing using the black box method. Black box is used to test specific software functions designed

Table 2. Black Box Testing Plan

Kelas uji	Butir uji
Login	Click the texbox
	Click the akun button
	Click the 'Forgot Password' button
	Click the login button.
	Click the akun verification button
Admin name list	Click textbok
	Click select photo button
	Click the next button
Vendor identity list	Click the texbox
	Click the select photo button
	Click the exit button
Admin menu	Click the dashboard menu
	Select service menu
	Select the technition menu
	Select profile menu
	Select the cash withdrawal menu
	Select deposit menu
	Select history menu
	Select logout menu
Dashboard	Display service orders.
Order detail list	Click the reject button
	Click the approve button
Form profil	Click the textbox
	Click the save button
Your sevice	Click the add button
Teknisi	Click the add button
Withdrawal of funds	Click the add button
Deposit	Click the add button
History	Click the reload button
List order teknisi	Click the scan button
History teknisi	Click the reload button

b. Test Cases and Results

To determine whether the system that has been developed functions properly or not, test cases and results are created. For further details, please refer to the following table.

Table 3. Test Cases and Results

Test Class	Test Scenarios	Hope	Result
Login	Click button	Display virtual keyboard	success
	Click the login button	Access the dashboard	
	Click forgot password	Display forgot password form	
	Click don't have an account yet	Display registration form	
Name admin list	Click the select button	Display photo options	success
	Click texbox	Show virtual keyboard	
	Press the next button	Display the next page	
List of vendor identities	Click texbox	Display keyboard virtual	success
	Click the figure button	Display logo options	
	Click the pinish button	Send data to the server	
Admin menu	Select dasboard	Display dashboard page	success
	Select your service	Display the service list page	
	Select technician	Tampilkan halaman teknisi	
	Profil select	Display profil form	
	Select cash refund	Display the cash refund page	
	Deposit select	Display the deposit page	
	History select	Display the history page	
	Logout select	Logout in the application	
Dashboard	Display the service page	Display the service list	success
List detail order	Click the agree button	Approve incoming order	success
	Click the reject button	Reject incoming order	
Form profil	Click textbox	Display keyboard virtual	success
	Click the save button	Send data to the server	
Your service	Click the add button	Display add service form	success
Technisan	Click the add button	Display add technician form	success
Money withdrawal	Click the add button	Display cash withdrawal form	success
Deposit	Click the add button	Display deposit withdrawal form	success
List order teknisi	Click the scan button	Scan barcode customer	success
History technisian	Click the reload button	Display customer history data	success

c. Conclusion

Based on the testing results of the vendor application, it can be concluded that this application functions as expected.

4. DISCUSSION

Based on the research by Gresha Bhatia (2023), titled "Android-based Mobile Application Development to Connect Local Vendors with Customers," this study compares different habits, cultures [15], and technological understandings of its subjects.

5. CONCLUSION

After implementation and testing of the vendor application, it can be concluded that the application effectively assists service providers in acquiring customers. It addresses customer issues well and matches service providers' capabilities. Additionally, the vendor application successfully markets services online via an Android-based platform, ensuring accurate and targeted information dissemination

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