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Project report on

ResearchIN Android Application

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কল্যাণী গভঃ ইঞ্জিনিয়ারিং কলেজ
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(Govt. of West Bengal)

Certificate of Approval

This is to certify that Project Report on "ResearchIN Android Application" is a record of project work under the curriculum of Maulana Abul Kalam Azad University of Technology(MAKAUT) for the 3rd year 5th semester Examination, 2018 for the subject " Mainor Project & Seminar(MCA 591) carried out by " *Suhrid Ranjan Das-10201016007* , and *Abhro Bhattacharjee- 10201016031,* students of Kalyani Govt. Engineering College under the guidance of Dr."Indrajit Bhattacharaya" as a requirement for the partial fulfilment of the Degree of Master of Computer Application.

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Head   Supervisor

Department of Computer Application   Department of Computer Application Kalyani
Government Engineering College   Kalyani Government Engineering College

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Departme

Acknowledgement

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We are grateful to our project guides Dr. Indrajit Bhattacharaya for his guidance, inspiration and constructive suggestions that helped us in the successful completion of this project.

Signatures:

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Introduction

In today's world, Research has become a very important field, not only for Students, but also for Professors and Doctors as well. Many a times researchers tend to search for papers of their interests and would like to view or download them for future use. ResearchIN provides all these features at the researcher's finger tips, rather then searching for a paper in internet of any website. Also it may happen that may researchers have visited a conference and don't know each other or their works. ResearchIN would show the registered people around you along with their work description.

1.1 Problem Statement

Presently there are certain websites that provides the facility to upload, view and download research   papers. There are also some Android Applications that provide the same. But the interface of these websites and applications are complicated, and also registering to these portals are difficult for a normal user say for example a student, who does not have a paper to be published. Further more, having an Android Application for reading and getting research papers is more convenient then opening a website to do the same. Finding papers according to the interest or by the name of a researcher is also a hectic job. Also,

none of the existing android applications provide the facility to find Researchers or people those who are registered in the app if they are nearby each other.

1.2 Motivation

ResearchIN Android Application is made to create a place where Researchers and people who are interested in research works can register, view each others works and even download them if proper permissions are granted. Researchers can follow each other so that they get constant update of each others works. Finding researchers or registered people nearby and viewing there work is very essential for a researcher who has visited a conference and does not know who the other researchers are around him and about their works. ResearchIN provides a very easy to use and user friendly interface to Upload, Download and view Research works of registered researchers and also helps to find users who are nearby each other.

1.3 Solution Strategy

Developing an Android Application that is easy to use and provides most of the features of a research portal. Also making real-time changes according to the users needs and finding fellow researchers nearby. Uploading, viewing and downloading made easy with just one click of a button. Also security is maintained so that if the registered Researcher does not want to make their papers visible to others without proper permissions, they can do so. Searching of the papers and researchers made easy using dynamic search options which helps to search for research papers and researchers as well based on keywords entered.

General Description

2.1 Product Perspective

The product ResearchIN, is an independent product and does not depend on any other product or system. It has its individual database for registered users and papers uploaded by it, and also stores relevant information about the users including their location for finding other registered people nearby.

2.2 Product Functions

ResearchIN is a easy to use application where Researchers and other people interested in research works can register, by providing certain details, some of which are prebuilt in the system, their interests as well. They can view other people's works in their feed if the interests match with the works, can upload their own works and also specify if they want to make their works public or hidden for security purposes. Users can follow other registered users or researchers if they want, can request to download full papers if the interested papers are locked, can search papers based on paper names, some keywords or even author names and can also find registered users if they are nearby each other.

2.3 Assumptions and Dependencies

- We assume that the database is handled by the database administrator and the application has no admin section.

- The users wanting to use the application should have android based smartphones along with internet access.

- The database administrator should be careful in deleting or modifying any information knowingly or unknowingly which will lead to inconsistency of the database.

- The end users of this software are assumed to have basic knowledge of using android smartphones and applications.
- In certain cases the users may be prompted to provide access to read, write external storage and also to turn on GPS on their smartphones. In order to use the features of the application to the fullest, the user should grant access to these requests.

3. Specific Requirements

3.1 Hardware Interfaces

Hardware Environment	Intel i3/ Amd A8 or higher
System Configuration	RAM-4 GB HDD-80GB
Operating system	Windows 7/8/8.1/10. Any Linux based OS
Mobile Application	Android Jellybean (4.1) or above

3.2 Software Interfaces

Front End	Java, XML
Back End	Core PHP for Rest API, SQLite, MySQL

3.3 Functional Requirements

ResearchIN involves the following functions

3.3.1 General News Feeds:

The registered users will be able to see the research works of their interests and also of the researchers they are following.

3.3.2 NearBy:

The registered users can view other users who are nearby along with their work and if they find their work interesting, can send request to download their works if not made public by them.

3.3.3 Connections:

Users can see who they are following as well as which other users are following them.

3.3.4 Upload, Download and Search:

- Users can upload papers providing certain information and can also specify if the paper is to be made public for all users or hidden.
- Users can view or download papers of their interest.
- The search option provides users the facility to search papers based on paper names, interests and author names.

3.3.5 Requests:

Users can view who have requested to download their papers and can provide access for the same if they want, also can view whom they have requested for certain papers.

3.4 Non-Functional Requirements

3.4.1 Performance

Easy to use interface, sleek design and fast. It is hustle free to upload, view or download research works.

3.4.2 Reliability

The application will not be able to connect to the centralized database in the event that there is no internet connection in the smartphone.

3.4.3 Availability

The software will be available to all, but there will be constraints for providing their respective education institute. If the user does not belong to any of the education institute defined in the application, then he/she wont be able to register.

3.4.4 Security

The security requirements deal with the primary security. Only authorized users can access the system with username and password. The whole system is secured as all the sessions are done using email.

3.4.5 Maintainability
Backups for database are available.

3.4.6 Portability
This is an android application and can run on any real device(Android smartphones and tablets).

3.6 Design Constraints
This application provides security. The login form prevents the app from being misused by unauthorized users. Only an authorized operator will be granted rights to modify as per requirements. This app is also reliable and fault tolerant. It can handle invalid inputs. Since reliability is major area of concern the app has a backup to avoid data loss.

4. Flow Diagrams
4.1 Data Flow Diagram (Level 0)
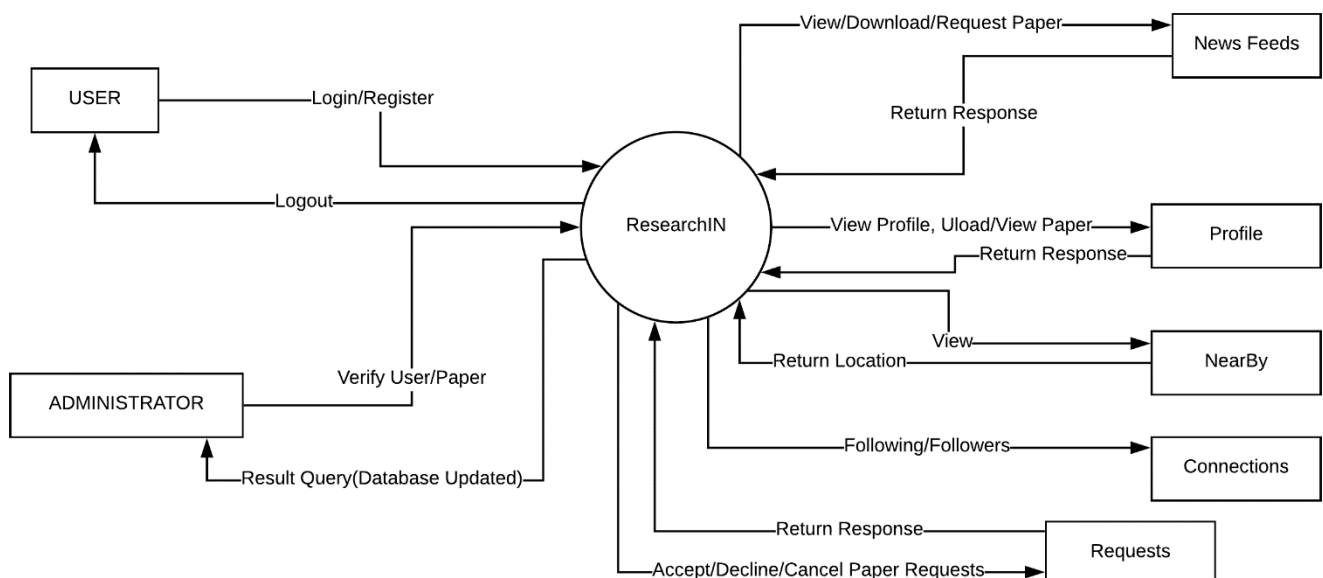
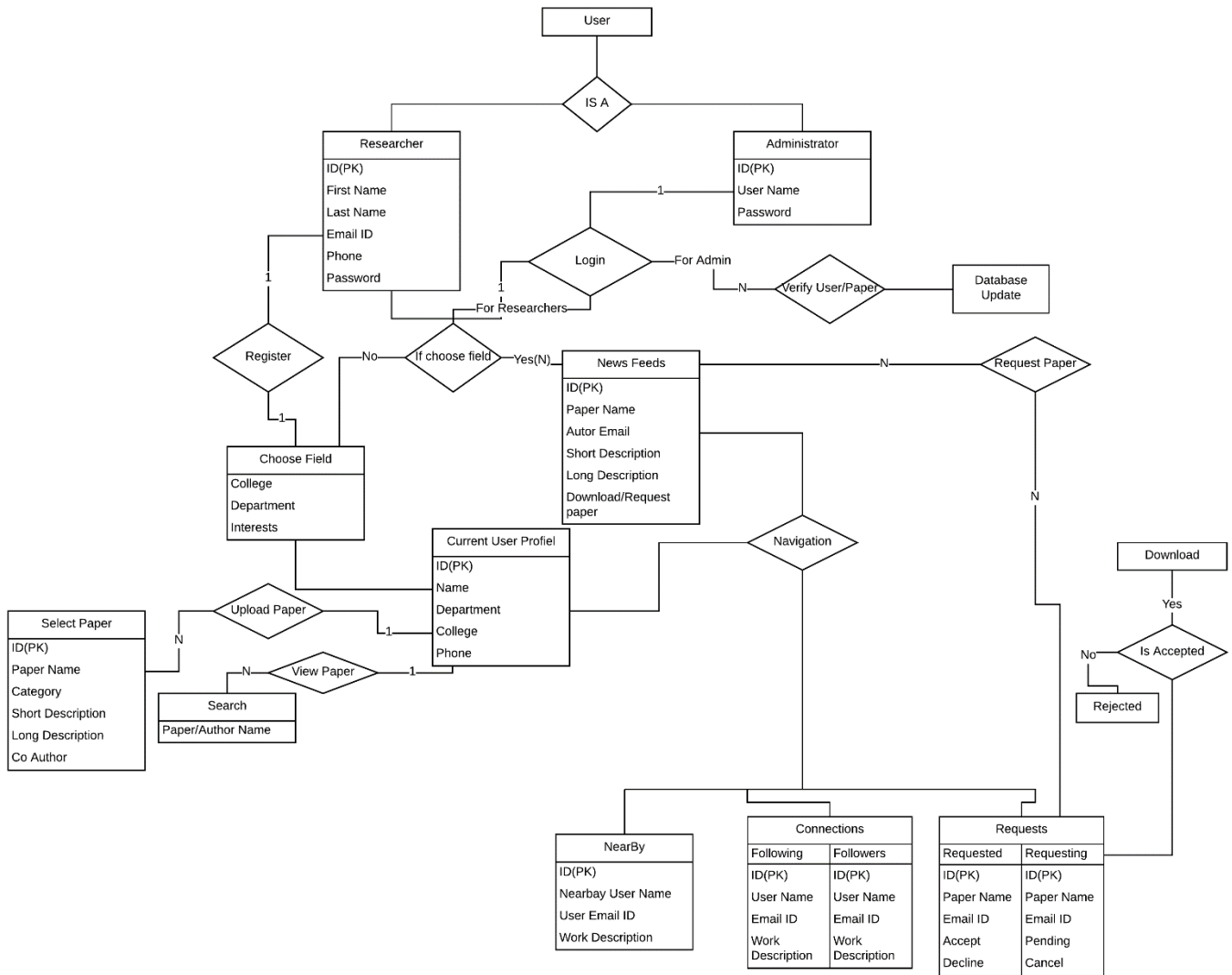## 4.2 Data Flow Diagram (Level 1)
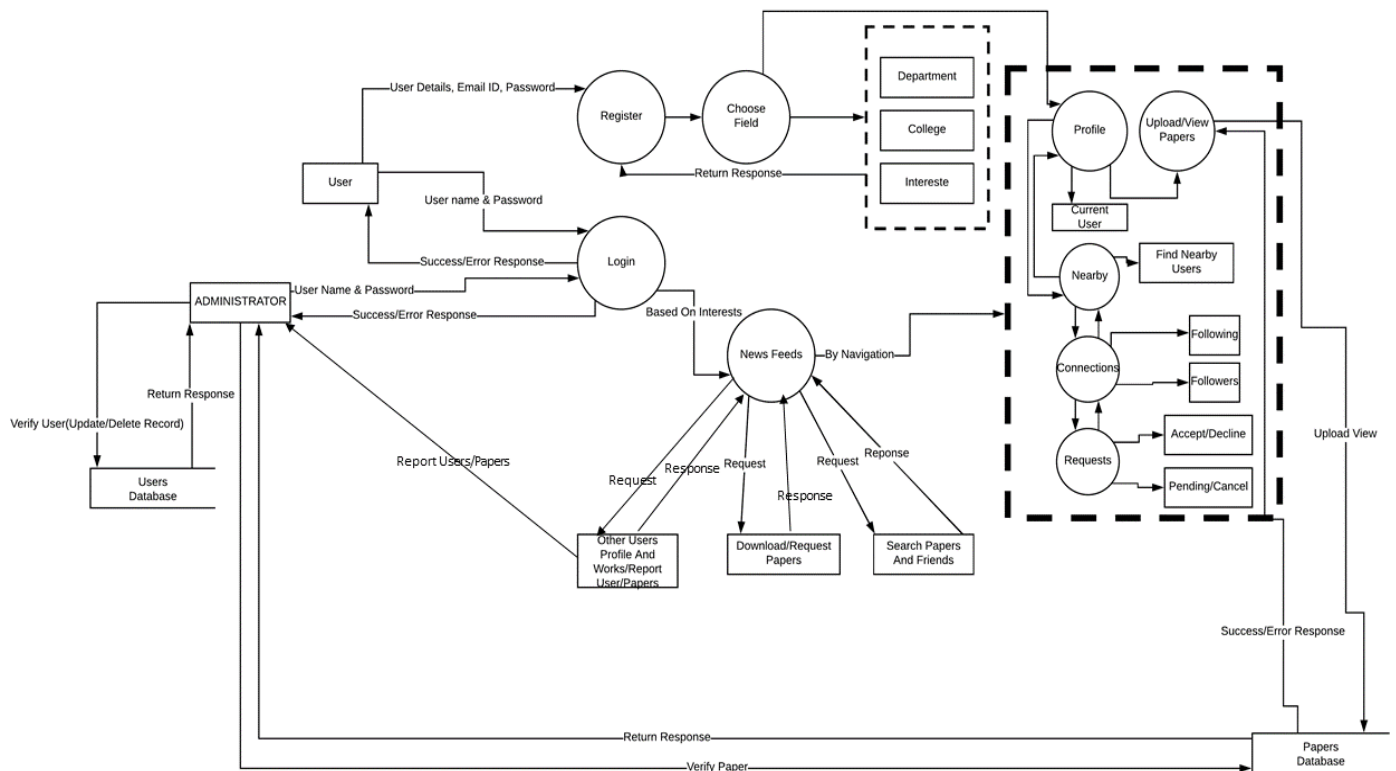
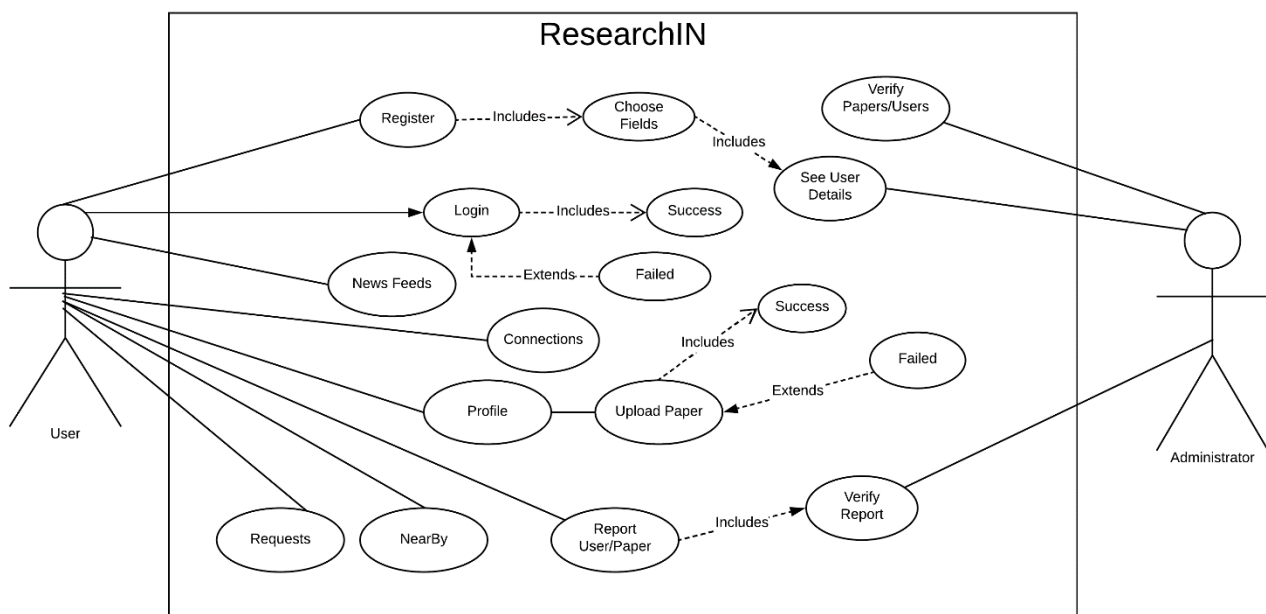## 4.3 Class Diagram
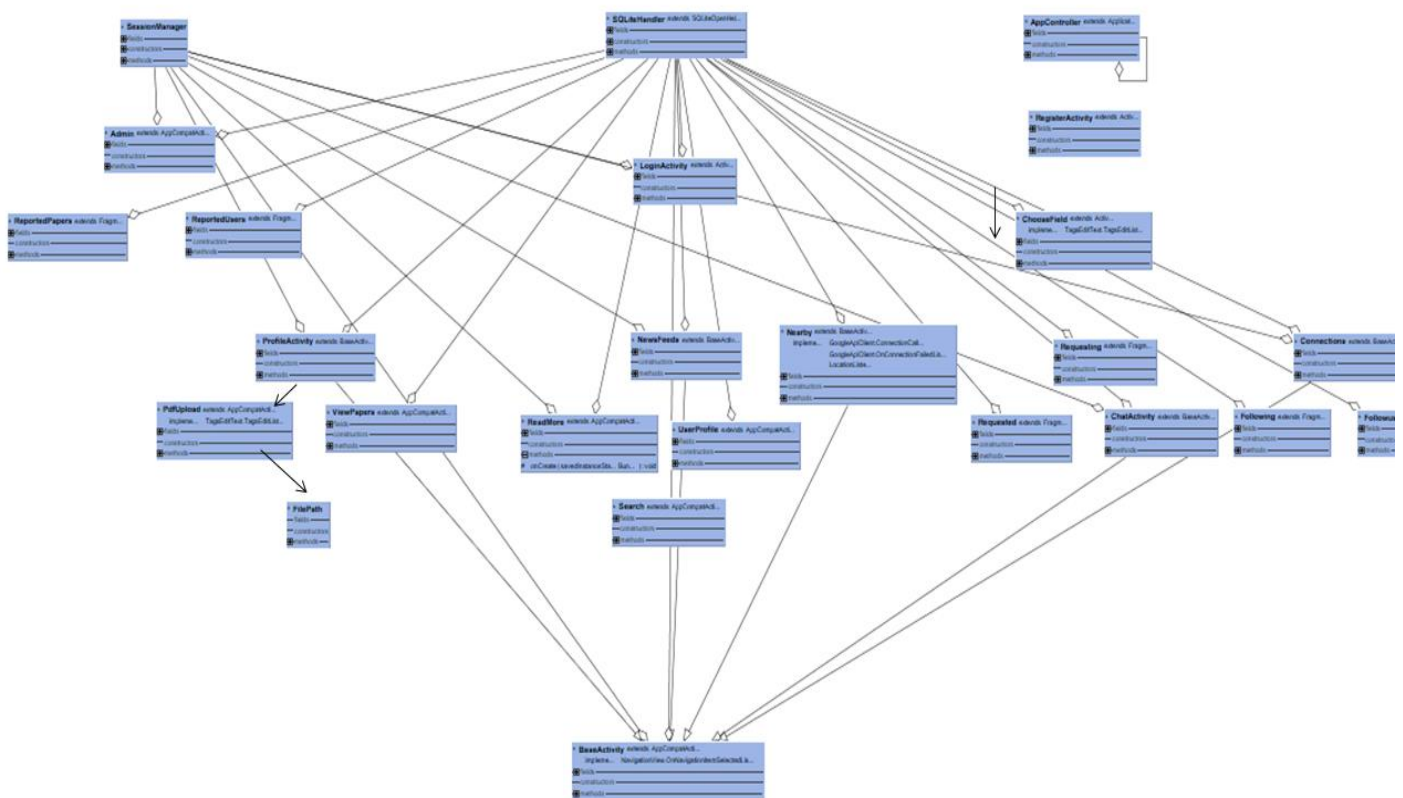
4.4 Sequence Diagram
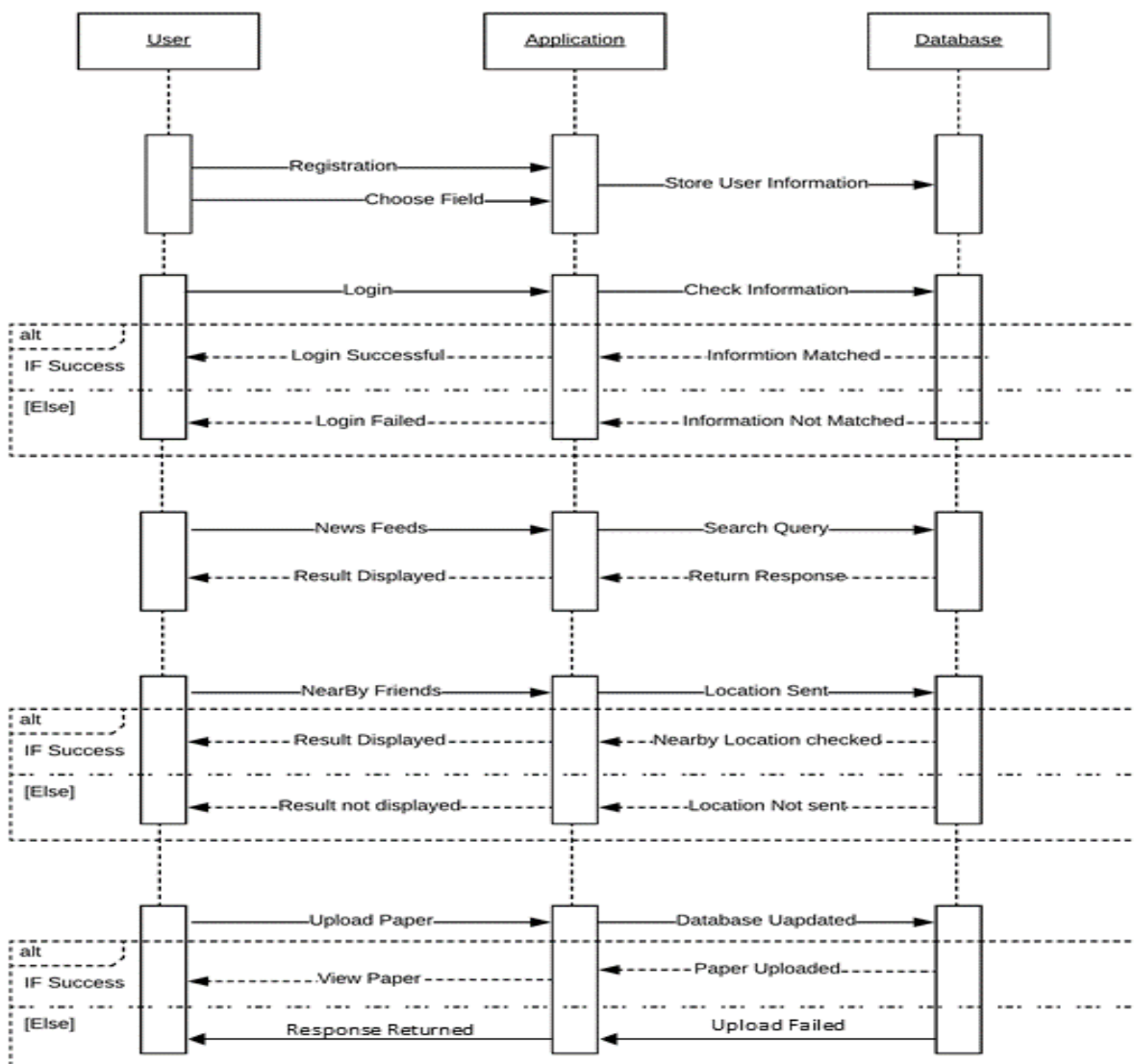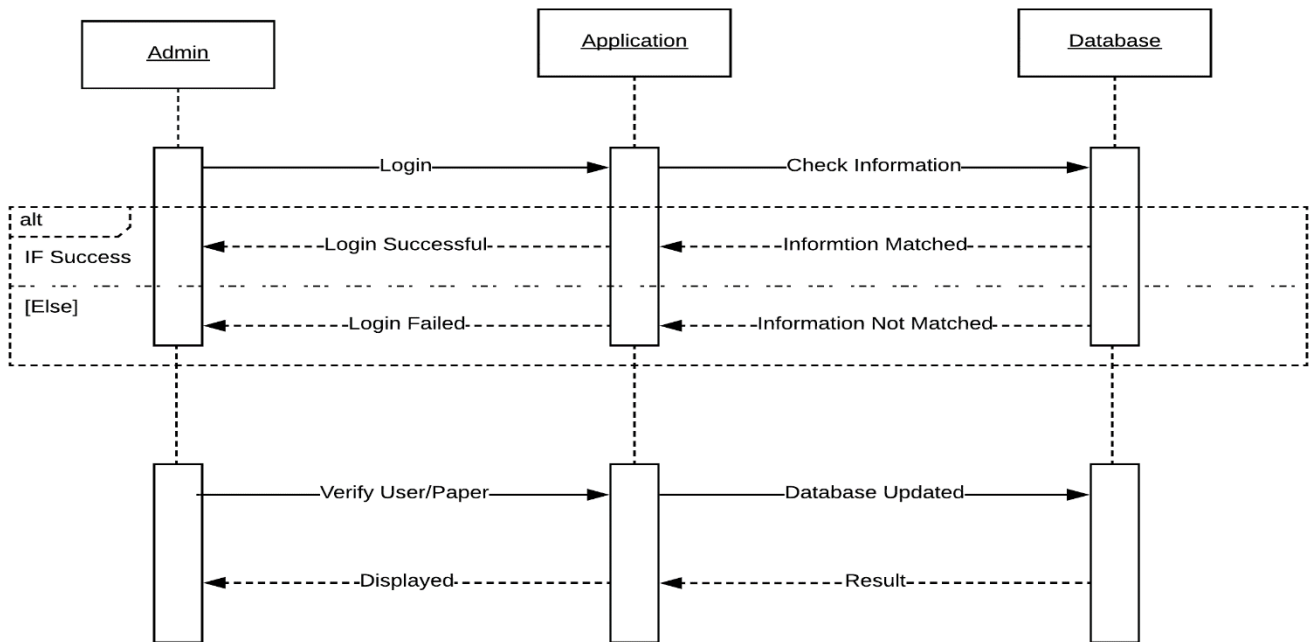
4.5 Activity Diagram
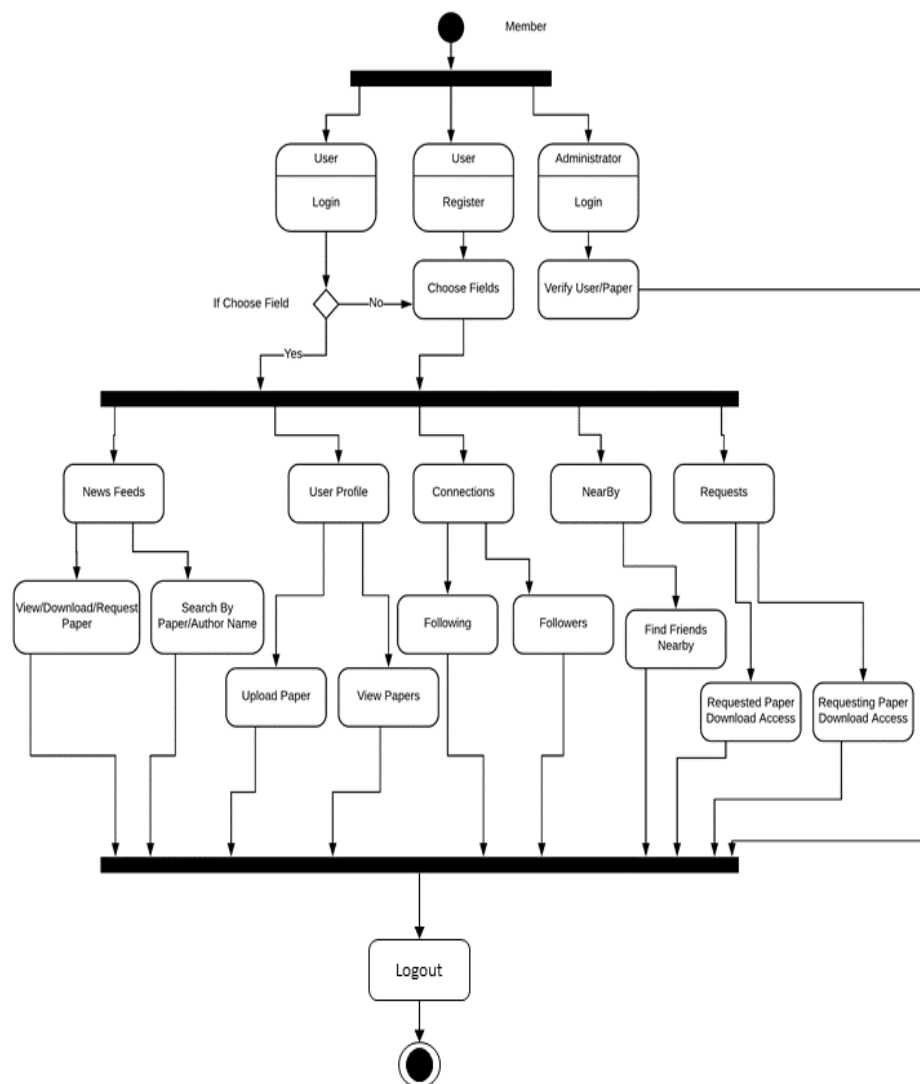
4.6 Entity Relationship Diagram


4.7 Use Case Diagram

Working of ResearchIN

The working of ResearchIN is very simplistic in nature. Operating the application as a user is very user friendly, also the app is designed to achieve efficiency using the various benefits of modern technology.

Login Module

The login module is the initial entry point into the application. It allows a user to access the app based on the privilege of user. The user module has been placed as the initial point of access so that any unauthorized access can be avoided, also the login module restricts access by only allowing certain users to login into the app and use its functionalities.
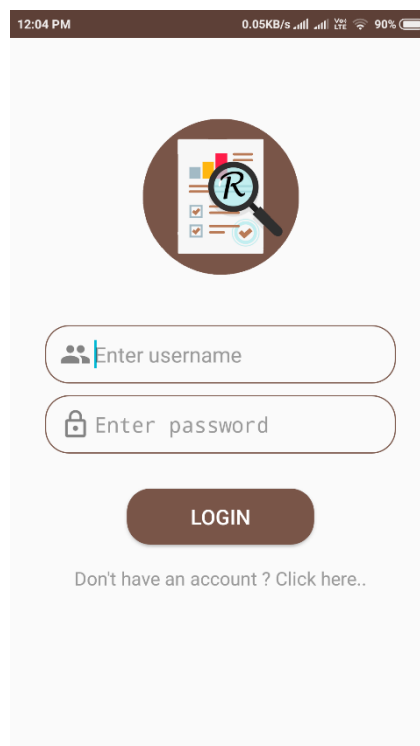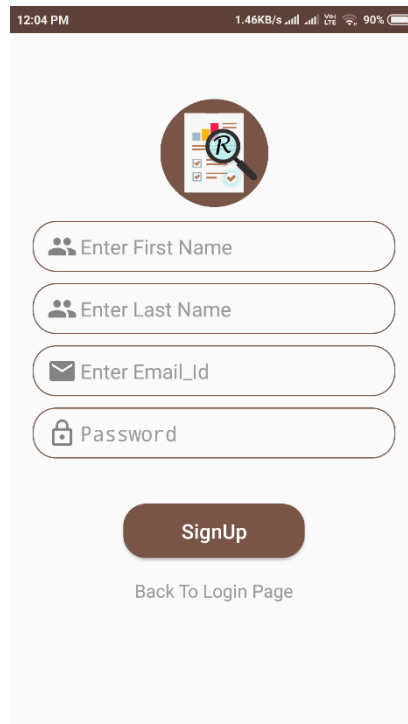

The login module takes input Username and Password that is set by the user during registration, verifies both the inputs and then allows an user to login into the application.

The user can also go to the registration section if he/she does not have themselves registered on the application by clicking the "Don't have an account? Click here..".
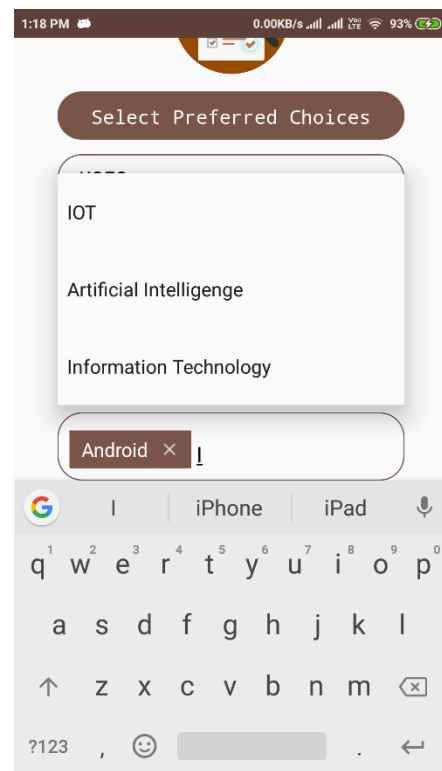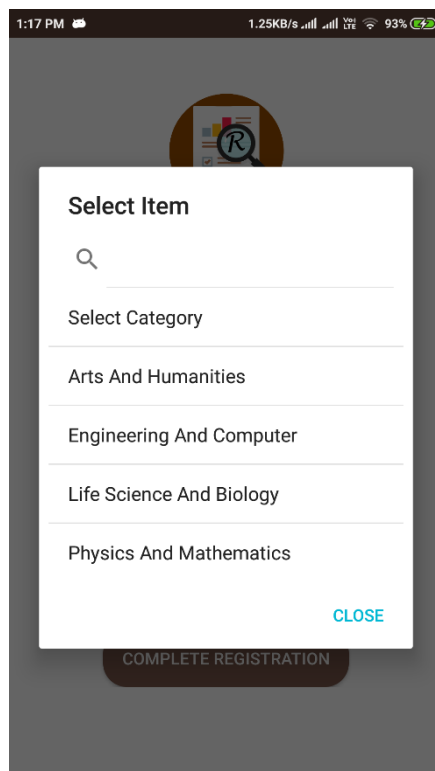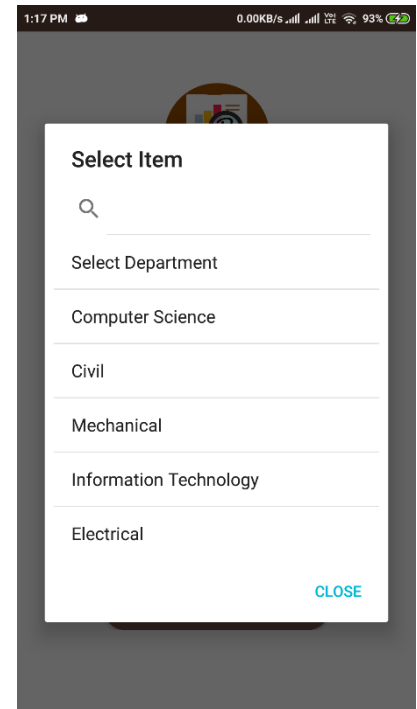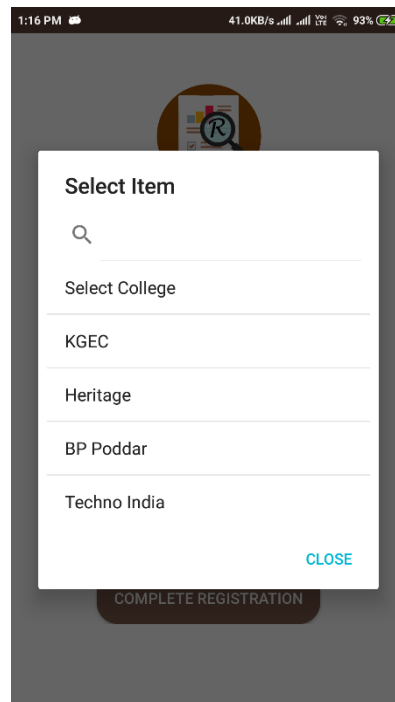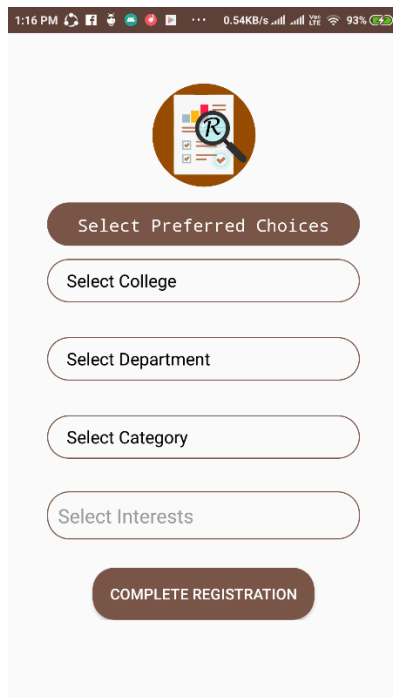
Registration Module

If a user does not have any account created, they he/she cannot just simply login into the application. To do so, one have to first register themselves through the registration section by providing relevant information like First and Last names, Email ID and Password.

After providing the necessary inputs the user clicks on the "SingUP" button to get registered. No field can be left empty, all the fields are mandatory for registration.

Choose Field Area

After the registration, the user is directed to the Select Choices area when the user has to provide their college, department to which they belong and preferred interests in the area of research or what kind of research works they want to view.

For interest selection, the user can provide multiple interests that are already pre-loaded in the database or even by manually entering the preferred interests.

News Feeds

News Feed is the section where users can view different works of different authors based on the interests they have provided during the registration section. If the interests of the user matches with the category of the papers which other users or authors have uploaded, then those works or papers will be displayed in the News Feed of the current user. Each article in the News Feed contain the Paper Heading, Author's Email ID, a short description and a long description of the work done. If the user feels the work to be intriguing and of their interest, they can download the paper by clicking on the Download button for the full paper or request the author for full paper download access if the paper is download restricted. Also on clicking on the email of any author, the current user can view the author's profile along with all the works he/she has done. The News Feed also shows how many the number of downloads of a particular paper.
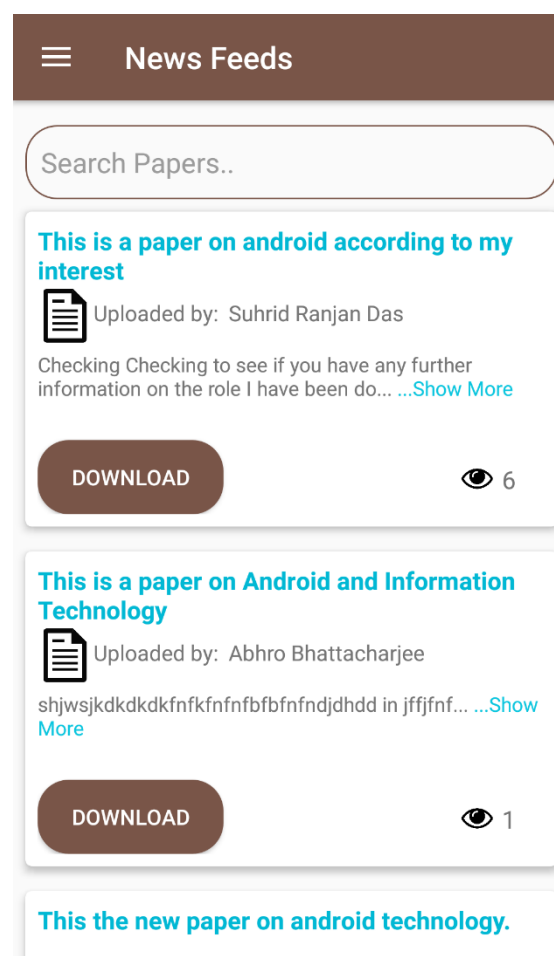
Search Papers

The is also a search option in the News Feeds section which enables to search for papers or works done by different researchers. The Search functionality of ResaerchIN provides the users with the ability to search for works by either typing a keyword or paper name and even researcher or author's name. For example, if the user types Android, all the papers having android keyword in it will be displayed in the form of a list. If the user searches by providing any Author's name, then the authors will be displayed.
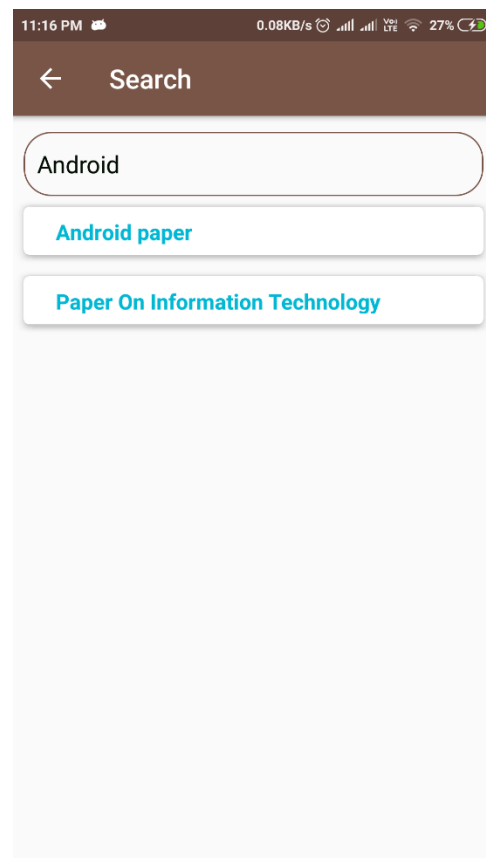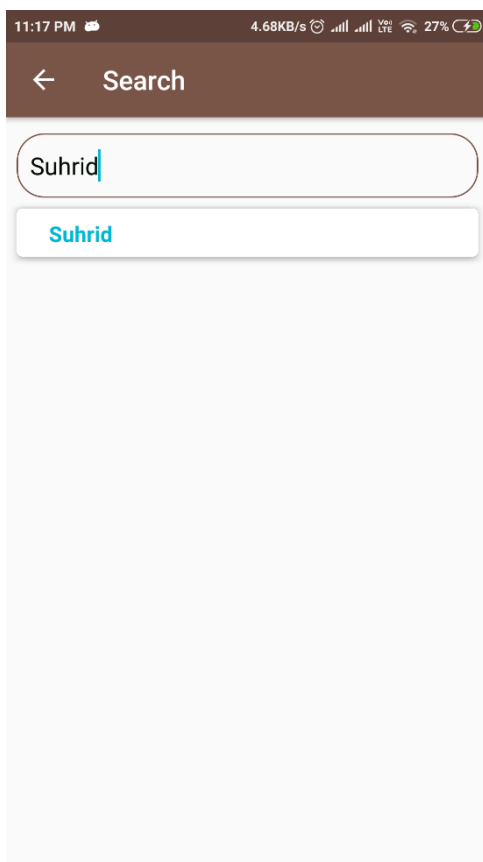
NearBy

NearBy is an unique feature of the ResearchIN Android Application that helps to find registered users who are nearby each other within a certain proximity. This feature is very useful for Researchers who are attending any conference or having a meet, they can find other registered Researchers and know about them and their works. The current user can also download full paper or request access for full paper download from the nearby users. As the NearBy feature works in real-time, it asks for permissions for GPS access as the current location of the user is stored and then checked if there are other users who are in close proximity.
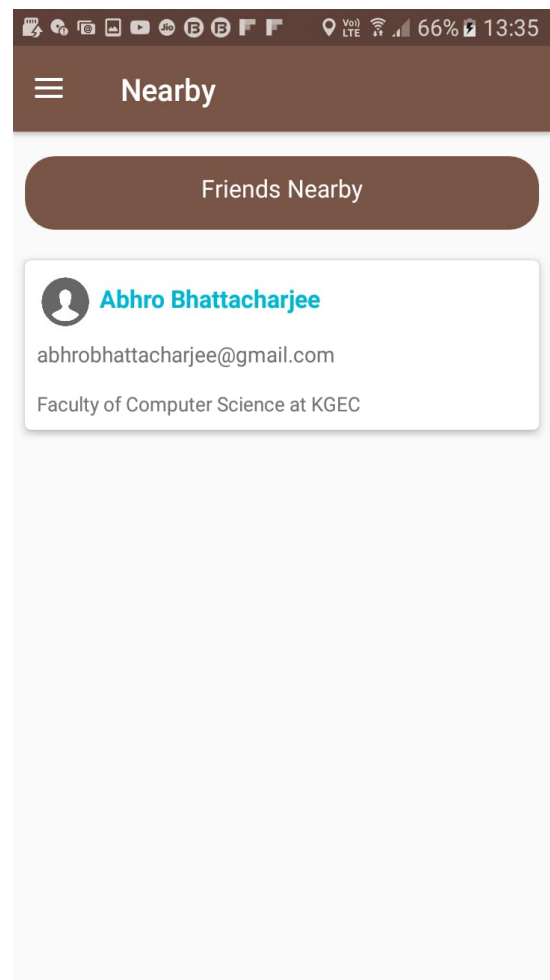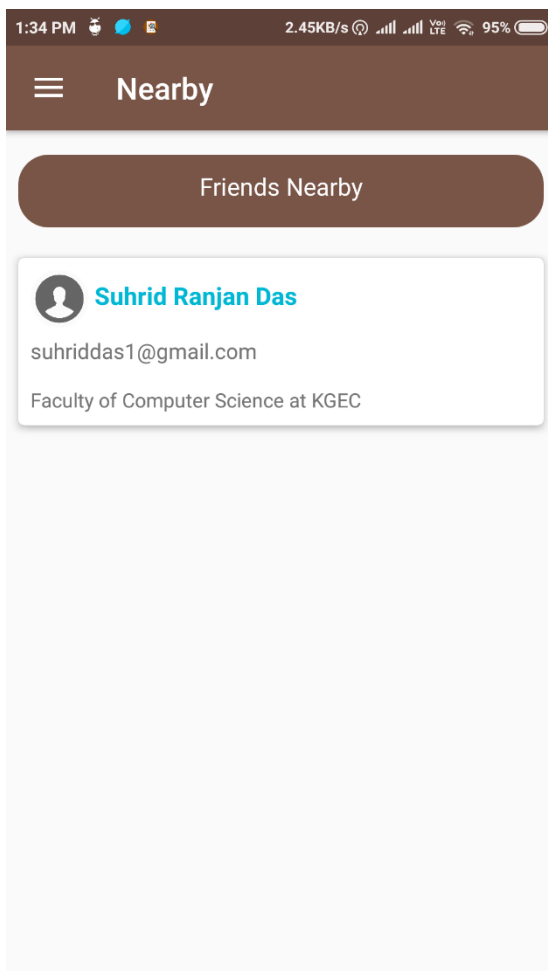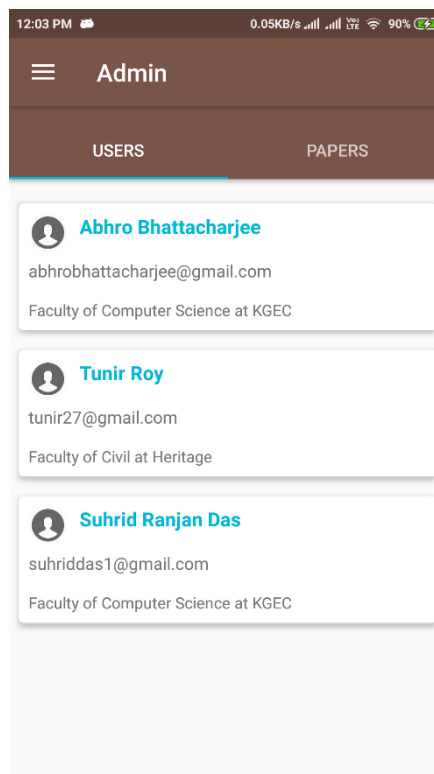
Profile

In the profile section the current user can view his/her details and also can go to the upload paper section and view paper section.

Administrator
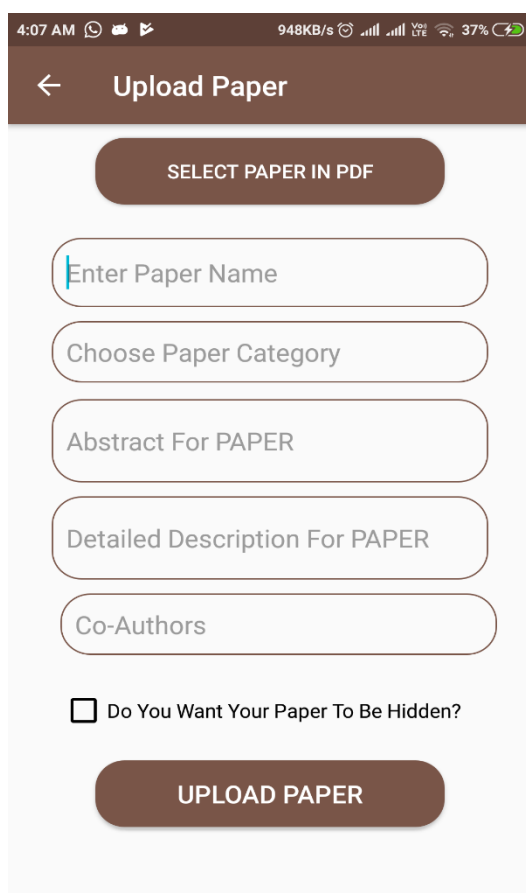
The work of administrator is to verify if users and papers if they are valid or not. The administrator has the power to remove reported users and papers.

Upload/View Paper

      In the Upload Paper section, users or researchers can upload their papers in .pdf format by giving Paper name, category, abstract for paper and long description. They can also check whether to make their paper public to all users for download or to restrict download access rights.

      In the view papers section, the users can view all the papers they have uploaded and also search from those uploaded papers.
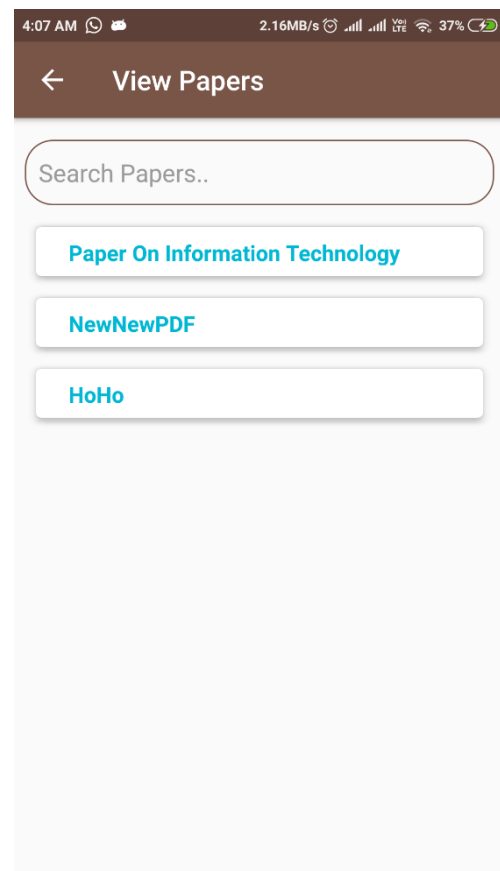
Connections

The current user or researcher may find the works of some other user or researcher to be very intriguing and would like to view all his/her works in the News Feed. For this to happen, the researcher can follow the other researcher.All users can follow the researchers of their interests. In the Connections section, the current user can view the researchers that he is following in the "FOLLOWING" tab and can also view the researchers who are following him in the "FOLLOWERS" tab.
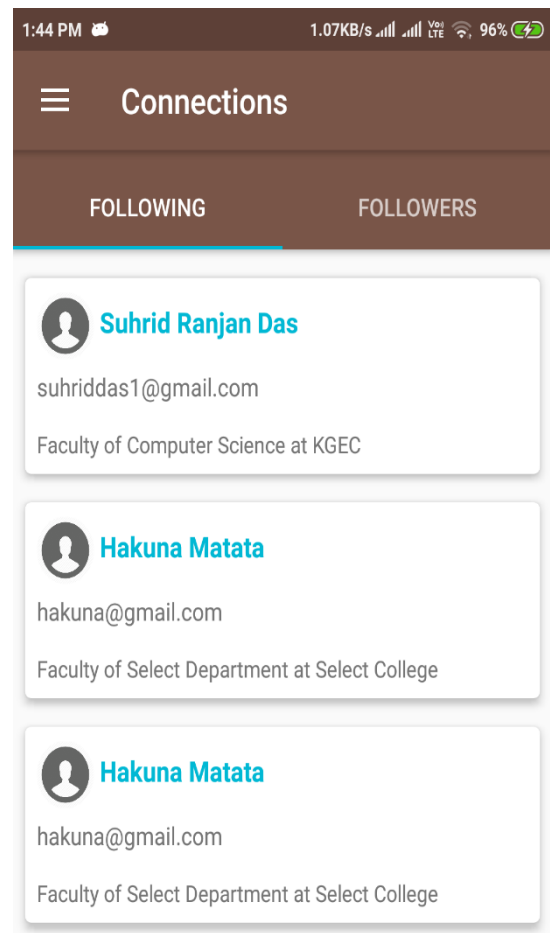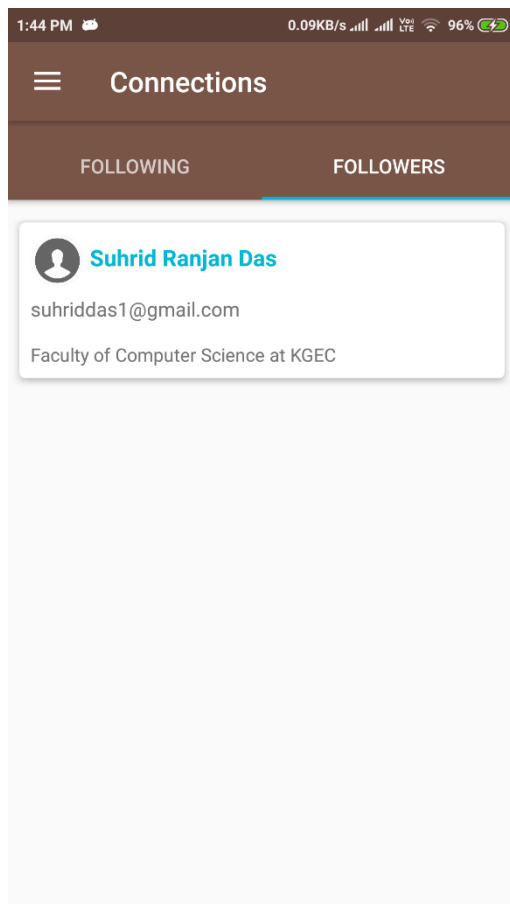
User Profile

      User Profile is the section where the current user can view the information about other user's or researchers, can view their works, download the full paper or request for download. The current user can also follow different other Researchers so as to get their works on his/her News Feeds.
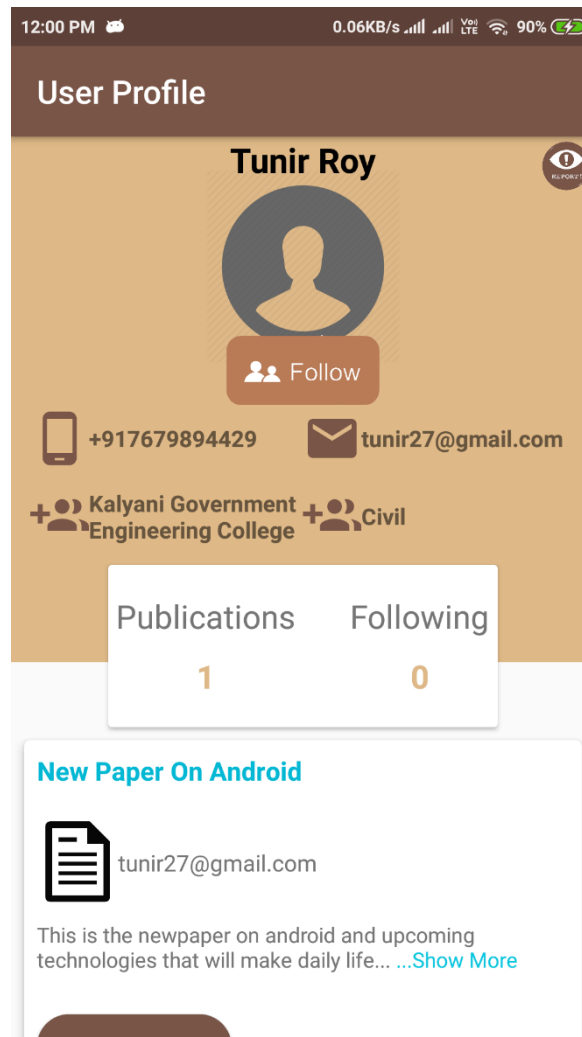
Requests

There are two areas of the Requests section, the "REQUESTED PAPERS" tab, where all requests from different researchers or users are displayed for the download access to the papers which are download restricted and the "REQUESTING PAPERS" tab where all the requests to download papers of the current user is displayed. The user can either accept the request of the other users or can decline their request. He/She can also cancel the requests that are still pending or wait for them to either get accepted or declined. If the request is aacepted, then the PENDING REQUEST would change to ACCEPTED, and if not the it will change to DECLINED. When a request is Accepted or Declined, the current request is removed from the list.
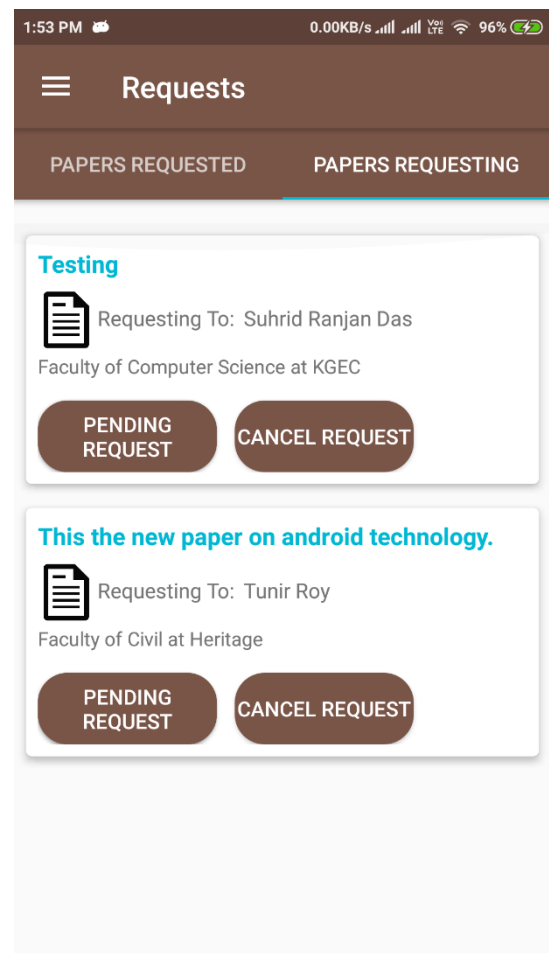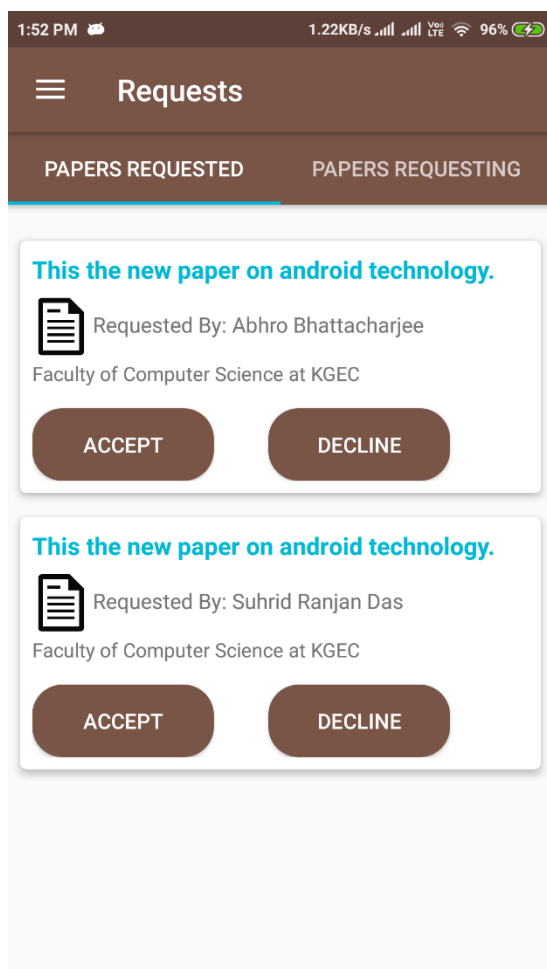
Testing

Introduction

Once source code has been generated, software must be tested to uncover (and correct) as many errors as possible before delivery to customer. The goal is to design a series of test cases that have a high likelihood of finding errors. To uncover the errors software techniques are used. These techniques provide systematic guidance for designing test that

(1) Exercise the internal logic of software components, and

(2) Exercise the input and output domains of the program to uncover errors In program function, behaviour and performance.

Steps:

Software is tested from two different perspectives:

(1) Internal program logic is exercised using —White box‖ test case design

Techniques.

(2) Software requirements are exercised using —block box‖ test case

Design techniques. In both cases, the intent is to find the maximum number of errors with the Minimum amount of effort and time.

Black Box Testing

Login Module

Sr No	Test Case	Test Case Name	Test Case Description	Steps	Expected Result (correct credentials)	Expected Result (wrong credentials)	Actual Result (correct credentials)	Actual Result (wrong credentials)	Status Pass/ Fail
1	Admin Login	Validate Login(correct credentials/wrong credentials)	To verify user name and password on login page	Enter user name and password and click login button	Login Successful and enter admin page	Display message Wrong Credentials	Login Successful and enter admin page	Display message Wrong Credentials	Pass

2	User Login	Validate Login(correct credentials/wrong credentials)	To verify user name and password on login page	Enter user name and password and click login button	Login Successful and enter admin page	Display message Wrong Credentials	Login Successful and enter admin page	Display message Wrong Credentials	Pass

News Feeds

Sr No	Test Case	Test Case Name	Test Case Description	Expected Result (correct)	Expected Result (wrong)	Actual Result (correct)	Actual Result (wrong)	StatusPass / Fail
1	User	View News Feeds	See paper description, download/request papers, view user profile	Works with paper name, description, author name and download/request button is displayed	News Feeds not showing if there is no internet or server is not responding	Works with paper name, description, author name and download/request button is displayed	News Feeds not showing if there is no internet or server is not responding	Pass
2	User	Search	Search for paper and friends	The papers/friends according to provided names are displayed	Paper/friend not found is there is no internet or server is down	The papers/friends according to provided names are displayed	Paper/friend not found is there is no internet or server is down	Pass

NearBy

Sr No	Test Case	Test Case Name	Test Case Description	Steps	Expected Result (correct credentials)	Expected Result (wrong credentials)	Actual Result (correct credentials)	Actual Result (wrong credentials)	Status Pass/ Fail
1	User	NearbyUser	To check if users nearby each other are displayed	Open Nearby section and activate gps and internet	Location sent to database, and users nearby proximity are displayed	Location could not be sent and blank page is displayed	Location sent to database, and users nearby proximity are displayed	Location could not be sent and blank page is displayed	Pass

Upload Paper

Sr No	Test Case	Test Case Name	Test Case Description	Steps	Expected Result (correct credentials)	Expected Result (wrong credentials)	Actual Result (correct credentials)	Actual Result (wrong credentials)	Status Pass/ Fail
1	User	Upload paper	To upload paper along with paper descriptions, category and co authors	Enter upload paper section, provide paper name, description and co authors.	Paper is uploaded successfully	Paper upload failed	Paper is uploaded successfully	Paper upload failed	Pass

Limitations

Following are the limitations of the ResearchIN Android Application:

- ➢ Paper can be uploaded only in .pdf format.
- ➢ Citations of paper is not done directly identifying Author's provided in the paper.
- ➢ Chat module is not present for researchers to chat with other researchers.
- ➢ Selection of University.

Future Scope

The following are the updates that will be implemented in future:

- ➢ ID verification like Pan Card or any other ID proof have to be uploaded during registration process.
- ➢ Implementation of Filter Interests option in the News Feeds section to make the application more flexible.
- ➢ Implementation of Chat Module.
- ➢ Citations would be done automatically during paper upload.

CONCLUSION

ResearchIN is primarily developed from the idea to create a social platform for Researchers from all over the world where they can upload their research papers and can view and download other research papers and also get to know the works done of their interests and the people who have contributed towards those works. ResearchIN also provides the facility to find others registered users who are nearby or within a close proximity. This is the unique feature of ResearchIN. It also enables users to search of papers and other researchers with its powerful search option. The ResearchIN android app can run on any Android Smartphone or Tablet and has a very simple and easy to use interface.

REFERENCES

Web:

https://www.simplifiedcoding.net/

https://stackoverflow.com/

https://developer.android.com/

https://www.researchgate.net/

https://www.academia.edu/

https://in.000webhost.com/