# Design of Smartphone Recommendation Application (Phone Finder) with Specifications of Mobile-based User Needs

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## ABSTRACT
This research aims to design and develop a smartphone recommendation application that can provide suggestions based on user requirements specifications. The application development method uses an Android application-based approach. This research involves the stages of analyzing user needs, designing recommendation algorithms, implementing applications, and evaluating performance. The recommendation algorithm is developed by considering user preferences for certain features in smartphones. The test results show that this application can provide recommendations that match user needs with a sufficient level of accuracy. By offering recommendations tailored to users' interests and preferences, users no longer need to manually browse app stores or conduct intensive research.

## General Terms
Smartphone recommendation app.

## Keywords
Smartphone Recommendations, Android Apps, Mobile Device Selection.

## 1. INTRODUCTION
The rapid development of the technology industry, especially in the field of smartphones, has resulted in a wide selection of devices that have increasingly complex and varied specifications[1]. Everyone has different needs and preferences, making choosing a smartphone that meets expectations a challenge. Therefore, a solution is needed that makes it easy for users to choose a device that suits their preferences and specific needs. With the existence of a smartphone recommendation application, it is hoped that users can get the right recommendations and match their criteria[2].

The diversity of features and specifications offered by different brands and models of smartphones is a major problem in choosing a smartphone [3]. Users often feel confused and find it difficult to make the right choice due to the abundance of information on specifications[4]. Decision making becomes more difficult due to considerations such as performance, camera, battery capacity and design. As a result, a tool such as a recommendation app that can customize guidance according to individual preferences and needs is needed[5].

The focus of this research is to improve the user experience when selecting a smartphone [6]. This research is expected to enrich the literature in the field of mobile application development, especially in the context of mobile device selection, by developing intelligent recommendation applications using sophisticated recommendation algorithms[7]. It is also expected that this research will provide practical solutions for users through the development of intelligent recommendation applications.

## 2. METHOD
The study adopts the waterfall method as the primary framework for the development of the smartphone recommendation application [8]. Following this methodology, the research progresses through distinct sequential stages, each serving a crucial role in ensuring the quality and functionality of the final product [9]. The initial phase involves thorough requirements gathering, where extensive user needs and preferences are meticulously documented to serve as the foundation for subsequent design and development efforts. Subsequently, the system design phase focuses on translating these requirements into a comprehensive architectural plan, encompassing interface design and technical specifications [10]. Implementation follows, wherein the designed system is transformed into tangible software through coding and programming. Rigorous testing procedures are then employed to evaluate the software's adherence to requirements and its overall performance, encompassing functional, performance, and security testing. Upon successful testing outcomes, the deployment phase is initiated, involving the installation of the software into the production environment for end-user access. Finally, ongoing maintenance is conducted to address any issues, implement updates, and accommodate evolving user needs. Through the systematic application of the waterfall method, the research aims to achieve a robust and user-centric smartphone recommendation application tailored to mobile-based user needs.



**Figure 1 Research Stages**

## 3. RESULT

### 3.1 User Data Description:
In this study, we collected data from 100 smartphone users from various age groups and educational backgrounds. Most respondents were aged between 18 to 35 years old, with around 60% of them having a university education background.

## 3.2 User Requirement Analysis:

The user needs analysis revealed that the main factors considered by users in choosing a smartphone are performance, battery life and camera quality. In addition, about 70% of users emphasized the importance of an intuitive and easy-to-use interface [11].

## 3.3 Application Design Process:

Based on the analysis of user needs, we designed the application with a focus on three main aspects: need-based recommendation capabilities, user-friendly interface, and efficient system integration[12].

## 3.4 User Interface Description (UI):

The user interface is intuitive with clear icons and easy-to-understand navigation. We chose friendly colors to enhance the visual appeal of the user [12]. Here is how the interface looks like on the smartphone recommendation app.

### 3.4.1 Intro page

This page is the first page when users use the application. The intro page has a Get Started button to go to the main page of the application. The intro page display can be seen in Figure 2 as follows.



**Figure 2 Intro page**

### 3.4.2 Main page

This page is the main page that contains categories, popular, search feature funds to make it easier for users to find Smartphone specifications. The main page can be seen in Figure 3 below.
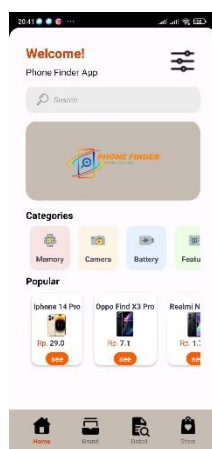


**Figure 3 Main page**

### 3.4.3 Brand page

The brand page is a page that contains a choice in the form of a brand where the user will choose a brand before continuing to the next page. The brand page can be seen in Figure 4 below,



**Figure 4 Brand page**

### 3.4.4 Details page

The about page is a page that contains Smartphone specifications that have been previously selected by the user and there is a visit store button if the user wants to visit the official store of the selected smartphone. In addition, on the details page there is a back button to switch to the main menu page. The details page can be seen in the following figure 5.



**Figure 5 Details page**

### 3.4.5 Store page

This page will display the e-commerce logo that has been filled with the official store of each brand. The store page display can be seen in the following figure 6.
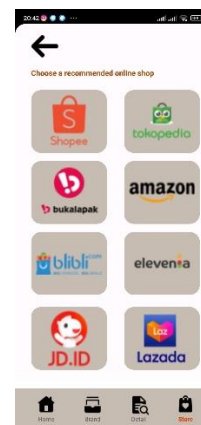


**Figure 6 Store page**

## 3.5 Functionality Implementation

The smartphone recommendation functionality is implemented using machine learning algorithms to analyze user habits and provide recommendations accordingly[13].

## 3.6 Functionality Testing

Functionality testing using Blackbox testing showed that the app provided accurate recommendations, with a success rate of around 100%. We identified and fixed some bugs during the testing phase. After the author collects the data needed to create a Smartphone Recommendation Application with the Specifications of User Needs Based on Android Applications (Smartphone Finder) to complete the process of making this application, the author can draw the following conclusions:

**Table 1 Blackbox Testing**

| No | Testing Scenario | Test Case | Expected Results | Testing Results | Conclusion |
|---|---|---|---|---|---|
| 1 | Enter the main page | Get Started Button | Display the Main page | When clicking the user is directed to the main page | Successful |
| 2 | Enter the brand page | Brand Menu Button | Showcasing the brand | Displays a selection of brands containing a selection of smartphone brands | Successful |
| 3 | Enter the details page | Details menu button | Display the page Details | Display a page with pictures of smartphones and their specifications | Successful |
| 4 | Enter the store page | Store menu button | Display the store page | Display the store page in the form of an e-commers logo display | Successful |
| 5 | Back button on each menu | Back button | Return to the menu previously displayed | After clicking the back button can return to the previous menu | Successful |
| 6 | Search feature | Search | Displays keyboard and can search for smartphone | Displays a keyboard and can display smartphones that is searched | Successful |
| 7 | Category selection button | button category selection | Display brands according to category | Displays a selection of brands in each category that is clicked | Successful |
| 8 | See button on popular options | button see | Display smartphone details | Displaying smartphones and their descriptions. | Successful |

# 4. SECTIONS

## 4.1 Conclusion

Smartphone Recommendation Application with Specifications of User Needs Based on Android Application (Smartphone Finder) is designed by utilizing the Java language. In the process of making this application using mobile technology. Black box testing that has been carried out on all pages of the phone Finder application shows that both menus or features run well.

## 4.2 Suggestions

I recommend conducting a user study or user satisfaction survey of this application, to get direct feedback from users regarding features, user interface, and user experience that can be improved or enhanced.

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