

A
Major Project
On
ANDROID APPLICATION FOR MY COLLEGE
(Submitted in partial fulfillment of the requirements for the award of Degree)
BACHELOR OF TECHNOLOGY

in
COMPUTER SCIENCE AND ENGINEERING

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
CMR TECHNICAL CAMPUS
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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING



CERTIFICATE

This is to certify that the project entitled “**ANDROID APPLICATION FOR MY COLLEGE**” is being submitted by **ANKIT PALAHANIA (177R1A05K2), K.SHRAVYA (177R1A05L4) & LINGALA ACHYUTH REDDY (177R1A05L5)** in partial fulfillment of the requirements for the award of the degree of B. Tech in Computer Science and Engineering to the Jawaharlal Nehru Technological University Hyderabad, is a record of bonafide work carried out by him/her under our guidance and supervision during the year 2020-21.

The results embodied in this thesis have not been submitted to any other University or Institute for the award of any degree or diploma.

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ABSTRACT

This project is an educational android application which is made for our college students and faculty members. In this project we have created two android applications i.e. CMRTC Admin and CMRTC android app. In CMRTC Admin app, only the authorized faculty members can access this admin app. The admin can modify the images, events, news, notices, quiz questions, study material and eBooks for students and can change the list of faculty members of different departments. Whereas the second app i.e. CMRTC app is only for students and other users and in this app they can get information about our college, Google maps location, notice board, gallery of the college, video lectures, study materials (eBooks, question papers, quizzes etc.) and students can download the study material, can share this app to their friends and for any feedback they can provide it in our college website. So, for the welfare of the college we have made these apps, so that the communication and interaction between the faculty & students are maintained properly using these apps.

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1. INTRODUCTION

1. INTRODUCTION

1.1 PROJECT SCOPE

This project basically consists of two android applications i.e., CMRTC Admin and CMRTC android app. All the modification and updation of data is done using the firebase and only authorized users are allowed to login in CMRTC admin and this is achieved using firebase too. Whereas the other app i.e., CMRTC app is accessible for every user. Although our college has a dedicated old website but we developed Android application because of android application advantages that the normal website.

1.2 PROJECT PURPOSE

Our college has a dedicated website but never had an android application and nowadays most of the users prefer using android application over the website. Our project enables the faculty members to add the study materials and other important information that can be useful for college students so that during any preparation students can refer those materials and can download the study material as well. We have developed this project specifically for the college students and the faculty of our college. Our app provides easy access of information, better user interaction, convenient interface, features and study material accessibility which gives our app an upper edge over the old existing college website. We have made sure that the privacy is maintained properly and only authorized faculty will be allowed to use the CMRTC admin application.

1.3 PROJECT FEATURES

In our project we have used firebase for real time database. The firebase is categorized as NoSQL database program, it stores the data in JSON-like documents and provides features like real-time database, authentication and Firebase is a Backend-as-a-Service (Baas). It provides developers with a variety of tools and services to help them develop good quality apps and provides real time hosting. It is built on Google's infrastructure. The proposal is reviewed on user request and suitable changes are made. This is loop that ends as soon as the user is satisfied with proposal. So, these two apps will provide all the information related to our college, gallery of our college and study material , video lectures and important notices and notifications.

2. SYSTEM ANALYSIS

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SYSTEM ANALYSIS

System Analysis is the important phase in the system development process. The System is studied to the minute details and analyzed. The system analyst plays an important role of an interrogator and dwells deep into the working of the present system. In analysis, a detailed study of these operations performed by the system and their relationships within and outside the system is done. A key question considered here is, “what must be done to solve the problem?” The system is viewed as a whole and the inputs to the system are identified. Once analysis is completed the analyst has a firm understanding of what is to be done.

2.1 PROBLEM DEFINITION

Our college has a dedicated website but never had an android application and nowadays most of the users prefer using android application over the website. Our, college never had an android application and nowadays majority of the users prefer android apps as android apps and android apps have always an upper edge over the websites as android apps provides easy access to information, user interaction, convenient interface based on user habits , offline user mode using device features and many more features. Our project enables the faculty members to add the study materials and other important information that can be useful for college students so that during any preparation students can refer those materials and can download the study material as well. We have developed this project specifically for the college students and the faculty of our college. Our app provides easy access of information, better user interaction, convenient interface, features and study material accessibility which gives our app an upper edge over the old existing college website. We have made sure that the privacy is maintained properly and only authorized faculty will be allowed to use the CMRTC admin application..

2.2 EXISTING SYSTEM

In the existing system there are no good features and also news feed option, interface and study material management is not there. Students have to visit the complicated sites of colleges to get the college related information and the information available is not furnished and sometimes students have to pay for eBooks and study materials. So, there are so many drawbacks in the existing system.

2.2.1 LIMITATIONS OF EXISTING SYSTEM

- No proper Application is available for our college students.
- There is no proper source from where students can get their material.
- Existing systems have privacy and security related issues for users.
- The user interface is not good and has very less functionality.

2.3 PROPOSED SYSTEM

The proposed system basically consists of two android applications; one is CMRTC Admin app and second is CMRTC app. The CMRTC Admin app is used by the authorized faculty members and they can add, modify or delete the gallery of the college, list of faculty members as per departments, important news and notices and study materials for the students. In case of CMRTC app, it is for students and other users and here a user can access the any information related to our college, gallery of the college, video lectures and study materials and user can read and download this at free of cost. This enables the students to get any information and eBooks at one place with seamless user interface. Here, we used firebase which works as backend as a service and it syncs the real time data in the application, categorizes the data into NoSQL Database programs so it works faster and provides authentication with real time cloud storage. It provides the following advantages as well.

2.3.1. ADVANTAGES OF PROPOSED SYSTEM

Our project which basically consists of CMRTC app and CMRTC Admin app provides these below advantages:

- Provides study materials and books to students of our college at free of cost.
- Students can go through video lectures uploaded by faculty of our college.
- This app can be shared to other users using the share option present in navigation bar.
- Materials, video lectures and other information can be shared to others as well.
- Highly secure and privacy is maintained properly as we are using firebase database.
- Interactive user interface and has seamless performance and can run on any android device (low end to high end device) and has a feature of dark theme.
- Efficient RAM and Power consumption.

2.4. FEASIBILITY STUDY

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. This is to ensure that the proposed system is not a burden to the org. Three key considerations involved in the feasibility analysis are

- Economic Feasibility
- Technical Feasibility
- Social Feasibility

2.4.1. ECONOMIC FEASIBILITY

The developing system must be justified by cost and benefit. The following are some important financial questions asked during preliminary investigation:

- The costs conduct a full system investigation.
- The cost of the hardware and software.
- The benefits in the form of reduced costs or fewer costly errors.

2.4.2. TECHNICAL FEASIBILITY

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

2.4.3. BEHAVIORAL FEASIBILITY

This includes the following questions:

- Is there sufficient support for the users?
- Will the proposed system cause harm?

The project would be beneficial because it satisfies the objectives when developed and installed. All behavioral aspects are considered carefully and conclude that the project is behaviorally feasible.

2.5. HARDWARE & SOFTWARE REQUIREMENTS

2.5.1. HARDWARE REQUIREMENTS:

Hardware interfaces specifies the logical characteristics of each interface between the software product and the hardware components of the system. The following are some hardware requirements.

- Processor : Minimum Intel i3(5th gen)
- Hard disk : Minimum 2GB Space
- RAM : Minimum 4GB
- Monitor : 5 inches or above.

2.5.2. SOFTWARE REQUIREMENTS:

Software Requirements specifies the logical characteristics of each interface and software components of the system. The following are some software requirements,

- Operating system : Windows 7,8 and 10
- Languages : JAVA and XML
- Database : Firebase
- IDE : Android Studio
- Adobe XD(For Icon Designing)

3. ARCHITECTURE

3.ARCHITECTURE

3.1. PROJECT ARCITECTURE

This project architecture shows the procedure of how an CMRTC admin application is connected with firebase and the changes which are made in admin application are reflected back to the CMRTC student application with the help of Firebase.

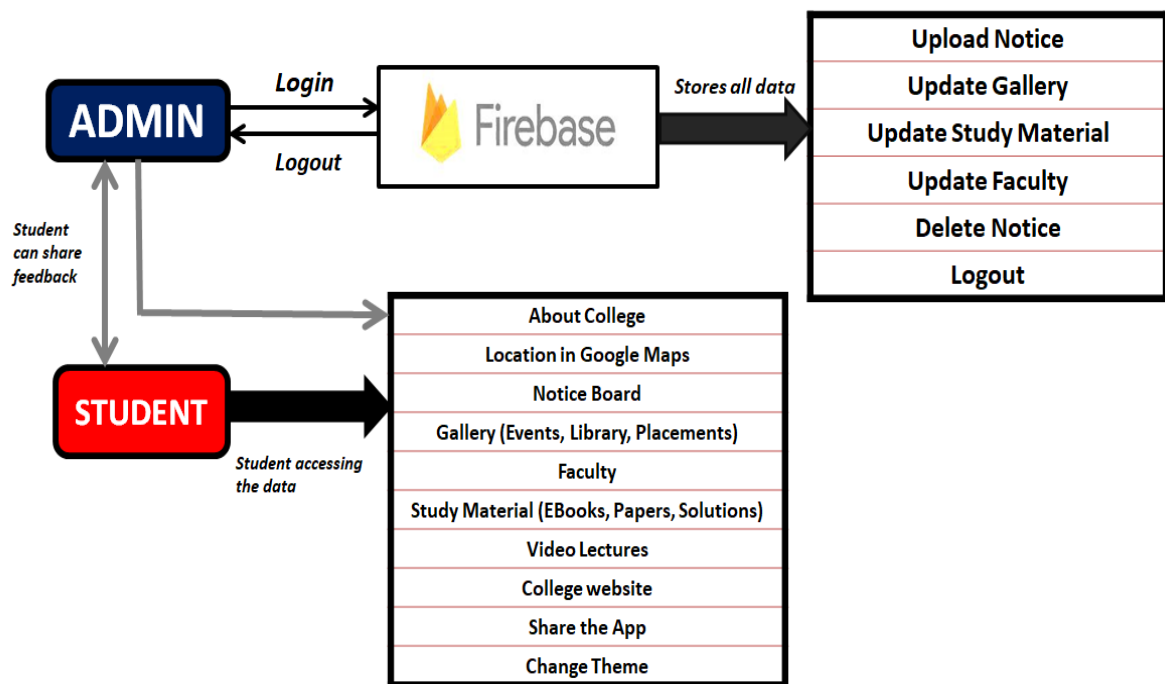


FIG 3.1: Architecture of CMRTC app and CMRTC Admin app

3.2. USE CASE DIAGRAM OF CMRTC ANDROID APPLICATION

In the use case diagram, we have basically two actors who are Admin and the Student. The admin can upload any information and can do amendments and student will see the information uploaded by Admin.

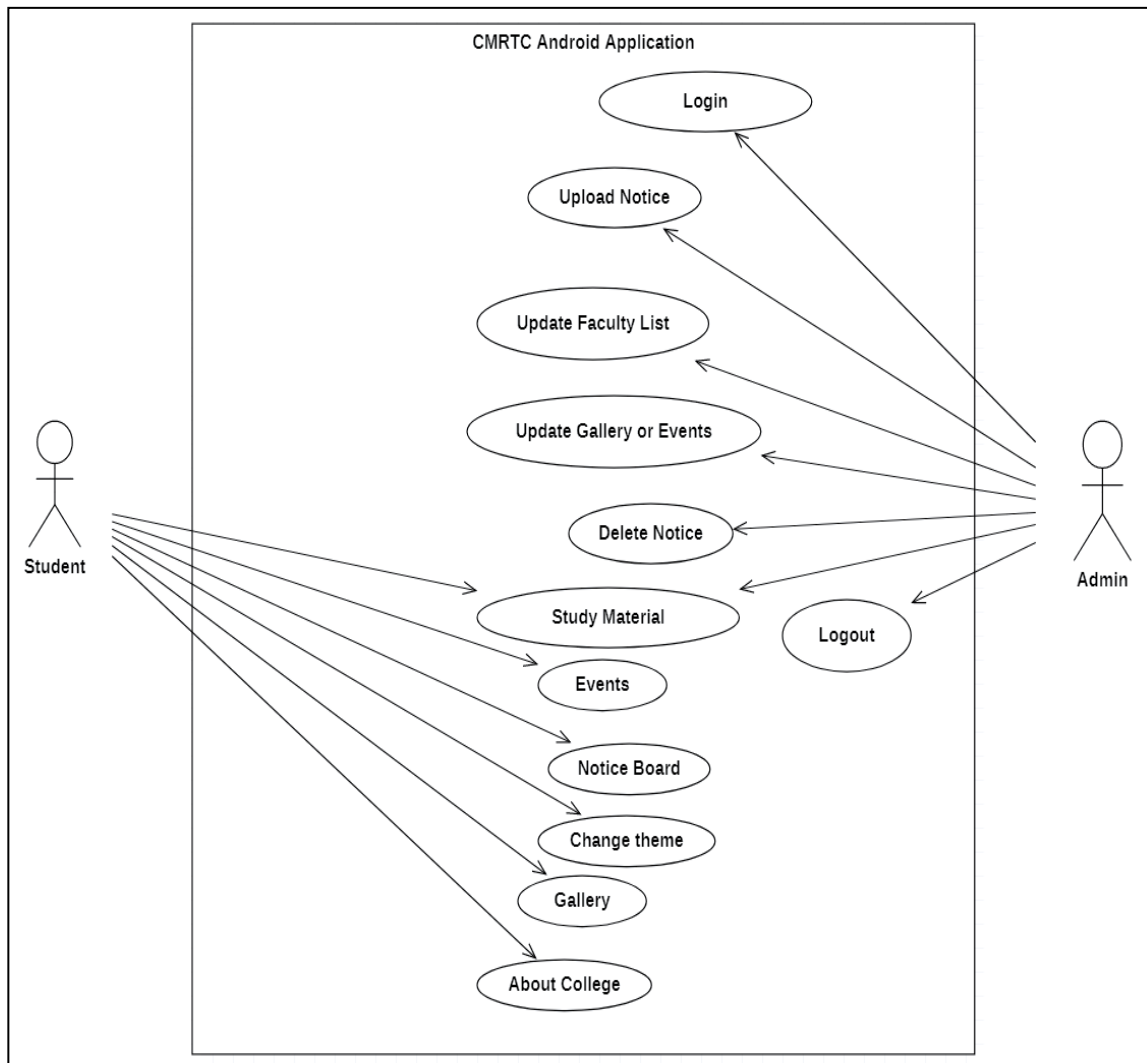


Figure 3.2: Use Case Diagram for user for CMRTC ANDROID APPLICATION

3.4. SEQUENCE DIAGRAM

A sequence diagram shows object interactions arranged in time sequence. It depicts the objects involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario

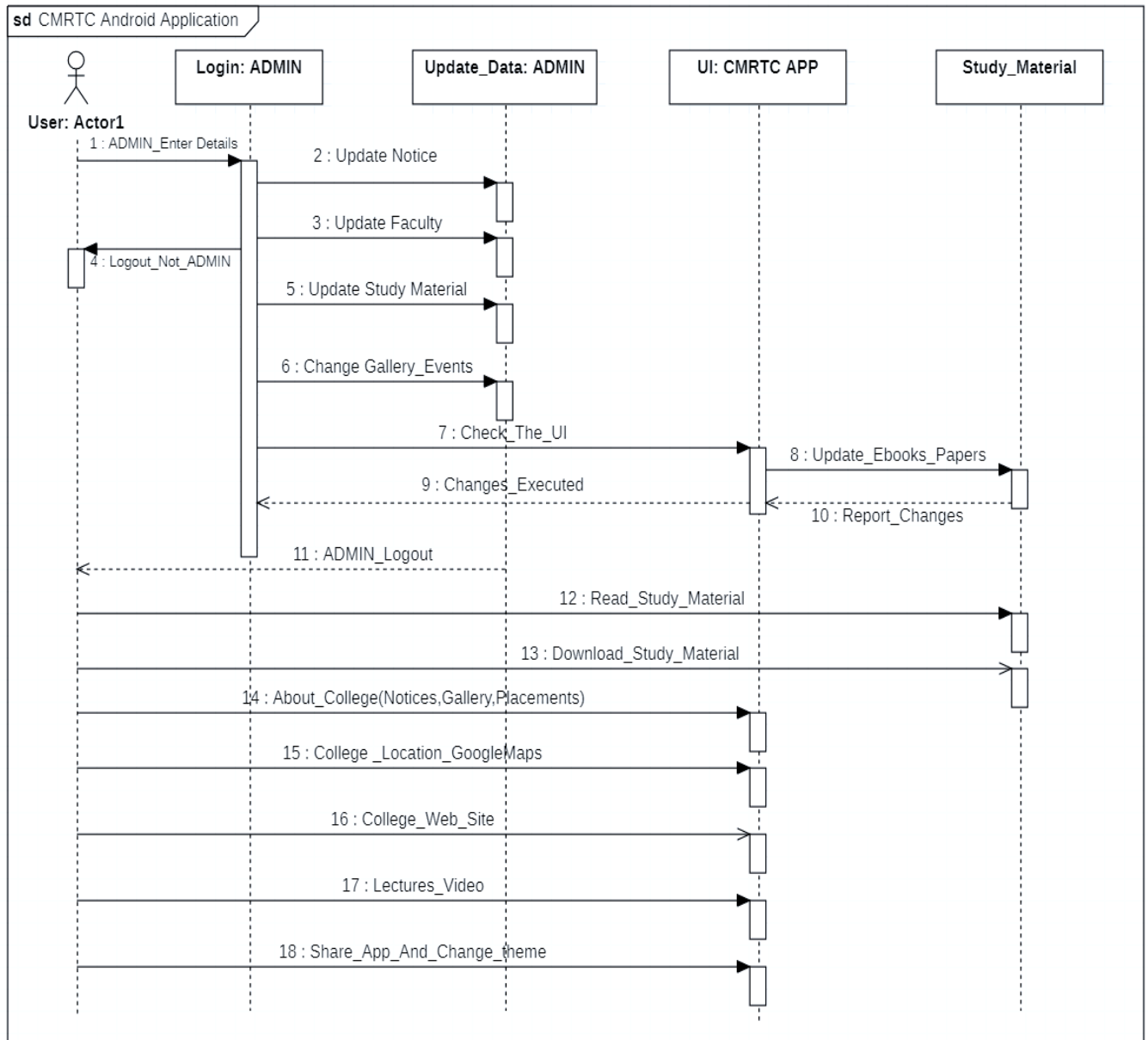


Figure 3.4: Sequence Diagram for CMRTC ANDROID APPLICATION

3.5. ACTIVITY DIAGRAM

It describes about flow of activity states.

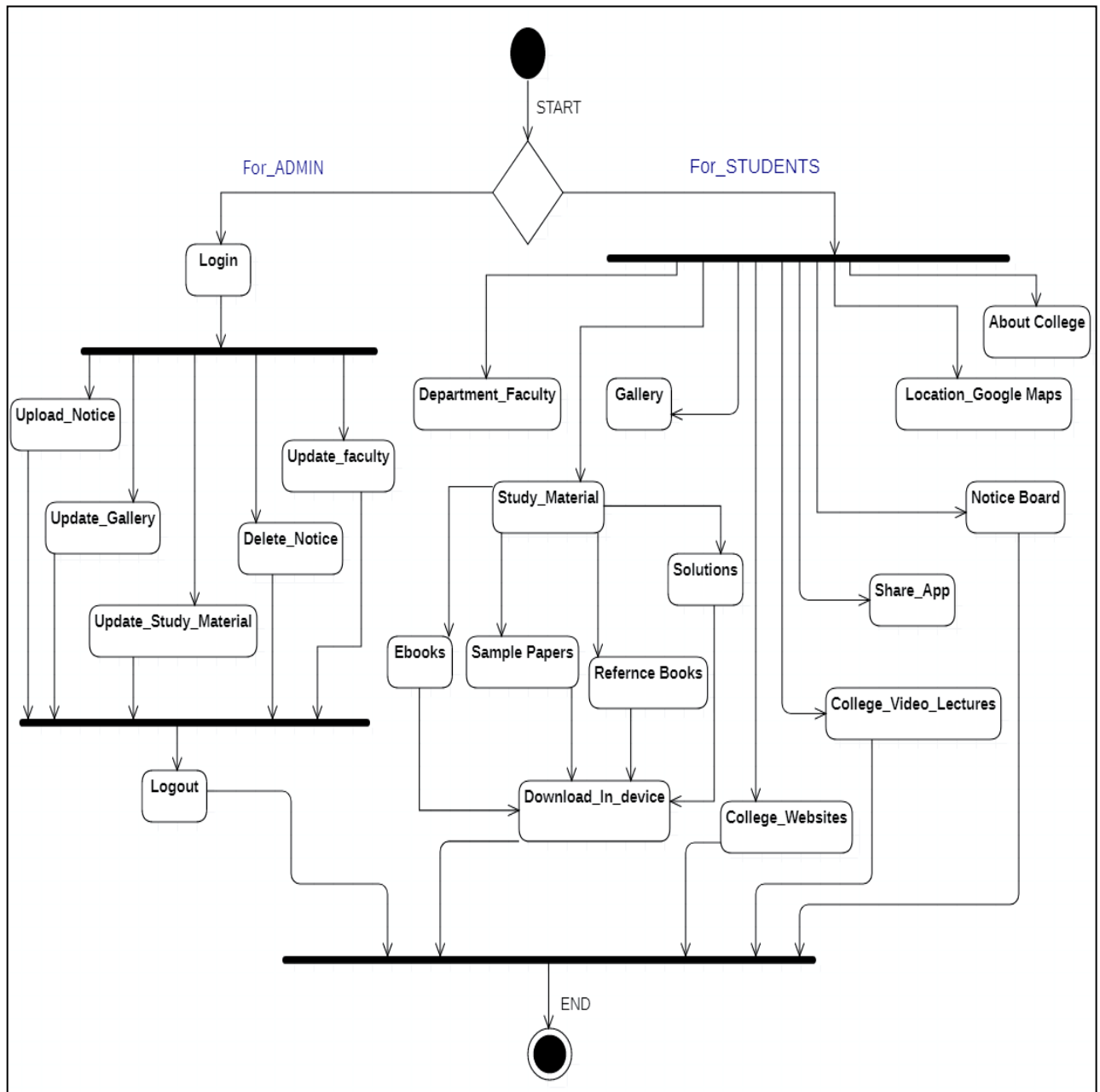


Figure 3.5: Activity Diagram for CMRTC ANDROID APPLICATION

4. IMPLEMENTATION

4. IMPLEMENTATION

4.1 Source code for CMRTC Application

```
package cmrtc.ac.in;
import android.content.ActivityNotFoundException;
import android.content.Context;
import android.content.DialogInterface;
import android.content.Intent;
import android.content.SharedPreferences;
import android.net.Uri;
import android.os.Bundle;
import android.view.MenuItem;
import android.widget.Toast;
import com.google.android.material.bottomnavigation.BottomNavigationView;
import com.google.android.material.dialog.MaterialAlertDialogBuilder;
import com.google.android.material.navigation.NavigationView;
import com.google.firebase.messaging.FirebaseMessaging;
import java.util.Objects;
import androidx.annotation.NonNull;
import androidx.appcompat.app.ActionBarDrawerToggle;
import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;
import androidx.appcompat.app.AppCompatActivity;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.view.GravityCompat;
import androidx.drawerlayout.widget.DrawerLayout;
import androidx.navigation.NavController;
import androidx.navigation.Navigation;
import androidx.navigation.ui.NavigationUI;
import cmrtc.ac.in.authentication.LoginActivity;
import cmrtc.ac.in.ebook.EbookActivity;
import static androidx.appcompat.app.AppCompatActivity.MODE_NIGHT_FOLLOW_SYSTEM;
public class MainActivity extends AppCompatActivity implements
NavigationView.OnNavigationItemSelectedListener {

    private BottomNavigationView bottomNavigationView;
    private NavController navController;

    private DrawerLayout drawerLayout;
    private ActionBarDrawerToggle toggle;
    private NavigationView navigationView;
    private SharedPreferences sharedPreferences;
    private SharedPreferences.Editor editor;

    private int checkedItem;
    private String selected;

    private final String CHECKEDITEM = "checked_item";

    // private FirebaseAuth auth;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
```

```

setContentView(R.layout.activity_main);

FirebaseMessaging.getInstance().subscribeToTopic("notification");

//  auth = FirebaseAuth.getInstance();
sharedPreferences = this.getSharedPreferences("themes", Context.MODE_PRIVATE);
editor = sharedPreferences.edit();

switch (getCheckedItem()) {
    case 0:
        AppCompatActivity.setDefaultNightMode(MODE_NIGHT_FOLLOW_SYSTEM);
        break;
    case 1:
        AppCompatActivity.setDefaultNightMode(AppCompatActivity.MODE_NIGHT_YES);
        break;
    case 2:

AppCompatActivity.setDefaultNightMode(AppCompatActivity.MODE_NIGHT_NO);
        break;
}

bottomNavigationView = findViewById(R.id.bottomNavigationView);
navController = Navigation.findNavController(this, R.id.frame_layout);

drawerLayout = findViewById(R.id.drawerLayout);
navigationView = findViewById(R.id.navigation_view);

toggle = new ActionBarDrawerToggle(this,
drawerLayout, R.string.start, R.string.close);

drawerLayout.addDrawerListener(toggle);
toggle.syncState();

Objects.requireNonNull(getSupportActionBar()).setDisplayHomeAsUpEnabled(true);

navigationView.setNavigationItemSelectedListener(this);

NavigationUI.setupWithNavController(bottomNavigationView, navController);
}

//  @Override
//  public boolean onCreateOptionsMenu(Menu menu) {
//      MenuInflater menuInflater = getMenuInflater();
//      menuInflater.inflate(R.menu.option_menu, menu);
//      return true;
//  }

@Override
public boolean onOptionsItemSelected(@NonNull
MenuItem item) {
    toggle.onOptionsItemSelected(item);
//  if (item.getItemId() == R.id.logout) {
//      auth.signOut();
//      openLogin();
//  }
    return true;
}

private void openLogin() {
    startActivity(new Intent(MainActivity.this,
LoginActivity.class));
}

```

```

        finish();
    }

// @Override
// protected void onStart() {
//     super.onStart();
//     if (auth.getCurrentUser() == null) {
//         openLogin();
//     }
// }

@Override
public boolean onNavigationItemSelected(@NonNull
MenuItem item) {
    Uri uri;
    Context context = getApplicationContext();

    switch (item.getItemId()) {
        case R.id.navigation_developer:
            startActivity(new Intent(MainActivity.this,
DeveloperActivity.class));
            break;
        case R.id.navigation_video:
            uri =
Uri.parse("https://cmrtc.ac.in/infrastructure/library/");
            startActivity(new
Intent(Intent.ACTION_VIEW, uri));
            break;
        case R.id.navigation_rate:

            uri =
Uri.parse("https://cmrtc.ac.in/administration/about-
society/");
            startActivity(new
Intent(Intent.ACTION_VIEW, uri));
//         uri = Uri.parse("market://details?id=" +
context.getPackageName());
//         Intent goToMarket = new
Intent(Intent.ACTION_VIEW, uri);
//
goToMarket.addFlags(Intent.FLAG_ACTIVITY_NO_
HISTORY |
//
Intent.FLAG_ACTIVITY_NEW_DOCUMENT |
//
Intent.FLAG_ACTIVITY_MULTIPLE_TASK);
//         try {
//             startActivity(goToMarket);
//         } catch (ActivityNotFoundException e) {
//             startActivity(new
Intent(Intent.ACTION_VIEW,
//
Uri.parse("http://play.google.com/store/apps/details?id=
" + context.getPackageName())));
//         }
            break;
        case R.id.navigation_ebook:
            startActivity(new Intent(this,
EbookActivity.class));
            break;
//         case R.id.navigation_theme:

```



```

//      Toast.makeText(this, "Theme",
Toast.LENGTH_SHORT).show();
//      break;
      case R.id.navigation_website:
          uri = Uri.parse("https://cmrtc.ac.in/");
          startActivity(new Intent(Intent.ACTION_VIEW,
uri));
          break;
      case R.id.navigation_share:
          try{
              Intent i = new Intent(Intent.ACTION_SEND);
              i.setType("text/plain");
              i.putExtra(Intent.EXTRA_SUBJECT, " ");
              i.putExtra(Intent.EXTRA_TEXT,
"https://play.google.com/store/apps/details?id="+context.getPackageName());
              startActivity(Intent.createChooser(i, "Share
with "));
          } catch (Exception e){
              Toast.makeText(this, "Hmm.. Sorry, \nCannot
be share", Toast.LENGTH_SHORT).show();
          }
          break;
      case R.id.navigation_color:
          showDialog();
          break;
    }
    return true;
}

```

```

private void showDialog() {

    final String[] themes =
this.getResources().getStringArray(R.array.theme);

    MaterialAlertDialogBuilder builder = new
MaterialAlertDialogBuilder(this);
    builder.setTitle("Select Theme");
    builder.setSingleChoiceItems(R.array.theme,
getCheckedItem(), new
DialogInterface.OnClickListener() {
        @Override
        public void onClick(DialogInterface dialogInterface,
int i) {
            selected = themes[i];
            checkedItem = i;
        }
    });

    builder.setPositiveButton("OK", new
DialogInterface.OnClickListener() {
        @Override
        public void onClick(DialogInterface dialogInterface,
int i) {
            if (selected == null) {
                selected = themes[i];
                checkedItem = i;
            }
            switch (selected) {
                case "System Default":

```

```

AppCompatDelegate.setDefaultNightMode(MODE_NIGHT_FOLLOW_SYSTEM);
        break;
        case "Dark":

AppCompatDelegate.setDefaultNightMode(AppCompatDelegate.MODE_NIGHT_YES);
        break;
        case "Light":

AppCompatDelegate.setDefaultNightMode(AppCompatDelegate.MODE_NIGHT_NO);
        break;
    }
    setCheckedItem(checkedList);
}
});

builder.setNegativeButton("Cancel", new DialogInterface.OnClickListener() {
    @Override
    public void onClick(DialogInterface dialogInterface, int i) {
        dialogInterface.dismiss();
    }
});

AlertDialog dialog = builder.create();
dialog.show();
}

private int getCheckedItem() {
    return sharedPreferences.getInt(CHECKEDITEM, 0);
}

private void setCheckedItem(int i) {
    editor.putInt(CHECKEDITEM, i);
    editor.apply();
}

@Override
public void onBackPressed() {
    if (drawerLayout.isDrawerOpen(GravityCompat.START)) {
        drawerLayout.closeDrawer(GravityCompat.START);
    } else {
        super.onBackPressed();
    }
}
}

```

4.2 Source code for CMRTC Admin Application

```
package in.cmrtcadmin;

import androidx.appcompat.app.AppCompatActivity;
import androidx.cardview.widget.CardView;
import papaya.in.cmrtcadmin.faculty.UpdateFaculty;
import papaya.in.cmrtcadmin.notice.DeleteNoticeActivity;
import papaya.in.cmrtcadmin.notice.UploadNotice;

import android.content.Intent;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.view.View;

public class MainActivity extends AppCompatActivity implements View.OnClickListener {

    CardView uploadNotice, addGalleryImage, addEbook, faculty, deleteNotice, logout;

    private SharedPreferences sharedPreferences;
    private SharedPreferences.Editor editor;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        sharedPreferences = this.getSharedPreferences("login",MODE_PRIVATE);
        editor = sharedPreferences.edit();

        if (sharedPreferences.getString("isLogin","false").equals("false")){
            openLogin();
        }

        uploadNotice = findViewById(R.id.addNotice);
        addGalleryImage = findViewById(R.id.addGalleryImage);
        addEbook = findViewById(R.id.addEbook);
        deleteNotice = findViewById(R.id.deleteNotice);
        faculty = findViewById(R.id.faculty);
        logout = findViewById(R.id.logout);

        uploadNotice.setOnClickListener(this);
        addGalleryImage.setOnClickListener(this);
        addEbook.setOnClickListener(this);
        faculty.setOnClickListener(this);
        deleteNotice.setOnClickListener(this);
        logout.setOnClickListener(this);
    }

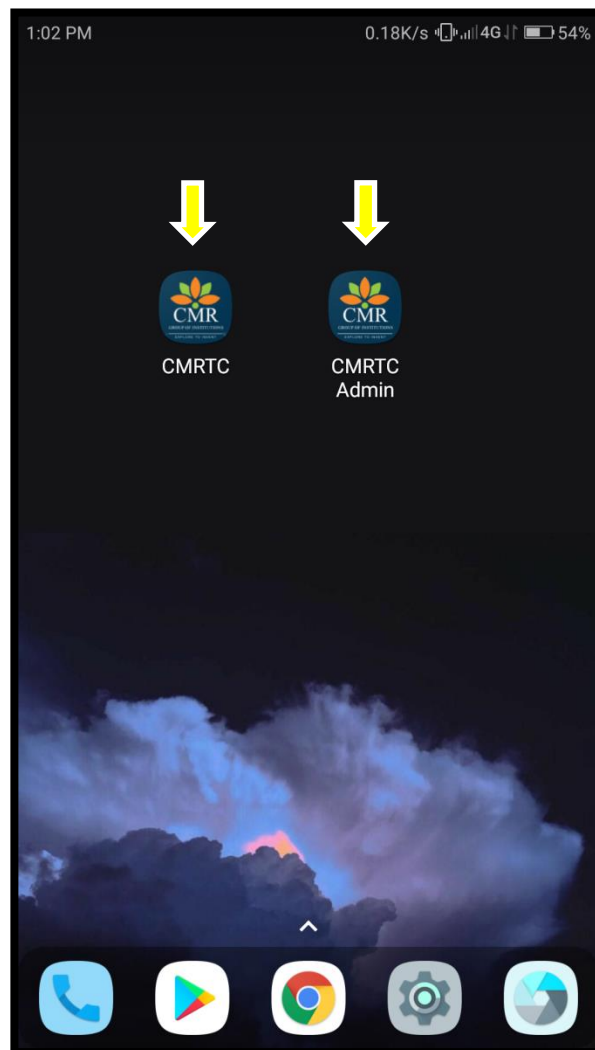
    private void openLogin() {
        startActivity(new Intent(MainActivity.this, LoginActivity.class));
        finish();
    }

    @Override
    public void onClick(View view) {
        Intent intent;
        switch (view.getId()){
            case R.id.addNotice:
                intent = new Intent(MainActivity.this, UploadNotice.class);
```

```
        startActivity(intent);
        break;
    case R.id.addGalleryImage:
        intent = new Intent(MainActivity.this, UploadImage.class);
        startActivity(intent);
        break;
    case R.id.addEbook:
        intent = new Intent(MainActivity.this, UploadPdfActivity.class);
        startActivity(intent);
        break;
    case R.id.faculty:
        intent = new Intent(MainActivity.this, UpdateFaculty.class);
        startActivity(intent);
        break;
    case R.id.deleteNotice:
        intent = new Intent(MainActivity.this, DeleteNoticeActivity.class);
        startActivity(intent);
        break;
    case R.id.logout:
        editor.putString("isLogin", "false");
        editor.commit();
        openLogin();
        break;
    }
}
```

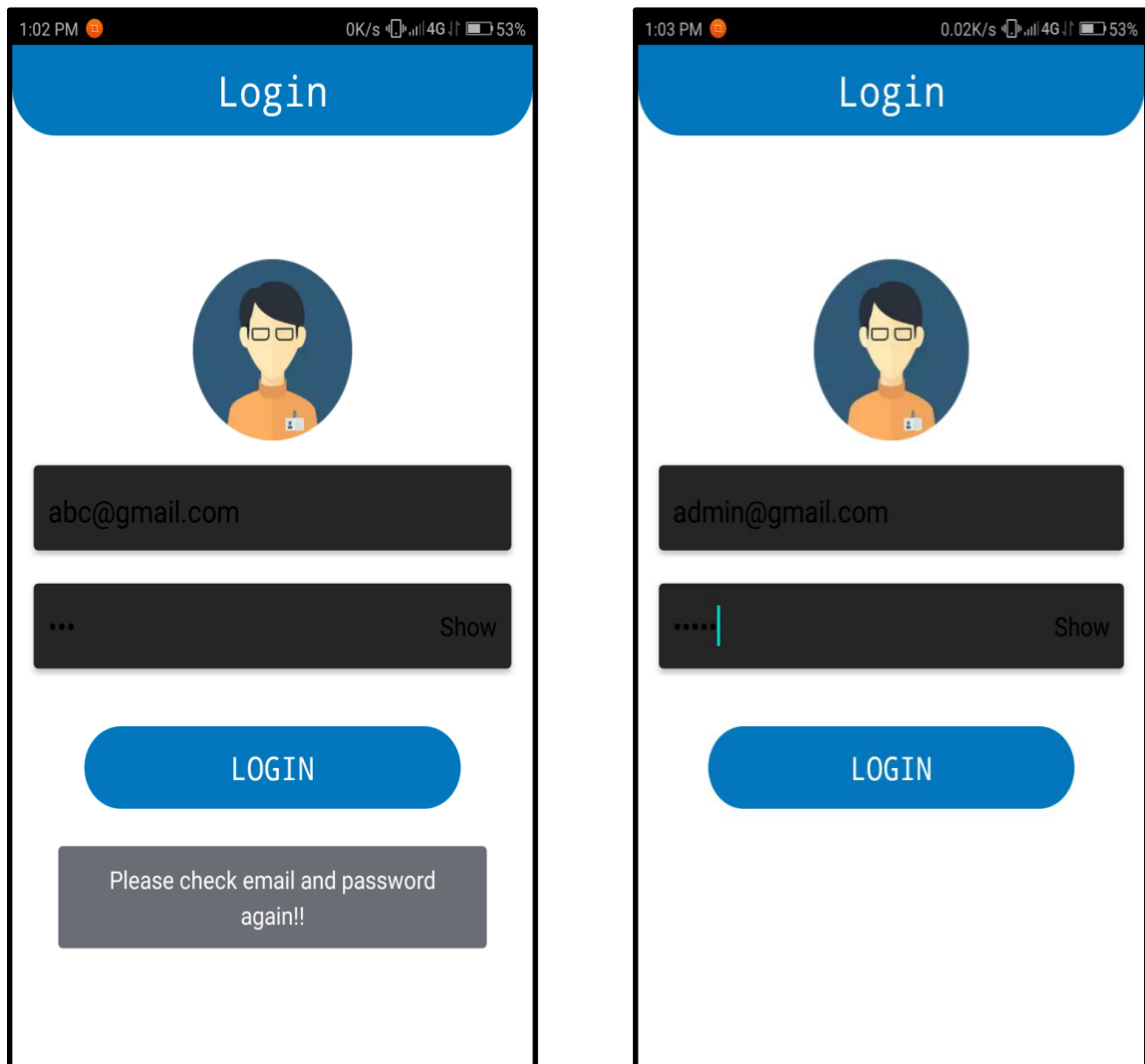
5. SCREENSHOTS

5.1. SCREENSHOT OF CMRTC APP & CMRTC Admin APP ICONS



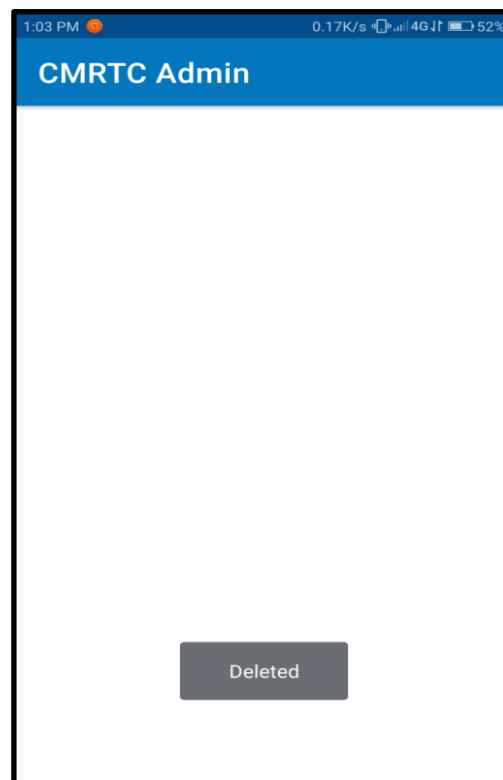
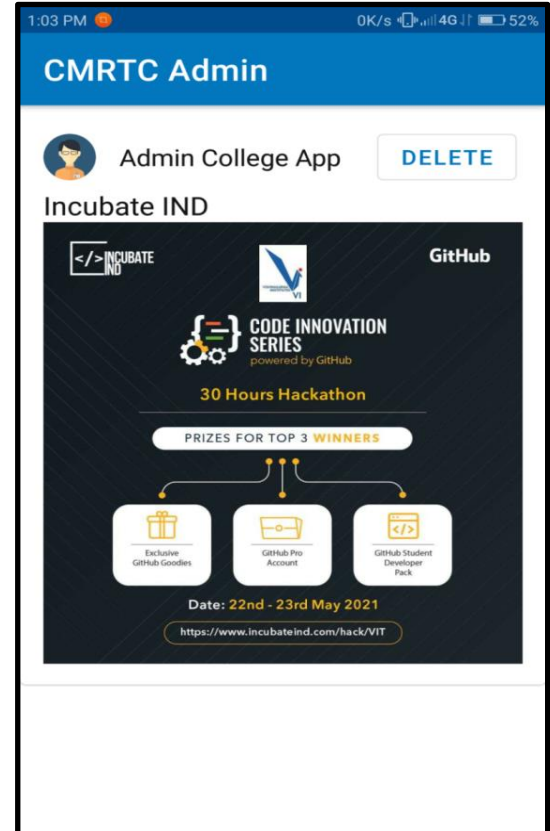
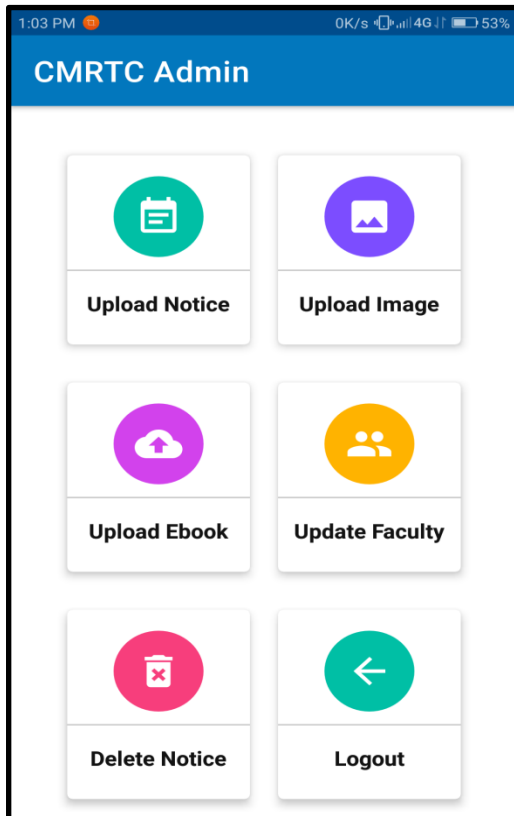
Screenshot 5.1: Screenshot of CMRTC APP ICONS

5.2. SCREENSHOT OF CMRTC ADMIN APP

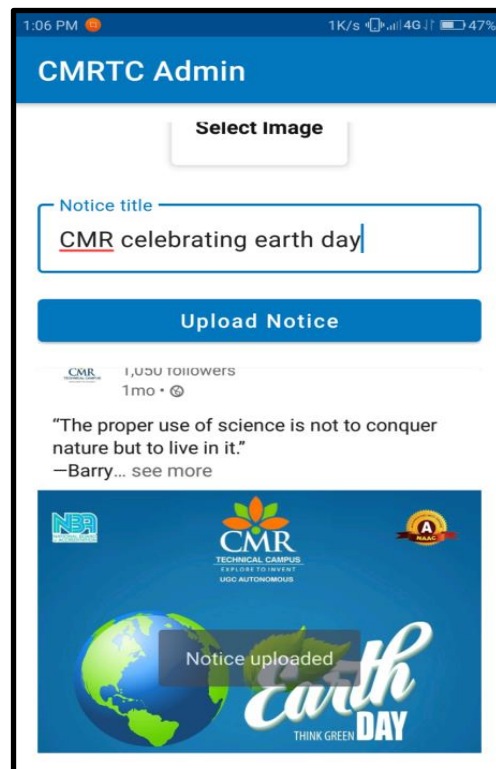
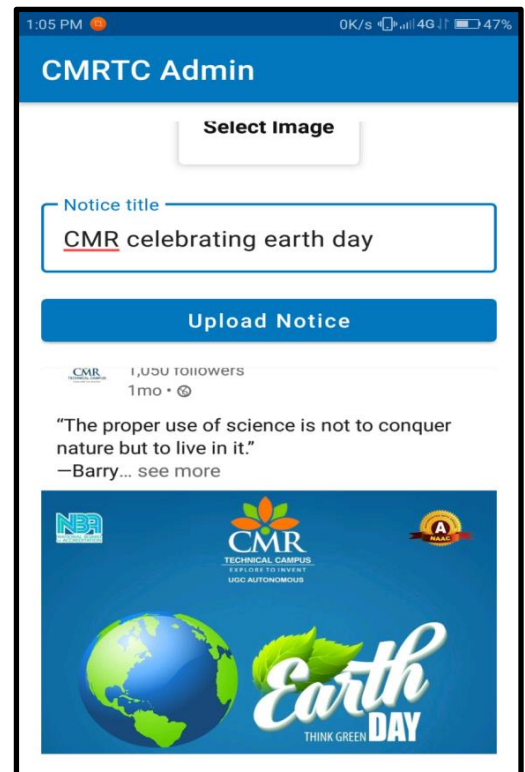
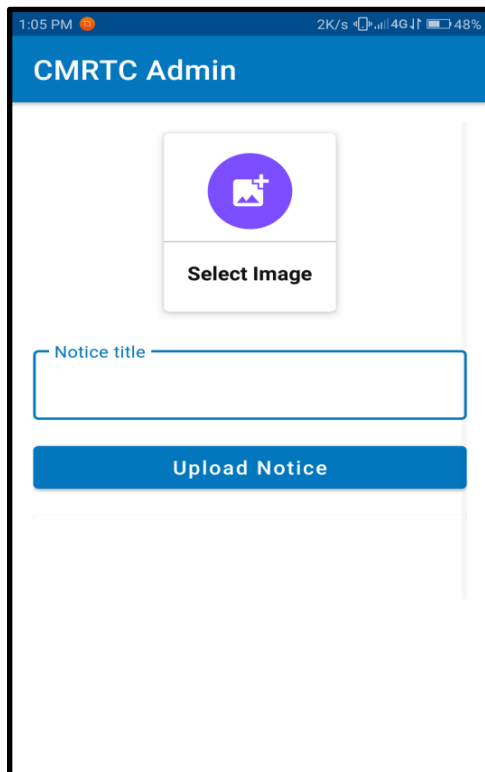


Screenshot 5.2: Screenshot of CMRTC ADMIN APP.

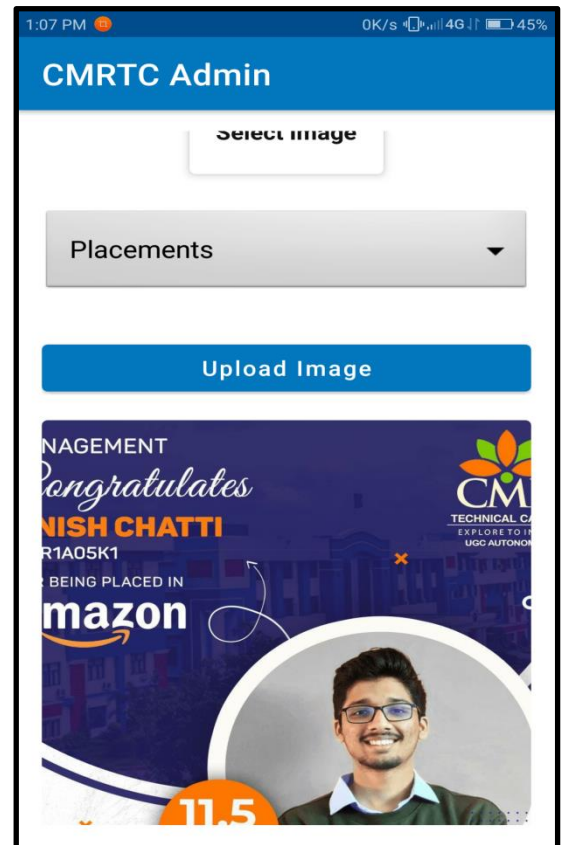
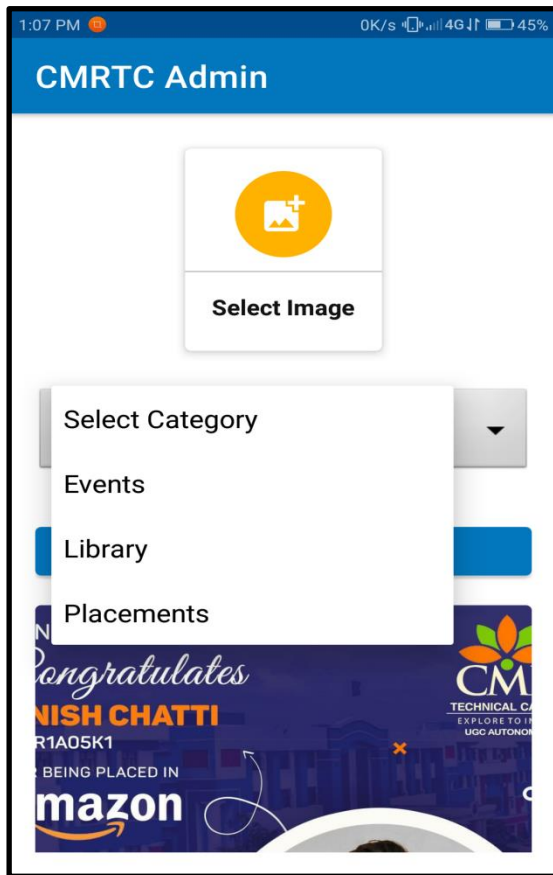
5.3. Screenshot of Different options in CMRTC Admin App



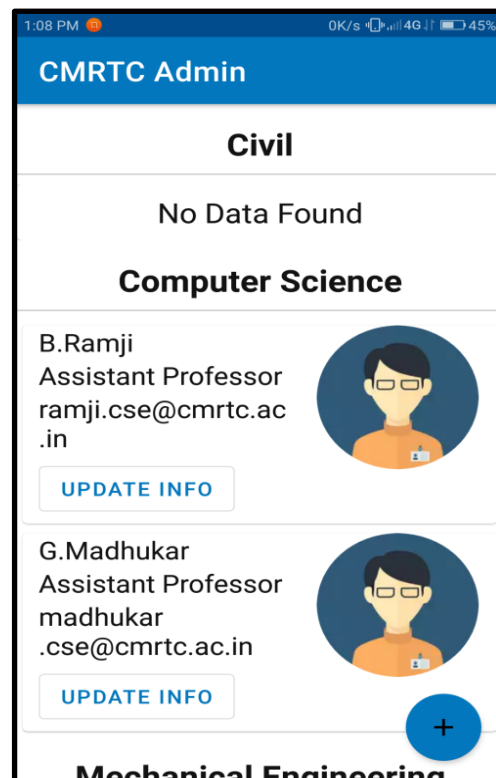
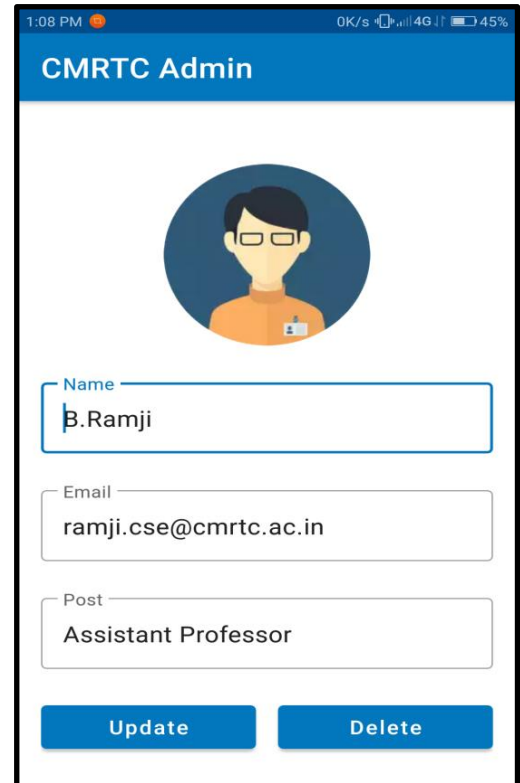
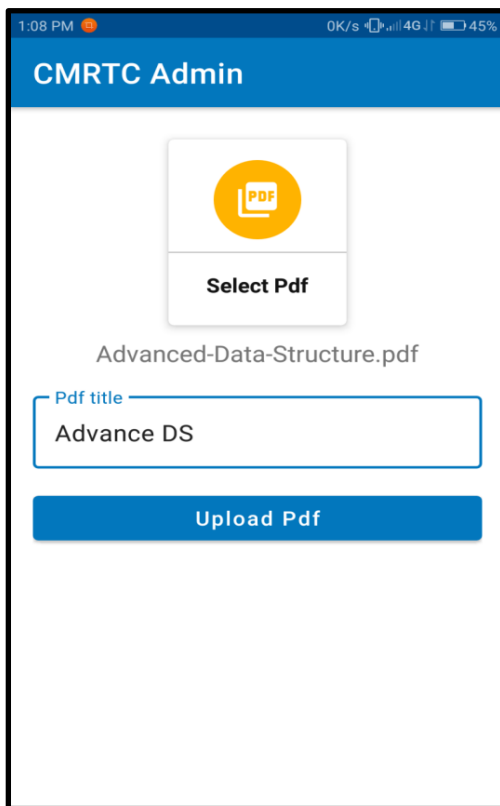
5.4. Screenshot of Notice Board .



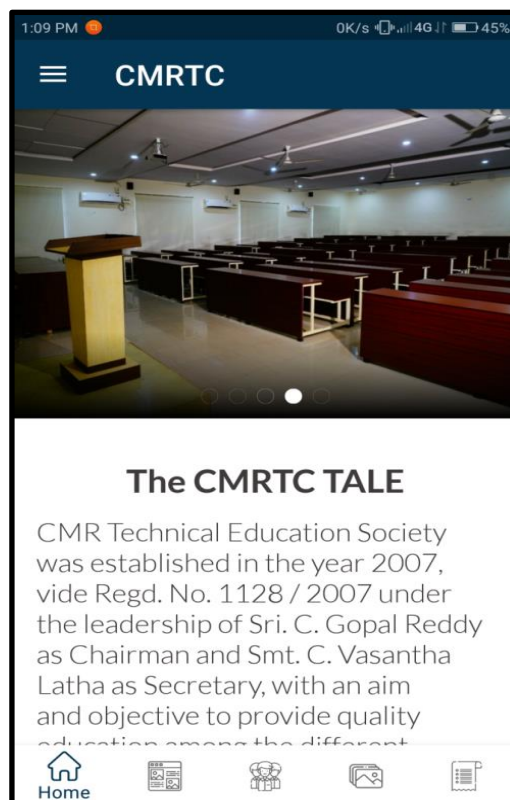
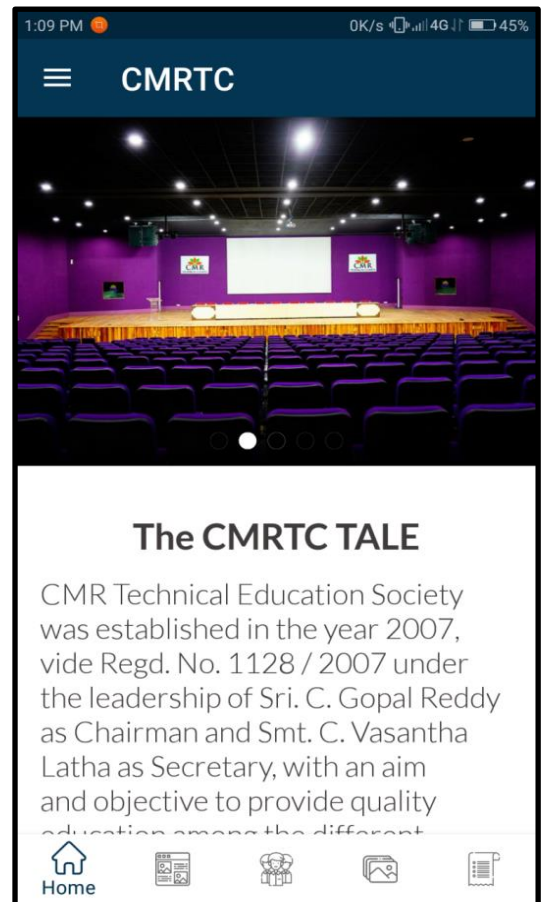
5.5. Screenshot of updating Gallery of our college with categories.



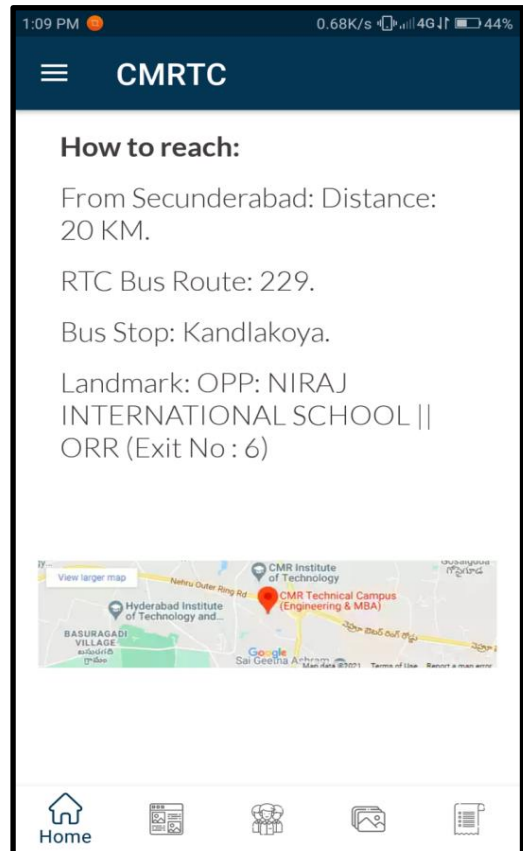
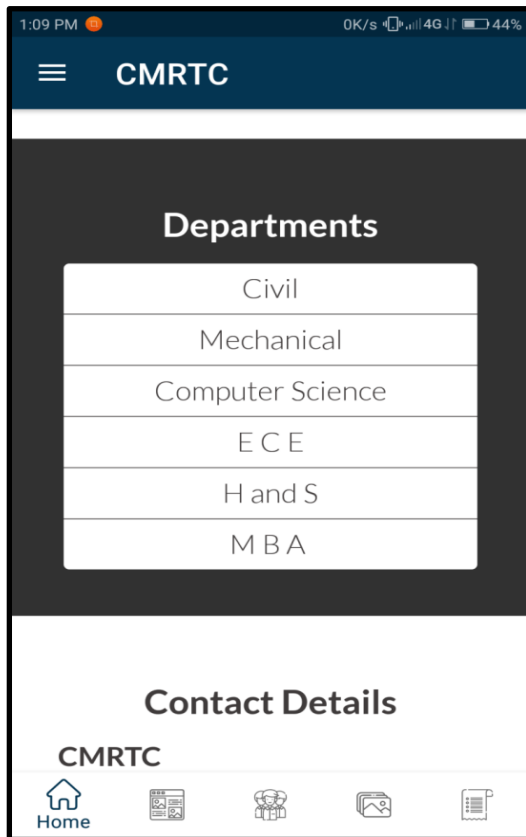
5.6. Screenshot of Uploading Ebook and updating Faculty List



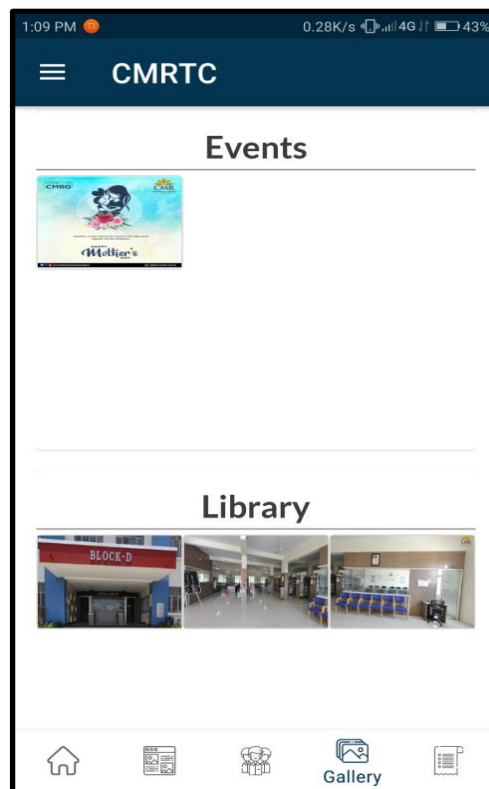
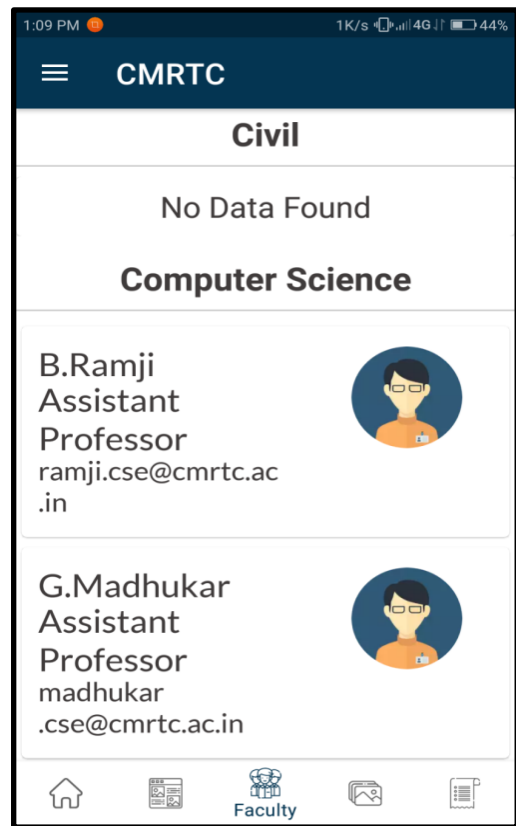
5.7. CMRTC homepage



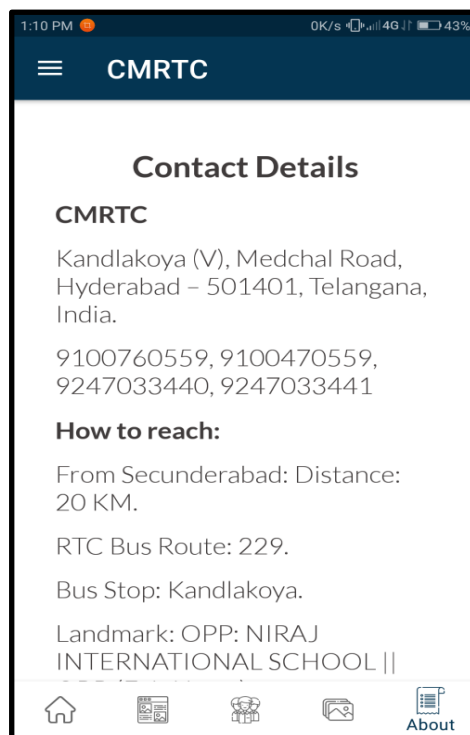
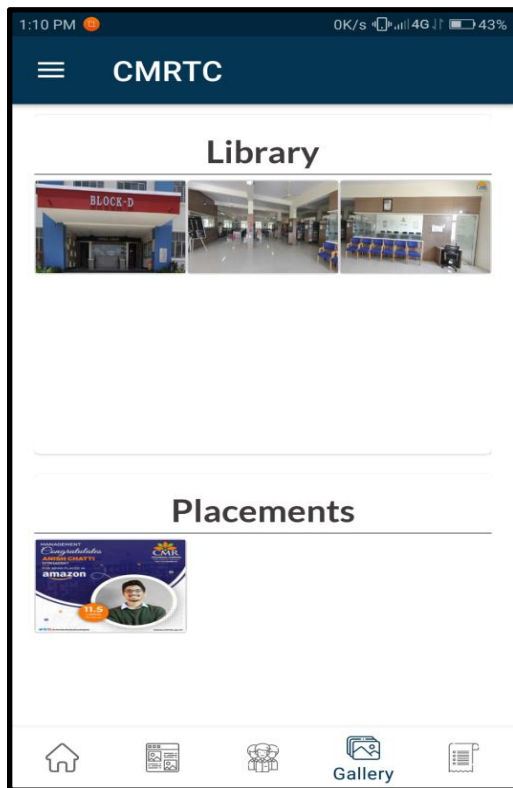
5.8 Screenshots of Department Subjects and College address.



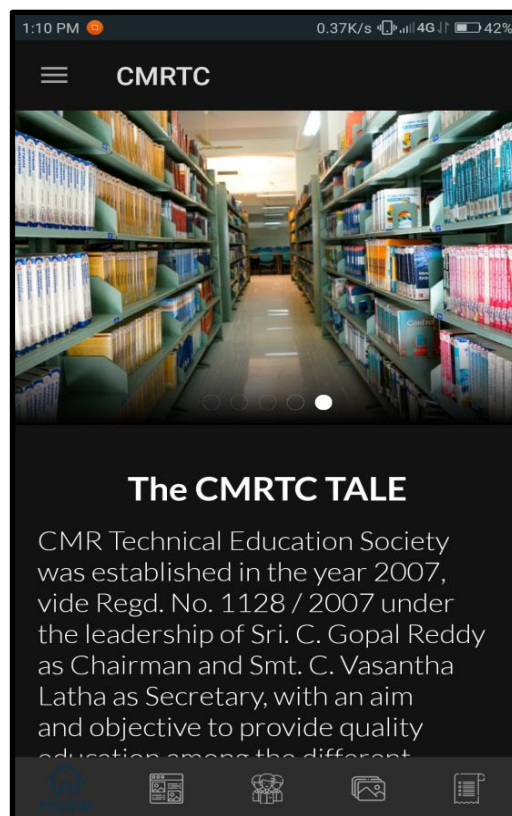
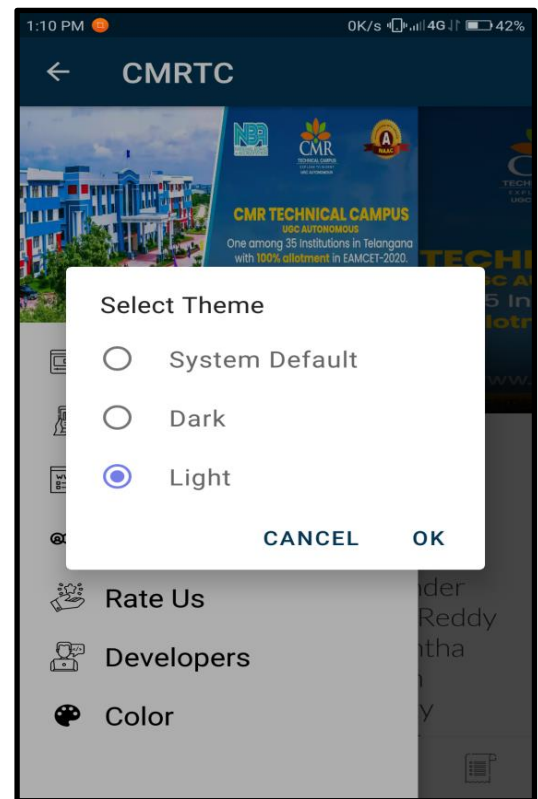
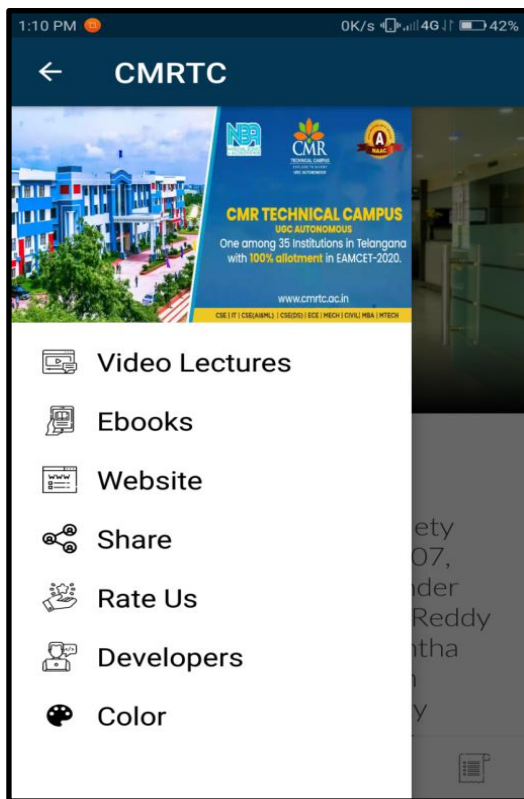
5.9. Screenshot of Gallery management and Faculty List



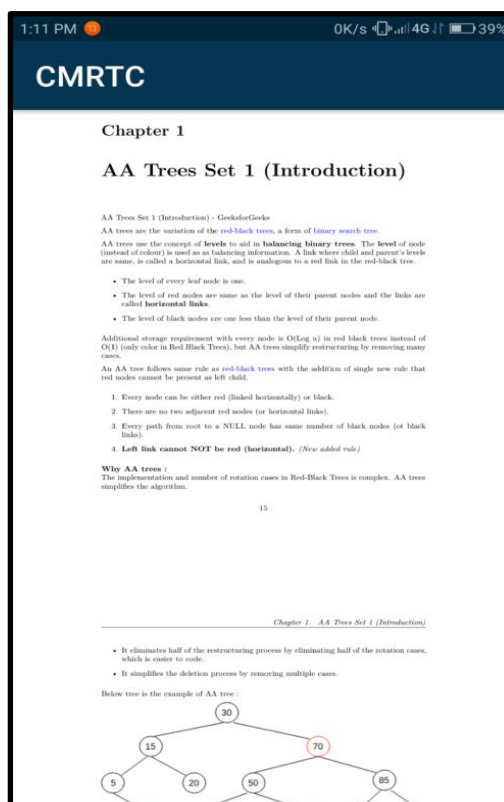
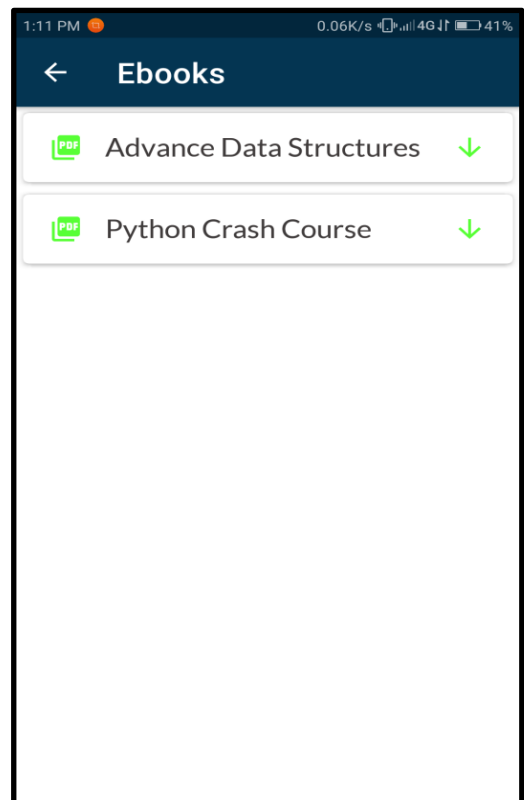
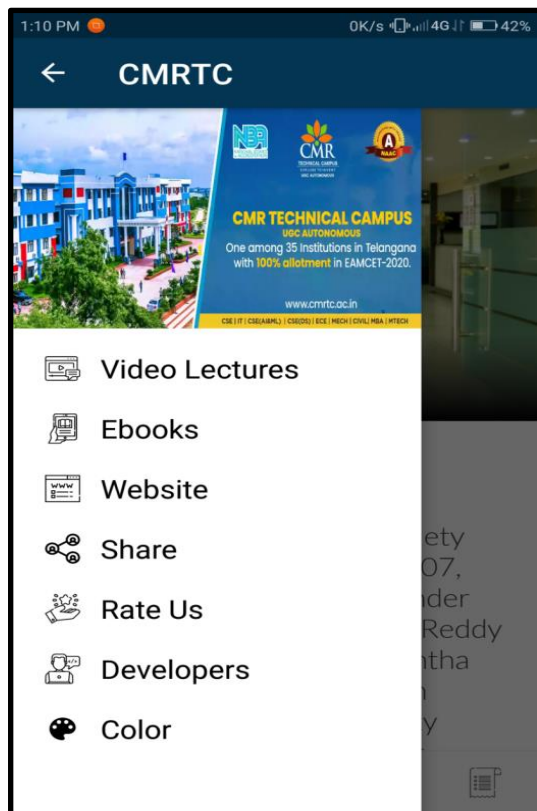
5.10. About CMRTC



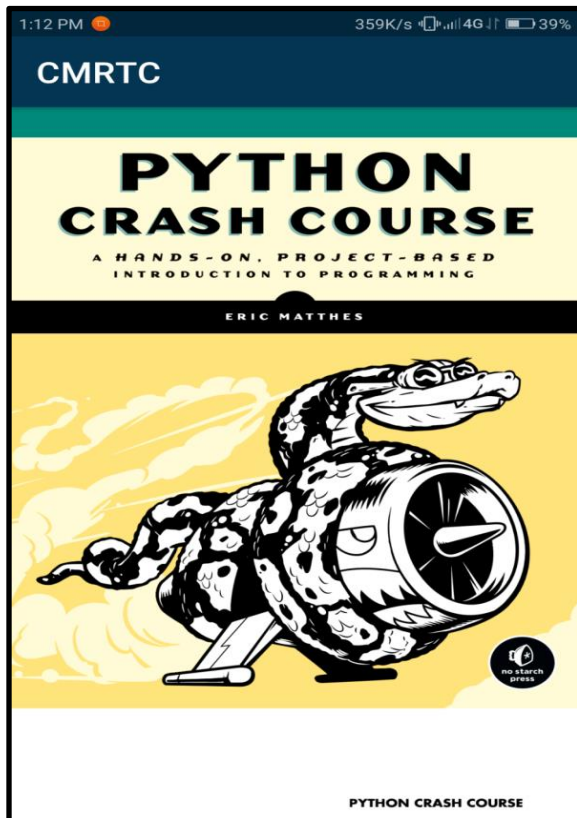
5.11. Screenshot of Different options in navigation Bar & Dark theme feature



5.12. Screenshot of Ebooks



5.13. Screenshot of Reference Materials i.e. Python Crash Course Ebook



The screenshot shows the 'BRIEF CONTENTS' page of the 'Python Crash Course' ebook. The status bar at the top shows 1:12 PM, 0.17K/s, 4G, and 39% battery. The CMRTC logo is in the top left corner. The page lists the following contents:

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6. TESTING

6. TESTING

6.1 INTRODUCTION TO TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, subassemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

6.2 TYPES OF TESTING

6.2.1 UNIT TESTING

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application .it is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

6.2.2 INTEGRATION TESTING

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfaction, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components

6.2.3 FUNCTIONAL TESTING

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals. Functional testing is centered on the following items:

Valid Input	:	identified classes of valid input must be accepted.
Invalid Input	:	identified classes of invalid input must be rejected.
Functions	:	identified functions must be exercised.
Output	:	identified classes of application outputs must be exercised.

Systems/Procedures: interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes.

6.3 TEST CASES

6.3.1 ADMIN LOGIN AND UPDATING DATA IN CMRTC ADMIN APP.

Here, we tested the CMRTC admin app and it's all features in all android devices from (low end devices to high end devices).

Test case ID	Test case name	Purpose	Test Case Process	Output
1	Admin trying to login with wrong id and password	To login in CMRTC admin app	The user(Admin) cannot login because the details are not correct	Unable to login. Please Enter correct Id and Password
2	Admin trying to login with correct id and password	To login in CMRTC admin app	The user(Admin) can login because the details are correct as stored in firebase.	Now, Admin can login successfully.
3	Admin Update the Notice Board for College.	To Update the latest news, feeds or any important information.	The Admin can update the notice board of the college so that any important information can be uploaded for the college students.	Successfully added the important notice and deleted the old information
4	Admin/Faculty Update the Gallery with category of our college.	To Upload any picture of gallery in the events, library or placements category.	The Admin/ Faculty can update the gallery pictures in the categories like events, library and placements of our college.	Successfully updated the gallery picture within the respective category.
5	Admin/Faculty Update the study material	To, upload the study material(EBooks, sample papers, quizzes etc) for students .	The authorized faculty can update the study material for students so that it can be helpful for students .	Admin/Faculty successfully updated the study material for students.
6	Admin modifying the list of faculty	To update the list of faculty under their specific department	The admin, can update the information of faculty and can upload the picture of faculty under their respective department name.	Admin was successfully able to modify the faculty list.

6.3.2 CMRTC APP AND ITS TESTING BY STUDENTS AND OTHER USERS.

Here we tested our second app i.e. CMRTC app and we tested all its features in all the conditions and we tested this in all android devices.

Test case ID	Test case name	Purpose	Output
1	Student opens the home page	To know about the college, departments and location in google maps.	The user was able to get to access all the information about the college and when the user clicked on location , the user was navigated to google maps where the location of our college CMRTC was located
2	Student opens the notice board feature.	To check the important notification, notices and news feed that the college circulated for the management and the students of the college.	The students were able to see the important notice and along with that the notice time stamp and dates were shown as well.
3	Students can see the gallery of the college	To see the gallery of the college which include all the famous events organized by the college and library of the college and recent placements of the college.	The gallery of the college was shown successfully and the images were classified in their respective categories i.e. events, library and the placements.
4	Students can use the “about” feature in this app.	The about features shows the information about the chairman, director and departments and along with that the contact details of the college and address of the college and the quality of education that the college provides.	Students were successfully able to use the about feature of the college.
5	Student can use the feature of “Ebook” from navigation bar	This features allows the students to get the study materials, Ebooks, quizzes etc and they can read all those and can download in their device too.	Students were able to study the Ebooks and other study material and these pdfs were downloaded successfully to their devices.
6	Students can use the feature of “Video Lectures” from the navigation bar	This feature allows the students to see the video lectures uploaded by our faculty .	Students were successfully able to use the “Video Lecture” feature .
7	Students can share the app and change the theme.	The first feature allows the user to share the app to their friends and the other feature allows the students to enable the dark theme which enhances the beauty of the interface of the app in amoled display phones.	Students were successful able to share the app to their friends and were able to change the theme to dark mode, light mode and system default.

7. CONCLUSION

7. CONCLUSION & FUTURE SCOPE

7.1. PROJECT CONCLUSION

This app is for students and faculty members of our college and as everything is going digital and users prefer android apps over websites this helps students for getting news feed, quizzes, video lectures and study materials which they can save in their device and can share with their friends as well. This app is highly effective and efficient because it can run on any low end and high end android device too, power and RAM consumption is less and has minimal user interface and offers dark theme. Hence, these two apps are made for students and faculty of our college so that interaction between them can be enhanced and ease of finding resources and information is achieved.

7.2. FUTURE SCOPE

In future we will add notification feature in our CMRTC app. We will add a feature which will enable the student to have an online doubts session with the faculty of its respective departments. We will add, student reviews option so that students can give their reviews and rating to the video lecture and study material. Now, while studying can mean hours spent in the library, it doesn't have to be so boring! As digital technology continues to improve, there are more and more apps that will make studying both easier and more fun and the interaction between faculty and students will enhance.

8. BIBILOGRAPHY

8. BIBILOGRAPHY

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- <https://github.com/AnkitPalahania/ANDROID-APPS-FOR-My-College>

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Android Application for my College

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Abstract: *The welfare of the students and faculty plays a very significant role in any institution and in these changing times, students are more driven towards using a smartphone for every purpose. As we know that the world is at the fingertips of every users and now student can get access to any information from anywhere. So, an android application for student can be significantly helpful and this reduces the chance of visiting a library, websites and other places searching for the books, sample quizzes, study material, notices and any other information [5]. This project is an educational android application which is made for our college students and faculty members. In this project we have created two android applications i.e. CMRTC Admin and CMRTC android app. In CMRTC Admin app, only the authorized faculty members can access this admin app. The admin can modify the images, events, news, notices, quiz questions, study material and eBooks for students and can change the list of faculty members of different departments. Whereas the second app i.e. CMRTC app is only for students and other users and in this app they can get information about our college, Google maps location, notice board, gallery of the college, video lectures, study materials (eBooks, question papers, quizzes etc.) and students can download the study material, can share this app to their friends and for any feedback they can provide it in our college website. So, for the welfare of the college we have made this project.*

Keywords: *Android app development, Firebase, CMRTC Admin and CMRTC android applications, Update gallery, study material and notice and Admin Login .*

I. INTRODUCTION

This project basically consists of two android applications i.e. CMRTC Admin and CMRTC android app. All the modification and updation of data is done using the firebase and only authorized users are allowed to login in CMRTC admin and this is achieved using firebase too. Whereas, the other app i.e. CMRTC app is accessible for every user. Although our college has a dedicated old website but we developed Android application because of android application advantages that the normal website lacks. Android apps cater to better user experience, load content faster and are very easy to use. Apps provide user to perform a task better with the help of the gesture. It is very easy to navigate through and provides personalization unlike the website and as per our research most of the users spend more time in apps rather than websites. We have provided the personalization feature of enabling dark theme, hence providing the interactive and seamless user experience.

II. LITERATURE SURVEY

Android is not a smartphone, it is an open source and Linux-based Operating System for mobile devices such as smartphone, smart watches, tablets etc [2]. Android OS was developed by the Open Handset Alliance which was led by Google and other companies and has been widely used OS till date. In our project we have used firebase for cloud storage hosting.

A. Firebase

Firebase is a Backend-as-a-Service (Baas). It provides developers with a variety of tools and services to help them develop good quality apps and provides real time hosting [4]. It is built on Google's infrastructure. Since, firebase is categorized as NoSQL database program, it stores the data in JSON-like documents and provides features like real-time database, authentication and hosting. Here, firebase providing us the facility to authenticated login in CMRTC admin app and updating the database in real time with seamless process.

B. Language and Integrated Development Environment

Google states that Android apps can be written using Kotlin, Java, and C++ languages using the Android software development kit (SDK), while using other languages is also possible [1]. Here we used Java language for app development and Android Studio is used as our primary integrated development environment because it is official IDE for developing apps for Android OS.

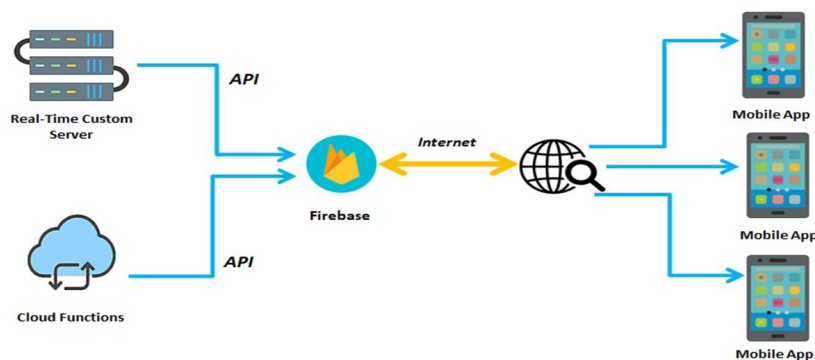


Fig. 1 Firebase Real Time Database Architecture

III. NEED OF THE PROJECT

Our college has a dedicated website but never had an android application and nowadays most of the users prefer using android application over the website. Our project enables the faculty members to add the study materials and other important information that can be useful for college students so that during any preparation students can refer those materials and can download the study material as well. We have developed this project specifically for the college students and the faculty of our college. Our app provides easy access of information, better user interaction, convenient interface, features and study material accessibility which gives our app an upper edge over the old existing college website. We have made sure that the privacy is maintained properly and only authorized faculty will be allowed to use the CMRTC admin application.

IV. EXISTING SOLUTIONS AND ITS DRAWBACKS

In the existing system there are no good features and also news feed option, interface and study material management is not there. Students have to visit the complicated sites of colleges to get the college related information and the information available is not furnished and sometimes students have to pay for eBooks and study materials. Apart from these, there are some other drawbacks which are given below:

- A. No proper android app available for our college students and faculty members.
- B. There is no proper source from where students can get their study materials.
- C. Existing systems have privacy and security related issues for users.
- D. The user interface of existing website is not good and has very less functionality

V. PROPOSED MODEL IN BRIEF

The proposed system basically consists of two android applications; one is CMRTC Admin app and second is CMRTC app. The CMRTC Admin app is used by the authorized faculty members and they can add, modify or delete the gallery of the college, list of faculty members as per departments, important news and notices and study materials for the students. In case of CMRTC app, it is for students and other users and here a user can access the any information related to our college, gallery of the college, video lectures and study materials and user can read and download this at free of cost. This enables the students to get any information and eBooks at one place with seamless user interface [3]. Here, we used firebase which works as backend as a service and it syncs the real time data in the application, categorizes the data into NoSQL Database programs so it works faster and provides authentication with real time cloud storage. It provides the following advantages as well:

- A. Provides study materials and books to students of our college at free of cost.
- B. Students can go through video lectures uploaded by faculty of our college.
- C. This app can be shared to other users using the share option present in navigation bar.
- D. Materials and other information can be shared to others as well.
- E. Highly secure and privacy is maintained properly as we are using firebase database.
- F. Interactive user interface and has seamless performance and can run on any android device (low end to high end device) and has a feature of dark theme.
- G. Efficient RAM and Power consumption.

VI. PROJECT ARCHITECTURE MODEL

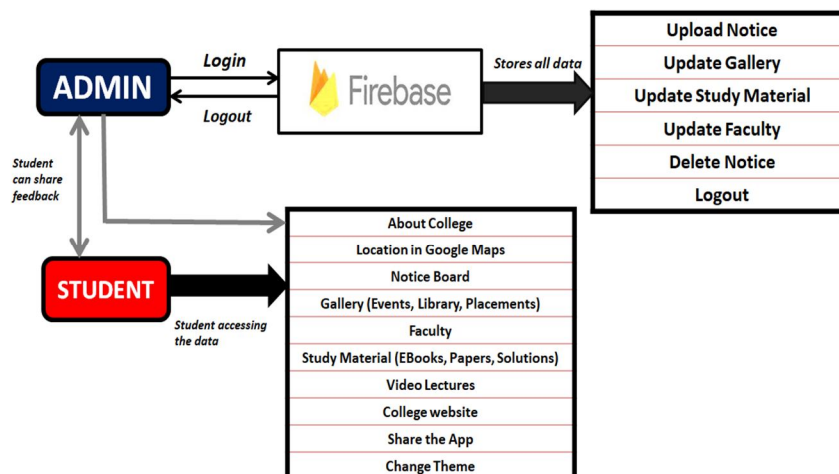


Fig. 2 CMRTC Admin app and CMRTC app architecture review.

VII. CONCLUSIONS

This app is for students and faculty members of our college and as everything is going digital and users prefer android apps over websites this helps students for getting news feed, quizzes, video lectures and study materials which they can save in their device and can share with their friends as well. This app is highly effective and efficient because it can run on any low end and high end android device too, power and RAM consumption is less and has minimal user interface and offers dark theme. Hence, these two apps are made for students and faculty of our college so that interaction between them can be enhanced and ease of finding resources and information is achieved.

VIII. FUTURE SCOPE

In future we will add notification feature in our CMRTC app. We will add a feature which will enable the student to have an online doubts session with the faculty of its respective departments. We will add, student reviews option so that students can give their reviews and rating to the video lecture and study material.

IX. ACKNOWLEDGEMENT

The authors would like to acknowledge the support of the Chairman, Director, Head of the Department, Department of Computer Science and Engineering and project guides of CMR Technical Campus, Medchal, Hyderabad, Telangana for their encouragement to the authors.

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