Software Requirements Specification

for

Hostel Management System

Version 1.0

Prepared by

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Course:	Software Engineering UCS503
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Date:	29/11/18

Contents

1. Introduction

1.1 Purpose of this document

The purpose of this SRS document is to provide a detailed overview of our software product, its parameters and goals. This document describes the project's target audience and its user interface, hardware and software requirements. It defines how our client, team and audience see the product and its functionality.

1.2 Scope of the Development Project

The goal is to design a robust software for the management of hostel in Thapar Institute of Engineering & Technology. In the project, we will fully automate the entire working of the hostels. Whenever a student residing in the campus hostel makes a request to get his room cleaned, a notification will be sent to the house keeping staff and the staff employee will go and clean the room in the time mentioned in the request. In case a student faces problem related to electrical works in the room, a notification will be sent to the hostel electrician department and the electrician will reach the room in the mutually accepted time. The complaints regarding carpentry works, plumbing issues and AC repairs will be catered in similar way. The students will be asked to fill the feedback after the work is completed. The students can also give mess feedback and suggestions via an appropriate form.

The software must be able to perform the following operations:

I. **Take requests:** It must be able to take requests from the students in the hostel about the type of work required i.e. plumbing, room cleaning, AC repair etc.

II. **Notify Staff:** It must be able to notify the respective staff about the request i.e. if a student wants his room to be cleaned, the staff should get the request and a person is allotted to do that task.

III. **Take feedback:** It must be able to take the feedback from the students once the task has been completed and terminate the request.

IV. **Notify Mess Manager:** It must be able to take students feedback about the mess via form which will include questions related to taste, hygiene etc. It should also be able to take suggestions from the students on how to improve the mess food and menu and send this data to the mess manager in the form of percentages and bar and pi charts.

Initially we plan to implement the project for only one of the hostels of the Thapar Institute of Engineering & Technology in which only limited students residing in different rooms of the same hostel will be given its access as a part of the Pilot Phase. Once the Pilot Phase is successful then we plan to implement it to the entire hostel. After we get to know all the vulnerabilities of the project, we can implement it in the entire college.

The scope of this project is not just limited to the Thapar Institute of Engineering & Technology campus only as the same mechanism can be reused in other campuses as well. There are uncountable number of institutes in the country where automation of the hostels is required so that students can enjoy their stay at hostels. This system can also be implemented in big cities where service apartments are quite common.

1.3 Intended Audience and Document Overview

The project is being designed for the students of Thapar Institute of Engineering & Technology. The students face a lot of problems while they are staying in their hostels Thus, we want to automate the entire hostel management so that they can enjoy staying at hostels. This document also serves as a contract between the owner of the software and the developers where the owner can clearly see what and how the developers intend to do to make the software.

1.4 Definitions, Acronyms and Abbreviations

I. IEEE – Institute of Electrical and Electronics Engineers
II. RSA – Rational Software Architect
III. UML – Unified Modelling Language
IV. DFD – Data Flow Diagram

1.5 References and Acknowledgments

I. IEEE SRS Format Std 830-1998
II. Software Engineering by Ian Sommerville

2. Overall Description

2.1 Project Overview

The product will run as a website wherein when the concerned person opens the home page of the website, the person will be asked to sign up if it's the first time he or she is using the portal. If they have been using the site, they will be asked to log in. Once they log in, a prompt will appear in which they will have to select the option which include housekeeping, electrical maintenance, AC repair, carpentry work, plumbing issue, mess feedback and others. In the 'other' option, a box will appear in which the student can type the complaint. The notification of the 'other' will go directly to the caretaker of the hostel.

We will create a well-integrated portal for the management of hostel and mess. Since, the incumbent hostel system lacks enough interaction between students and the management, our priority will be to increase the interaction between all the stakeholders of the project. In our website, students can make request to clean the room at a particular time, then the request will go to the house keeping staff and a worker will be assigned and the room will be cleaned on the day the request is made, subject to availability of staff or the very next day on priority. When an electrical or carpentry complaint is registered, all the complaint will reach the maintenance staff and the electrician or carpenter will reach the room of the complainant to address the problem on the mutually decided time as sometimes students are not present in their room. If the task is not completed in the scheduled time, the task will be added in the pending list and will be done on priority. Once the task initiated by students is complete, the students will be asked to give the feedback about the work done by the staff and make any complaint if there is any. In case of mess management all the feedbacks received from the students will be carefully monitored by the mess manager in the form of bar graphs and pi charts and necessary actions will be taken for the smooth functioning of the mess.

2.2 Project Functions

The product should be able to perform the following opeartions:

I. It must be able to authenticate the login id and be able to create new login id for the students residing in the hostels only and for the staff as well.
II. It must be able to initiate requests by the user in the various categories mentioned.

III. It must be able to notify the requests made by the user to the respective departments correctly without and errors and mixing up.
IV. It must be able to take the feedback from the students once the task is completed and also be able to take the mess feedback.

2.3 Design and Implementation Constraints

The development of the system will be constrained by the availability of required software such as web servers, database and development tools. The availability of these tools will be governed by the Thapar Institute of Engineering & Technology. The hardware constraints include a smartphone or laptop to access the website and make the request.

2.4 Assumptions and Dependencies

The following list prevents the assumptions, dependencies or guidelines that are imposed upon implementation of System:

I. The product must have a user friendly interface that is simple enough for all types of
II. users to understand.
III. Response time should not be longer than 5 seconds
IV. A general knowledge of basic computer skills and internet is required to use the product.

3. Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

The goal is to design the software used for proper management of hostels and automate the current process. The user types are listed followed

I. Students
II. Hostel Staff
III. Mess Manager
IV. Administrator

Our goal is to develop a software that should be easy to use for all types of users. Thus while designing the software one can assume that each user type has the following characteristics:

I. The user is a computer-literate and has little or no difficulty in using the software keeping in mind the software is user friendly.
II. In order to use software a user must be aware of the internal working and expected to know how things work.
III. All the guidelines about the use of software will be informed to the user once the user signs up on the software or web page.

3.1.2 Hardware Interfaces

I. Computer: A computer will be required to open the website and use the software
II. Smartphone: A smartphone can also be required in case there is no availability of computer.
III. Internet: A good internet connection is required to access the website.

3.1.3 Software Interfaces

I. A SQL Database Server will be required to store and retrieve data.
II. A web browser will be required to open the website.

3.2 Functional Requirements

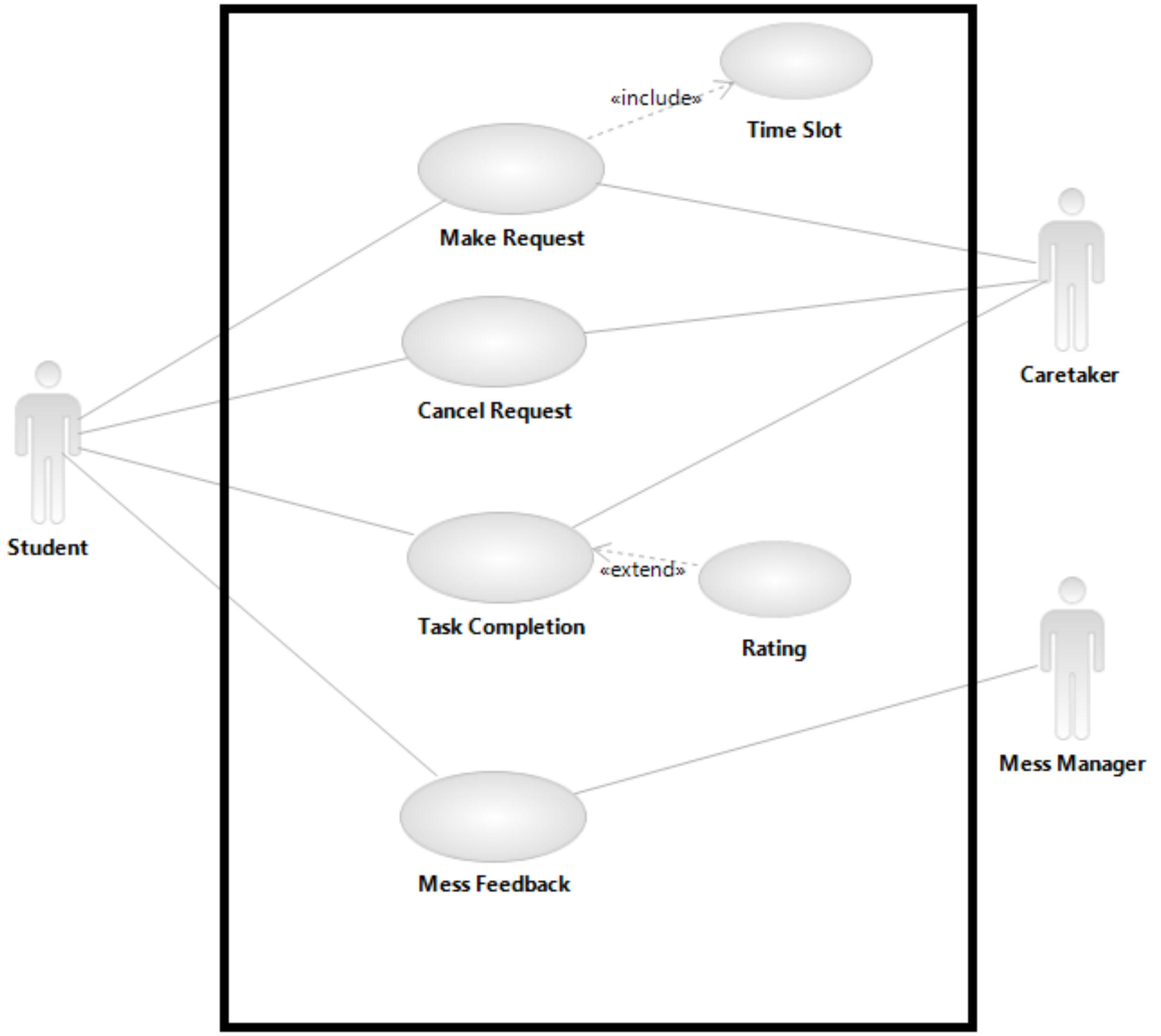
I. Provide residents the ability to lodge a complaint about an issue in the room.
Through our websites, residents have the right to register a complaint regarding different issues in the room related to maintenance or cleaning. The residents just need to select the type of complaint from a list of complaints including AC repairs, other electrical complaints, plumbing problems or if they want their room to be cleaned. This will save their time of going to caretaker’s office and then writing a complaint. Then the problem will take 3-4 days to be solved.

II. Provide residents the ability to lodge a complaint about mess food and hygiene.
Residents will no longer have to write about the mess complaints in the register which are not read by anyone in the mess management. They can register a complaint by one click through or web portal. Taking into consideration different parameters, a form is made to monitor the quality and taste of food. After filling form, the residents can also give suggestions or register a complaint in the others box.

III. Provide contact numbers of maintenance worker in charge.
Once a complaint is registered through our web portal, the resident will get the details of the worker assigned to get the issue resolved. For example, if a resident wants his room to be cleaned, after registering to get the room cleaned, he will get the details like name of the worker, his mobile number and the time he will come to clean the room.

IV. Provide mess manager the ability to view the detailed feedback of the residents.
In the current scenario, no one reads the complaints and suggestions listed by the residents in the mess. Now, a detailed feedback in the form of bar graphs will be given to the mess manager and the head of the mess managers of the university. Each and every suggestion will reach the mess manager and a proper action will be taken by the mess manager for smooth functioning.

3.3 UML Use Case Diagram

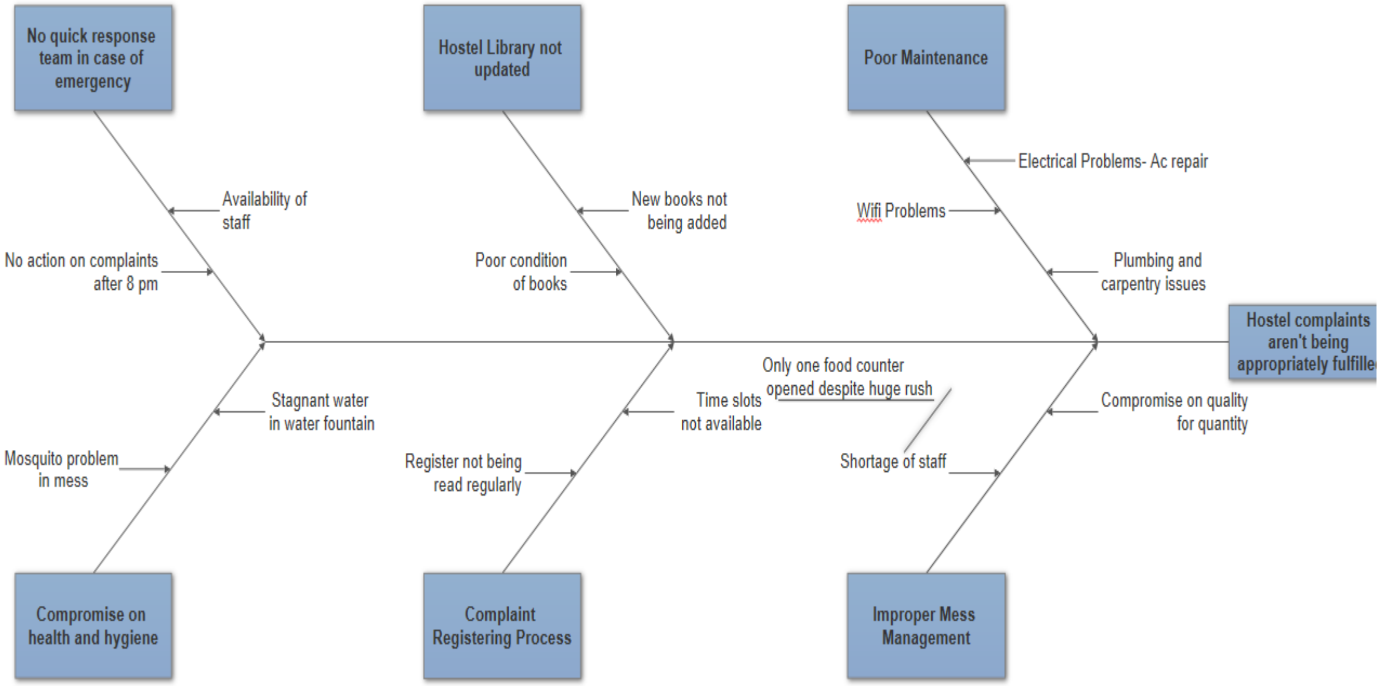


4. Other Non-Functional Requirements

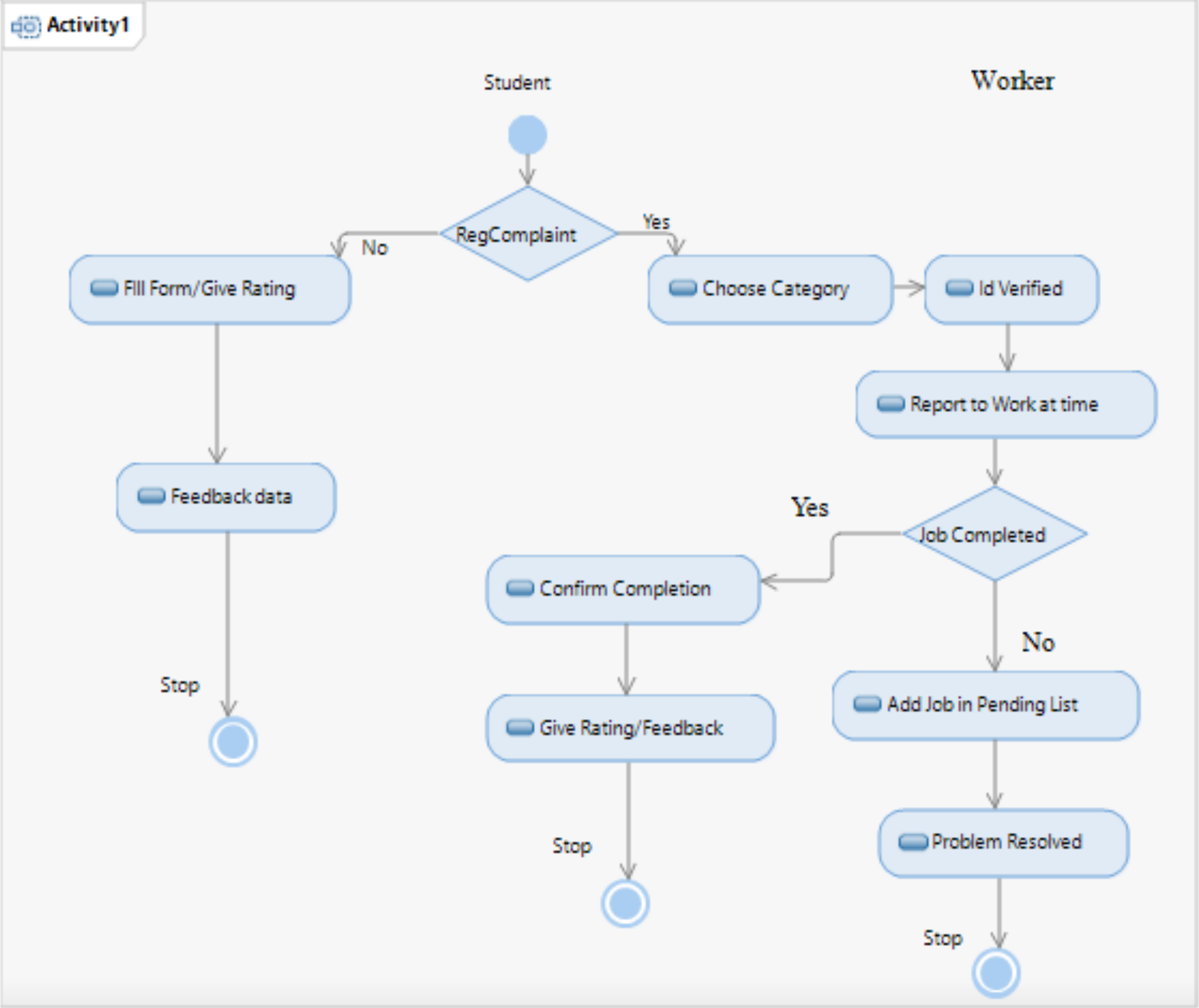
Non-functional requirements are the constraints that must be adhered during development. The various non-functional requirements are:
1. Provide rating after request completion.
2. Select available time slot for response to issue.
3. Get predefined fields of question for better characterizing the main problem area.

5. Diagrams

5.1 Ishikava Diagram

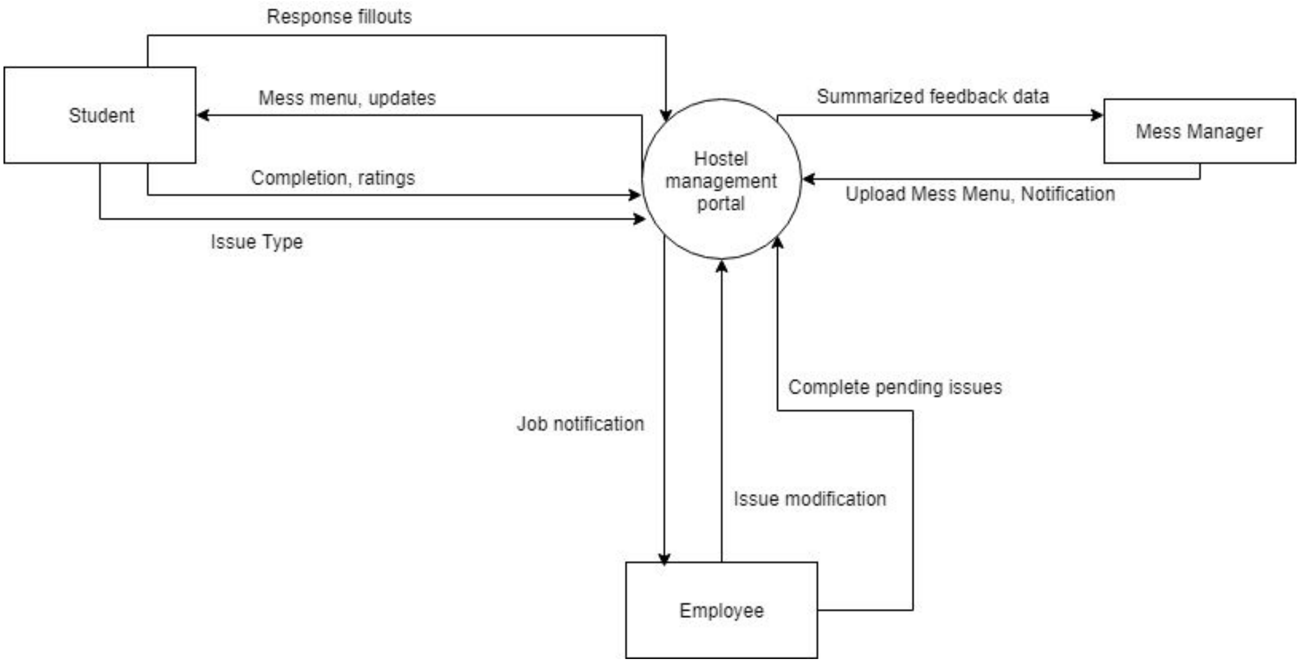

No quick response team in case of emergency
Hostel Library not updated
Poor Maintenance
Availability of staff
No action on complaints after 8 pm
New books not being added
Poor condition of books
Electrical Problems- Ac repair
Wifi Problems
Plumbing and carpentry issues
Hostel complaints aren't being appropriately fulfilled
Only one food counter opened despite huge rush
Stagnant water in water fountain
Mosquito problem in mess
Time slots not available
Register not being read regularly
Shortage of staff
Compromise on quality for quantity
Compromise on health and hygiene
Complaint Registering Process
Improper Mess Management

5.2 Activity Diagram

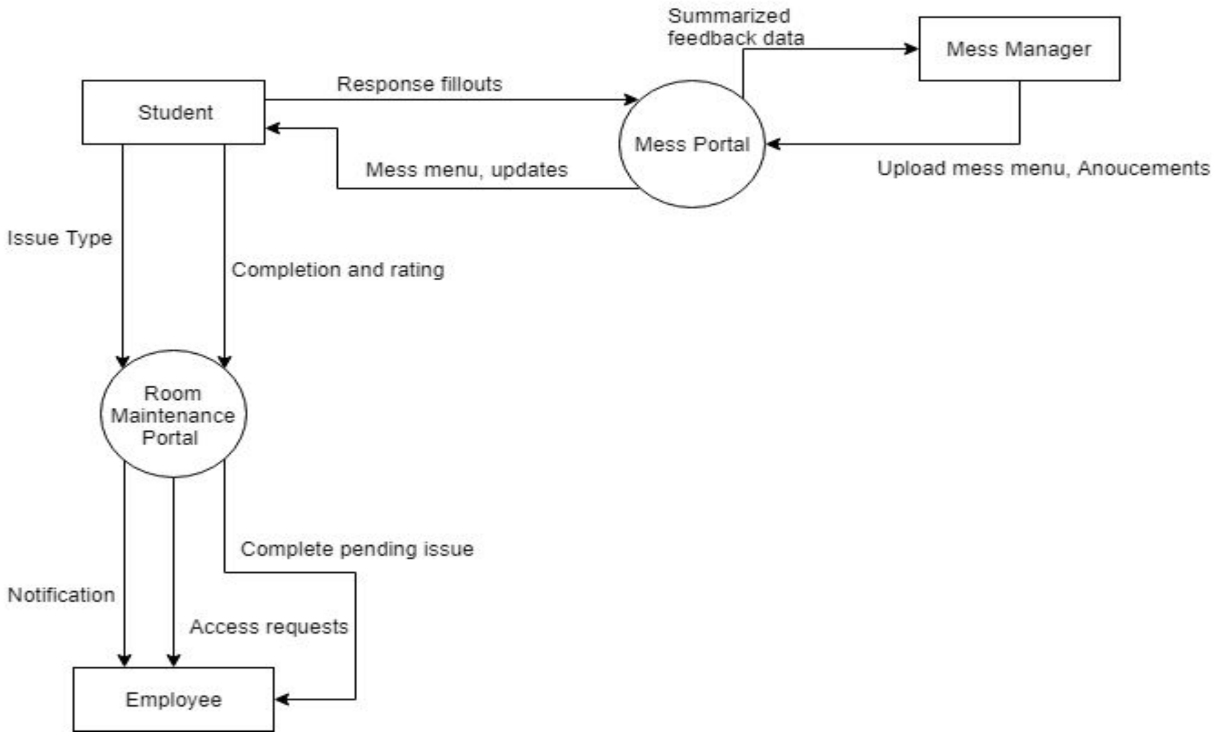


5.3 Data Flow Diagram

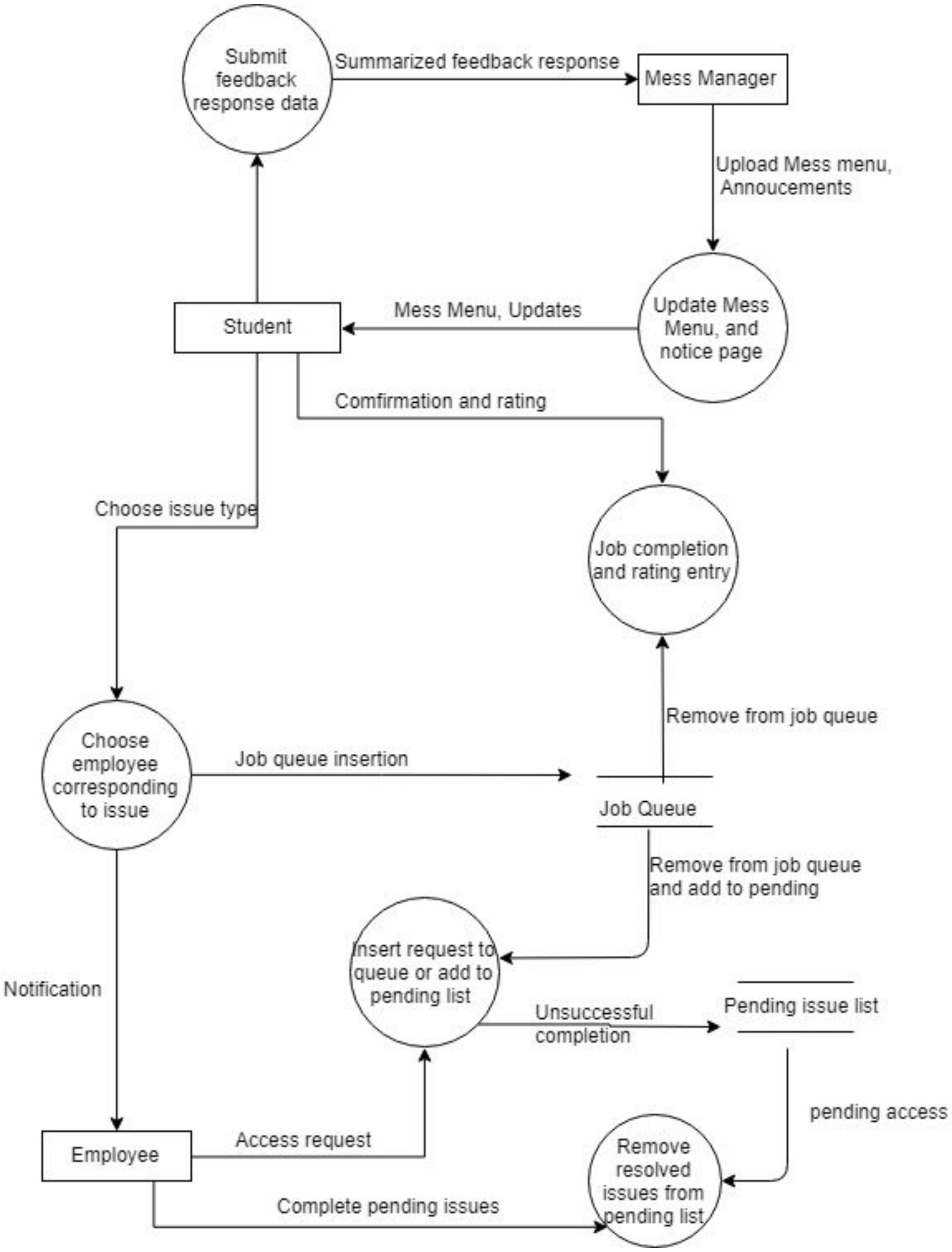
5.3.1 DFD Level 0



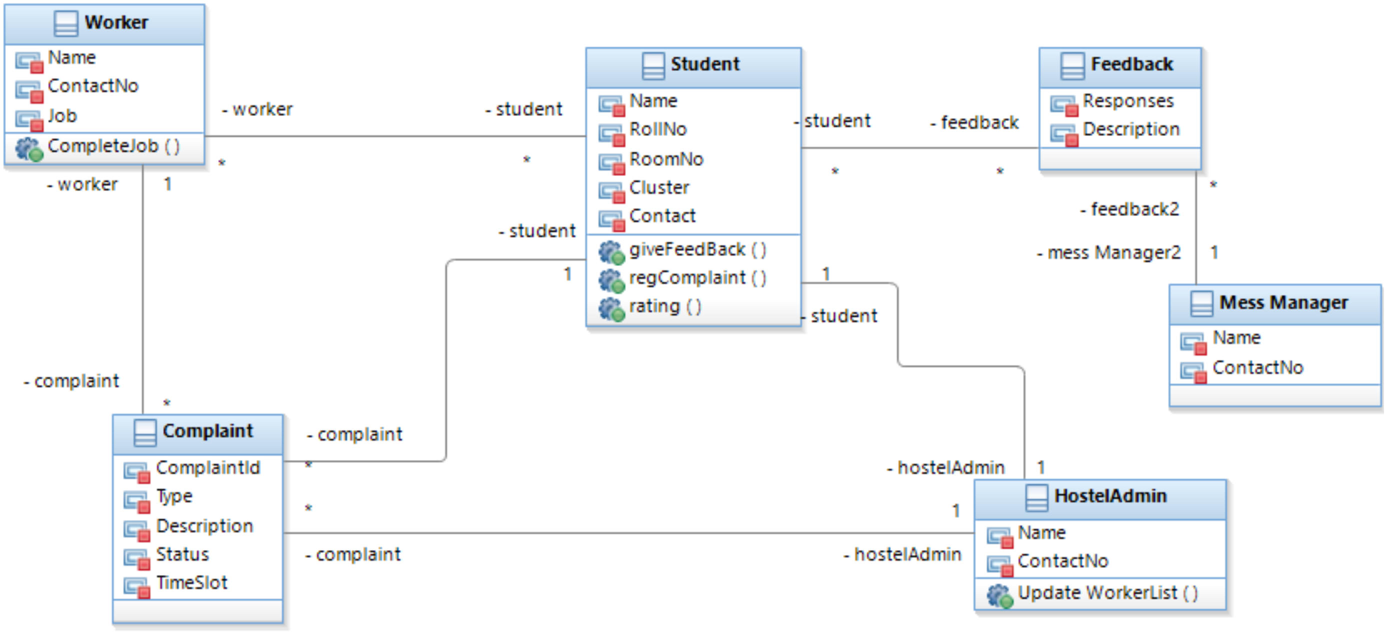
5.3.2 DFD Level 1



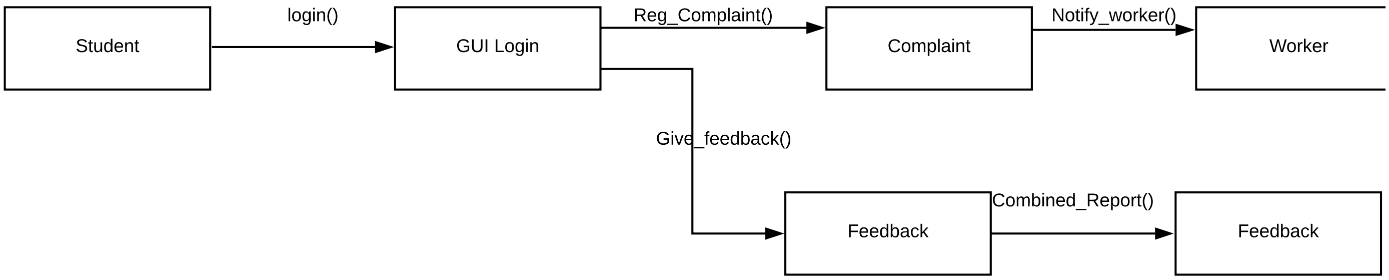
5.3.3 DFD Level 2


Submit feedback response data
Summarized feedback response
Mess Manager
Upload Mess menu, Annoucements
Update Mess Menu, and notice page
Mess Menu, Updates
Student
Comfirmation and rating
Choose issue type
Job completion and rating entry
Remove from job queue
Choose employee corresponding to issue
Job queue insertion
Job Queue
Remove from job queue and add to pending
Insert request to queue or add to pending list
Notification
Unsuccessful completion
Pending issue list
pending access
Employee
Access request
Remove resolved issues from pending list
Complete pending issues

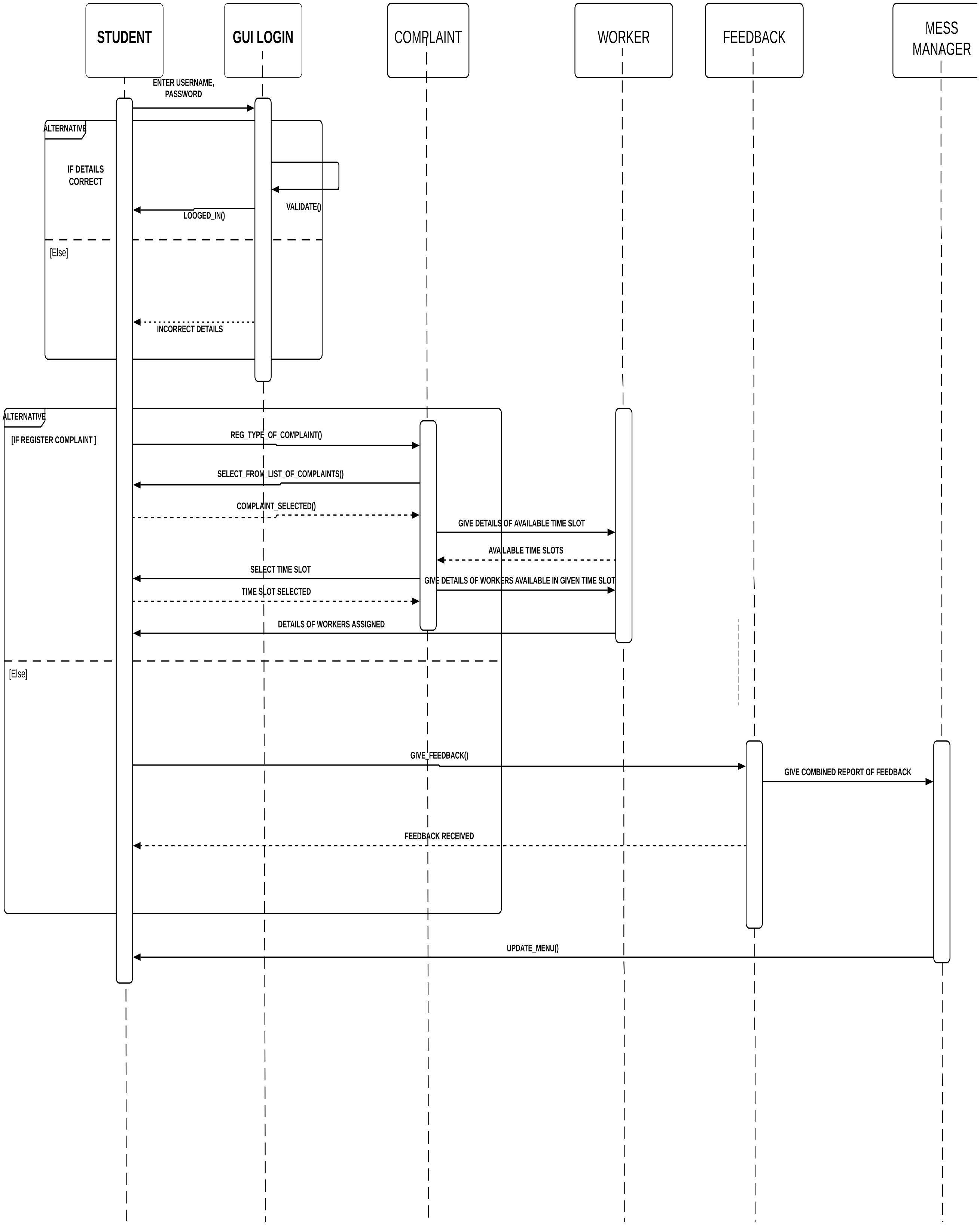
5.4 Class Diagram



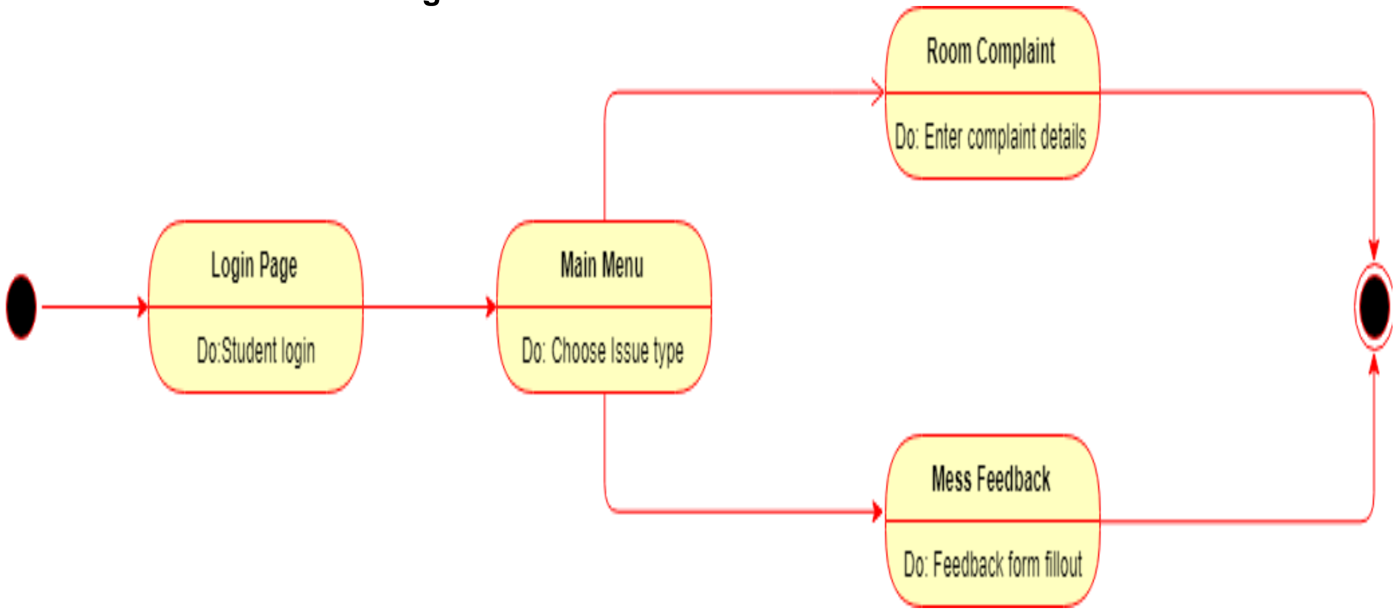
5.5 Collaboration Diagram



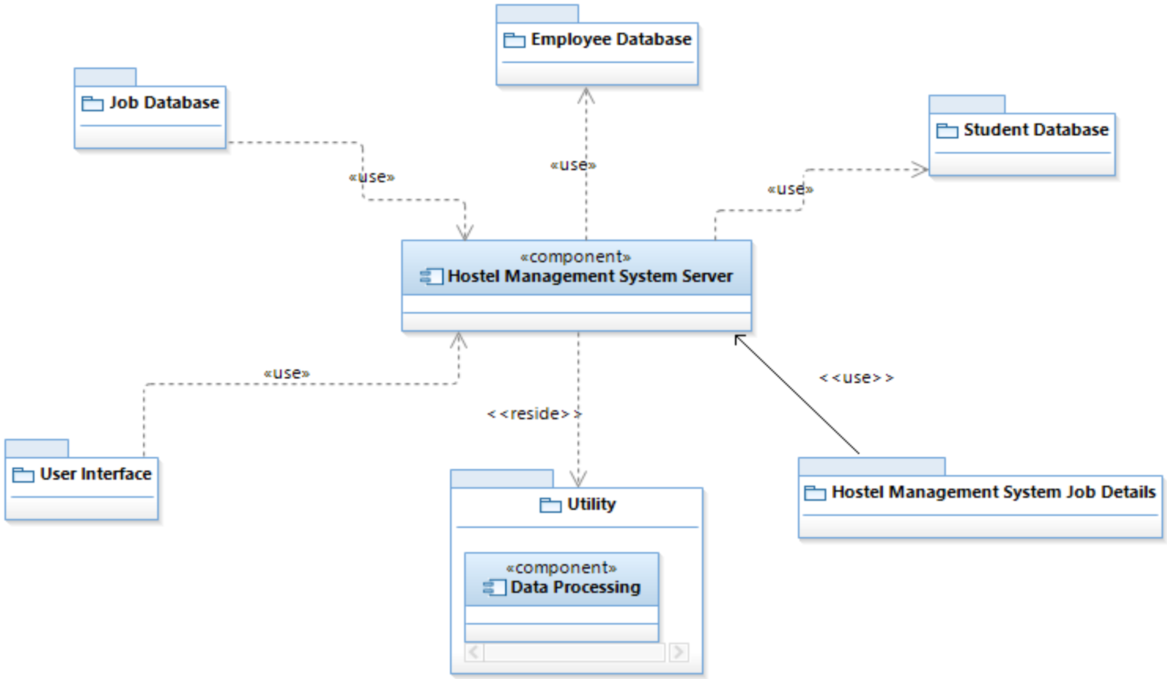
5.6 Sequence Diagram



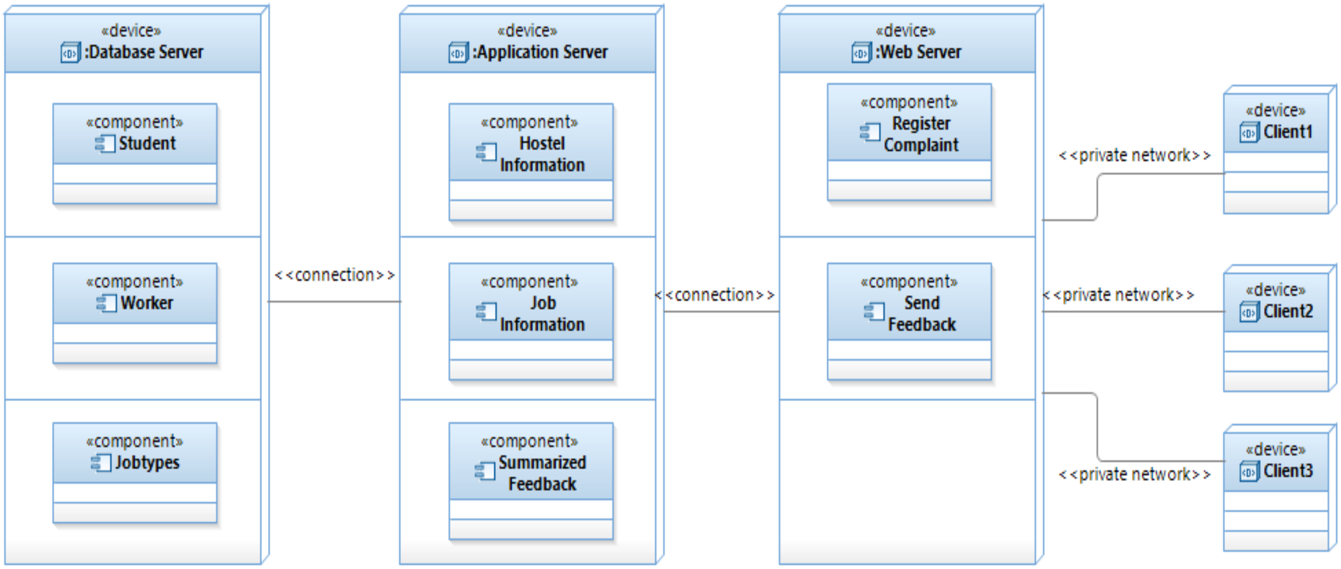
5.7 State Chart Diagram



5.8 Component Diagram

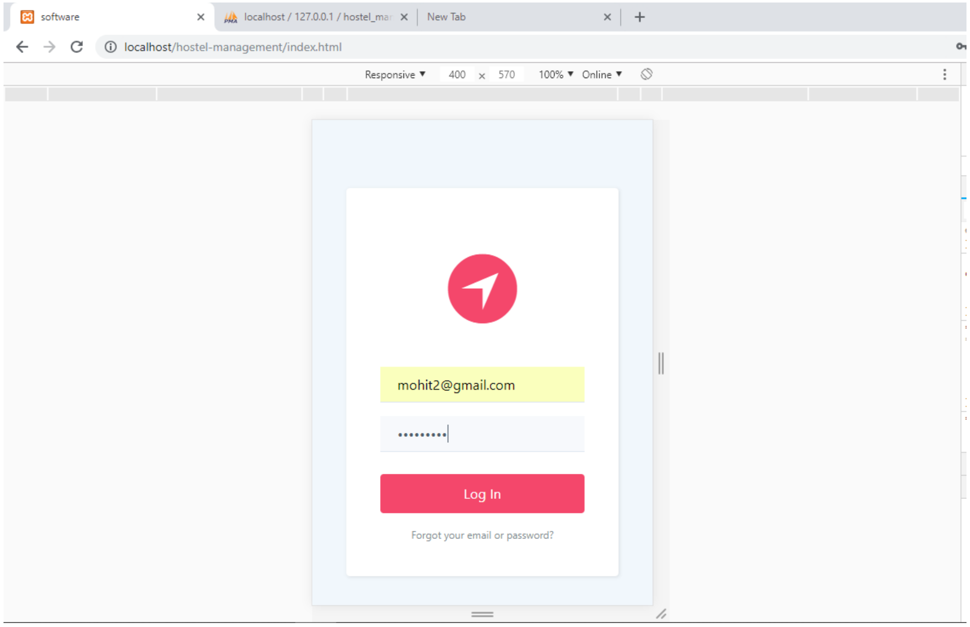


5.9 Deployment Diagram



6. Testing:

6.1 User Login

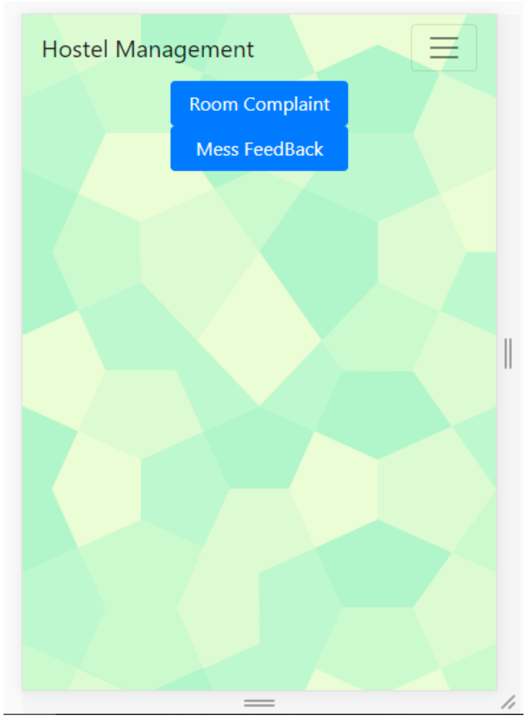

software
localhost / 127.0.0.1 / hostel_ma
New Tab
localhost/hostel-management/index.html
Responsive ▾ 400 × 570 100% ▾ Online ▾

mohit2@gmail.com

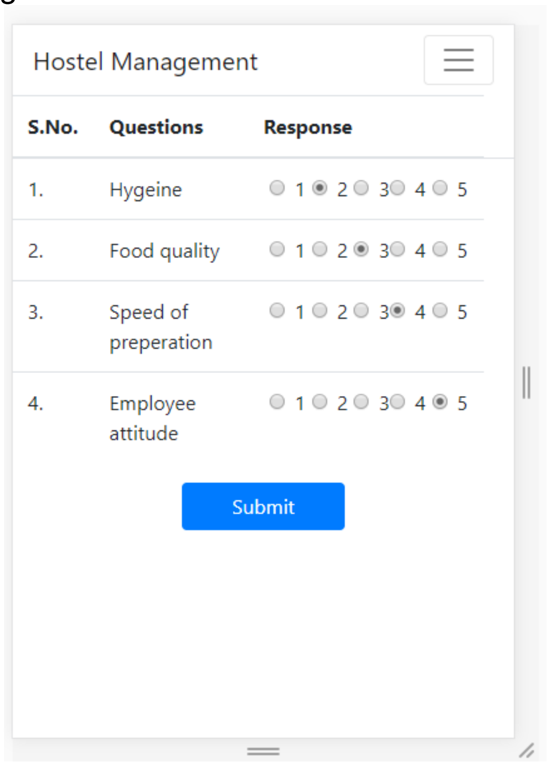
••••••••••

Log In
Forgot your email or password?

6.2 Menu after logging in

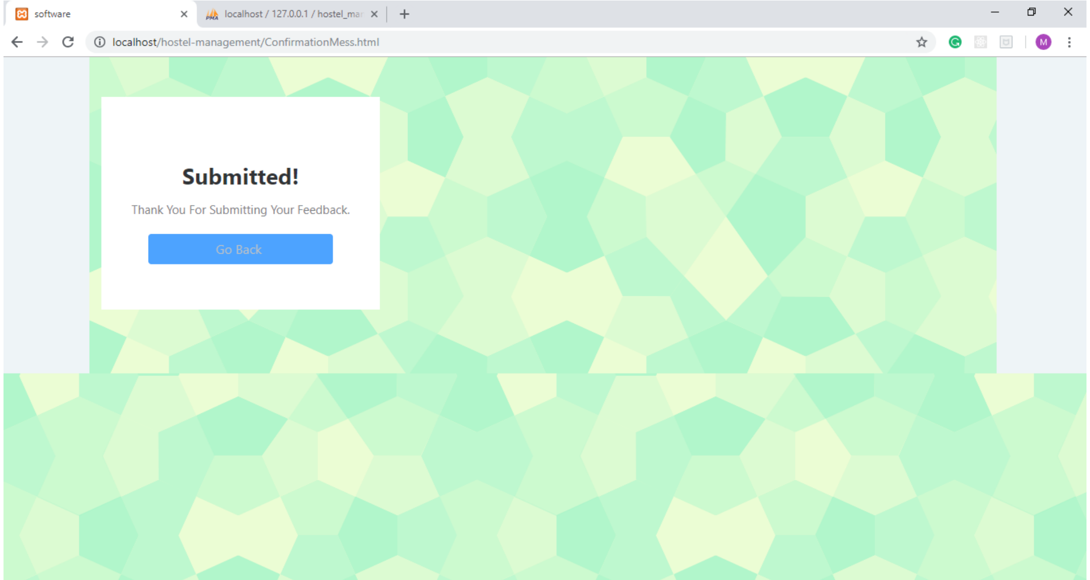


6.3 Mess Feedback Assignment



S.No.	Questions	Response
1.	Hygeine	○ 1 ● 2 ○ 3○ 4 ○ 5
2.	Food quality	○ 1 ○ 2 ● 3○ 4 ○ 5
3.	Speed of preperation	○ 1 ○ 2 ○ 3● 4 ○ 5
4.	Employee attitude	○ 1 ○ 2 ○ 3○ 4 ● 5

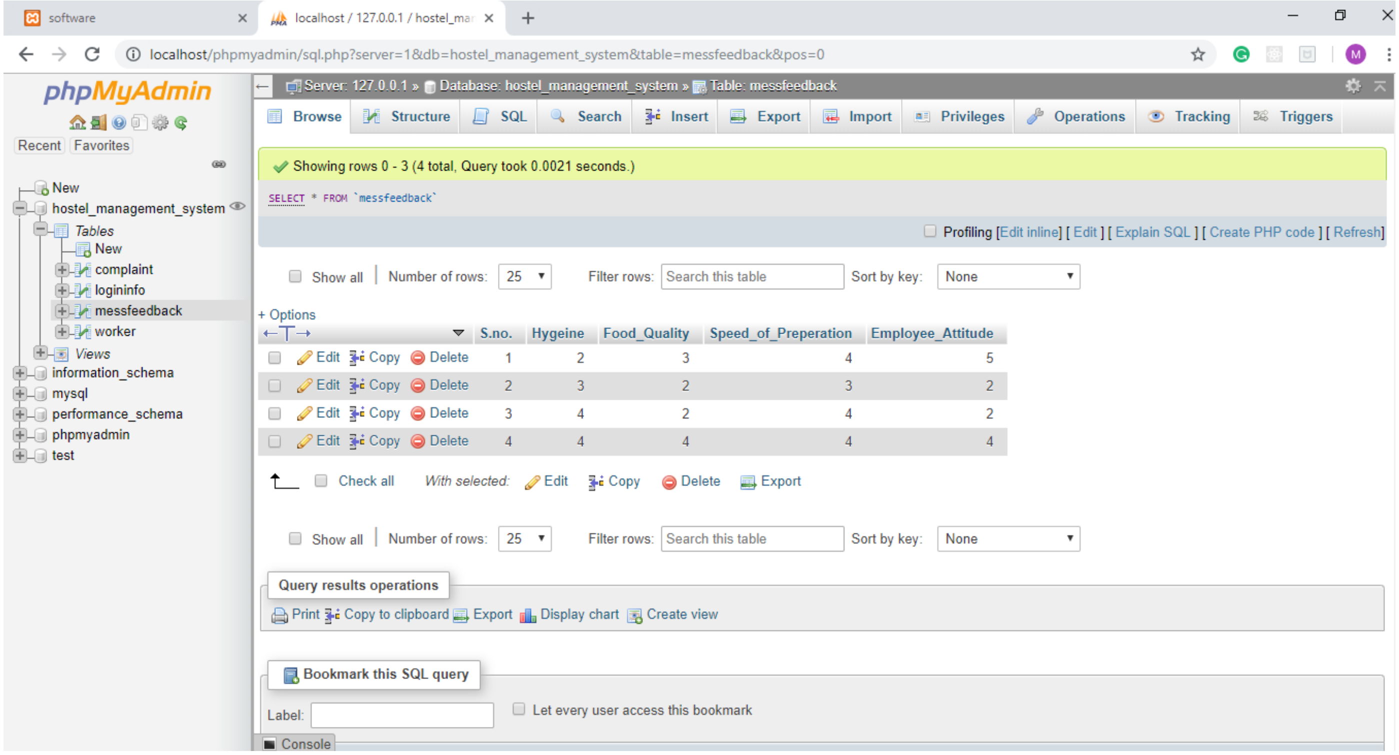
6.4 Mess Feedback Submitted


software
localhost / 127.0.0.1 / hostel_ma
localhost/hostel-management/ConfirmationMess.html

Submitted!

Thank You For Submitting Your Feedback.

6.5 Feedback Stored in Database


software
localhost / 127.0.0.1 / hostel_ma
localhost/phpmyadmin/sql.php?server=1&db=hostel_management_system&table=messfeedback&pos=0
phpMyAdmin
Recent
Favorites
New
hostel_management_system
Tables
New
complaint
logininfo
messfeedback
worker
Views
information_schema
mysql
performance_schema
phpmyadmin
test
Server: 127.0.0.1 » Database: hostel_management_system » Table: messfeedback
Browse
Structure
SQL
Search
Insert
Export
Import
Privileges
Operations
Tracking
Triggers

Showing rows 0 - 3 (4 total, Query took 0.0021 seconds.)

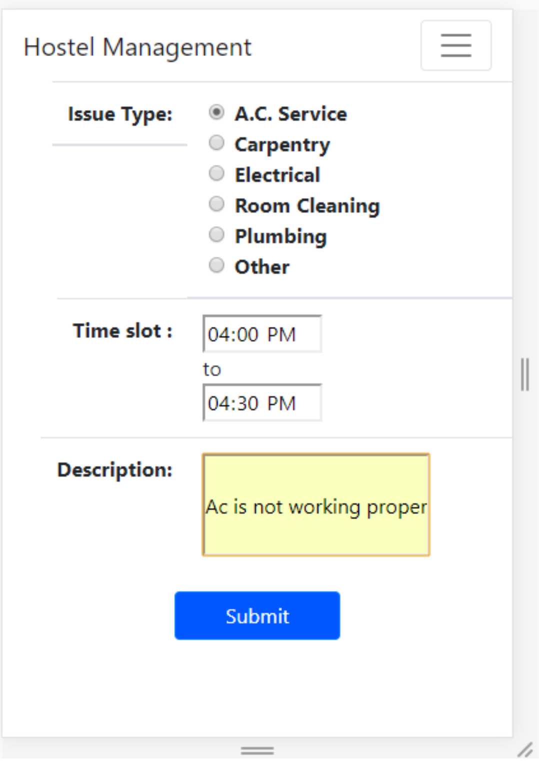
```
SELECT * FROM `messfeedback`
```

□ Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]
□ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None
+ Options

	S.no.	Hygeine	Food_Quality	Speed_of_Preperation	Employee_Attitude
□ Edit Copy Delete	1	2	3	4	5
□ Edit Copy Delete	2	3	2	3	2
□ Edit Copy Delete	3	4	2	4	2
□ Edit Copy Delete	4	4	4	4	4

□ Check all With selected: Edit Copy Delete Export
□ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None
Query results operations
Print Copy to clipboard Export Display chart Create view
Bookmark this SQL query
Label:
□ Let every user access this bookmark
Console

6.6 Room Complaint



Hostel Management

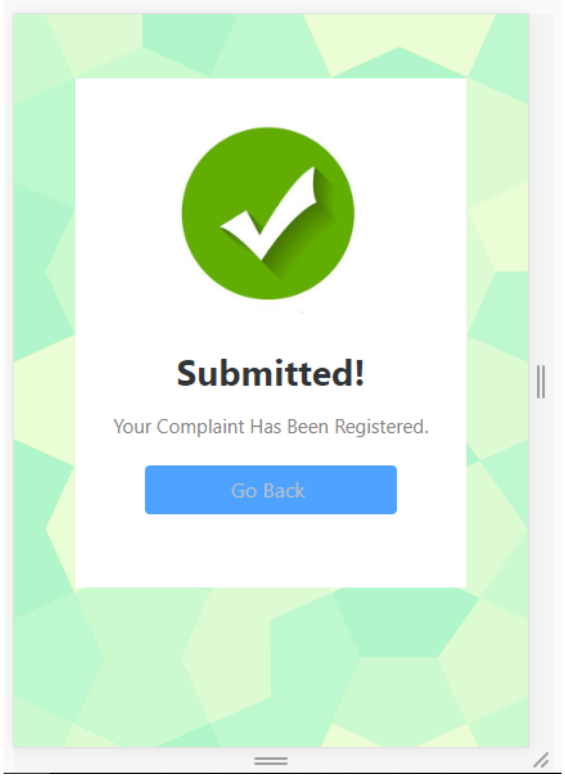
Issue Type:

● **A.C. Service**
○ **Carpentry**
○ **Electrical**
○ **Room Cleaning**
○ **Plumbing**
○ **Other**

Time slot : 04:00 PM to 04:30 PM

Description: Ac is not working proper

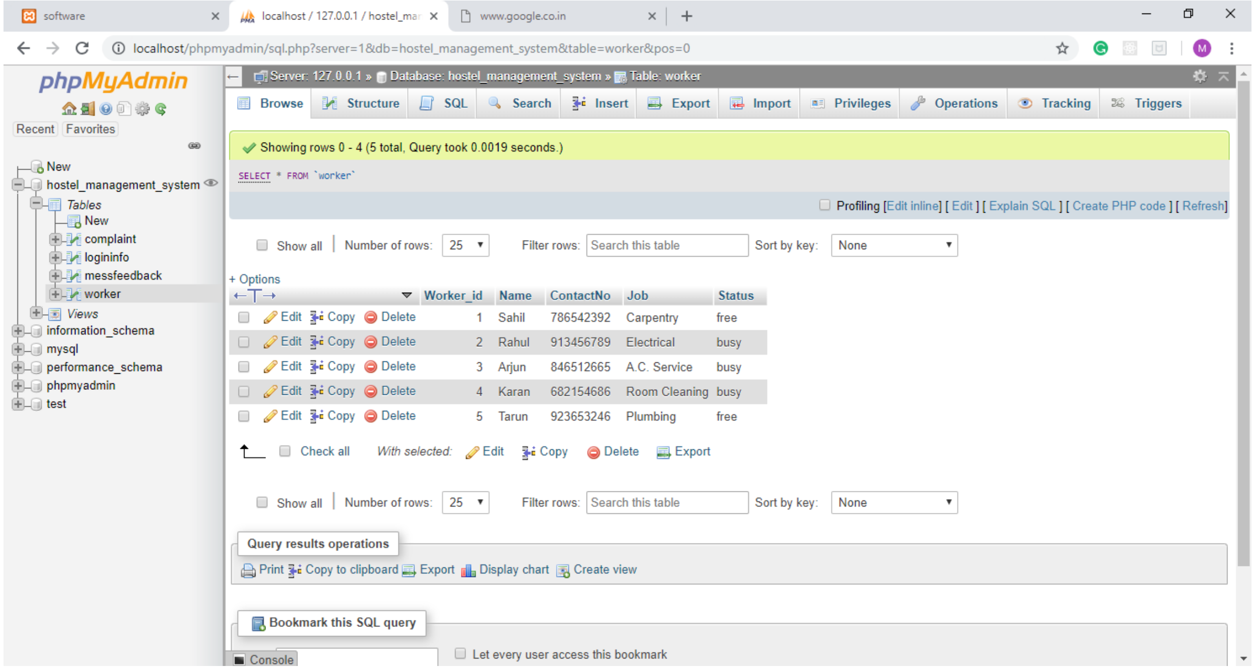
6.7 Complaint Submitted



Submitted!

Your Complaint Has Been Registered.

6.8 Worker Status Updated



localhost/phpmyadmin/sql.php?server=1&db=hostel_management_system&table=worker&pos=0

Server: 127.0.0.1 » Database: hostel_management_system » Table: worker

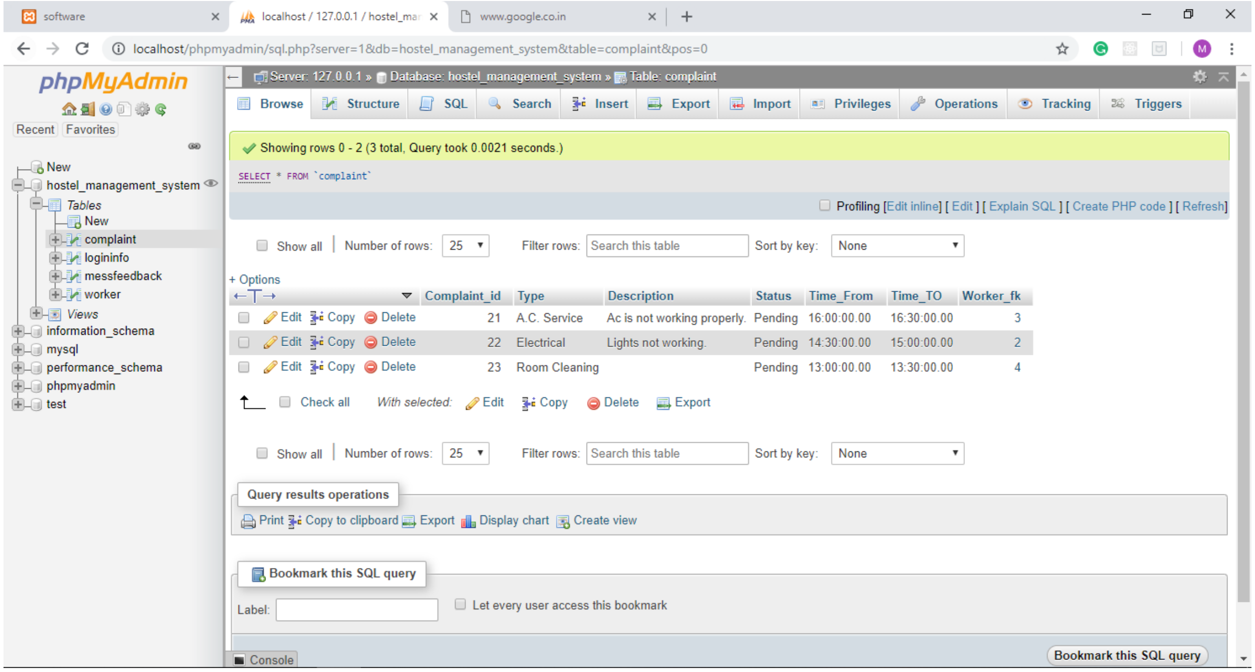
Showing rows 0 - 4 (5 total, Query took 0.0019 seconds.)

```
SELECT * FROM `worker`
```

Worker_id	Name	ContactNo	Job	Status
1	Sahil	786542392	Carpentry	free
2	Rahul	913456789	Electrical	busy
3	Arjun	846512665	A.C. Service	busy
4	Karan	682154686	Room Cleaning	busy
5	Tarun	923653246	Plumbing	free

software
localhost / 127.0.0.1 / hostel_ma
www.google.co.in
phpMyAdmin
Recent Favorites
New
hostel_management_system
Tables
New
complaint
logininfo
messfeedback
worker
Views
information_schema
mysql
performance_schema
phpmyadmin
test
Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers
Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]
Show all | Number of rows: 25 Filter rows: Search this table Sort by key: None
+ Options
Edit Copy Delete
Check all With selected: Edit Copy Delete Export
Query results operations
Print Copy to clipboard Export Display chart Create view
Bookmark this SQL query
Let every user access this bookmark
Console

6.9 Complaint Database



localhost/phpmyadmin/sql.php?server=1&db=hostel_management_system&table=complaint&pos=0

Server: 127.0.0.1 » Database: hostel_management_system » Table: complaint

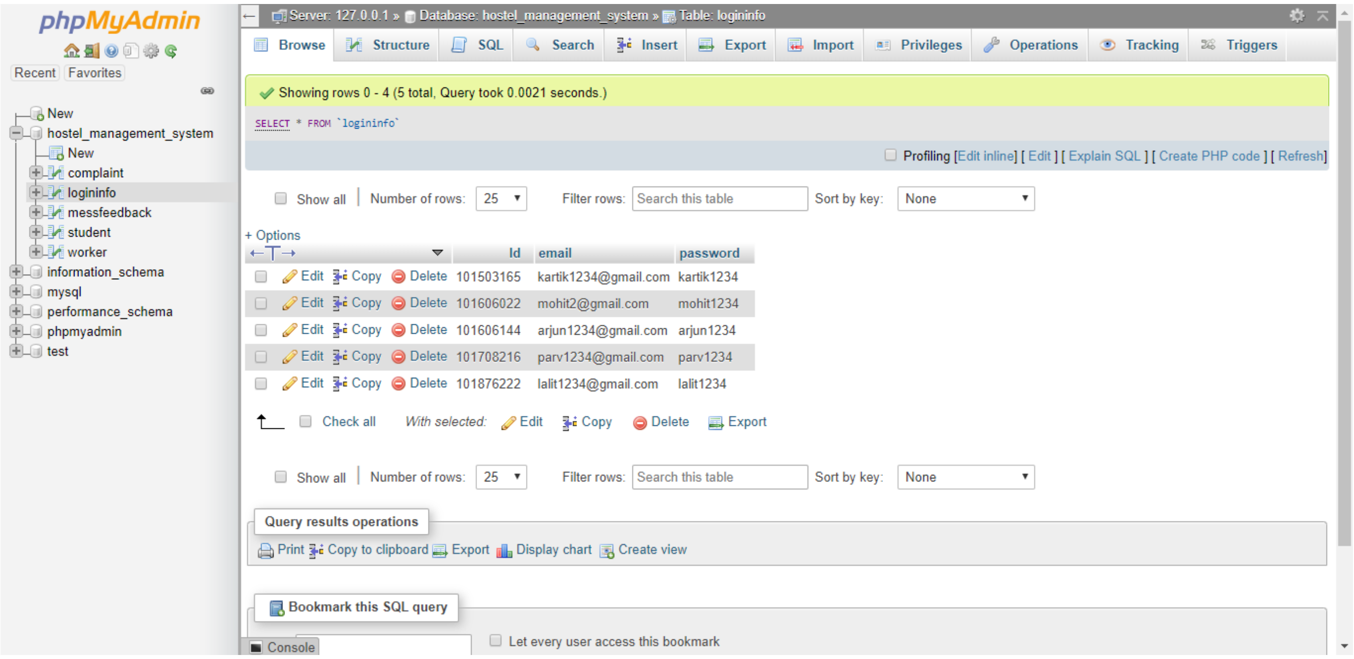
Showing rows 0 - 2 (3 total, Query took 0.0021 seconds.)

```
SELECT * FROM `complaint`
```

Complaint_id	Type	Description	Status	Time_From	Time_TO	Worker_fk
21	A.C. Service	Ac is not working properly.	Pending	16:00:00.00	16:30:00.00	3
22	Electrical	Lights not working.	Pending	14:30:00.00	15:00:00.00	2
23	Room Cleaning		Pending	13:00:00.00	13:30:00.00	4

software
localhost / 127.0.0.1 / hostel_ma
www.google.co.in
phpMyAdmin
Recent Favorites
New
hostel_management_system
Tables
New
complaint
logininfo
messfeedback
worker
Views
information_schema
mysql
performance_schema
phpmyadmin
test
Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers
Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]
Show all | Number of rows: 25 Filter rows: Search this table Sort by key: None
+ Options
Edit Copy Delete
Check all With selected: Edit Copy Delete Export
Query results operations
Print Copy to clipboard Export Display chart Create view
Bookmark this SQL query
Label:
Let every user access this bookmark
Bookmark this SQL query
Console

6.10 Login Info Database

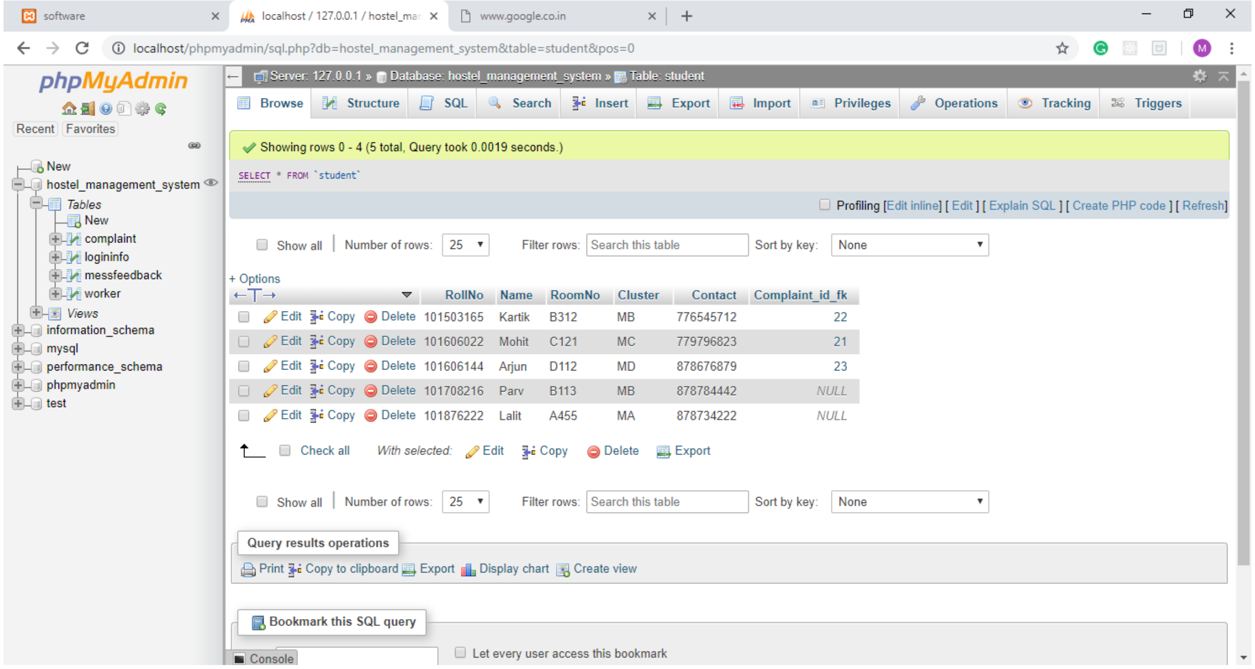

phpMyAdmin
Recent Favorites
New
hostel_management_system
New
complaint
logininfo
messfeedback
student
worker
information_schema
mysql
performance_schema
phpmyadmin
test
Server: 127.0.0.1 » Database: hostel_management_system » Table: logininfo
Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers
Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]
Show all Number of rows: 25 Filter rows: Search this table Sort by key: None
+ Options
Check all With selected: Edit Copy Delete Export
Query results operations
Print Copy to clipboard Export Display chart Create view
Bookmark this SQL query
Let every user access this bookmark
Console

✓ Showing rows 0 - 4 (5 total, Query took 0.0021 seconds.)

```
SELECT * FROM `logininfo`
```

	Id	email	password
Edit Copy Delete	101503165	kartik1234@gmail.com	kartik1234
Edit Copy Delete	101606022	mohit2@gmail.com	mohit1234
Edit Copy Delete	101606144	arjun1234@gmail.com	arjun1234
Edit Copy Delete	101708216	parv1234@gmail.com	parv1234
Edit Copy Delete	101876222	lalit1234@gmail.com	lalit1234

6.11 Student Database

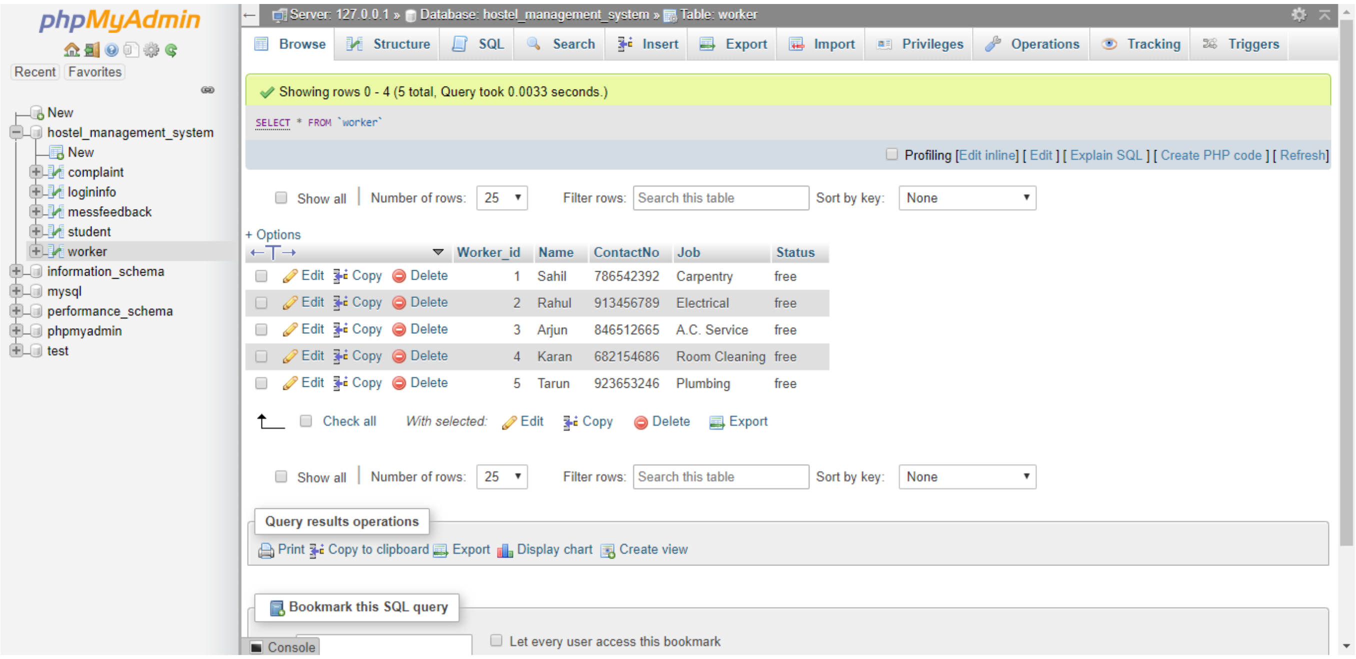

software
localhost / 127.0.0.1 / hostel_ma
www.google.co.in
localhost/phpmyadmin/sql.php?db=hostel_management_system&table=student&pos=0
phpMyAdmin
Recent Favorites
New
hostel_management_system
Tables
New
complaint
logininfo
messfeedback
worker
Views
information_schema
mysql
performance_schema
phpmyadmin
test
Server: 127.0.0.1 » Database: hostel_management_system » Table: student
Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers
Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]
Show all Number of rows: 25 Filter rows: Search this table Sort by key: None
+ Options
Check all With selected: Edit Copy Delete Export
Query results operations
Print Copy to clipboard Export Display chart Create view
Bookmark this SQL query
Let every user access this bookmark
Console

✓ Showing rows 0 - 4 (5 total, Query took 0.0019 seconds.)

```
SELECT * FROM `student`
```

	RollNo	Name	RoomNo	Cluster	Contact	Complaint_id_fk
Edit Copy Delete	101503165	Kartik	B312	MB	776545712	22
Edit Copy Delete	101606022	Mohit	C121	MC	779796823	21
Edit Copy Delete	101606144	Arjun	D112	MD	878676879	23
Edit Copy Delete	101708216	Parv	B113	MB	878784442	NULL
Edit Copy Delete	101876222	Lalit	A455	MA	878734222	NULL

6.12 Worker Database



Server: 127.0.0.1 » Database: hostel_management_system » Table: worker

Showing rows 0 - 4 (5 total, Query took 0.0033 seconds.)

```
SELECT * FROM `worker`
```

□ Show all | Number of rows: 25 Filter rows: Search this table Sort by key: None

	Worker_id	Name	ContactNo	Job	Status
□ Edit Copy Delete	1	Sahil	786542392	Carpentry	free
□ Edit Copy Delete	2	Rahul	913456789	Electrical	free
□ Edit Copy Delete	3	Arjun	846512665	A.C. Service	free
□ Edit Copy Delete	4	Karan	682154686	Room Cleaning	free
□ Edit Copy Delete	5	Tarun	923653246	Plumbing	free

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