

**DR.B.R.AMBEDKAR NATIONAL INSTITUTE OF TECHNOLOGY,  
JALANDHAR**



**FINAL YEAR PROJECT REPORT**

**ON**

**HOSTEL MANAGEMENT APPLICATION(HOMA)**

*For the award of the*

***Degree of Bachelor in Technology***

***In Department of Computer Science and Engineering***

Session: 2016-2020

**MENTORED BY:**

Dr. Rajneesh Rani

Assistant Professor

[Department Of CSE]

**PRESENTED BY:**

Group-17

**K KISHORE KUMAR (16110023)**

DEEPAK DWIVEDI (16103019)

SHUBHAM GOYAL (16103079)

YASH KAUSHIK (16103097)

## ACKNOWLEDGEMENT

*It's rightly said that there are hundreds of people working behind the curtain to make a Play successful. The final result of our project- HOMA required a lot of guidance and help from many people and we, Group 17, are extremely fortunate to have got this throughout the journey of our project. Whatever we are today is only due to such supervision and assistance and we would not forget to thank them from the bottom of our heart.*

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Thank you.

[Group 17]

## DECLARATION

*We, Group 17, hereby declare that our Project titled- “**Hostel Management Application(HOMA)**” being submitted by us in the Department Of Computer Science and Engineering is a project work carried by us under the noble supervision of Dr. Rajneesh Rani and the project has not been copied from anywhere and has been made solely by us.*

*We will be solely responsible if some Plagiarism is found.*

*Thank You All.*

*Date: 24<sup>th</sup> May, 2020*

*[Group 17]*

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# **INTRODUCTION - Building Up The Foundation**

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## **1.1. Background**

The idea of the project is to develop an online hostel management application. As the name specifies it is software developed for managing various activities in the hostel. It caters to all the requirements which can be done with the touch of a button- Specifically the ones that lead to the wastage of piles of papers. In this way, the data can be securely accessed and record-keeping shall be easy. It can be presented as and when required and would reduce the complexity of labor many-folds. The aim is to provide an easy to use, economically feasible solution that could cater to the problems faced by a Student and the Administration. There have been innumerable problems in the manual system which can be overcome by its digitization. We propose a GUI interface for carrying out tasks which are being done manually. It is an attempt towards digitization and we believe that a small dedicated effort leads to a series of changes, thus creating a ripple effect. The efficiency of the system can be improved, thus overcome the drawbacks of the existing hostel management system. Some of its features include- Less human error, Security, Consistent Data, Easy handling, Easy updation of data, Ease in keeping records, Backup of the data can be easily generated.

## 1.2. Literature Survey

In an attempt to review existing literature on this innovation - Hostel management application, we went through various sources available on internet. We also explored through existing system of few other colleges. This Survey is mention below:-

There is software developed by initio. It has many features divided into six main modules namely- hostel, library, transport, visitor-tracking, inventory and enquiry modules.

Another such software is **Microbes Hostel System** which has automated all the ongoing of hostel into single platform from room allotment to mess bill calculations. It also provides statistics in graphical form to the administrator. But the cost of the software as quoted by the developers is too high.

When interviewing students of Lovely Professional University, Jalandhar. We got to know that they have a single UMS (university management system) which includes whole functioning of the university into a single platform viz. Hostel, Combined Fees, Tasks, Library, and Report Card etc.

So being a premiere institute, the students of NITJ also feels that here also such system should be there. Earlier NITJ also had ERP which can be restarted. But the main problem for students is to keep track of their mess bill. So to bring the whole functioning of hostel we have developed this application which is suitable to digitizing current scenario of hostels.

## 1.3. Problem Statement and it's Necessity

The major Problems that motivated the solution are as follows:-

### 1. Absence of A Central Information Platform that could yield timely notifications:

Our institute lacks an Official central platform that could cater to the timely needs of the students. These needs include timely notifications of Various Circulars(say, Scholarships). Absence of this, leads to the negligence of various Golden Opportunities for the Students. They should be notified as and when the circular arrives instead of searching for information on the Website. Hence, the Solution aims at A Central platform for all these tasks.

### 2. Efficient Complaint Tracking:

Complaints are part and parcel of our day to day lives and it becomes complex when they are not resolved. It becomes more complicated if you don't have any idea of what is your Complaint's present status. It leads to lack of trust and ultimately gives rise to bad perception. Hence, it is very important to simplify the complaint redressal mechanism. Hence, the solution aims at a faster ONLINE Complaint Tracking Mechanism.

### 3. Discrepancies in the Mess Bill:

It is a common problem of the students that they don't get to know whether their bill is being marked correctly or not. Hence, there are chances of discrepancies when the *munshi* handles a workload of around 500-600 students per day per meal. Hence, the Solution aims at a Daily Mess Tracking Mechanism.





**Fig.: Why Do We Need HOMA?**

**4. Attendance Tracking (TIME APPLICATION BEING USED PRESENTLY):**

We personally had talks with the various hostel clerks and the attendants with regards to the attendance tracking mechanism. The Software being used- **TIME**, is excessively complicated for them and hence they cannot track daily attendances. Because of this, they have to shift to the archaic Notebook-Signature mechanism to get to know about the Attendance. Hence, the solution aims at an INDIGEIOUS, SIMPLE Attendance Tracking Mechanism.

**5. Mess Menu At Hand:**

Mess Menu and all the basic necessities of a hostel tenant is to be provided on a single platform. These might not mean much at a first

glance but are very crucial and requisite for an individual who faces such problems daily.

#### **6. Hostel And Mess Leaves:**

Why waste paper when you can do things with a click of a button? Hostel and Mess Leaves are an essential part of Hostel life. This generates lots of paper waste which if collected can account to approximately 6000-8000 pages per year. This huge mass can be curbed off by simply digitizing these functionalities.

This wraps up the Problem statement and our aims and objectives. The aim is to provide an easy to use, economically feasible solution that could cater to the problems faced by a Student and the Administration.

## **1.4. Feasibility- Technical and Non-Technical**

**Before starting a project, its crucial to have a know-how of it's feasibility. The Various Kinds of Feasibilities can be summed up as follows:-**

### **❖ TECHNICAL : -**

- Android & Java Application Supporting Devices as mobiles, tablets, desktops, laptops.
- Internet connectivity is required for the system.

### **❖ SOCIAL : -**

- No such system exists in NIT Jalandhar.
- It will reduce the paper work (and hence paper wastage) i.e. environment friendly.
- It will support the digitization movement started by Honorable Prime Minister of India.

### **❖ ECONOMICAL FEASIBILITY :-**

- This project doesn't require much cost in development.
- Only requires cost for database management.

### **❖ SCOPE : -**

- The hostel management system is aimed in bringing functionalities of hostel in student's hand.
- It is needed in every hostel. So the scope of this project is applicable till hostels' existence.

# PROPOSED SOLUTION – ICE BREAKING

---

*“Identifying a Problem is an easy task, finding a solution and making your way toward it - is the Real Challenge.”*

## 2.1. Identifying Stakeholders

**The stakeholder can be classified into two categories:-**

1. **Administration-** The Admin of our Application. The one - who shall feed the parameters to our function. On the basis of these the Application shall function. It includes the Authorities- Chief Warden, Warden, Clerks, Attendants, etc.
2. **Students-** Our End User is the Student. The one- who shall use the facilities being provided by the Application.

**Broadly, we have broken our project into two platforms-**

1. **Web-Based Platform for our Admins**
2. **Application for Students**

## 2.2. Detailed Solution

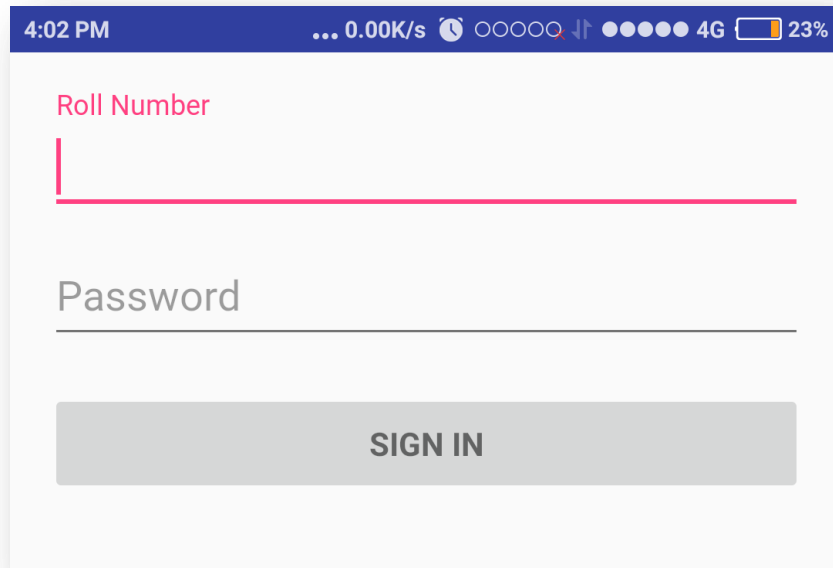
Hereby, we present our solution in a detailed way, presenting the various things for our stakeholders:-

### **1. Each Individual Having his own Space - A Centralized Application:**

Only those individuals who are registered via the admin portal would be able to login. Hence, highly Secure. The Password is hashed by MD5 Hashing algorithm and hence makes it impossible for anyone to penetrate into the application.

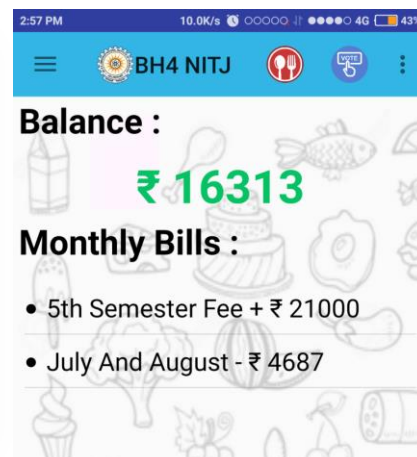
The Password can be changed as and per Student's requirement by himself, provided he knows his present password.

Himself provided, he knows the present password.



## 2. Mess Wallet:

Every student will get a track of his expenditure and the balance just like PayTM wallet. The Application functions in a QR Code Recognition Based Mechanism which Ultimately helps in prevention of Mess Discrepancies by daily mess tracking.



The Web Portal has a functionality to generate QR Codes for various articles. So, the user just needs to Scan The Code→ Enter the quantity of the item--→ DONE. The Money shall be deducted from his account. In case of Diets, the Diet is added into the Database while the extras are deducted instantaneously.

### 3. Polling Mechanism:

It was identified that many decisions require suggestion or an idea from the students. Hence, an inherent polling mechanism is being given to the ADMIN who can allow poll upon a particular thing.

Eg. Mess Committee Struggling about 'Should there be chicken in the hostel?'

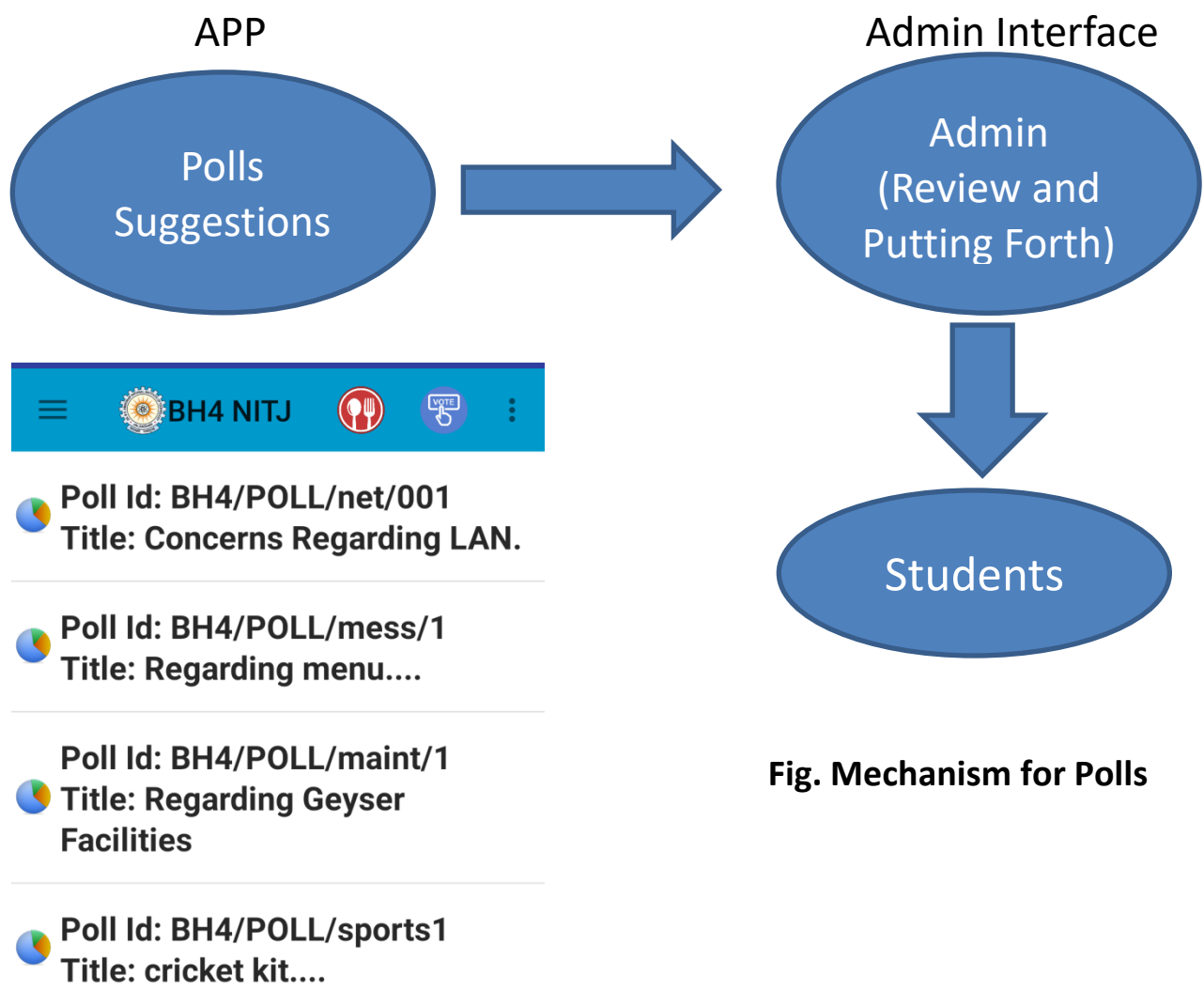


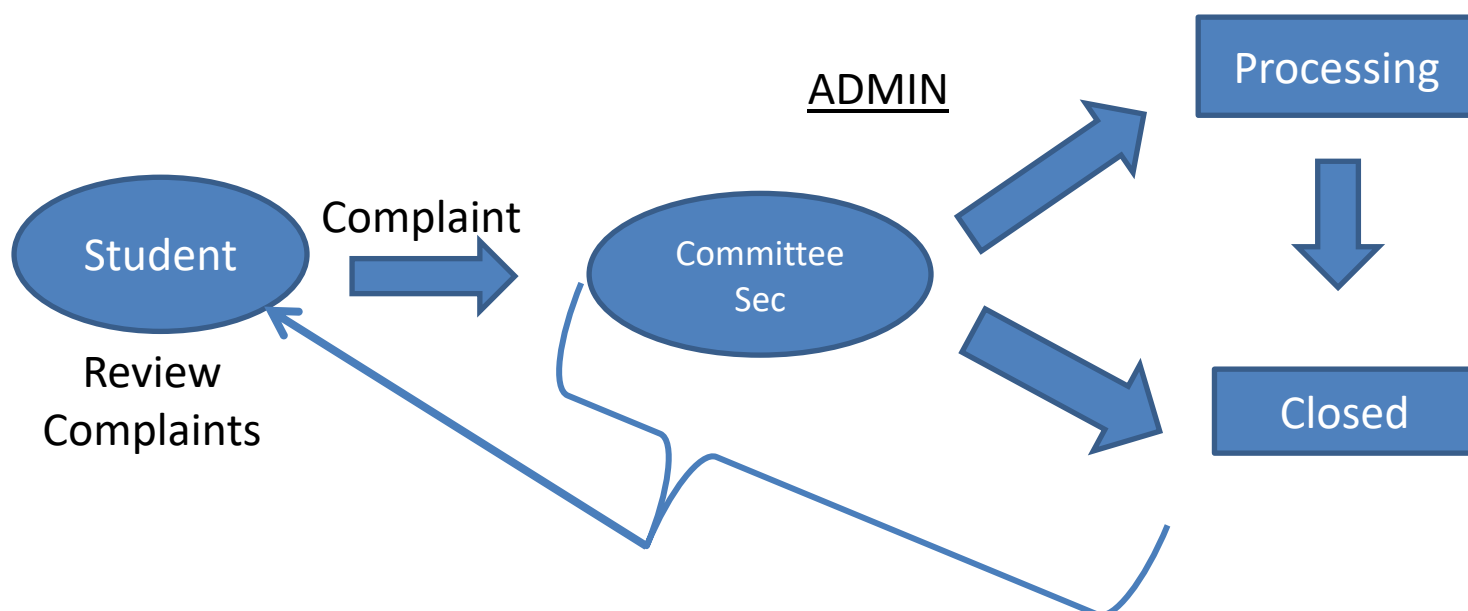
Fig. Mechanism for Polls

#### 4. Complaint Tracking:

As said, complaint redressal is an important part of healthy functioning of hostel. The complaint will be notified by a mail and can be seen on the APP provided to the Students(A special button to Committee secretaries and can be viewed at the ADMIN portal on the web.

**COMPLAINT PORTAL**  
  
Complaint Type: Mess Related  
  
Title: Removal of Poha  
  
Details: Poha is not liked by many of inmates. Kindly remove poha from the menu.  
  
**SEND COMPLAINT**

**SENT COMPLAINTS**  
  
Complaint ID: 7593  
Present Status: Processing  
Title: Change the menu.  
Type: Mess Related  
• Comments: It is in process and soon menu will be changed . Hopefully from coming Monday a change in menu will be observed.



**Fig. Complaint Tracking Mechanism**

## 5. Hostel & Mess Leave:

Student will be able to fill his mess and hostel leave using the app at his comfort. It will save lots of blank papers. It is in accordance to the digitization initiate by the Govt. Of India.

### Hostel Leave Portal

From : DD/MM/YYYY

To : DD/MM/YYYY

Departure Time : 08:45 AM

Leave's Purpose: Home

Visit Address : Near Nakodar Market, Punjab

Phone No. during Visit : 8852374578

*\*Please check all details carefully.*

**SUBMIT**

### Mess Leave Portal

From : DD/MM/YYYY

Diet : Select

**! Confirmation of Off Date And Diet**

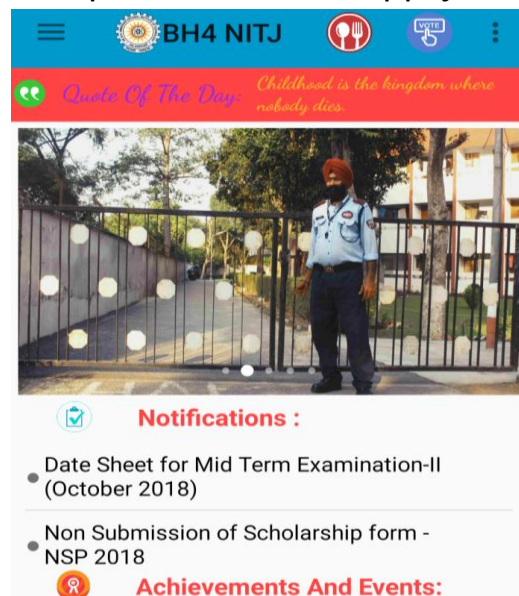
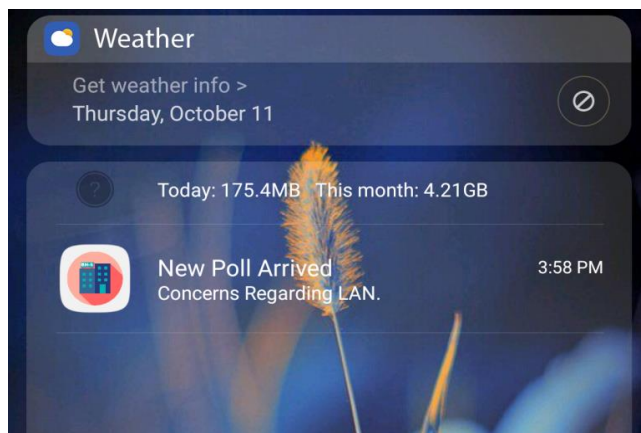
As of now. Your Diet Can Be Closed from:-  
04/10/2019 Dinner

Note: 'Mess Off' is NOT available from 10PM to 4AM everyday.

[GO BACK?](#) [PROCEED FURTHER?](#)

## 6. Circulars & Notification:

Now all the circulars concerning students will be available on app. Student will also receive notification if any circular or poll arrive in the app, just like WhatsApp , Facebook etc.





## 7. Attendance Tracking:

Attendance tracking system uses face recognition to mark presence of students of hostel. Face recognition algorithm has achieved an accuracy of 95.732 %.

The students who haven't marked their attendance will be notified through mobile notification and their roll no. will be displayed in marquee of home page.



## 8. Admin Portal:

A web based admin portal has been created to facilitate admin related activities like updating mess bill, adding circulars, checking leave details, complaints tracking, creating polls etc.



डॉ बी आर अम्बेडकर  
राष्ट्रीय प्रौद्योगिकी संस्थान जालंधर  
Dr B R Ambedkar  
National Institute of Technology Jalandhar

Welcome Ravi Boys Hostel-4

**About**  
Student Registration  
Create Poll  
Add Circular  
Instant Notification  
Poll Results  
Mess Bill  
Student Record  
Complaints Track  
Account Dues  
Hostel leave  
LogOut ?

**Ravi Boys Hostel-4**



The Boys Hostel 4 also known as Ravi Hostel is developed in 1986 as part of NITJ Student Residence Project. The main aim is to provide residence facility to intended students who want to stay inside college campus. There are in total 10 boys hostel and 4 girls hostel in which Ravi hostel is famous for accommodating students of B.tech 3rd year, M.tech and PhD scholars. The hostel has approximately 150 rooms in which 140 rooms are dedicated for students and rest are allotted for staffs and guest room. Security guards are always provided for hostel all time for the security of students. Hostel attendants and clerks are there to monitor student activity and manage hostel activities and events. There is a full time study room for student open for 24x7. there is a table tennis room for indoor games activity like table tennis and carom board. There is a TV room for entertainment of students as well as staffs. In all, the hostel is aimed at providing comfortable homely environment for our students so that they can be nourished in healthy environment.

Comment ID:- 5346  
Date: 2019-05-01 01:50:45  
Sender RollNo: 16106009  
Related Committee: Network Related  
Title: LAN Problem  
Details: LAN is not working since 3 days, exams are near and we have to do our studies and find relative materials on internet so pls solve this problem asap!!  
Status: Closed  
Comments: Internet Problem has been resolved now. Please have a look. 😊

Fig. Complaint Portal: Open → Processed → Closed

# TECHNICAL ANALYSIS

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## 3.1. UML Diagrams

### ❖ Introduction:

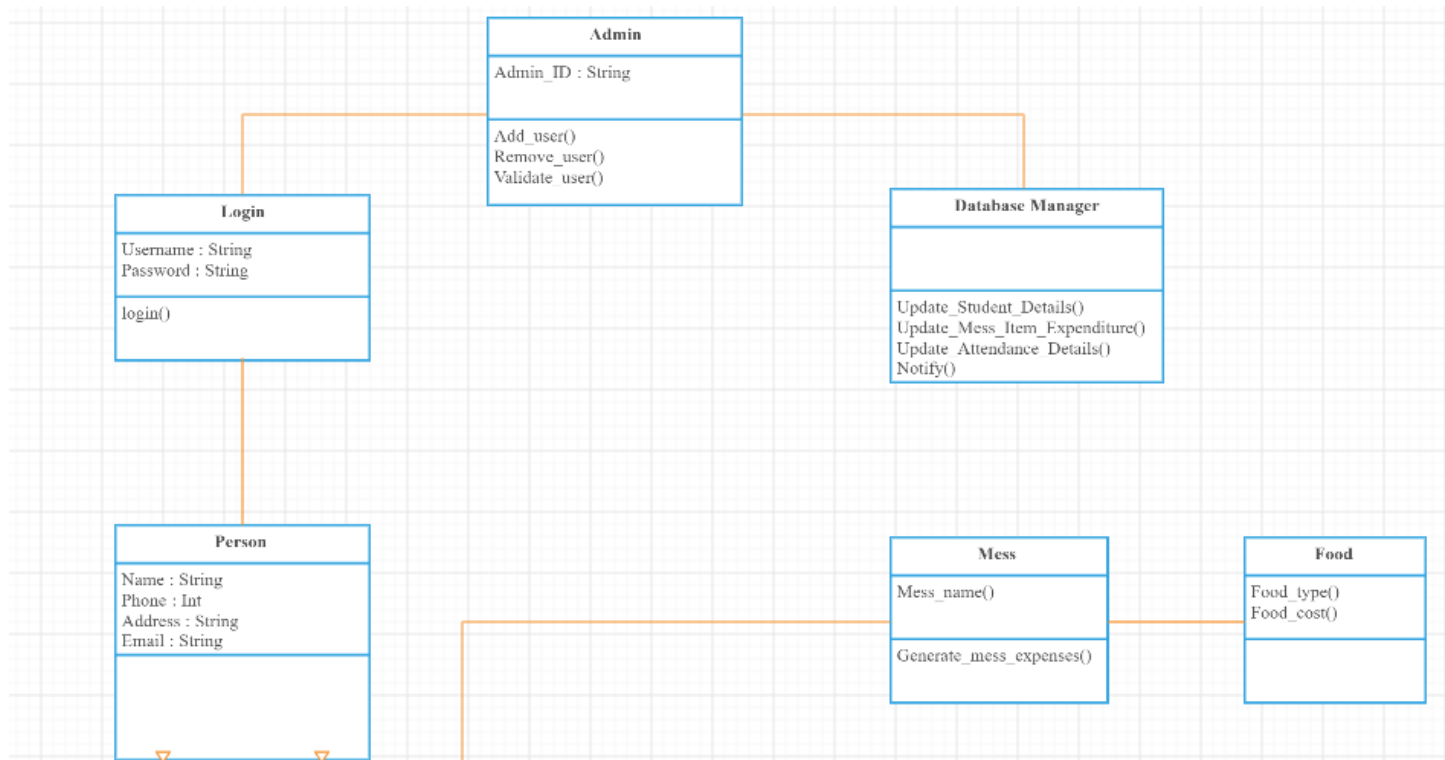
These diagrams show an interaction between the various objects used in our project. In addition to these diagrams show the various messages that can be passed from one phase of the system to the other. UML diagrams are indispensable with regards to the Software Development Life Cycle and hence they are part of each Developer's life.

- The major aim is modeling the objects and checking the message passing between these objects.
- Model various mechanisms with regards to the logical purview of the application
- Correspond to the various interactions that showcase the message passing amidst objects & roles in the domain of collaboration
- Modelling of alternates in use cases or functions that involve the collaborating various objects and the operations concerning them
- Supporting the recognition of objects and their parameters that are useful in conveying the messages

### 1. Class Diagram:

It is used to model the systematics of the application, and this further leads to Code Generation. It can be used for data representation and modeling. The classes present in a class diagram depicts the main elements, the various interactions in the application, and the inherent classes which are to be

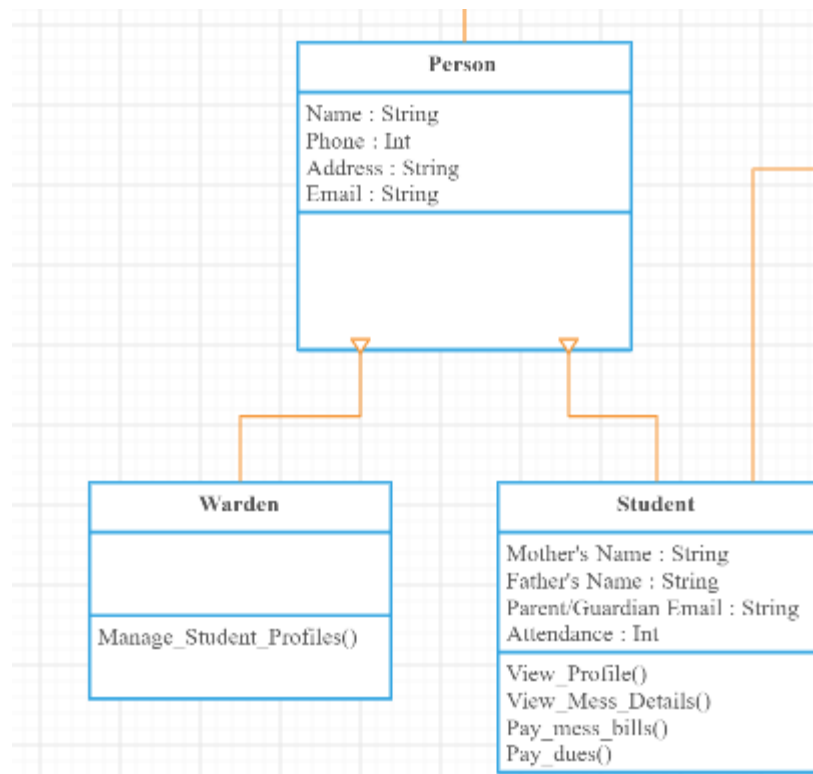
programmed. This can further be used to generate code and hence gives a clear view to the developer of how the problem is to be tackled.



### **Description:**

In this project we have Admin, Login, Database Manager, Person, Mess, Food, Warden, Students as our main classes. Classes with their attributes and methods are depicted in class diagram. Class Diagram is showing relationship among the object of different classes. This shows how objects like Admin, Student and Warden will interact to each other and describe their role with attribute and method.

Admin Class have attribute Admin\_ID and can add, remove or validate the students. Login Class has attributes like Username and Password and contains login method. Person is a kind of interface implemented by warden and student as shown.



Warden can manage student profile and visit their profile and see status. Student Class has attributes like their parent's information, attendance status and getter or setter method by which data can be updated.

Person Class contains all users' personal information like name, age, mail, phone etc. of all users of this application.

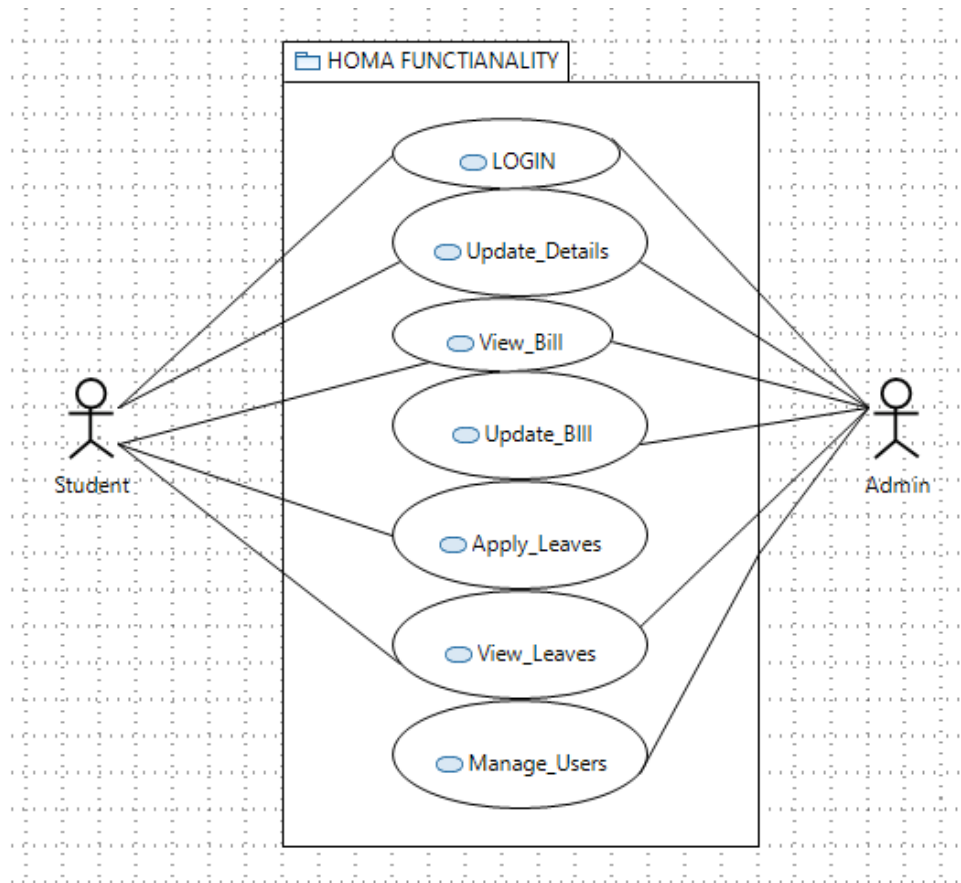
Person class is inherited by two child class warden and Students. Mess and Food are two classes that are related to student mess bill.

Food Class contains details of food like food id, food type, rate etc. Mess Class contains mess bill of students and method for updating mess bill. Mess Class is having two parent classes namely Student which contains student information like name, roll no etc. and Food which contain food details.

Database Manager Class is for updating the data in database, which contain updating methods of attendance and mess bill. In our project We are using Google Firebase of Google Cloud Platform.

## 2. Use Case:

A Use case Diagram represents the various usage of the application for the various Stakeholders available with us. It is usually represented by circles or ellipses and stick model(For actors). The actors are linked to the various functionalities provided by the application. Hence, it is a very basic level of software development model, which is easy to understand and potray.



### **Description:**

**Name:** HOMA Functionality

**Actors:** Student, Admin, Hostel Warden

**Pre-Condition:** User is registered with the application.

**Goal:** A Use case Diagram represents the various usage of the application for the various Stakeholders available with us. It is usually represented by circles

or ellipses and stick model(For actors). The actors are linked to the various functionalities provided by the application. Hence, it is a very basic level of software development model, which is easy to understand and potray.

**Summary:** Students can having mainly five functions namely - Login, Update personal details, View bill, Apply Hostel or Mess Leave, Review their Leave.

Similarly Admin can login the portal, Update Student Personal details, View Student record or bills, Update their bills , Respond to the complaints, View the hostel leaves.

**Post Condition:** User mustn't forget to logout the application.

### 3. Activity Diagram:

Activity diagrams portray workflow of activities that are done step by step. It also includes the actions which lead to choices. While designing UML Model Activity diagram are used for modeling of the various phases of an Application and how one transcends from one phase to the other. It's like the flow of control that keeps on flowing from one phase of the application to the other phases and then ultimately comes to STOP or END.

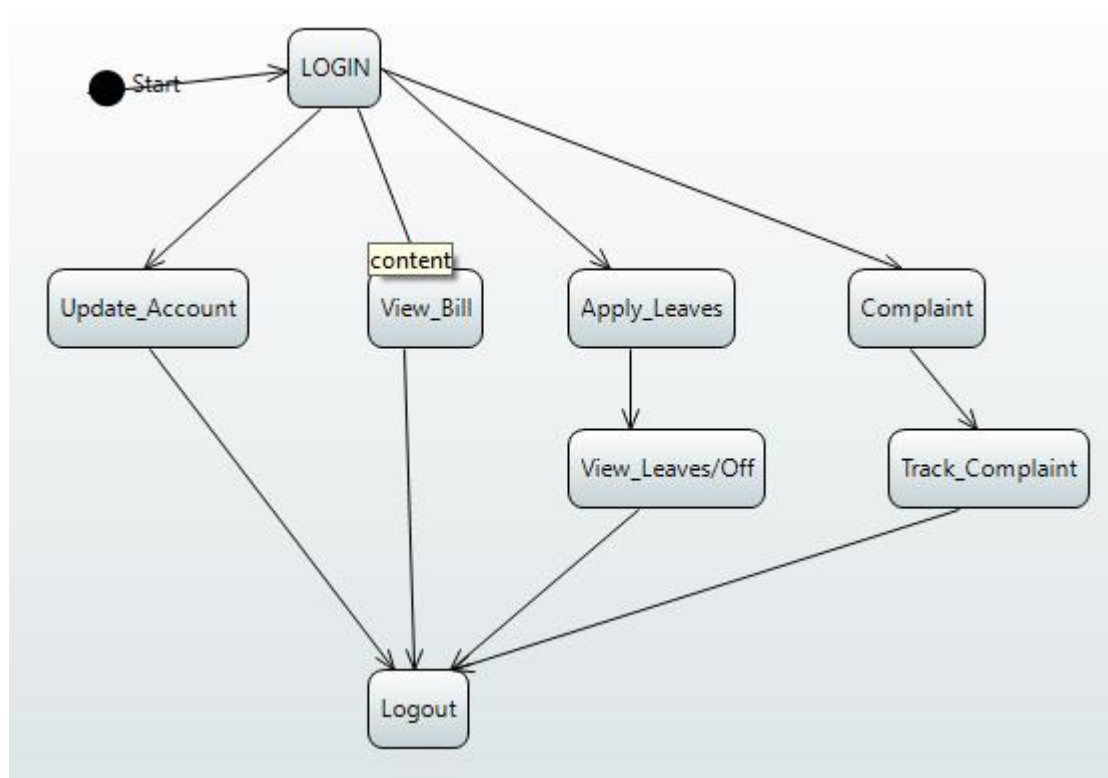
The Activity diagram, hence enlists the various activities that are performed in the Application/Software.

We have two types of activity diagrams:-

1. Student's Activity Diagram(Application)
2. Admin's Activity Diagram(Web Portal)

**Description:**

a. Student Activity Diagram:



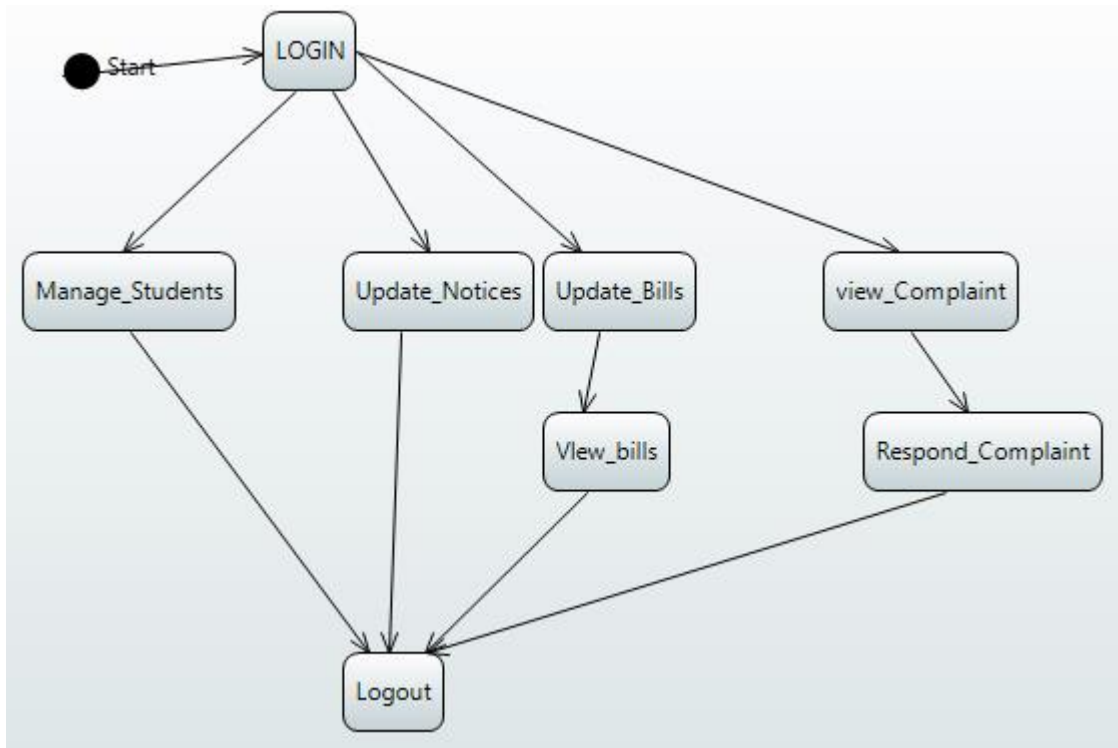
As Activity Diagram is graphical representation of workflow and in every next step there are choice, iteration and concurrency. First Student will login with their login credentials and in the next step there are multiple choices for student. They can Update their accounts, View mess bill, can apply for hostel leaves and can complaint if face any issues (and many more new features).

In the next step of apply leave they can review their leaves and can off the leave. Similarly complaints can be tracked with current status. For the safety purpose they can logout after finishing the work.



#### b. Admin Activity Diagram:

Just as a student, Admin must login to the portal for security as the first step. After Successful login they can manage student record or personal information, update notice, mess bill, and can view student complaints. After viewing the complaint they have choice of responding to the complaint. After finishing the work they will logout the portal so that no one can misuse this application.



#### 4. Sequence Diagram:

It is a representation of object interactions arranged in a timely manner. It denotes the objects and the classes that are being used in the application and along-with it the flow of messages exchanged between the objects in order to accomplish the functionalities. They are associated with use case realizations in the View (Logically) of the system that is being developed. They are also called event diagrams. It shows, as parallel vertical lines which are called

lifelines and the horizontally aligned arrow-like representation represent the messages exchanged between the various objects, in the order in which they occur. This allows simple runtime in a graphically oriented manner.

**Description:**

Here Student, Admin, Mobile (Web) Application are Classes which interact to each other. Student will send login request on mobile application. After checking the login credential by internally decoding MJ5 Key and by server, acceptance or rejection will be sent to particular student. Similar process is meant for admin for web portal.

Now Admin will create notice for students on application. Successfully Logged in Students can view Notice.

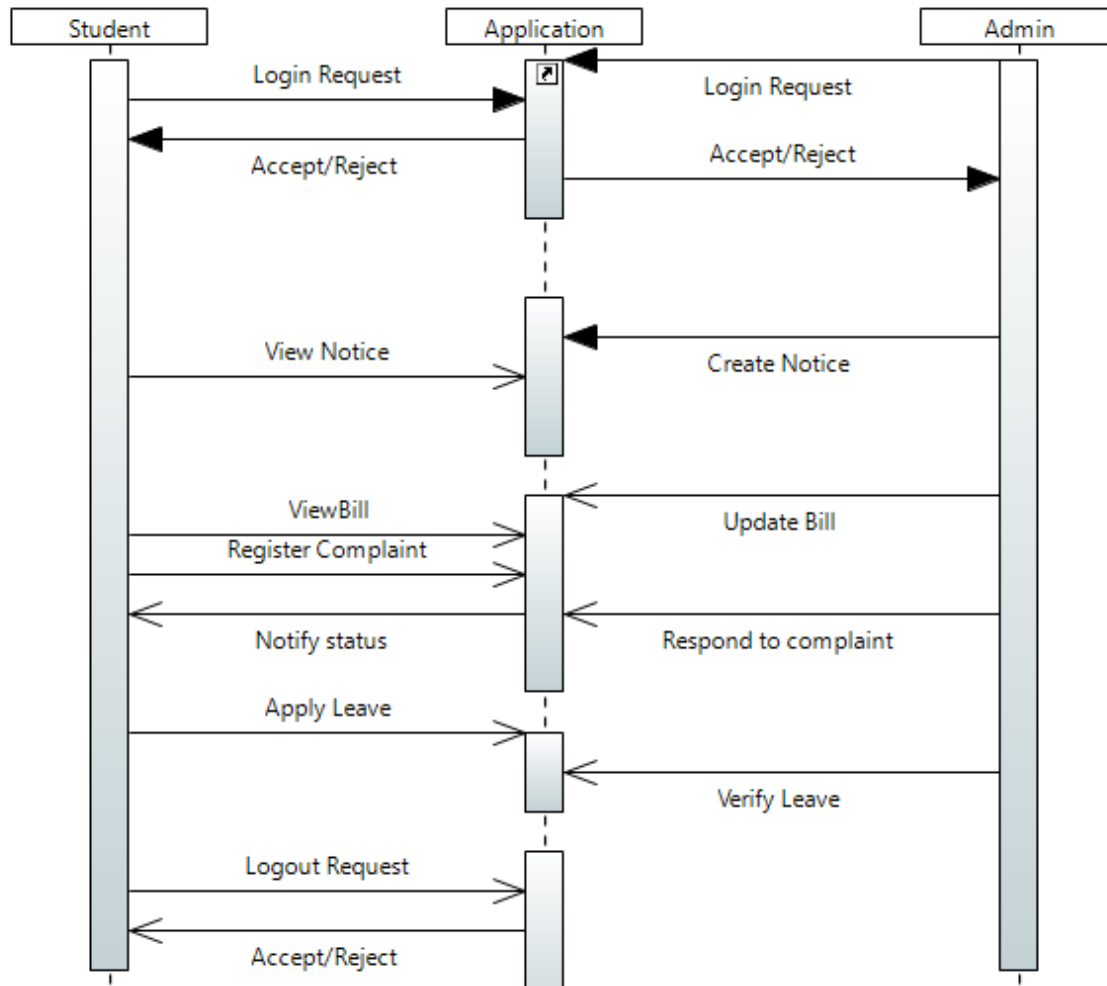
Admin will update mess bill at the end of each month and students can view their monthly mess bill.

Students can register complaints. These complaints are responded by admin after which student will receive the status of their complaints.

Students can apply for leave which is verified by admin. The admins will play a major role in the application's functioning. This function cannot be transcended without proper Admin Response.

After Completion of work both can logout from the mobile or web apps.

The Sequence diagram can be viewed on next page and marks the various Sequence flow of the Application.



**Fig. Sequence Diagram**

## 3.2. Tech Stack Analysis

In order to achieve various solutions, we have used a variety of Tech Stacks. All these technologies have been chosen on the basis of the following few criteria:-

1. Ease of Usage and Ease of Learning
2. Time Required to build
3. Efficiency
4. Security

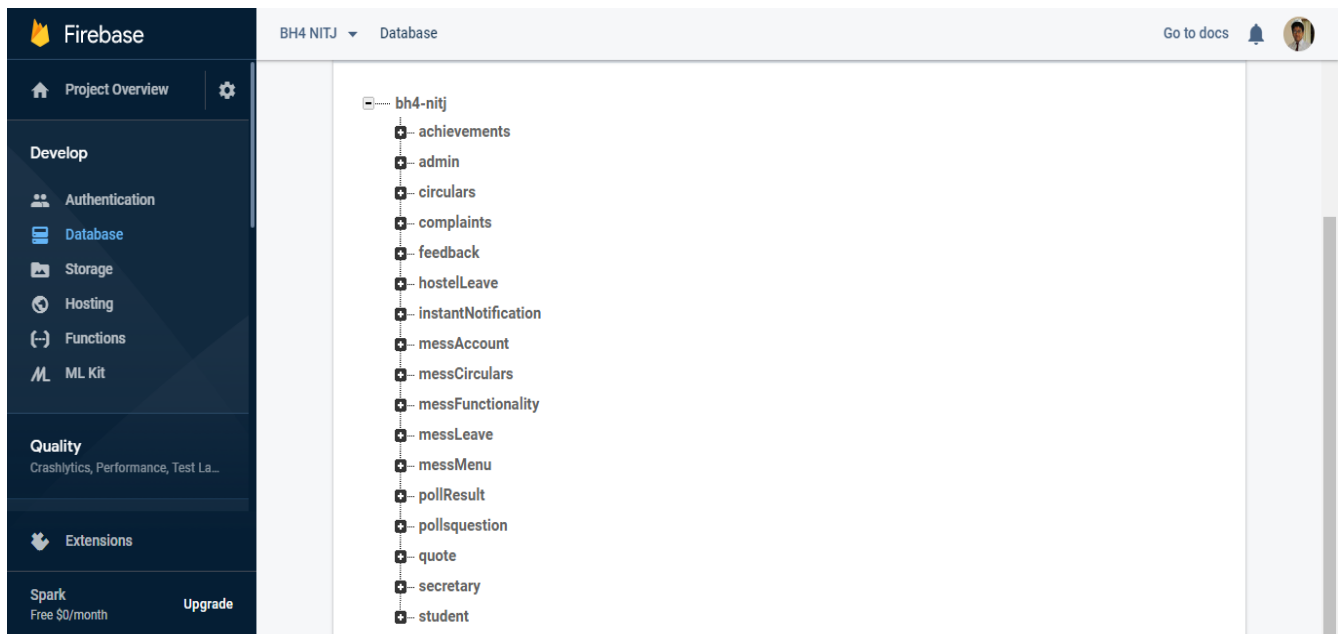
On the basis of the above mentioned criteria the Technologies used are:-

### 1. Database- Firebase

Firebase is an online platform for mobile and web Application Development developed by Firebase, Inc. which was later acquired by Google.

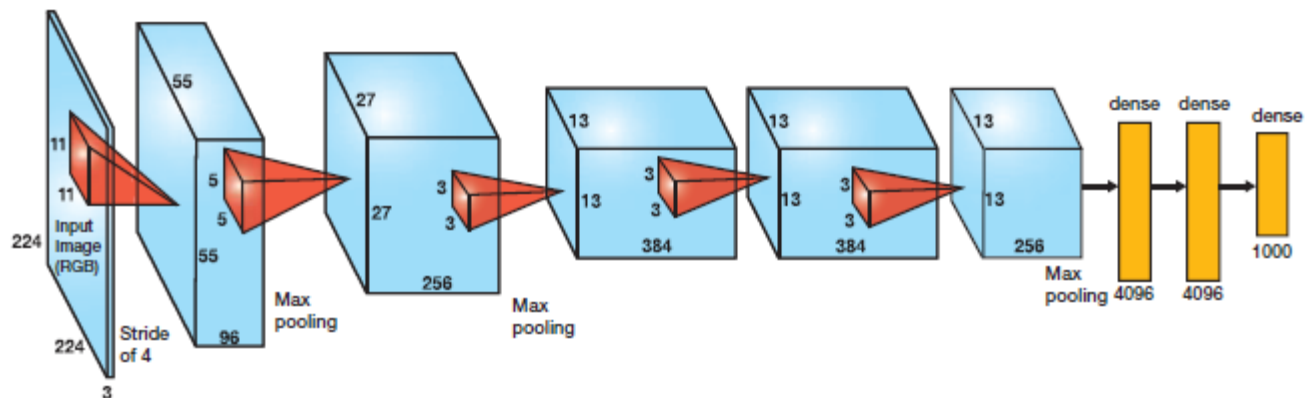


**USAGE:** We have used Firebase for our **Real-time Database** and for the Storage of our Files (Hosting Files). The Database-Schema Can Be Viewed as:-



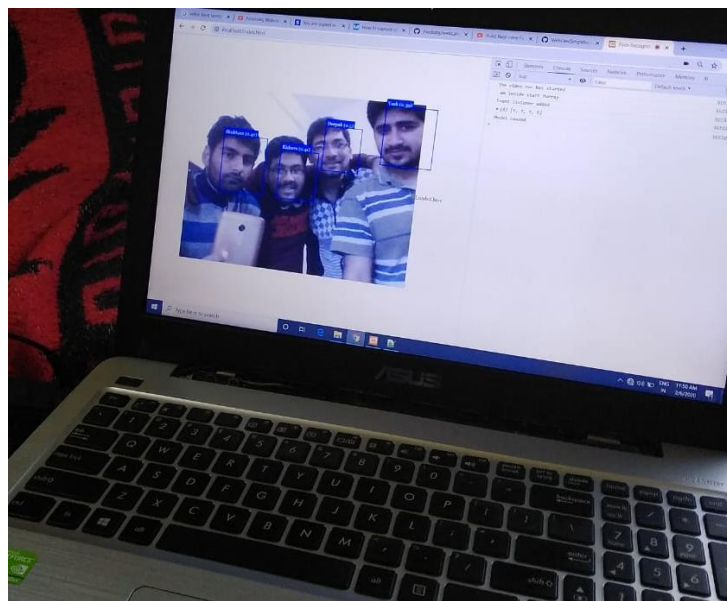
## 2. Machine Learning – JavaScript API

One of the major aims was to make the application platform independent. Hence, we have employed Machine Learning using JavaScript Face Recognition API(TENSORFLOW JS API).



**Fig. Representation of CNN Model Used**

The TensorFlow model uses a CNN as depicted in the diagram. The model gets trained upon the given set of images (Of all the hostel inmates where labels are their Names and Room Numbers). We clubbed up the API with the Webcam API and hence presented our model for Attendance Tracking. As a result we could yield this:-



### 3. Web Designing- HTML, CSS, JS

All these technologies were used to design the ADMIN Portal. It was hard to link HTML Page by using JavaScript only, with FIREBASE Database initially because very few tutorials are available with regards to their configuration. But eventually we made it and hence equipped our admin portal with various other functionalities.

Various Technologies used are HTML, CSS and JavaScript. Hence the Web Application is fairly easy to use and designed in accordance to the Lowest of the stakeholders.

#### Hostel leave

Student Registration

Create Poll

Add Circular

Student Record

Student Profile

Mess Bill

About

Complaints Track

From Date 25-05-2019

Search

Off Date dd-mm-yyyy

Search

Month Choose M

RollNumber	Name	RoomNumber	From	To	DepartureTime	Purpose	Address
16106062	TARANJEET SINGH	202	25/05/2019	19/07/2019	6:00 am	home permanent	a 54 bedi colony Firozpur
16103053	Pardeep Singh	228	25/05/2019	01/08/2019	2 Pm	Home	Mukerian
16103009	Anurag verma	227	25/05/2019	30/07/2019	9.00 pm	home	patna bihar
16103063	RAJAN LASKOTRA	136	25/05/2019	01/08/2019	1:30PM	Home	Jammu
16103087	Sudhanshu Sharda	109	25/05/2019	26/05/2019	03:00AM	Home	Ludhiana
16103036	JAYESH BHALLA	220	25/05/2019	28/07/2019	02:00pm	home	sangrur
16106036	NAYAN HARI KRISHNA	143	25/05/2019	26/05/2019	3:00pm	tournament	ludhiana
16106025	Ganshyam	341	25/05/2019	01/06/2019	4.10	Home	Ranjit vihar Amritsar
16103079	SHUBHAM GOYAL	320	25/05/2019	22/07/2019	4:00pm	home	Jhunjhunu Rajasthan
16103060	Rahul Katyal	238	25/05/019	28/05/019	5 pm	home	Ludhiana

Comment ID:- 5346

Date: 2019-05-01 01:50:45

Sender RollNo: 16106009

Related Committee: Network Related

Title: LAN Problem

Details: LAN is not working since 3 days, exams are near and we have to do our studies and find relative materials on internet so pls solve this problem asap!!

Status: Closed

Comments: Internet Problem has been resolved now. Please have a look. 😊

Fig. Complaint Web Portal

#### **4. Android - Java**

Android Studio is the IDE Used for designing android Applications for Android Powered devices. The Application Deployed for Students has Various Functionalities as mentioned in the Solution Section.



It is an easy to use IDE that uses IntelliJ platform.

The above mentioned Platforms/Technologies have helped us reach to our final Conclusion for both our stakeholders- Students and Admins.

## ECONOMIC ANALYSIS

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We aim at providing a cost-effective yet easy to use and well equipped solution to the daily problems.

- ❖ With regards to the various development stacks used, are freely available & hence what we require is- an Internet connectivity and a laptop totaling up; to ZERO.
- ❖ With regards to the database and storage, we shall be using Google's Firebase which provides adequate amount of Data Storage Capacity free of Cost(5GB DB and 1GB Storage).
- ❖ All the APIs being used and dependencies (TIME) are also free-wares and hence just require a support and willingness to change.

Hence, we promise **ZERO COST** requirement for the HOMA app.



Our entire Application and platforms have been made with freely available YET Secure technologies and hence ZERO COST at all.



# RESULT AND DISCUSSION

## 4.1. App Usage Instructions

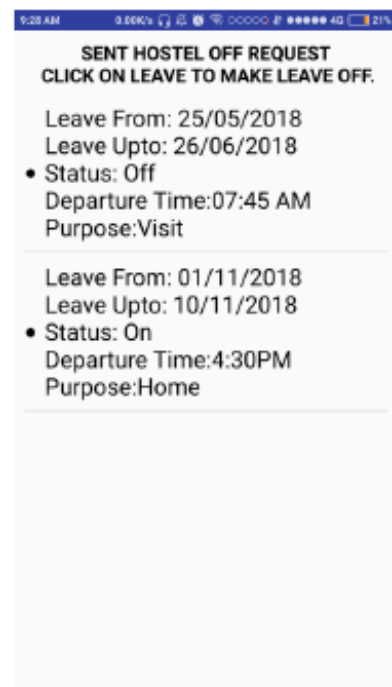
Dear User,

We, the Network Committee of Boys Hostel 4, take privilege in introducing you to the new functionalities that have been added to this version of the App. We would also give you an overview of the already existent functionalities. Your suggestions are invaluable and you can send them from the 'Feedback And Suggestions' Options available in the HomePage. Hope You like the new functionalities.

- Newly Added Functionalities:-

1. **Leave Portal** (Can Be Opened From Drawer opening from Burger on Top Bar)

With your feedbacks, we have embedded into the App the functionality of Putting Your Hostel and Mess Leave from the App itself. You can send, monitor your leave and also Off Your Leave(Hostel Leave) from the comfort of your room.



- i. **Hostel Off :**

To get rid of the heap of paper wasted in filling up your leave info, we bring to you the digital way of doing so. You can now fill up this info from your own

comfort with just a button click. You need not to go down and worry about filling up your Hostel Leave.

**ii. Hostel Review :**

Have a record of all your Hostel Leaves which can be referred to as and when needed. You can OFF YOUR HOSTEL LEAVE by clicking on any of the ON Leave and clicking on OFF THIS LEAVE and your leave is off. As easy as that. 😊

**iii. Mess Off :**

You no longer need to wait for the Munshi bhaiya to bring the register or go into the mess to fill your Mess Off. All your Mess Off shall go directly to Portal given to Munshi. The mess off, as is being done till now, will be following the 3 diet rule i.e. Your Mess Off will be considered after 3 diet of sending Mess Off request. For eg. If you are send mess off request at 8 AM(i.e. Breakfast) on 11<sup>th</sup> November, 2018, then min mess off can be done from 12<sup>th</sup> November Lunch.  
NOTE: Mess Off functionality shall be Restricted from 10PM to 4 AM Everyday.

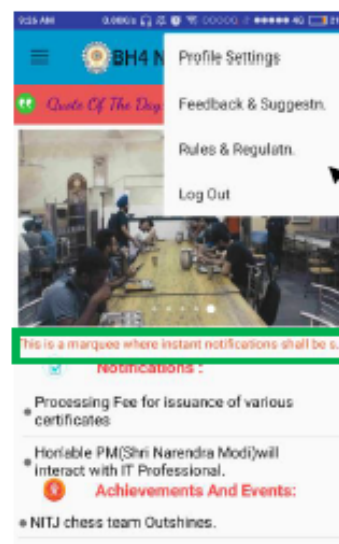
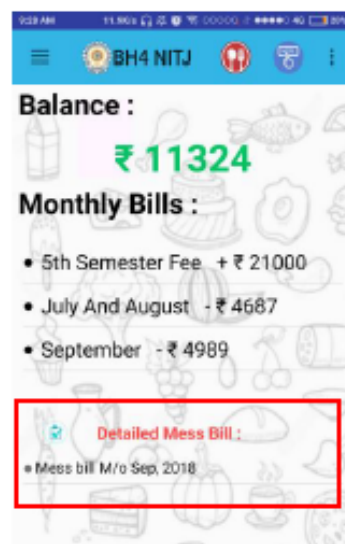
**iv. Mess Review:**

Have a record of all your Mess Offs which can be referred to as and when needed.

**2. Instant Notification Marquee**

An Instant Notification marquee has been put for things that require immediate attentions. Eg. Speed Posts Kept in office Notification, Special Food at 9 PM, etc.

**3. Detailed Mess Section in Mess Account**



Options Menu

The Detailed Expenditure info of each user shall be listed in the 'Detailed Mess Bill' Section in the Mess Account Section for easy access.

#### 4. Email For Complaints

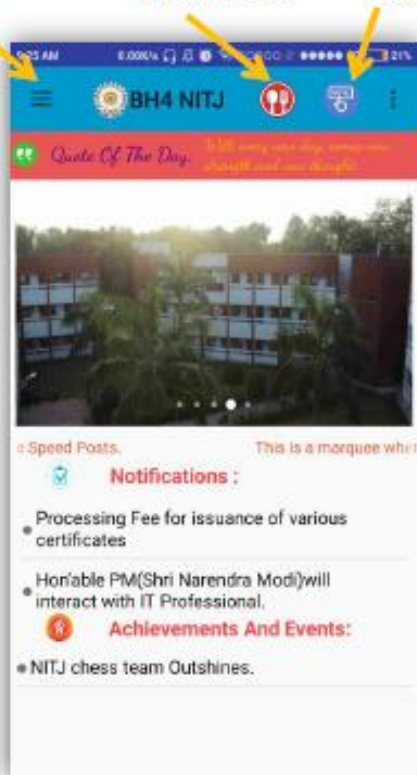
All your complaints will be sent to respective committee secretaries and they shall be notified with an e-mail. This complaint shall be monitored by Warden and Clerk Sir. It will be mandatory for all committee secretaries to respond within a stipulated time from Committee Login Portal of BH4 App. Moreover, the **COMPLAINT SENDER** shall be notified with a mail when his complaint has been looked into/status is changed.

#### • Already Existent Functionalities:-

Drawer For Complaints,  
Leave, etc.

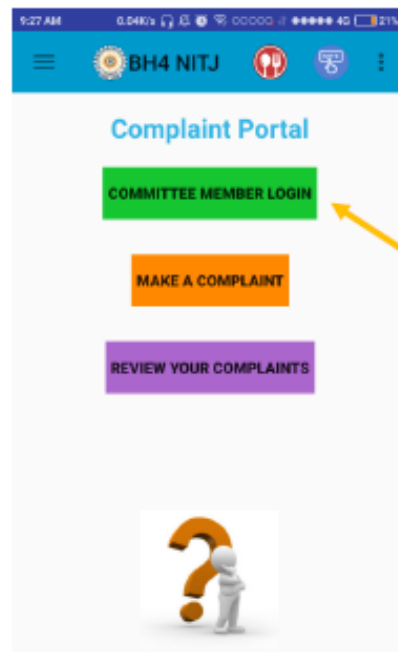
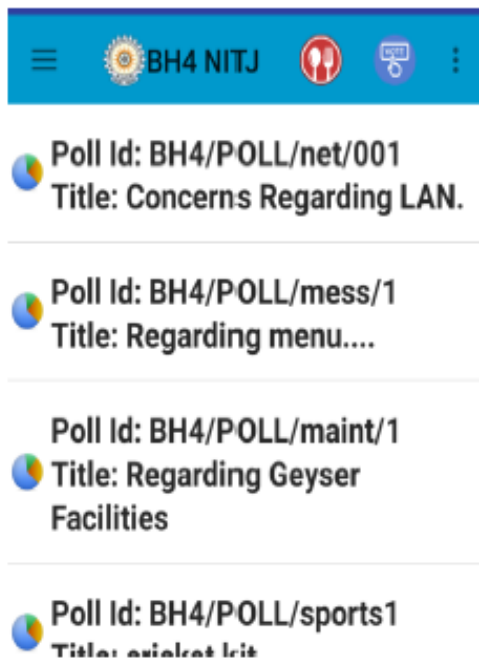
Mess Menu

Polls Page



1. All important **Circulars and Notifications** on a single Platform that can be looked into at your own comfort. You no longer need to go down and turn the notice board upside down for any new piece of information. (You can send your achievements to the Network Committee to be flashed in the Achievement Section.)

2. The **'Mess Menu'** that encompasses things like the Mess Menu segregated day wise. It is dynamic in nature and can be changed as and when Mess Committee changes menu. Also, the button at the bottom of Mess Menu Page gives you the rate list for whatever extra you ask for and thence gives you the know-how of your daily expense.
3. You now no longer need to spend your time in recalling your monthly bills. You get all this in well assimilated form in the **'Mess Account'** Page. Don't spend time in watching Apple fall and thinking; rather eat it. **Don't be a Newton; spend time in eating not recalling.**
4. **'Complaint Portal'** to track sending and receiving of Complaints and hence have a swift action upon them. (Now Extended as cited above)



Visible Only To  
secretaries

5. There have been cases that require the verdict of the entire hostel. Hence, the **'POLLING PAGE'** gives you this privilege of voting from your own comfort and isolation. (The Clerk and Warden has the right to put polls and hence, if any poll is to be put they shall put it along with the options and all inmates shall be notified by a Push-Notification in app.
6. Other Pages like Hostel Committees, Hostel Staff, Rules And Regulations Page, etc. which can be referred to as and when required.



7. All this is encapsulated safely with your **'Login-Logout'** functionality. Do change your Password Regularly. (If Not Logged in till now, then your password is your Official DOB in form of MM/DD/YYYY ☺.)

Mailing Functionality in  
NEW Version.



Profile Settings Page.  
Change Your Profile  
Pic, Password

8. A **'Profile Settings'** Page where you can change your Profile Pic and the Password as and when required. (Opened From Image in Drawer and Profile Section in Options in Home Page)

That's all for now. You can always give us Suggestions or tell about Bugs from the **'Feedback and Suggestions'** section in the options on homePage(Top left) .

## 4.2. Risk Analysis

Designing or developing anything cannot be risk free. Risks make the Project worth doing. Hereby, we highlight the various risks involved in our Project – Hostel Management Application or HOMA.

1. Risk of Database Management (Failure Recovery etc.)
2. Non-Acceptance of this system by Stakeholders due to various reasons.
3. Risk of Application Crashing, Android Version Compatibility etc.

The chief risk narrows down to Point 2 as lack of acceptability is a chief concern for any developer. Point 1 has been tackled by creating timely snapshots of our data, which can be recovered later in case of crashes. Android Version incompatibility has been looked into and we guarantee the App to run in Android Ice-Cream Sandwich and Further.

Hence, we have minimized the risk level by various discussions- with both the technical and non-technical Stakeholders and hence the App is ready for Deployment.

### 4.3. Deployment and Testing Status

We are happy to announce that the App is ready to be Deployed at our NIT J campus. The App has been thoroughly tested and had been in a LIVE test run for about 7 months at Boys Hostel 4. The test run has been highly successful and the students and other stakeholders were happy to adapt to it. They were extremely delighted at the functionalities it offered.

We had a talk with Dr. S. Bajapai, Chief Warden Sir during February end and he was highly positive with regards to the Deployment of Application. We had also met Dr. Kiran, Warden MBH-A and discussed our proposal. He too, was happy to help and bring digitization at our hostel. Due to the Covid-19 crisis, unfortunately we could not make it LIVE. We are happy about the success of Test Run and have had about 2000 App Internal Requests(Checked via FireBase Analytics) and 120 users on a daily basis. We would be happy to deploy the Application when College reopens.

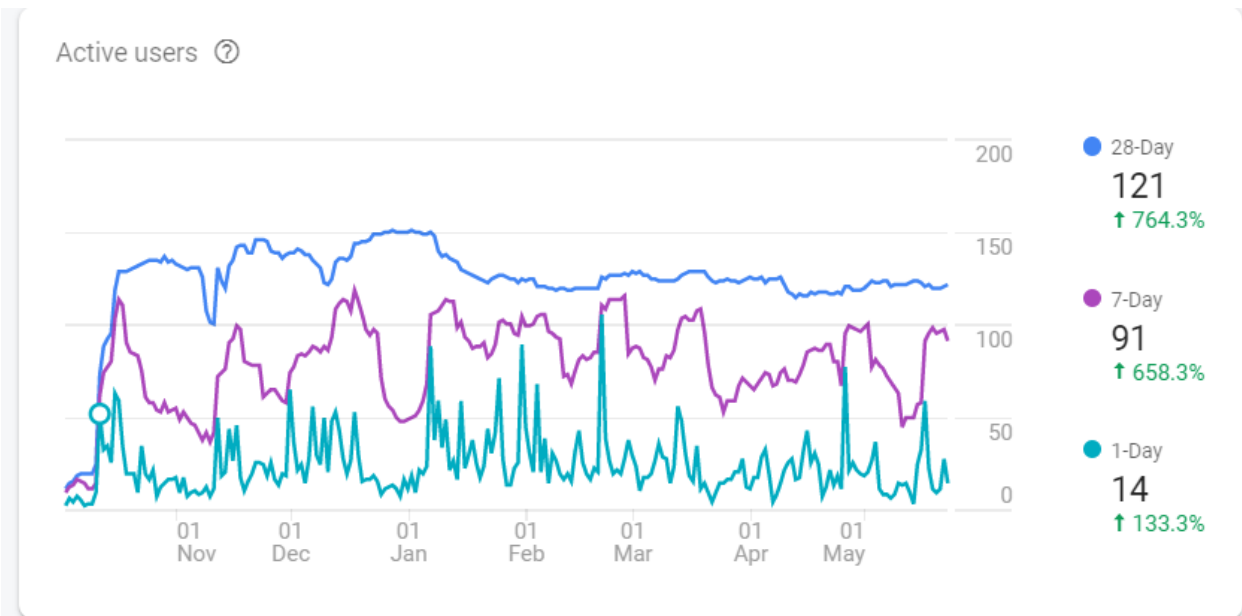
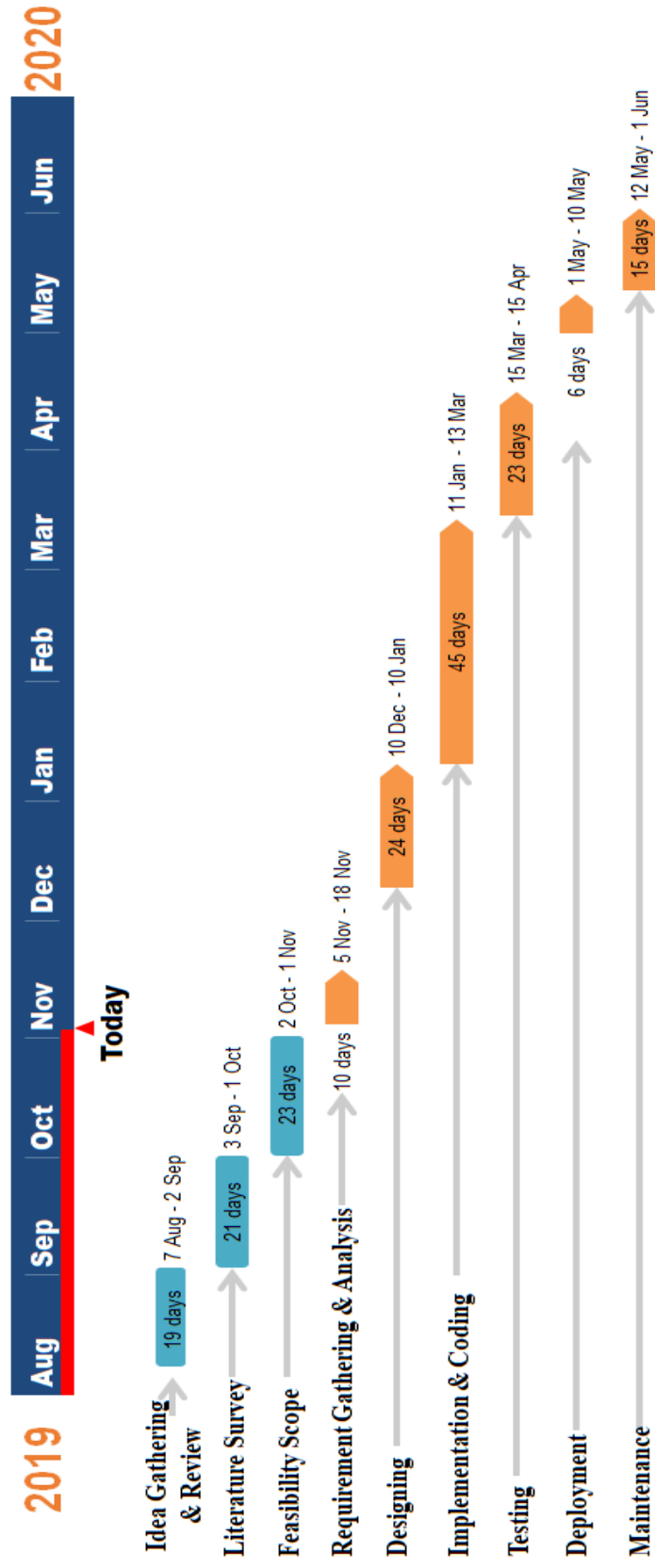


Fig. Daily User Engagements(~120+ users)- Test Run Period

## Gantt Chart Hostel Management Application(HOMA)



## 4.4. Gantt Chart



## SOCIAL AND ENVIRONMENTAL IMPACT

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- ❖ Reducing the overload of high amount of **paper-work** involved in tasks like Student Registration, Leave Offs, Notice, etc.
- ❖ Immediate **Notifications** to all students and their storage for future retrieval(Specially Scholarships).
- ❖ **Polling** Mechanism which helps in giving students a say in matters of importance.
- ❖ Comprehensive storage and retrieval of data for admin .
- ❖ Increase in **reliability** and development of trust amongst individuals.
- ❖ Saving of **Time and Effort** of 3000 students & other stakeholders.

15 Pages/day



450-500  
pages/month



4500-5000  
Pages/month  
All hostels



Hence, All we would say is:

*Happy Students Yield Happy Perception.  
& A Happy Environment Yields Happy Life.*

# CONCLUSION

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Our Project- Hostel Management Application (HOMA) is complete and fully functional. The aims have been achieved to a great extent. The Trial Run has been highly successful and was well accepted by all the Stakeholders.

We are happy with the Positive attitude of Students as well as the authorities. Conclusively, what we have achieved is:-

- ❖ To provide an easy to use, economically feasible solution that could cater to the problems faced by a Student and the Administration.

This is in-line with the pathway to Digitization where everything can be done with a button-click. We have learned a lot both- technically as well as non-technically(including team work, etc).



# REFERENCES

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- ❖ Whitten, Bentley, and Dittman. 2004. System Analysis and Design Methods (5th ed). McGraw-Hill .
- ❖ Web Development Tools: W3Schools, Tutorials Point.
- ❖ Android Development: Udemy, Tutorials Point.
- ❖ Stack Overflow.
- ❖ Hostel's Complaint Register
- ❖ Students' Feedback
- ❖ Hostel Notice Board and Chunk of Files
- ❖ Clerk, Wardens and other Stakeholders
- ❖ Google Firebase's documentation
- ❖ Wikipedia For Basic Introduction of Technology and Diagrams

Thank You. Your suggestions are most Welcomed.

-----**END OF REPORT**-----