**Kathmandu University**

**Department of Computer Science and Engineering**

**Dhulikhel, Kavre**



**A Project Report**

**On**

**"CROPTA"**

**COMP 207**

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**Bonafide Certification**

This project work on

**CROPTA**

is a bonafide work of

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who carried out the project work under my supervision.

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**Abstract**

This project was assigned to fourth semester students for the partial fulfillment of COMP 207 given by the department of computer science and engineering, KU. By completing this project, we have created an application for students that will help them in day to day classes and assignments. The application includes notification about class updates, routine, assignment deadline. The features of this application will be reminders of deadlines of assignments and update about class. This project has helped us to work better as group and make an application made with the collective ideas of the group members. The project began with making of basic skeleton and module division between group members.

**List of Abbreviation:**

KU: Kathmandu University

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# **Chapter 1: INTRODUCTION**

## **Background**

Students should have their life organized. There are lot of things that students have to be updated to, like their assignments, assignments deadline, homework, classroom events and other small but important thing. They might note it down in some piece of paper or their note copy, but managing in paper is traditional, we have to think in a modern way. So the concept of developing the app ‘Classroom’ comes up with organizing the class schedules with other features making student life easy with technology. With this application student can note the assignment deadline or any classroom event and get a timely notification for each. They can edit and save their classroom routine and get notified to get ready for specific class. If there are certain events happening in class or college then one can post the event and other members can read the event. There might be class or extra class at times that can also be posted as an event so that others can get notified. Not every student saves their classmates and their teacher number in their phonebook, but if they want number in some cases, the “classroom’ app can provide the numbers with photo with ease.

The use of this application can be a great help to KU students as well. In KU as there are lots of events happening because of that classes might be off too. And with this application, the members can post about events and class information. And routines are hard to memorize, so one can save their routine and get notified for upcoming classes. We tend to add the lecturer schedules for lecturer’s free time.

Similar type of self-organizing apps have already been developed like My study Life, class schedule, the homework app etc. which has the same theme like maintaining the class schedule, notifications for due deadlines of assignments, and communication factor between class mates.

## **Objective**

The main objectives of this application are:

* To replace the paper planner or school diary with computerized system.
* To keep track of assignments, exams and class schedules and manage time effectively.
* To flow information regarding class activities in convenient way.

## **Motivation and Significance**

Managing a class is definitely not an easy task to do. Especially when dealing with all the information regarding assignments, class times, exam routines and a very hectic day to day schedule. Also smooth flow of information is necessary to keep the class running smoothly. So, we may lose the track of the events or activities going on.

**“CROPTA”** helps to keep all these things out of the mind and into our device. With **“CROPTA”** we can always view the class routine so we always know where we have to be at what time; also we are notified about our assignment due date and when we have exams or quizzes, know when we are free so we can plan ahead for our leisure time. The best thing is that we can have access to everything we need at tip of their finger.

While most of the similar apps allow us to only create, schedule and notify upcoming classes, assignments and exams **“CROPTA”** also provides personal to do list or personal planning space where you can divide time and plan our studies which helps a lot with managing time. We can also add reminder for our tasks so we can always make sure that our tasks are always completed on time. Setting up a goal as well as planning the steps helps you to achieve them one by one. **“CROPTA”** allows you to simplify decision-making and makes you more organized and up to date allowing you to make most out of your time.

# **Chapter 2: Related Works / Existing Works**

Educational apps being more prevalent nowadays, there are several applications based on class scheduling, managing the class activities

1. **My study Life**

A planner for students and lecturers designed to make study life easier to manage allowing to manage allowing to store classes, homework and exams in the cloud making it available on any device, wherever you are. It integrates all areas of academic life like track tasks like assignments, overdue for classes, managing the class schedules, communicate with classmates etc. Adding to it it also helps to organize notes in It is a cross platform available both in android, desktop and also viewable on website

1. **Class Schedule**

Class schedule is another android application which helps to easily manage classes by searching for and adding classes entered by other users. It also allows to design multiple schedules. Besides this application has the feature for organize notes, add memos, communicate to friends and also share the information via notice boards

1. **Homework app**

Homework app is an assignment planner to track all the assignments and get push notification reminders. The Homework app also adds up the feature of timetable schedule. Similarly, it allows to keep track of office times and contact details of the course instructors or professors.

# **Chapter 3:Design and implementation**

## **System Requirement**

* + 1. **Programming Language:JAVA**
    2. **IDE:Andriod Studio**
    3. **Targetted OS:Andriod Devices**
    4. **Database:Firebase**
  1. **Algorithm**
     1. **Login Algorithm**

1. Start
2. Open login activity
3. Display edit text fields to take input from user about user and password, Display button for creating new account
4. If create new account button is clicked, goto register activity to create new user account
5. Else if the user and password fields are filled and login button is clicked goto step 6
6. If user and password inputs are matched with the authentication database, then go to Dashboard
7. Else show error message
   * 1. **Dashboard**

1.Start

2. display tabs for your profile, routine, assignments, exam schedules,note planner

3.goto corresponding activities when clicked

* + 1. **Your Profile activity**

1.Start

2. Retrieve data about the user and display profile information

3. If profile editor is clicked, go to activity to edit profile information

* + 1. **Routine**

1. Display routine activity.
2. When “show routine” is pressed . open another activity that displays routine
3. When add subject is pressed opens add subject activity
   * + 1. **Add subject**
4. Display form
5. If save button clicked it checks if any fields is empty

and if true generated a toast.

Else saves data

1. If add time is clicked it opens another activity
2. If cancel is clicked a dialog appears that asks if you wish to discard data.
   * + 1. **Addtime**
3. Display another form
4. If save is clicked checks if any field is empty if found true it makes a toast appear else ir saves the data

**3.2.5 Assignment**

1. Start
2. Display recorded subjects in listview
3. If add widget is clicked, then display interface for entering the subject, related teacher, and subject credit.
4. Take input from user and save into the subject\_details table of the database.
5. Retrieve data from the database and display in the listview.
6. If a subject is clicked,open individual activity for display information about the subject
7. If add assignment button is clicked, display interface for taking input about the assignment, and its details from the user and save it into the Assignments table of the database.
   * 1. **Exam Schedule**
8. Display internal, boards and upload buttons
9. If upload button is clicked, go to upload activity
10. Display internal and board buttons on upload activity
11. If internal button is clicked, display the interface for uploading internal schedules along with subject names, date and day
12. Take input from the user and after clicking apply button , connect to database and save the schedule inputs in Internal\_Schedule table
13. Else if boards button is clicked, display the interface for uploading boards schedules along with subject names, date and day.
14. Take input for the user and after clicking apply button, connect to database and save the schedules inputs in Board\_schedules table.
15. If internal button is clicked, go to internal activity and display the interface and retrieve corresponding schedule data from internal schedule table of database, and further display it.
16. If boards button is clicked, go to boards activity and display the interface and retrieve corresponding schedule data from Boards\_schedules table of database, and further display it.
    * 1. **Teacher info**
17. Start
18. Display list of recorded teachers in the list view
19. If floating add button is clicked , then display interface to take teacher details and save into the Teacher table of the database.
20. If the teacher in the list view is clicked , display further information about the teacher.
    * 1. **Note/Planner**
21. Start
22. Display recorded tasks lists
23. If floating add button is clicked go to interface to take input from user about the new task title and date and save it in the database.
24. If the task is selected, open interface to add details, and view .

If update button is clicked make change in the database according and display. Else if delete button is clicked, delete the task from the database.

* + 1. **Event**

1. Start
2. Display create and view button
3. If create button is clicked go to create event activity,
4. Else if view button is clicked go to view event activity,
   * + 1. **Create\_event activity**
5. Display Create event activity
6. Display textviews for event title, event location, event date and time and event details, and edittext fields to take input from the users for event datas.
7. Display save and cancel button.
8. If save button is clicked save the data in database
9. Else if, cancel button is clicked go back to event activity.
   * + 1. **View\_ event activity**
10. Display view event activity
11. Display list view in the activity
12. Retrieve Event title from database and display in the list views
13. If the event title displayed is clicked for a long time, display alert box asking if the user wants to update the event or delete an event.
14. If update is clicked, go to create event activity.

Display the information of the selected event.

Update the data in the database.

1. If delete is clicked, delete the selected activity.
2. If an event is selected, go to vieweventinfo activity, and display the information of the selected event after retrieving from the database.
   1. **Flowchart**
   2. **System Diagram**

CROPTA

Offline

Database

Dashboard

Profile

Routine

Assignment

Exams

Note and Planner

Real-time

database

Event

Routine

Teacher info

* 1. **Frequently Used Functions**

**Firebase Funtions:**

|  |  |  |
| --- | --- | --- |
| **S.N** | **Function** | **Use** |
| 1. | fAuth.getCurrentUser() | Gives the Id of currently logged in user. |
| 2. | fAuth.signInWithEmailAndPassword(email, password) | Search the auth database and matches the email and password and returns success or fail |
| 3. | FirebaseDatabase.*getInstance*().getReference() | Gets a DatabaseReference for the database root node. |
| 4. | FirebaseDatabase.*getInstance*().getReference().child(“Name”) | Gets a DatabaseReference for the database of the child node. |
| 5. | DatabaseRef.addChildEventListener() | used to receive events about changes in the child locations of a given DatabaseReference |
| 5. |  |  |
| 7. | DatabaseRef.addValueEventListener() | used to receive events about data changes at the given database references. |
| 6. | DataSnapshot.getKey() | Get a DataSnapshot for the key in the location at the specified relative path. |
| 7. | DataSnapshot.getValue() | Retrieve the Value from the given database reference |

**Android Studio Widgets Functions:**

|  |  |  |
| --- | --- | --- |
| **S.N** | **Function** | **Use** |
| 1. | ButtonName.setOnClickListener() | Activates Click events in the ButtonName |
| 2. | ListViewName.setOnItemClickListener() | Activates the click listener in items inside in ListViewName |
| 3. | ListViewName.setOnItemLongClickListener() | Activates the long click listener in items inside in ListViewName. |
| 4. | TextViewName.setText(“test”) | Set the text of TextViewName to “test” |
| 5. | EditTextName.getText() | Get the text or numeric value entered inside the EditTextName |
| 6. | WidgetName.setVisibility(View.GONE) | Hide or unhide the given widget |

**Android Studio Functions**

|  |  |  |
| --- | --- | --- |
| **S.N** | **Function** | **Use** |
| 1. | getSupportActionBar().setTitle(“title”) | Sets the title of the action bar to “title” |
| 2. | getActivity() | Returns the currently used activity |
| 3. | onBackPressed() | Activates back function to go to parent activity |
| 4. | finish(); | Ends the currently used Activity |

**Android Studio Different Class Function:**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.N** | **Function** | **Related class/Library** | **Use** |
| 1. | Toast.make() | android.widget.Toast | Display Toast message |
| 2. | Snackbar.make() | android.support.design.widget.Snackbar | Display Snackbar message |
| 3. | progressDialog.setMessage(“test”) | android.app.ProgressDialog; | For Process Dialog box to show message “test” |
| 4. | startActivity( intent\_name ) | android.content.Intent; | Start another activity from the current activity. |
| 5. | onDateSet(DatePicker datePicker,int,int,int) | java.util.Calendar | For adding and using calendar widget |
| 6. | AlertDialog.Builder() | android.support.v7.app.AlertDialog | For showing alert dialog box |

* 1. **Use Case diagram**

1. 

User 0

User 2

User 1

# **Chapter 4: Discussion**

Since CROPTA is a utility app based on android , we have numerous numbers of activity which depict various functions and classes. They are described below:

* 1. **Main Activity**

Main activity is the launching activity which opens right after the app is opened and splash screen disappears from the display. This activity leads to the dashboard with links to all other activities like teacher\_info activity, assignment activity, exam\_schedule activity, routine activity, profile activity,and task planner activity.

* 1. **. Login Activity**
  2. **. Your Profile Activity**

In this module the can view user details that he used while logging in. the user an also update his information by pressing the edit profile button. The profile activity has constraints in its edit method. The user however cannot deletes his/her profile.

* 1. **Exam schedule activity**

This module takes up to the upload the exam schedules for both internal and board exams. The users can also view the exam schedules in this module. The activity contains three buttons for uploading, for viewing internal schedule and lastly to view the board schedule. On clicking upload button, it leads to another activity for uploading the subject date and day of the exam, and storing the schedule in our database. Similarly, on clicking the boards and internal buttons it leads to the activity to retrieve data from the database and display on the screen.

* 1. **. Assignment Activity**
  2. **. Routine Activity**

This module is for user to change and view the changes in their subject and thee time of their subject. The user can also delete the subject and timing og any subject.

* 1. **. Teacher Activity**
  2. **. Task Planner Activity**
  3. **Event Activity**

This module is used for creating event an viewing event. The event can be further be updated and deleted too.

**Chapter 5: Conclusion**

Any semester’s project focuses the students to tackle the problems and gain knowledge while developing the project with selected Programming language. The main aim of our project was to develop the android application named “CROPTA” that make the life of students better by replacing the tedious paper based work with mobile database system. The key feature of the application is keeping the track of the Assignment with its deadline, viewing and adding information in Routine, knowing the detail of exam sessions, viewing the teacher information and their free time and lastly adding personal notes.

Upon completing this project, we were able to create an android application   
using built-in libraries/functions and Firebase-Database functions. Besides learning a new language, we also learned how an android application works with mechanisms. This project has been platform for us to learn about Android language and Firebase-Database and their usage, team work. However, we were not able to show online notification and upload download files like other similar project. By a helpful guidance of the supervisor and with the team work, we have successfully completed the project.

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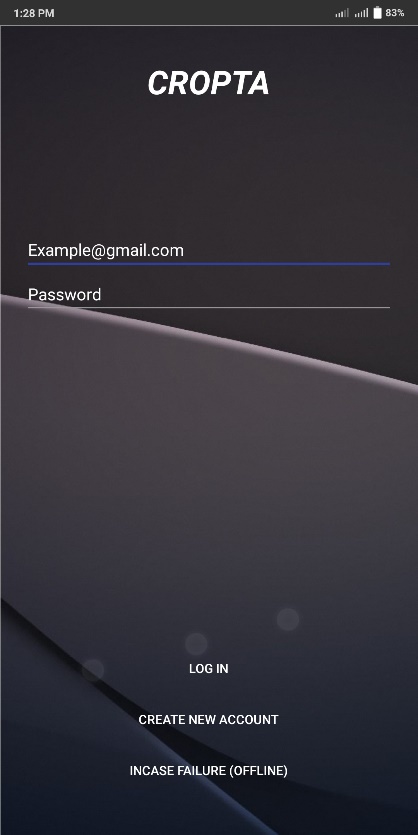
<https://www.youtube.com/watch?v=vJ7bfAPt4hY&list=PLM8gmU39ZoDfcJp6rhCiz3Fkgl17KISIc>

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**Appendix 1**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Week**  **Plans** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| **Planning** |  |  |  |  |  |  |  |  |  |  |  |  |
| **Preparation** |  |  |  |  |  |  |  |  |  |  |  |  |
| **Work Division** |  |  |  |  |  |  |  |  |  |  |  |  |
| **Coding** |  |  |  |  |  |  |  |  |  |  |  |  |
| **Graphics Designing** |  |  |  |  |  |  |  |  |  |  |  |  |
| **Debugging** |  |  |  |  |  |  |  |  |  |  |  |  |
| **Beta Testing** |  |  |  |  |  |  |  |  |  |  |  |  |
| **Documentation** |  |  |  |  |  |  |  |  |  |  |  |  |

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**Appendix 2**

