

## College Network

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**Abstract**— College network provides the students of college to form a social networking platform among themselves, enabling them to connect with their seniors and juniors for sharing information and resources. It provides user features to follow the students, send message to others, post what they like and ask for queries on which like and comment feature is available. All the students registered may be seen college-wise and asked for help. Separate news board may be developed for each individual college. Some of the features provided are following the users, friends, seniors and juniors. Chat-bot for chatting. Active news display board for all college tutorials for work to be performed posts for users to seek and share information. Contribute page for contributions from users. Sell/buy page for posting ads by for study material and other college related stuff. Tools used for this project are Android Studio. Colleges for social networking and resources & information sharing. May be modified for using in industries as news-boards and tutorials of work to be done in particular organization. The main reason to implement this application is to make every student aware of all the events and symposiums that are taking place in and around the college.

### I. INTRODUCTION

College network provides you with the latest news taking place in and around the college. It provides a platform which enhances various tools and facilities to every student in the college. This interactive environment was developed to provide you with an individualized learning experience. The main elements of the College Network's comprehensive learning modules have been designed with customers varying learning styles and preferences in mind. The designing of the app is done by Android Studio. Android Studio is the official Integrated Development Environment (IDE) for Android app development, based on IntelliJ IDEA. On top of IntelliJ's powerful code editor and developer tools, Android Studio offers even more features that enhance your productivity when building Android apps. Each project in Android Studio contains one or more modules with source code files and resource files. It provides user features to follow the students, send message to others, post what they like and ask for queries on which like and comment feature is available. All the students registered may be seen college-wise and asked for help. This application is very useful in all aspects and helps every user to be aware of all the events that are taking place. There are various sections build in the application such as forums, announcements, e-books and upload content. The upload section uploads images which are necessary for the event or fest that is going to be organized. The announcements made in the college are with respect to the content added on to the portal. Once the user registers into application, the username and email id is stored in the firebase database which is under the control of privileged admin. The

overview of the project depends on the functioning of the application. Therefore the above mentioned features are with respect to the application content which are included in the database.

### II. LITERATURE SURVEY

The College Network has developed it's earn. Application to give users the ability to share the importance of education with others by referring them to The College Network. The application could be very useful for all the students in the college for educational purposes. This provides valuable information about the whereabouts of the various events, seminars and fests inside the campus. One way to ensure that applications show optimum performance on a given device is to develop the application (app) natively on that device. This means that at a very low level, the code is written specifically for the processor in a particular device. When an app needs to run on multiple operating systems, however, there is little if any code that can be reused from the initial development. The application must essentially be rewritten for each specific device.

The platform organizations needed to develop, deploy and manage mobile apps are made from many components and tools which allow a developer to write, test and deploy applications into the target platform environment. The above information is with regard to the content documentation of application.

### III. EXISTING SYSTEM

The application consists of many stages.

- In the first stage, the registration and login details has been initiated.
- The second stage consists of uploading content that is whenever a new event is going to take place or already been initiated.
- The third stage consists of announcements. This comprises of individual task from the main user who updates all the upcoming or happening information in the college.
- The fourth stage comes under E-books. The functioning of this portal is to download and upload any content with respect to the current systems taking place in the college with respect to a particular department.
- Another interesting stage developed in the application is to share the information to any user or with the one who is organizing the event.

#### A. Issues in Existing System

To develop a large and wide ranging application, there exists some threatening issues which can make the application to function in different manner.

- One of the main issue is the security of the application. A secure application database is necessary in order to be unaware of all the viruses and threats injecting into the application.
- To secure any particular application, it has to be encrypted in accordance to the main database stored with respect to the server. There exists an end to end encryption which helps in securing a particular application. This is more protective with reference to the one that is not encrypted application.
- Another issue which is currently existing in the application is high speed internet which is the basic requirement in order to get access into the application.
- Without a high speed internet for the running of firebase, a user cannot run the application freely or the smoothly to get access to all the services provided within the application.
- More number of users currently active that is, the more number of users currently active on application then there are more chances to get crash as the server cannot hold more users all at a time.

#### IV. SOFTWARE INTERFACE

##### A. Android Studio IDE

Android Studio is Android's official IDE. It is purpose built for Android to accelerate your development and help you build the highest-quality apps for every Android device. It offer tools custom-tailored for Android developers, including rich code editing, debugging, testing, and profiling tools. Android Studio's Instant Run feature pushes code and resource changes to your running app. It intelligently understands the changes and often delivers them without restarting your app or rebuilding your APK, so you can see the effects immediately. The code editor helps you write better code, work faster, and be more productive by offering advanced code completion, refactoring, and code analysis.

An Integrated Development Environment (IDE) is an all-in-one solution that allows an application (app) developer (a.k.a. programmer) to perform the software development cycle repeatedly and quickly.

##### B. Firebase Real Time Database

The Firebase Real time Database is a cloud-hosted database. Data is stored as JSON and synchronized in real time to every connected client. When you build cross-platform apps with our iOS, Android, and JavaScript SDKs, all of your clients share one Real time Database instance and automatically receive updates with the newest data. Firebase Analytics is a free app measurement solution that provides insight into app usage and user engagement. Firebase is a service that can authenticate users using only client-side code. It supports social login providers Facebook, GitHub, Twitter and Google. Additionally, it includes a user management system whereby developers can enable user authentication with email and password login stored with Firebase. Firebase Storage provides secure file uploads and downloads for Firebase apps, regardless of network quality. The developer can use it to store images, audio, video, or other user-generated content.

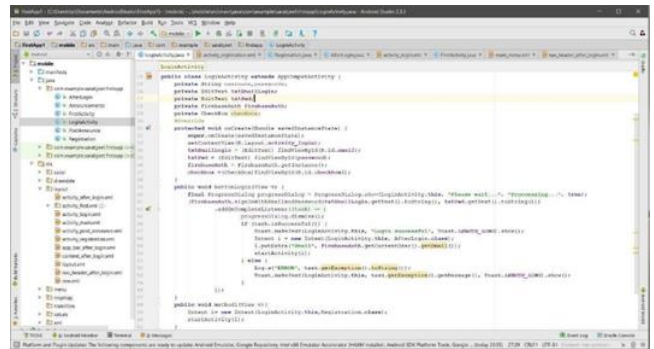


Fig. 3.1: Code for Communication Interface

#### V. SYSTEM ANALYSIS & DESIGN

##### A. System Architecture

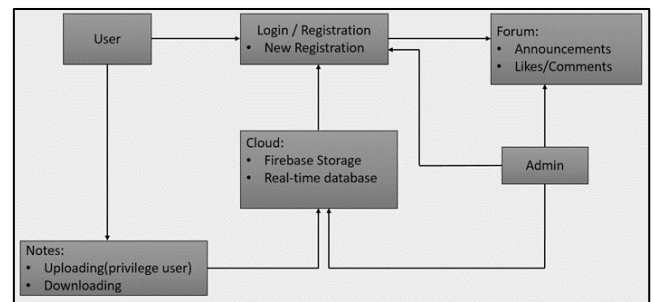


Fig. 4.1: System Architecture

The system architecture as shown in the Figure 4.1 that represent the conceptual model that defines the structure and behaviour of system. The architecture shows the accessibility of User and Admin on the different components of the system architecture. The architecture contains four classes namely Login/Registration, Forum and Upload/Download Activity.

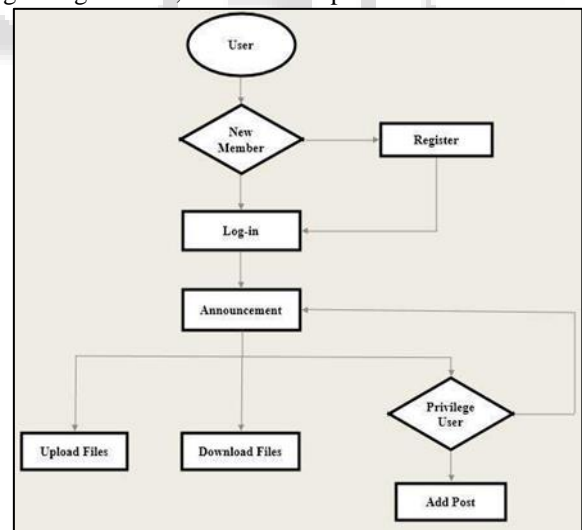


Fig. Flow Chart of System Architecture

The Flow Chart as shown in the Figure 4.2 represent the systematic way of users to access the application components. The user first goes for authentication if registered then it moves to the login part else moves to the signup page. The user is now able to upload and download the files. And to check the latest update on the announcement page. Only privilege users are able to post new updates about trends, events and academic documents. The login activity is authenticated by firebase authentication algorithm using real

time database. The validation of register page attributes is also implemented in respective components (email-validation, password length-verification).

Announcement portal is blog portal that contain images following by author of the post. The announcement portal is implemented on Navigation drawer activity which have following intents:

- 1) Uploading Activity
- 2) Downloading Activity
- 3) Add post Activity (Only for privileged users)

## VI. SYSTEM REQUIREMENTS

- Operating System Requirements: Android 4.4 (kitkat) and above.
- Internet Accessibility
- System memory 512 Mb
- Processor : 1.7 GHz Dual Core

### A. System Implementation

#### 1) Android Studio

Android Studio is the official integrated development for Google's Android operating system, built on Jet designed specifically for Android development. It on Windows, mac OS and Linux based operating systems. It is a replacement for the Eclipse Android Development Tools (ADT) as primary IDE for native Android application development.

#### 2) Java

Java is object oriented programming language and portability, which means that programs written for the Java platform must run similarly on any combination of hardware and operating system with adequate runtime support. This is achieved by compiling the Java language code to an intermediate representation called Java bytecode, instead of directly to architecture-specific machine code. Java bytecode instructions are analogous to machine code, but they are intended to be executed by a virtual machine (VM) written specifically for the host hardware.

### B. Implementation Details

#### 1) Activities

##### a) Login Activity

The Login Activity includes two attributes (User Id, Password) and a link to Registration Activity.

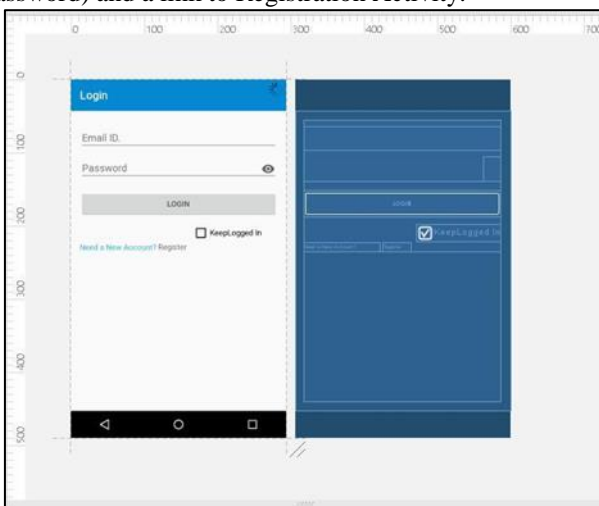


Fig. 6.1: Login Activity layout

A login application is the screen asking your credentials to login to some particular. The Login Activity takes user id and password as Input and authenticate with valid authentication algorithm with Firebase Realtime database. The user credentials are authenticated with registered credentials in database. For new user, the activity content a link which enable user to create a new account using the Registration activity. The Registration link passes the present activity to Registration activity as shown in Figure.

##### b) Registration Activity

The Registration Activity includes 3 attributes (User Id, Name, and Password) and a Sign-up button to register as shown in Figure.

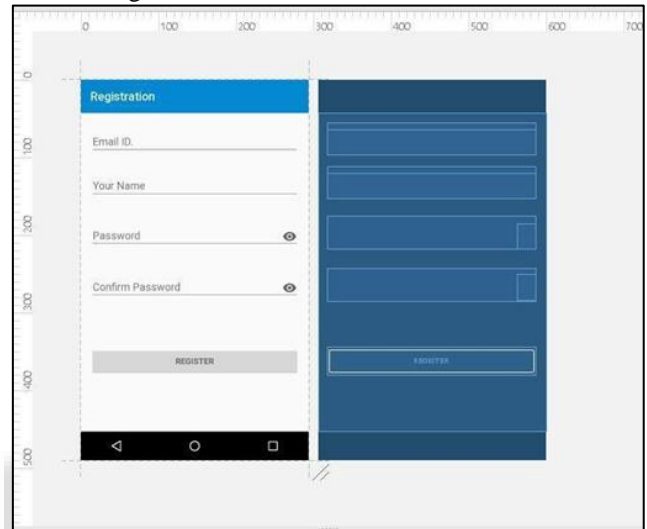


Fig. 6.2: Registration Activity Layout

The Registration Activity requires three credentials from the user that are:

- 1) E-mail - The user should enter their E-mail in order to complete registration process.
- 2) Name - The user have to mention their Full Name.
- 3) Password - The user should create a secret password (More than 6 digits).
- 4) Confirm Password - In order to check or confirm the mentioned password user need to enter the previous password in this credential.

##### c) Announcement Activity

This activity allows user to post announcement which is accessible to all users. But allowing privilege user to post the announcement.

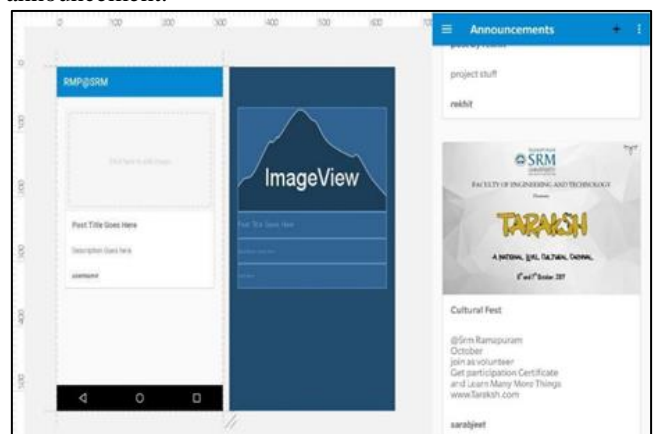


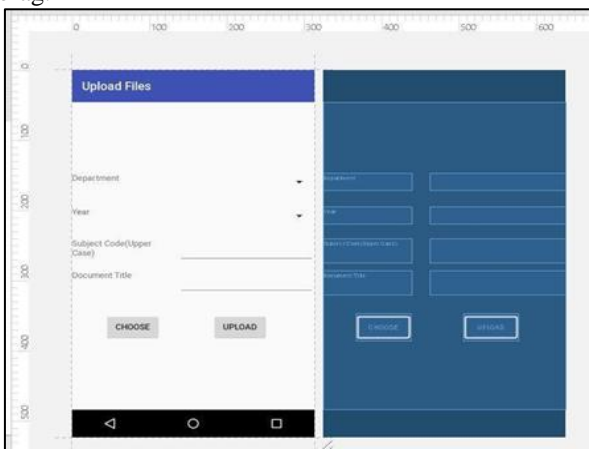
Fig. Announcements Activity

In the Figure, the left-hand side image shows the recycler view used with card view adapter to show the particular information about the announcement that contains Image, title and the author of the post .The image select button redirects into the gallery which allows you to choose the image, the title section provides the title to the post and the description is provided below the title .The author username is fetched automatically from the firebase database.

The right-hand side activity is an announcement retrieval activity, it retrieves all the latest announcements posted by the user along with their name. It directly fetches data from the Firebase real-time database storage. It also includes the plus attributes which is only available to the privilege users.

d) Uploading Activity

This activity is used to upload Pdf and Images on Firebase Storage.



This activity contains four attributes that are:

- 1) Department Name and Year which is selected from the Spinner widget.
- 2) Subject Code – the user have to enter the subject code.
- 3) Document Title- the user have to enter the name of the document which would be uploaded.
- 4) Choose Button- it opens the storage content from which user can upload Pdf files and image files.
- 5) Upload button- the user has to click on upload button to upload the file.

e) Downloading Activity

This activity enable the user to download the content (Files, Images) from the Firebase storage.

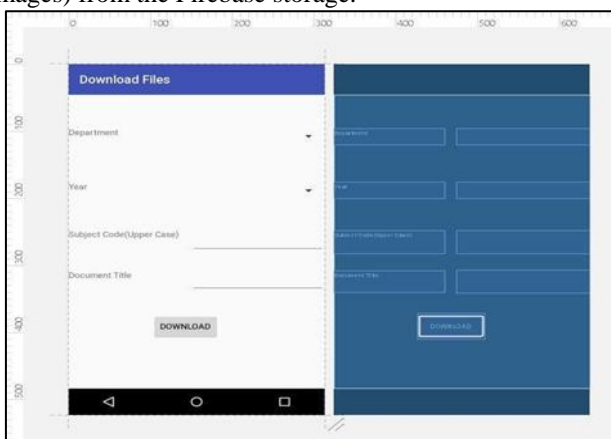


Fig. 6.5: Downloading Activity layout

This activity contains four attributes that are:

- 1) Department Name and Year which is selected from the Spinner widget.
- 2) Subject Code – the user have to enter the subject code.
- 3) Document Title- the user have to enter the name of the document which would be uploaded.
- 4) Download button – the user has to click on Download button to download the required document.

VII. CONCLUSION & FUTURE WORK

In the project, the designing and implementation of an efficient app for connecting each and every student in a college was done successfully. The app worked as expected and it will help in the efficient and fast sharing of the documents and announcements. Now a days we are more into the digital world then in the paper work and thus it helps us in maintaining the lost connectivity with the college and our colleagues. We through the app can easily share data in a friendly interface which is easier to use and thus helps us stay updated. Through the app we can look into each and every announcement which were previously not accessible. Thus, concluding that the app is a good method to get connected to our friends and colleagues.

The app would in future be updated to so as to provide video announcements. The app would also contain a forum section wherein all the college students can openly post things and clear all the doubts. Also, the app would contain space for the addition of video tutorials and also the app would contain the attendance of the students to provide them an altogether experience and provide them with all the data at the same place.

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