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Content Repository Application using Android

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A B S T R A C T

Nowadays, a great deal of people use smart phones. Particularly, Android based smart phones become more and more prevalent in the smart phone markets. Most people use their smart phones longer than other devices. As a result, users frequently share contents and the needs of file sharing via smart phones have been increased. As a result, the need for file sharing for mobiles has increased. File sharing has emerged as one of the most important feature in mobiles. Sharing files or storing data on the internet for personal or professional use, also called content repository.

It allows users to easily collaborate and share written document, spreadsheet, or PDF and find content within the system. This paper presents an overview of the online file sharing in android phones and incorporates with Firebase Realtime Database which can be used to Store and sync data with our NoSQL cloud database. Data is synced across all clients in realtime, and remains available when your app goes offline.

Keywords:File, Sharing, Android, Firebase, Content Repository.

1. Introduction

There is a various kind of file sharing applications out there in the internet. Such as Send anywhere, Sharely, WhatsApp, telegram etc. since telegram is known as good security holder among all still it got some disadvantages. As a file sharing app carries a lot of important features, it should hold a good security for the files for the users, easy to use, file should be transferred with minimal time etc.
In this paper, we concern with online file sharing on Android based smart phones. Most mobile file sharing is performed either on the local or on the web. The local are quite reliable, but users have to be together to share files. The web based file sharing applications have some disadvantages like files can't be viewed before downloading, having a long account creation process, password protected file sharing etc. In order to overcome these problems, we propose a content repository application for the Android devices. It has the following features.

1. File shared via Internet.
2. User can store files on Google drive or on Firebase cloud storage.
3. Create account in just 2 steps.
4. Password Protected file sharing.
5. Live previews for basic file types.
6. User can add title and description/notes to the file.
7. Built-in Browser.

Firebase: Firebase is a product of Google which helps developers to build, manage, and grow their apps easily. It helps developers to build their apps faster and in a more secure way. No programming is required on the firebase side which makes it easy to use its features more efficiently. It provides services to android, ios, web, and unity. It provides cloud storage. It uses NoSQL for the database for the storage of data. Proposed project uses firebase backend services that help to build and manage applications in a better way. [5]

Sketchware: Sketchware is a FREE Scratch based integrated development environment (IDE) for developing real android apps. Sketchware uses block language like Scratch, an innovative programming language invented by MIT that transforms the complex language of text-based coding into visual, drag-and-drop building blocks. Scratch is such a simple and understandable language, even little children can learn to develop; however, Sketchware can translate your project into Java and XML source codes. among mobile devices [2].

2. Architecture

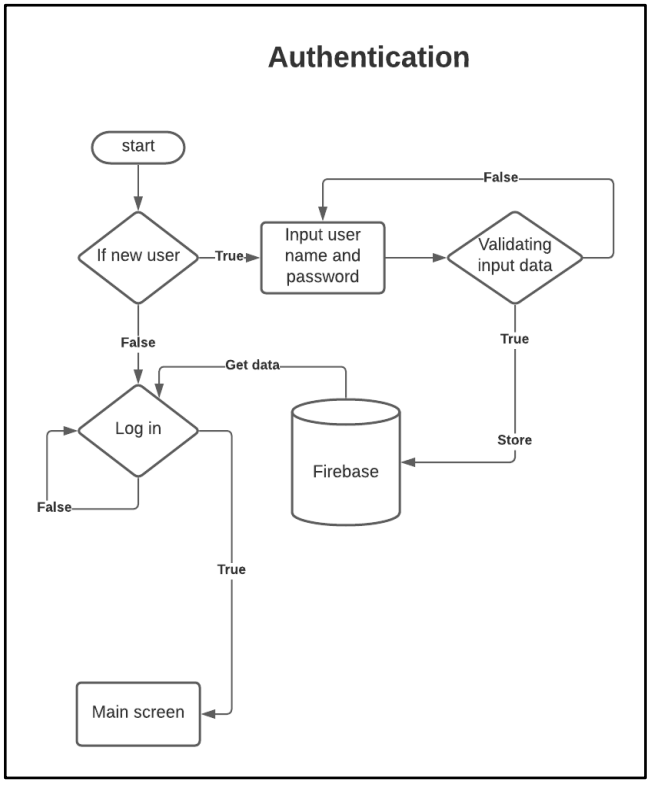

Figure 2.1 – Authentication Process

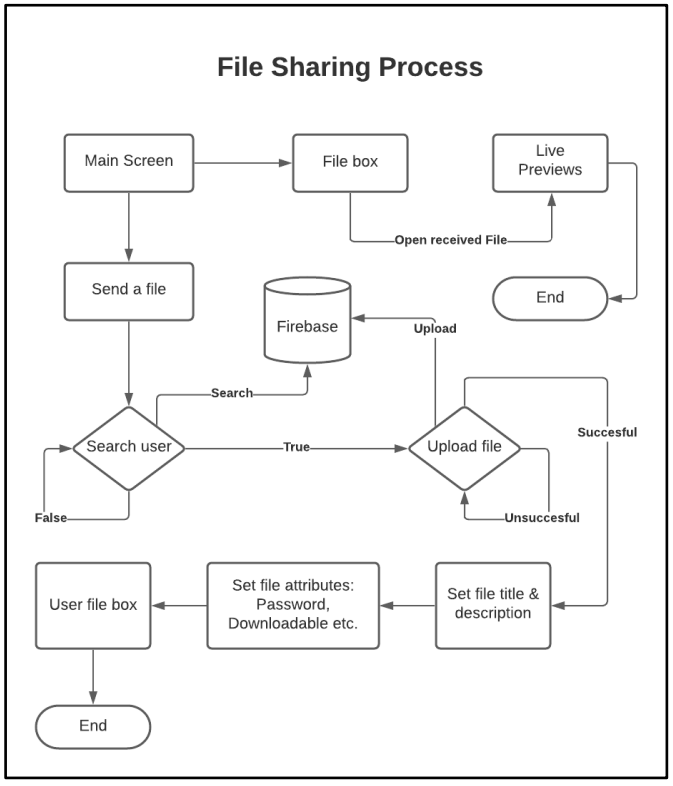

Figure 2.2 – File Sharing Process

Authentication is the process of determining whether someone or something is, in fact, who or what it says it is. Authentication technology provides access control for systems by checking to see if a user's credentials match the credentials in a database of authorized users or in a data authentication server.

Firebase Authentication:

Most apps need to know the identity of a user. Knowing a user's identity allows an app to securely save user data in the cloud and provide the same personalized experience across all of the user's devices. Firebase Authentication provides backend services, easy-to-use SDKs, and ready-made UI libraries to authenticate users to your app. It supports authentication using passwords, phone numbers, popular federated identity providers like Google, Facebook and Twitter, and more. Firebase Authentication integrates tightly with other Firebase services, and it leverages industry standards like OAuth 2.0 and OpenID Connect, so it can be easily integrated with your custom backend.

Cloud storage is a cloud computing model that stores data on the Internet through a cloud computing provider who manages and operates data storage as a service. It's delivered on demand with just-in-time capacity and costs, and eliminates buying and managing your own data storage infrastructure. This gives you agility, global scale and durability, with "anytime, anywhere" data access. [5]

Firebase Cloud:

Cloud Storage for Firebase is built for app developers who need to store and serve usergenerated content, such as photos or videos. Cloud Storage for

Firebase is a powerful, simple, and cost-effective object storage service built for Google scale. The Firebase SDKs for Cloud Storage add Google security to file uploads and downloads for your Firebase apps, regardless of network quality.

Block Programming:

Block-based programming emerged as the best solution to the above problem. The idea is to create a code in a way that is both visual (simple) and similar to traditional text-based coding (powerful). All the developer has to do is to connect visual "building blocks" in a logical way. Block-based coding is a form of programming language where the developer issues instructions by dragging and dropping blocks. This helps to prevent syntax errors and developers do not have to memorize syntax to write code. For example, in text-based language, missing a semicolon will result in an error message or prevent the program from running at all. These types of errors are eliminated with block-based coding. Block coding is just as powerful and useful as text based language, but easier to use and understand. Having to drag and drop commands is easier
than typing it character-by-character with a keyboard [6].

3. Literature Review

Use of paper is increasing day by day. To make 1 ton of paper, many big and small trees are being cut down. About 20,000,000 trees are cut down annually for virgin paper, which are used for production of books. Over 30 million acres of forest are destroyed annually. The entire process of creating paper is damaging the environment. It starts off with a tree being cut down and ends its life by being burned, emitting carbon dioxide into the atmosphere. Chopping down trees decreases the amount of oxygen in the ecosystem, thus adversely affecting all other life-forms. To avoid these circumstances and reduce the use of paper this android application can be used. [8]

Over the last few years, there has been a drastic change in information technology. This includes the various ways in which files can be shared and stored.

Cloud computing is publicized as the next major step for all forms of typical information technology use. From businesses, to non-profit organisations, to single users, there seems to be various applications which can use cloud computing to offer better, faster, and smarter computing. Android Operating System is a relatively a mobile Operating System which has been steadily taking over more and more market stake. Easy to use, easy to develop for, and open-source, it has picked up a following of developers who want to create content for the masses. This project aims to combine the two, building a cloud based application for Android, offering users the power of cloud computing in the palm of their hand for file sharing and collaboration.

Today, paperless (and even virtual) offices are taking file sharing even further. Internet users are communicating through sharing entire folders of information online, and trusting these online platforms as their primary means of document storage.

During the Internet's infancy, before it was named the "Internet" it was referred to as ARPANET and file sharing was a practice reserved only for the most tech understanding of computer users. File sharing was also really considered more file transferring, as it usually consisted of manually transferring files with a technological medium like a floppy disc. [7]

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4. Goals

The following points highlight our proposed project:

- **Anonymous file sharing:**
  In most places, an account is required to share files, in which we have to give our credentials. Which takes a lot of time. Therefore in this project, we have minimized the process of opening the anonymous account and without any credentials.

- **Extra file information:**
  Through this feature, we can send the name and information about it along with our file. Due to which the front can get to know about the file.

- **Secure file sharing:**
  Through this feature, we can send our files with password protection, which is an important thing. Due to this the right person will get the file.

- **Free of cost**
  Because files are shared directly over the Internet, there is no need for purchase expensive equipment and machinery, which would otherwise have to be used to share files. the same is true for the average person who is looking to share files with others via their home computer.

- **Live file preview:**
  Through Live Preview, we can open and view the received file without downloading it. Which saves both time and internet data.

- **Better Accessibility**
  Files are much easier to share and to access even when stored on-premise. Essentially, anyone can share their files with others. Which means that not only can files be easily shared, but can also easily be accessed by anyone from anywhere.

- **Files can be Accessed Anywhere**
  You don't have to be at a specific device to share and receive files; you can send and receive files from any location with your phone anywhere with an internet connection!

5. System Configuration

5.1 Hardware Requirement For Mobile

Device - Android v5.0 or Higher

Processor - 1.2 Quad core Processor or higher

RAM - 1 GB

Storage - 16 GB

5.2 Hardware Requirement For Computer

Processor - i3 Processor Based Computer or higher

RAM - 4 GB

Storage - 5 GB

5.3 Software Requirement

Operating System - Microsoft Windows 10/Android.

Platform/SDK - Oracle JDK/Sketchware

5.4 SDK

Languages - Java, XML.Softwares

Development : Android Studio / Skechware / Thunkable.

Designing : Figma / Picsart / PixelLab.

6. Advantages & Disadvantages

6.1 Advantages

1. Saves Time.
2. Saves Money
3. Easy accessibility
4. Easy to use, even a novice mobile user can use it
5. Account creation in just 2 steps.
6. No credentials needed.
7. Password protected file sharing.
8. Live file previews.
9. Extra information wrapped with file.
10. It does not have those buggy advertisements on the display screen.
11. Free of charge: You need not spend any money for chatting and sharing with your friends(except the internet charges).

6.2 Disadvantages

1. Can't share huge data•
2. Must have access to the internet to send and receive files.
3. Must know the username/ID of receiver.
4. Must have application to share files.
5. Not established on web.

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