



## Design and Development of an Online Friendship System on Android Platform

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### Abstract

The online friendship application aims to be used by many people to find friends. This application can find friends from all over the place if registered in this application. This application can find friends based on criteria. Android is an open source (free) smartphone platform that has been developed by Google which has been widely used and continues to grow following the development of the technological era. This application has certain features such as, chat forums, and review forums. In this application, you can find someone who suits your wishes just by searching by name, hobby and even preferences in the search column. This application can make it easier for individuals to get to know each other from one individual to another. This application uses the Quick Sort method to display the ranking order of someone who gets the most positive reviews and stars in the application. Where Quick Sort is one of the fastest algorithms in doing Sorting.

**Keywords:** Application, Android, Quick Sort

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### 1. Introduction

The purpose of an online friendship application is to enable people to find and connect with new friends. This application allows users to search for friends from various places as long as they are registered in the system. Users can find friends based on specific criteria. Finding random friends is not difficult since social media platforms such as Instagram, Facebook, and Twitter already provide this possibility, or one can search directly in real life — provided they have a high level of self-confidence. However, not everyone has the confidence to seek friends randomly, whether in person or through social media, as it is often uncertain what kind of people they may encounter.

Therefore, an application is needed that can help users find friends based on desired criteria. Each user profile should display details such as full name, nickname, profile picture, hobbies, preferences, and other personal information. An application is essentially software that contains specific features accessible on computers or smartphones. A smartphone is a mobile device equipped with components equivalent to those of a personal computer (PC) [1].

Currently, technology is advancing rapidly. The development of ICT (Information and Communication Technology) continues to progress daily, and almost every aspect of human life is inseparable from it [2]. Modern smartphones are now equipped with advanced operating systems, one of which is Android. Android is an open-source (free) smartphone platform developed by Google that has become widely adopted and continues to evolve with technological advancements [3].

Modern communication has also shifted toward non-face-to-face interactions. Interactive communication provides many conveniences and significant benefits [4]. Furthermore, technological advancements continue to serve as alternative solutions for various problems [5]. This application includes several features such as chat forums and review forums. Users can search for other individuals based on name, hobbies, or preferences through the search column, making it easier for individuals to connect and get to know one another [6].

The application applies the Quick Sort method to display ranking lists of individuals who receive the most positive reviews and star ratings. Quick Sort is known as one of the fastest algorithms for performing sorting.

### 2. Theoretical Foundation

#### 2.1. Design

Design is an activity carried out with the purpose of creating a new system that can solve the problems being faced, ultimately leading to the best possible solution. The system design stage provides an overview of the online friendship information system that has been analyzed, making it easier to understand.

#### 2.2. Android

Android is a Linux-based OS modification used by modern devices such as smartphones, smartwatches, and even televisions. This system has already spread worldwide.

### 2.3. Database

A database is a collection of data stored by devices that can be processed and displayed as information. In website development, XAMPP and MySQL are usually required.

### 2.4. Cloudinary

Cloudinary is a solid option for storing media such as images and documents, thanks to its ability to manage and optimize files online. It is a key technology used in development for media management, particularly images and videos. The combination of this technology allows websites to achieve optimal performance, flexible content management, and seamless media integration. Cloudinary is used as an image storage and optimization service to meet media needs. Uploaded images are automatically compressed and optimized, ensuring faster loading without compromising visual quality [10].

### 2.5. Firebase

Firebase is a Google service that simplifies application development. Its Realtime Database is highly responsive, offering rich features and secure database access for users. This database synchronizes data changes even when clients are offline, automatically merging differences. As a NoSQL database, Realtime Database offers optimization and functionality distinct from relational databases.

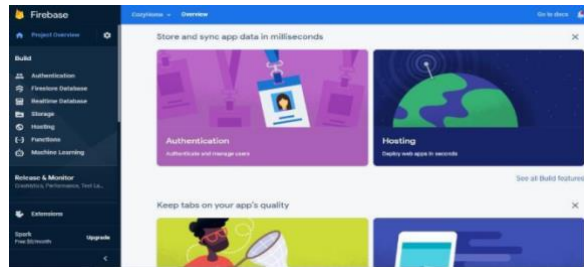


Fig 1. Firebase View

### 2.6. Flutter

Flutter is an open-source framework for application development, introduced by Google in May 2017. With Flutter, developers can build applications across multiple platforms using the same codebase. For this reason, Flutter has become one of the top four most popular frameworks in modern application development.

### 2.7. Visual Studio Code

VSCoed is a lightweight code editor with a clean interface, supporting various programming languages and customizable extensions. Its simple and practical user interface allows developers to use key features such as file navigation, syntax highlighting, and an integrated terminal with ease. Below is an example of the VSCoed interface.

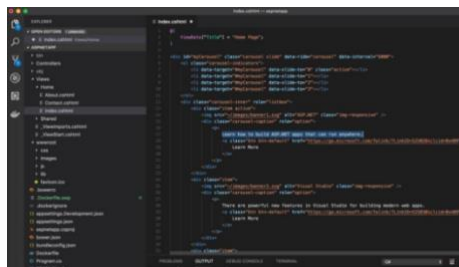


Fig 2. Visual Studio Code View

## 3. Research Method

In this study, the **Quick Sort** method is applied. Data collection was carried out over a period of 6 months, starting from November 2021 until April 2022. The workflow of the Quick Sort method used by the author can be seen in Figure 3.1.

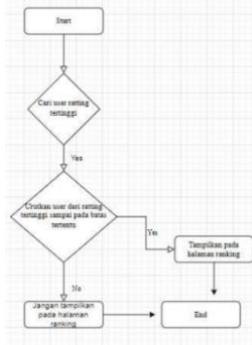


Fig 3. Flowchart of Ranking Sorting Using the Quick Sort Method

3.1. Application Interface Design

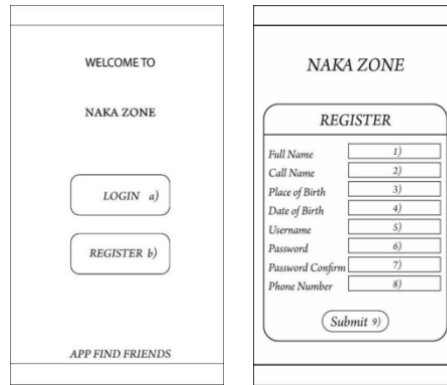


Fig 4. Display of Cover Page and Registration Page

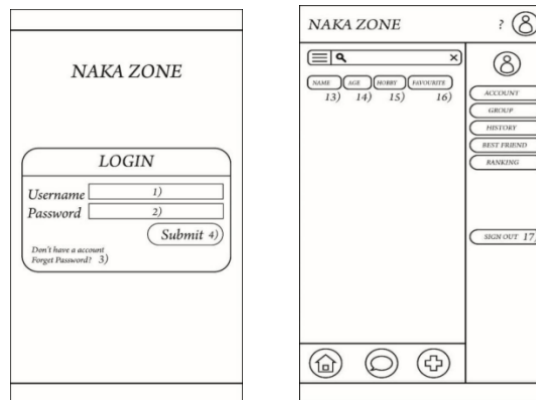


Fig 5. Display of Login Page and Main Page

4. Research Results

After the design of the Android-based online friendship system was completed, several tests were conducted on the application to minimize potential issues. From the test results, some strengths and weaknesses of the online friendship application were identified, as follows:

1. Advantages of the Android-based online friendship system application
  - a. The online friendship system application displays friendships according to the user’s preferences.
  - b. The online friendship system application is easy to use by users.
2. Weaknesses of the Android-based online friendship system application
  - a. The online friendship system application still requires the addition of features such as direct file transfer to other users.
  - b. The online friendship system application does not yet have sticker features to make chatting between users more engaging.

4.1 System Implementation Results

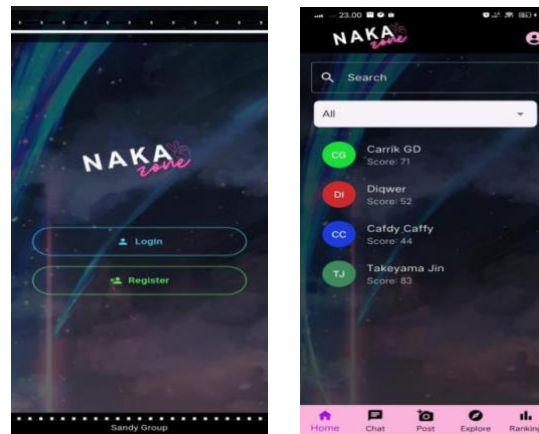


Fig 6. Form Cover and Form Home

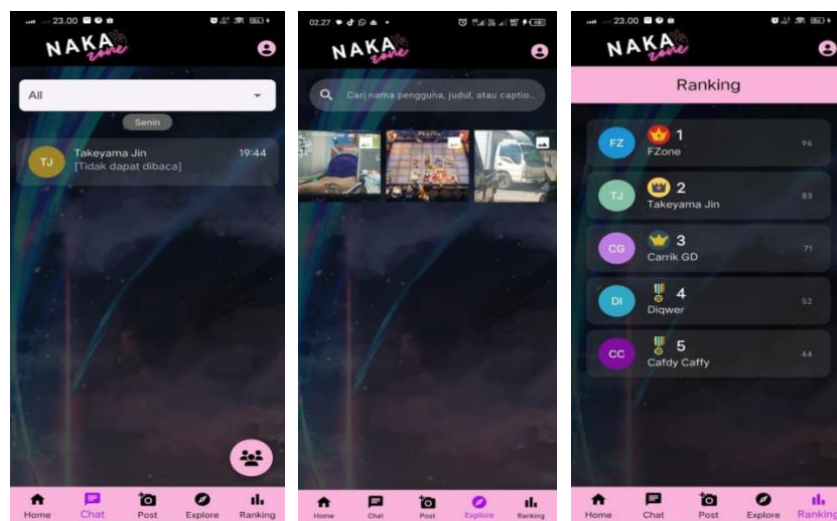


Fig 7. Form Chat, Form Explore, and Form Ranking

## 5. Conclusion

Based on the discussion and the development of the Android-based online friendship system that has been described, the author can draw the following conclusions:

1. The application has been successfully developed to search for information according to specific criteria using the Quick Sort method, making it easier for users to find the friends they want.
2. The ranking of users based on reviews has been implemented using the Quick Sort method, allowing users to easily view the ranking of popular/favorite friends.

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