

# HOSTEL SUPPORT APP

A Report for the Review of Minor Project

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## DECLARATION

We the undersigned solemnly declare that the project report is based on our own work carried out during the course of our study under the supervision of Dr. Raju Ranjan . We assert the statements made and conclusions drawn are an outcome of our research work. I further certify that

- I. The work contained in the report is original and has been done by us under the general supervision of my supervisor.
- II. The work has not been submitted to any other Institution for any other degree/diploma/certificate in this university or any other University of India or abroad.
- III. We have followed the guidelines provided by the university in writing the report.
- IV. Whenever we have used materials (data, theoretical analysis, and text) from other sources, we have given due credit to them in the text of the report and giving their details in the references.

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## **ACKNOWLEDGEMENT**

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## **ABSTRACT**

This study is an investigation of how the existing hostel management system for registering a complaint and then taking action upon it is inefficient and quite heavy to handle. Students who come to reside in hostels often face some issues/complains in different departments and due to poor/mishandled management, these complaints can't be properly taken care of. Thus, an organized system for listing complains so that they are kept in clean records and then looking up on each one of them becomes a necessity.

Providing enriching experience to the hostel students helps the hostel management boost an upgrade. Hence, simplifying the needs of both students and the administration.

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## **INTRODUCTION**

**Objective** - Hostel Support App will be a mobile based application that helps the students to register any sort of complaints regarding hostel facilities, by filling some basic details for example, room no., complaint department (for example, Electricity, furniture, laundry, etc.), contact no.

The administration will be able to manage all the complaints and look into each case with ease. Higher authorities can easily monitor hostel management via complaints statistics.

Hostel warden will be able to make announcements (for example, events, lost – found, etc.) for students via the notifications / announcements feature in the app.

**Motivation** - This app will ease the hostel authorities to manage hostel Complaint databases in a systematic way as well as students to register complaints remotely. This app will also allow higher authorities to keep check on the status of registered complaints and take actions accordingly. This app will also help warden to make announcements for hostel students regarding events or lost-found (extra feature).

Students shall update the complaint status once it has been successfully handled.

**Methodology** - In order to determine the seamless experience of user we are following strictly the material guidelines by Google while creating the UI of the app that includes the manner of spacing, structure of layout and size of different elements. The database is structured using Jetpack library's Room Database that ensures the correct sql queries as it rectifies the errors during compile time and not during run time of the app. We chose firebase over local database for better security, accessibility and usability of database.

## **LITERATURE REVIEW**

As the topic mentions above “Hostel Support App” is an application that is developed to help in managing various complaints in the hostel. As is well-known, the education institutions are rapidly increasing for the past few years. Therefore, it leads to mushrooming of students for the accommodation in the hostels. There are many problems faced by students in the hostel regarding facilities and hence there is the appearance of Complaint System which helps with dealing the problem of all the hostel complaints and avoids the problem of handling it manually.

Hostel complaint management by manual way is a tedious process, since it involves work load, unorganized and poorly managed records and time consumption. In this system, we can easily manage the hostel details, room details, student records, complaint records and event announcements. Major complaint areas can be kept under observation after checking the complaint statistics and hence improvements can be done in the particular sectors accordingly.

It also has in-built authentication algorithm for preventing unauthorized access. The developed system overcomes the drawbacks of traditional methods of hostel complaint registration that is via pen and paper; it is more user-friendly, graphical-user-interface oriented, reliable, efficient and secured with access control mechanisms.

## **PROBLEM FORMULATION**

Students residing in hostel premises have to go physically to respective authorities to register complaints regarding hostel facilities which are hectic for both students as well as management to keep records. Higher Authorities are unable to see the overall management of hostel and hence it becomes difficult for them to have the scope of improvement. The app will be a solution to both the students and hostel management. The hostel department can easily navigate to check on all the registered complaints, complaint related sector, date of registration, progress of complaint, etc and so the hostel complaints can be managed in a systematic way.



# REQUIREMENT ANALYSIS

## 1. SOFTWARE REQUIREMENTS :

- **Android Studio** - Android Studio is the official integrated development environment for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development. It is available for download on Windows, macOS and Linux based operating systems.
- **Firebase** - The Firebase Realtime Database is a cloud-hosted NoSQL database that lets you store and sync between your users in real time. When your users go offline, the Realtime Database SDKs use local cache on the device to serve and store changes. When the device comes online, the local data is automatically synchronized.
- **SQL Library** - SQL Library. Structured Query Language (SQL) is the programming language for databases. It is the language for MySQL database management system.
- **CardView Library** - For a better UI we will use CardView Library to segregate different fields by representing them in card view.
- **Programming Language** - Java, MySQL (Backend) and XML (Frontend)
- **Student Database (RF campus)** - Hostel students will have their login credentials for the app thus their database is required- Name, Phone Number, Room number, Admission Number.
- **External Library used** - Retrofit, ButterKnife, Glide/Picasso, Room Database(Jetpack), Mockito- Unit Testing, Espresso-UI Testing.

## 2. HARDWARE REQUIREMENTS :

- a) For Development any PC that has requirements for running Android Studio (2GB+ RAM for smooth working)
- b) For the user any android phone above KitKat OS.

## 3. USER PERMISSION REQUIRED

- **Internet access-** App requires Internet access to send and receive updates from real time firebase and update UI accordingly.
- **Camera access-** App requires camera permission to send pictures via mobile's camera to database for registering complaints with a proof.
- **Notification access-** App requires notification access to keep users up to date with their complaint status.
- **Storage/Media access-** App requires storage access to upload picture as a proof of Complaint from the gallery.

## **MERITS OF PROPOSED SYSTEM**

“Hostel Support App” is a complaint registering app. It seems to be very beneficial for a lot of in-college as well as private hostels in managing their complaints system with proper records. It encourages the improvement in the management of hostel facilities so as to provide the best experience to the residing students. This system is developed to cope up with the problem of unsolved hostel complaints and their enriching the hostel maintenance services. After an app system is implemented, less human force will be required to maintain the complaints and thus reducing the overall burden. It can also be called as a complaint registering mobile app for hostel students. Having the ease of navigating to the various portions of the app. The user feels extremely delighted and comfortable while using this app. The mindset of a regular student has been kept in mind while creating the User Interface of this app. It focuses on getting quick information from the user regarding their complaint. It also provides advanced information via notifications or special announcements for an event taking place in the hostel or even cases of “Lost – Found” in the hostel premises . The students can simply click on the event and look for its information by getting redirected to its page. It is compatible for both Android and iOS. All in all, it is a very useful app, and has a great market for itself in future.

# ARCHITECTURE DIAGRAMS

The software architecture describes its group of components, their connections, interactions among them and deployment configuration of all components.

Following are the UML Diagrams for the Hostel Support App:

## ***a. Use Case Diagram***

A use case diagram is a dynamic or behavior diagram in [UML](#). Use case diagrams model the functionality of a system using actors and use cases. Use cases are a set of actions, services, and functions that the system needs to perform. In this context, a "system" is something being developed or operated, such as a web site. The "actors" are people or entities operating under defined roles within the system.

### ○ The Hostel Support App uses the following Use cases –

1. Login
2. Register complains
3. Check complain status
4. Events info
5. Register Lost – Found
6. Complain resolved

### ○ The actors involved –

1. System
2. Student
3. Warden

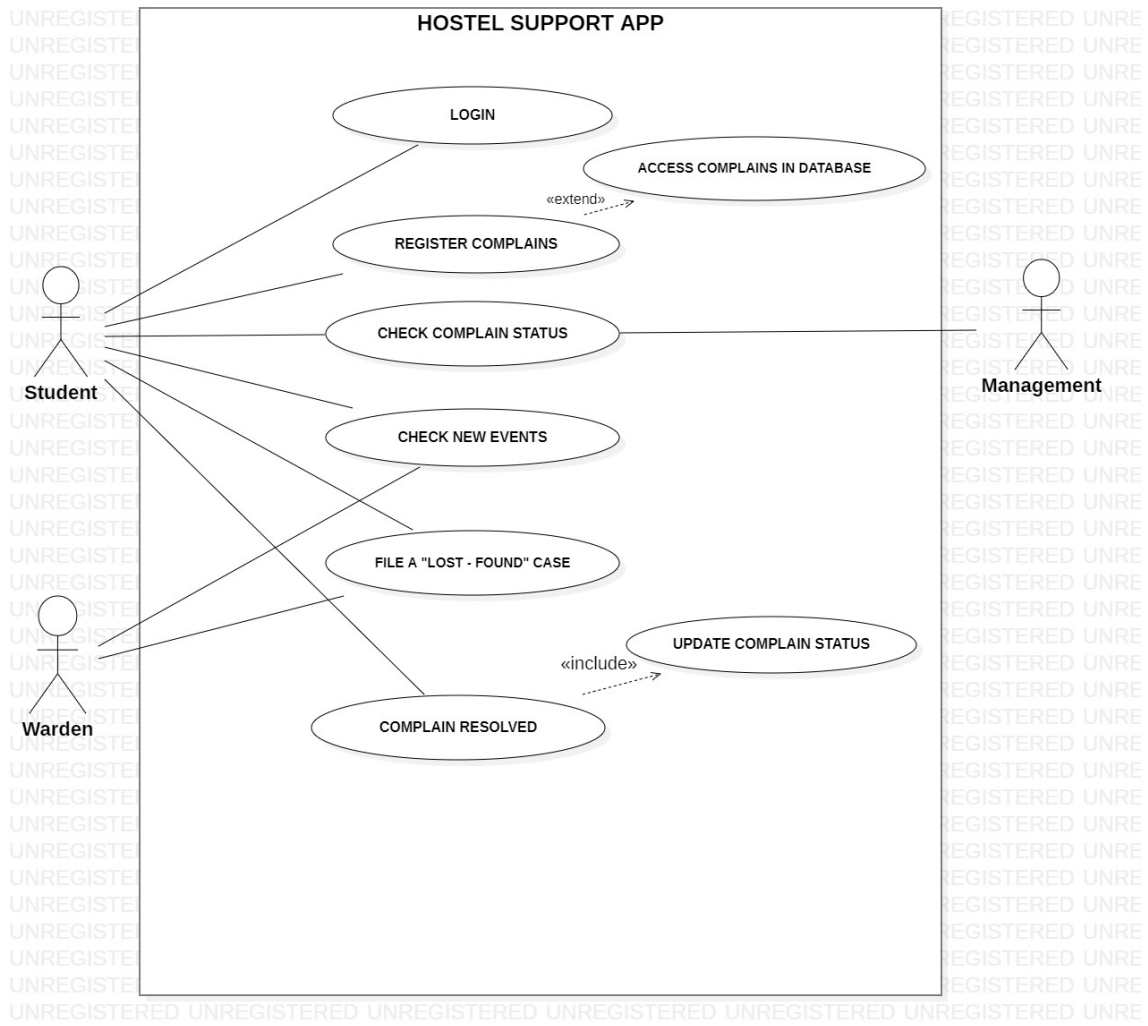
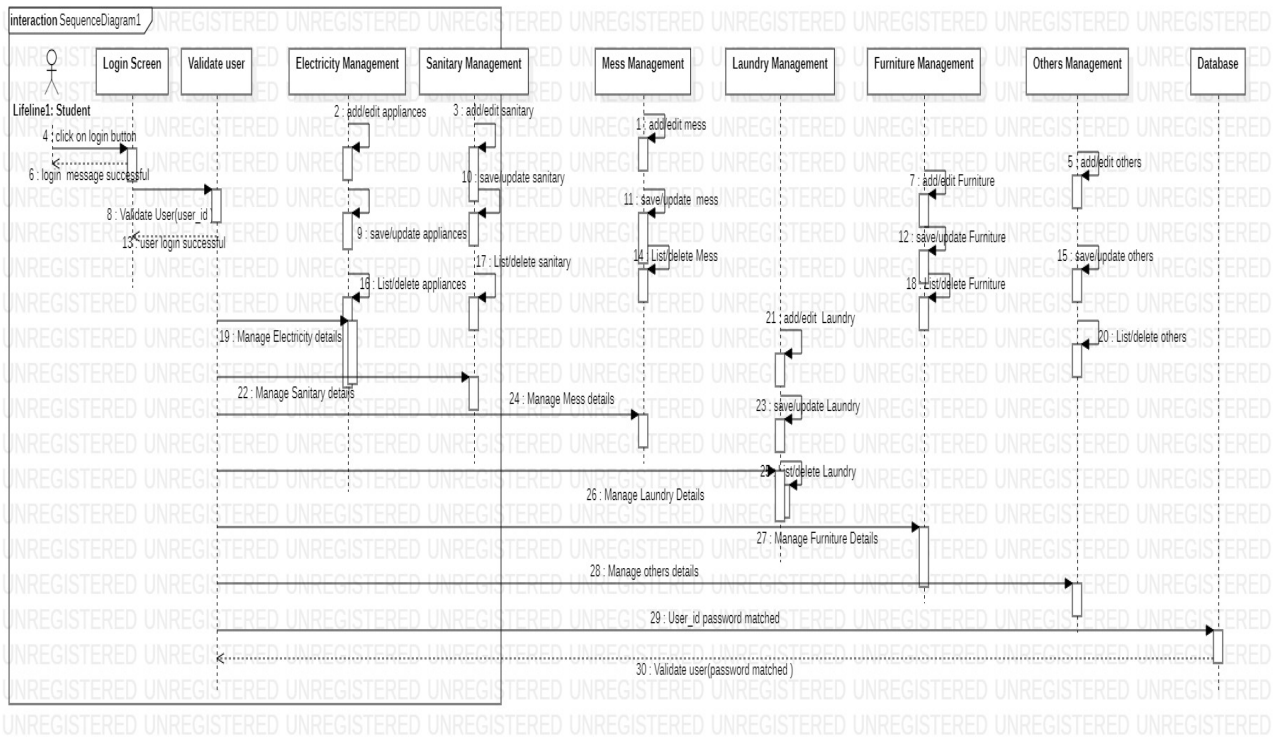


Fig. Use Case Diagram

***b. Sequence Diagram***

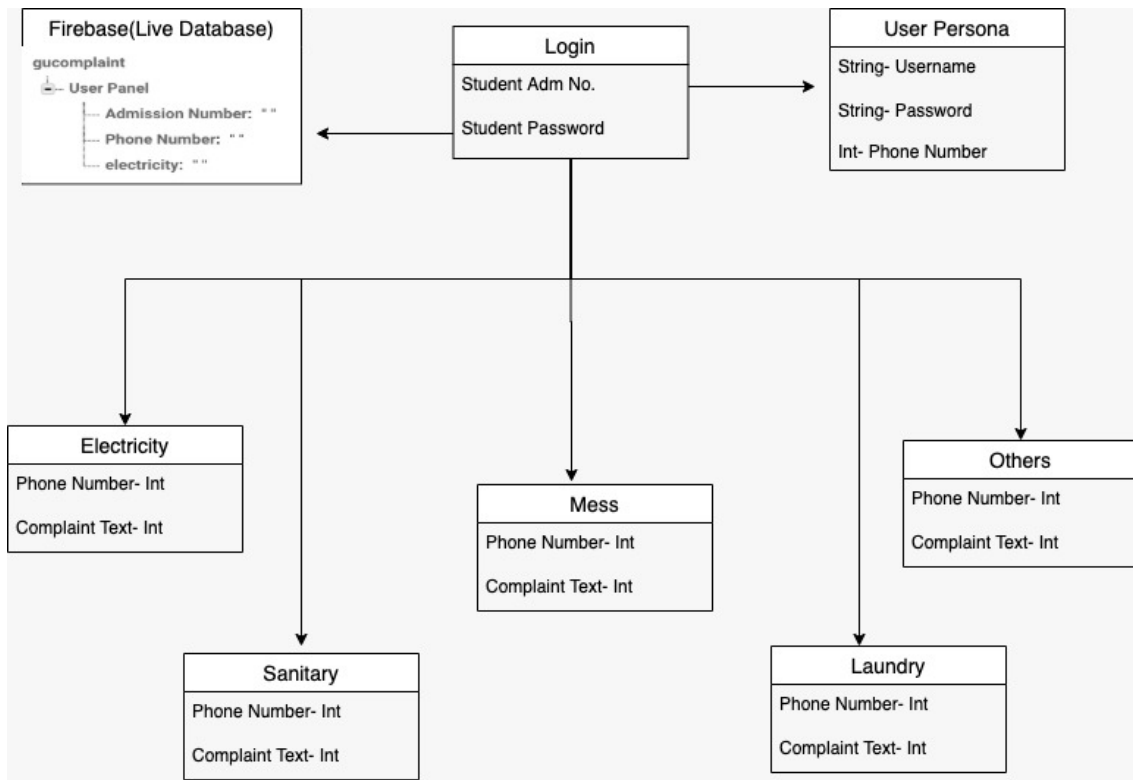
- A sequence diagram simply depicts interaction between objects in a sequential order i.e. the order in which these interactions take place. We can also use the terms event diagrams or event scenarios to refer to a sequence diagram. Sequence diagrams describe how and in what order the objects in a system function.
  
- The sequence diagram shows the following steps –
  1. Students are supposed to login in the app. The username & password are both verified.
  2. If the password and username is correct then students are supposed to choose their department of complain.
  3. Inside the particular section, the student fills in some details ( name, room no., issue).
  4. The “REGISTER” button is clicked.
  5. This information gets stored in the database from where the administration gets to know about it.



**Fig. Sequence Diagram**

c. Class Diagram

The class diagram, also referred to as object modelling is the main static analysis diagram. The main task of object modelling is to graphically show what each object will do in the problem domain. The problem domain describes the structure and the relationships among objects





## IMPLEMENTATION & DESCRIPTION

### OF THE PROJECT MODULES

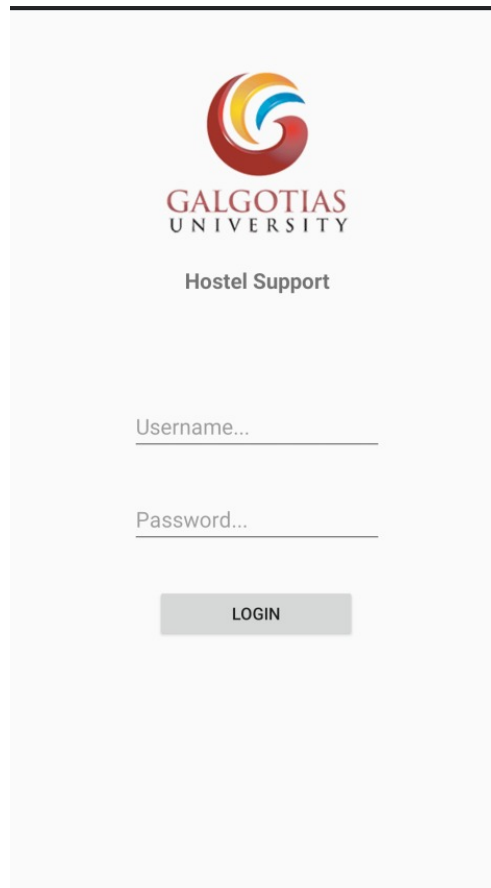
Hostel Support App contains many modules that account for so many of its great features. The modules allow the app to be divided into various functionalities and make the job of the developers neat and clean. It contains the following modules:

1. **Splash Screen** - It appears when the app is not running in background and is opened by the user. Usually splash screen contains the logo and name of organization to which the app is associated.



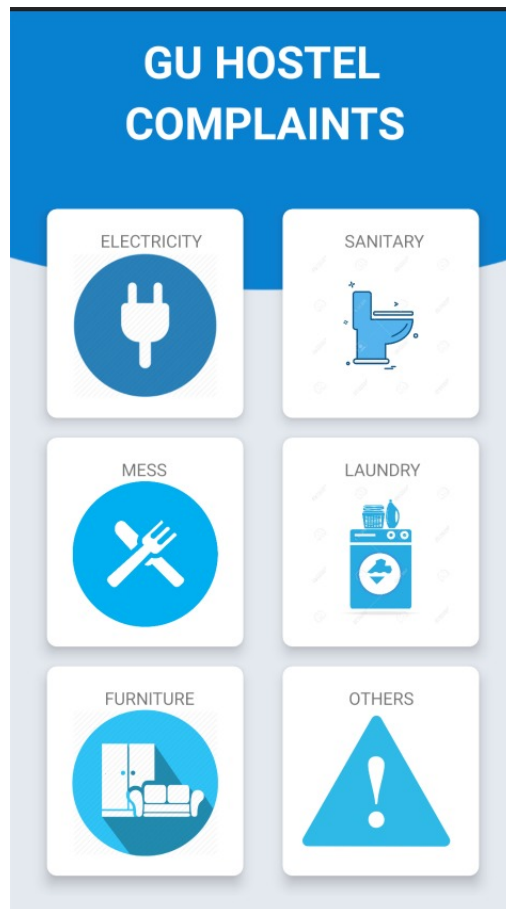
**Fig. Splash Screen**

2. **Login Activity** – A login screen where the students shall log in using their college admission numbers as their username and a password (as set by the user). There will be special protection methods so as to make sure only valid and verified users log in the app.



**Fig. Login Screen**

3. **Dashboard** – The next screen right after you login is the home screen where you get to see all the necessary / relevant departments For example, Electricity, Laundry, Furniture, etc. There is also an *others* department where you can register complaints apart from the given 5 departments.



**Fig. Home Screen**

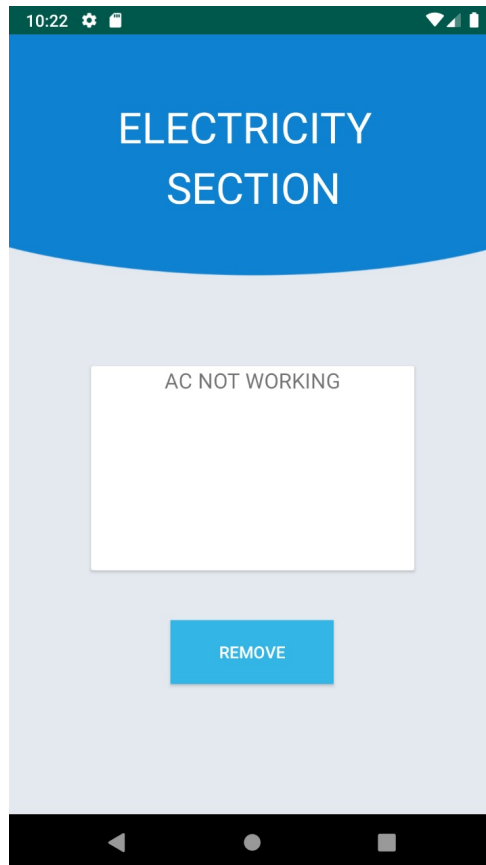
Different sections for registering complains in different compartments

4. **Individual Departments** – After choosing the section you're concerned with a screen will appear where you will be asked to enter your name, your room no. and the issue. The student shall fill it with sincerity and the update will be sent to the firebase. From here the hostel authorities will be able to keep records of all the complaint requests and then take action upon them accordingly.

The image displays two side-by-side mobile application screens. The left screen is titled 'FURNITURE SECTION' and the right screen is titled 'LAUNDRY SECTION'. Both screens feature a blue header with the section name in white text. Below the header, there are two input fields: 'Your Name' and 'Room No'. Underneath these is a text area labeled 'What's your issue?'. At the bottom of each screen, there are two buttons: a blue 'REGISTER' button and a green 'CHECK COMPLAINTS STATUS' button.

**Fig. Individual Departments**

- 5. Check / Remove Complaint** – After registering complaint, student can check the registered complaint details- status, action, comments, etc. Student can also remove the complaint on clicking remove button in case he registered a complaint by mistake



**Fig. Check Complain Status / Remove**

## CONCLUSION

- “Hostel Support App” is a complain registering app.
- It seems to be very beneficial for in-college as well as private hostels in managing their complains system with proper records. It encourages the improvement in the management of hostel facilities so as to provide the best experience to the residing students.
- After an app system is implemented, less human force will be required to maintain the records
- The user feels extremely delighted and comfortable while using this app.
- Special notification and Lost – Found features make the app better.
- It is compatible for both Android and iOS.
- It is a very useful app, and has a great market for itself in future.

## **REFERENCES**

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