VISVESVARAYA TECHNOLOGICAL UNIVERSITY

“Jnana Sangama”, Belagavi - 590 018.

A PROJECT REPORT
ON

“HOSTEL STUDENT TRACKING SYSTEM”

Submitted in partial fulfilment of the requirements for the ***Database Management Systems Laboratory (18CSL58)*** *course of the 5th semester*

Bachelor of Engineering
In
Computer Science & Engineering

Submitted By

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Chikkamagaluru – 577 102, Karnataka, India.

2021 – 2022

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CERTIFICATE

This is to certify that the project work entitled **"HOSTEL STUDENT TRACKING SYSTEM"** is a Bonafede work carried out ANUSHA BHAT**(4AI19CS015) CHINMAYI S P (4AI19CS023)** in partial fulfillment for the **Database Management Systems Laboratory (18CSL58)** course of 5th semester Bachelor of Engineering in Computer Science and Engineering of the Visvesvaraya Technological University, Belagavi during the academic year 2021-22. It is certified that all corrections and suggestions indicated for Internal Assessment have been incorporated in the report deposited in the department library. The project report has been approved as it satisfies the academic requirements in respect of Project Work prescribed for the said degree.

Signature of the Guide	**Signature of the HOD**
MR. GOPALKRISHNA **BE.ME.**	**Dr. Pushpa Ravikumar** **B.E., MTech., Ph.D.,**
Assistant Professor	Professor & Head of department

External Examiner

Signature with date

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2. ____________ ____________

ABSTRACT

A database management system (DBMS) is a software package with computer programs that control the creation, maintenance, and use of a database. It allows organizations to conveniently develop databases for various applications by database administrators (DBAs) and other specialists. Information retrieval emerged as independent research area from traditional database management system more than a decade ago. This was driven by the increasing functional requirements that modern full text search engines have to meet.

Current database management systems (DBMS) are not capable of supporting such flexibility. However, with the increase of data to be indexed and retrieved and the increasing heavy workloads, modern search engines suffer from Scalability, reliability, distribution and performance problems. We present a new and simple way for integration and compare the performance of our system to the current implementations based on storing the full text index directly on the file system.

ACKNOWLEDGEMENTS

We express our humble Pranamas to his holiness Parama Poojya Jagadguru Padmabushana Sri Sri Sri Dr. Balagangadharanatha Mahaswamiji and Parama Poojya Jagadguru Sri Sri Sri Dr. Nirmalanandanatha Mahaswamiji and also to Sri Sri Gunanatha Swamiji, Sringeri Branch, Chikkamagaluru who have showered their blessings on us for framing our career successfully.

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Table of Contents

List of Figures

List of snapshots

List of Tables

Chapter 1

INTRODUCTION

The data is scattered across multiple transactional systems, so we have to extract it from those systems, transform it into a standardized format and finally load it into a central repository called a data warehouse. The data has to be reorganized so that it is presented to the users in an understandable way.

"The database Management System" is a system that manages databases and organizes the data, so that it can be easily retrieved by the users. This system can be used to manage transactional databases, such as HR systems, banking systems, hospital systems and so on. This project is typically optimized for performing transactions and it provides discrete pieces of information for the users.

The database management system organizes the files to give user more control over their data. The system makes it possible for users to create, edit and update data in database files. Once created, the system makes it possible to store and retrieve data from those database files. It provides functions such as concurrency, security, backup, integrity and data description. It also provides reliability. Database administrators are responsible for creating backups of databases, controlling access and, in general, making sure it works the way it was intended.

The system provides automated methods to create, store and retrieve data and also can make tedious manual tasks a thing of the past. A data base system reduces data redundancy and inconsistency. It allows for concurrent access by multiple users, each with their own specific role. Some users only need to view the data, some contribute to adding new data, while others design and manages the database- all at the same time.

1.1 Database Management System Architecture

The design of a database management system depends on its architecture. It can be centralized or decentralized or hierarchical. The architecture of a database management system can be seen as either single tier or multi-tier. An n-tier architecture divides the whole system into related but independent n modules, which can be independently modified, altered, changed, or replaced.

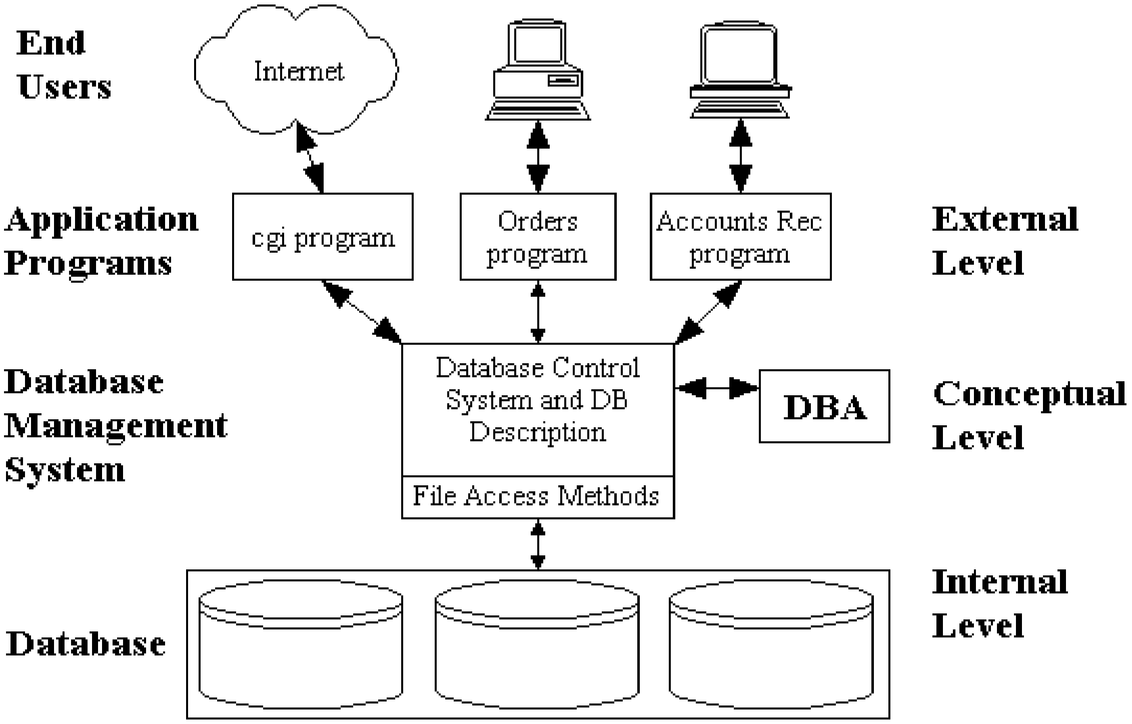


Figure 1.1: The Database Management System Architecture.

Chapter 2

SOFTWARE REQUIREMENT SEPECIFICATION

Software Requirement Specifications (SRS) is an important part of software development process. SRS includes overall description, functional requirements, supportability, performance requirement, design constraints, etc. for any applications. These contents are very much useful in fulfilling the goals while implementing software projects.

2.1 Overall Description

This project is to help the organizations to organize the huge amount of data and manipulate it as required. . The requirement Specification is a document that describes the external and internal requirements for any system. The Requirements analyst has to identify the requirements by talking to the clients and understanding their needs. The inputs are to be gathered from different resources to build the system based on the different requirements. The Requirements phase translates the ideas of the clients into a formal document. This software helps in tracking details in various sectors such as banks, library, universities, hospitals, shops etc. The main goal of the software is manage the data efficiently

2.2 Specific Requirements

Many requirements represent stakeholder-defined characteristics the absence of which will result in a major or even fatal deficiency. Others represent features that may be implemented if time and budget permits. The requirements must specify a level of importance. The specification may include a set of use cases that describe interactions the users will have with the software. It should also include the specifications of hardware and software that are used for building the software.

2.2.1 Software Requirements

As previously mentioned there are many software that will be part of this project and all of them are required for development.

1.1 2.2.1.1 MySQL

It is an open source Relational Database Management System (RDBMS) that is under the GNU GPL and is one of the most widely used. It also allows to scale the project without much overhead. It also has many features such as high availability, query caching, cross platform support and security make it a good candidate for deployment. We will be using MySQL version 5.7.14 which is the latest version.

1.2 2.2.1.2 PYTHON TKINTER

Tkinter is the de facto way in Python **to create Graphical User interfaces (GUIs)** and is included in all standard Python Distributions. In fact, it's the only framework built into the Python standard library.

Operating System	:	WINDOWS 10.
Back End	:	MySQL.
Front End	:	PYTHON (TKINTER)
Database Connectivity	:	MYSQL CONNECTOR
Server	:	MYSQL

2.2.2 Hardware Requirements

Most of the current computer have enough specification to implement a database. But we need to mention some minimal requirement. These would be the minimum specifications to run the DBMS project. Use cases that describe interactions the users will have with the software

2.2.2.1 Processor Requirement

A basic fast processor is essential for efficient handling of load during server time and development time. A processor with minimum 2 cores can handle the workload. Minimum requirement processor is a Pentium 4(P4). Recommended processor is one with 4 cores like core i5 Sandy Bridge with larger L3 cache.

2.2.2.2 Memory Requirements

The RAM memory will be needed to efficiently run the server and the front end, hence at least 2GB of DDR3 RAM would be necessary.

2.2.2.3 Disk Requirement

Python require 100MB of disk space. MySQL requires 1.3GB for Enterprise running. So in total a minimum of 2GB disk space is required.

- Intel I3 or Above
- 2GB RAM
- 2GB disc space
- Microsoft controllable 101 or more keyboard

Chapter 3

DATABASE DESIGN

3.1 E-R Diagram

An entity–relationship model (ER model) describes inter-related things of interest in a specific domain of knowledge. An ER model is composed of entity types (which classify the things of interest) and specifies relationships that can exist between instances of those entity types.

ER diagram should have mainly 3 components namely, entity, attribute, relationship. The following notations can be used for drawing an ER diagram.

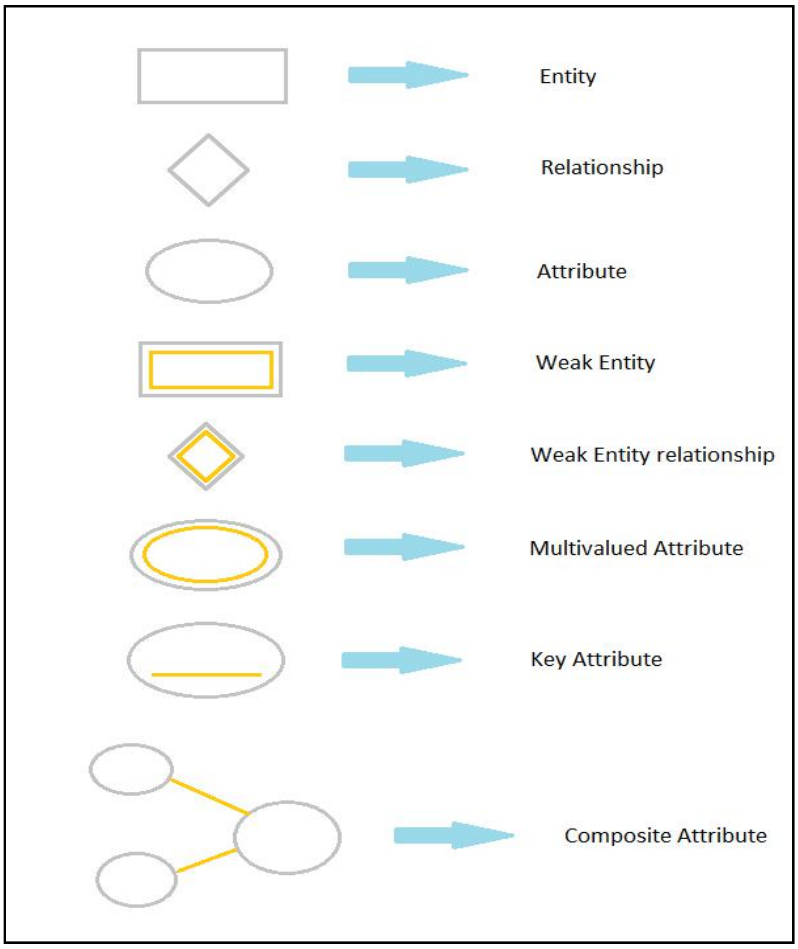


Figure 3.1: E-R Diagram Notations.

Figure 3.2 shows the sample ER diagram which consists of four entities Employee, Department, Project, Dependent related by the relations worksfor, manages, workson, controls as wells as. Dependents Of. Each entity consists of attributes. In the below E-R diagram Dependents is the weak entity.

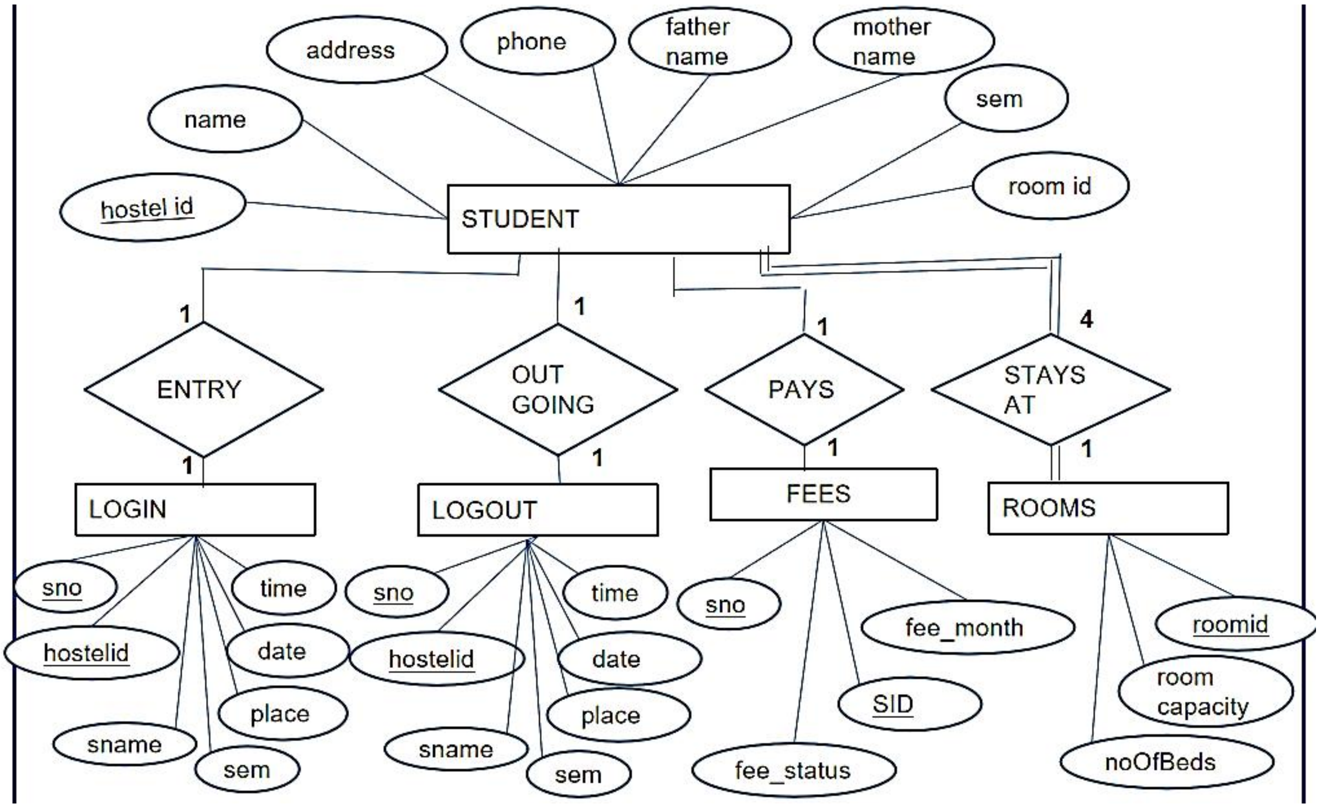


Figure 3.2: E-R diagram.

3.2 Relational Schema

The relational schema diagram gives the relation of one entity with another as well as the information about the key constraints. The below figure is a sample relational schema diagram in which the attributes that are underlined are the primary key and the arrow line is used to represent the mapping.

In figure 3.3 there are totally 5 entities and 1 relation. The Ssn in Employee is the primary key which is referred by the super_ssn of Emloyee, Mgr_ssn of Department Essn of WorksOn as well as Essn of Department. Similarly Dnumber being the primary key in referred by Dnumber of Dept locations, Dno of Employee as well as Dnum of Project. Dnumber and Dlocation of Dept Locations are considered as composite primary key. Primary key Pnumber of project is referred by Pno of WorksOn.

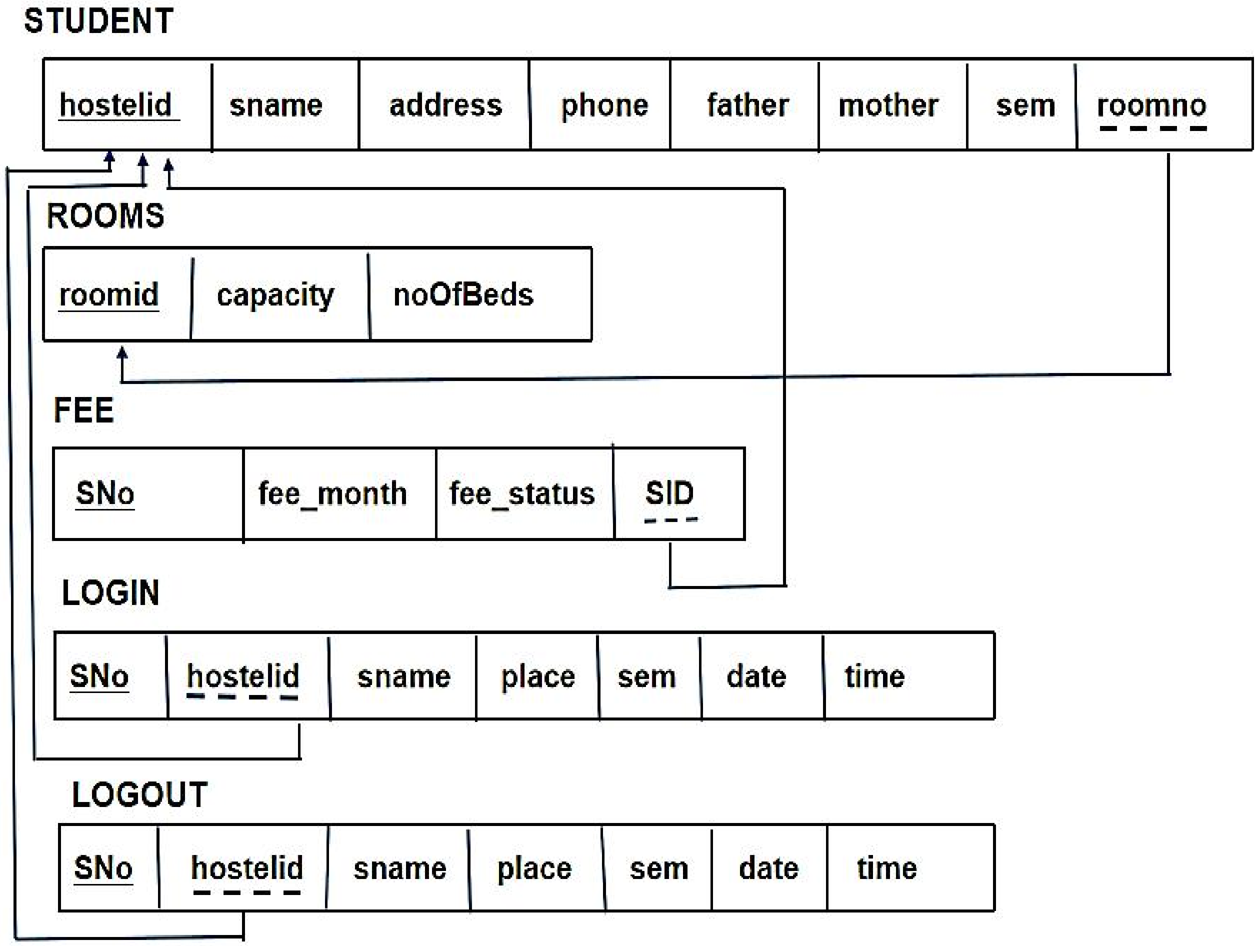


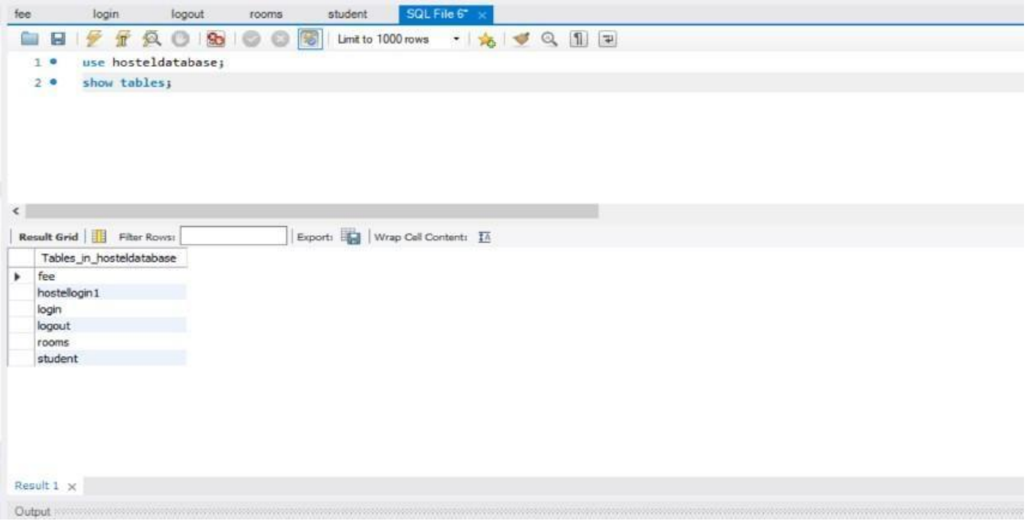
Figure 3.3: Hostel database Relational Schema.

Chapter 4

IMPLEMENTATION

2 4.1 RDBMS tables and their description

Below table shows the list of tables used in implementation of the Hostel Database Management System.

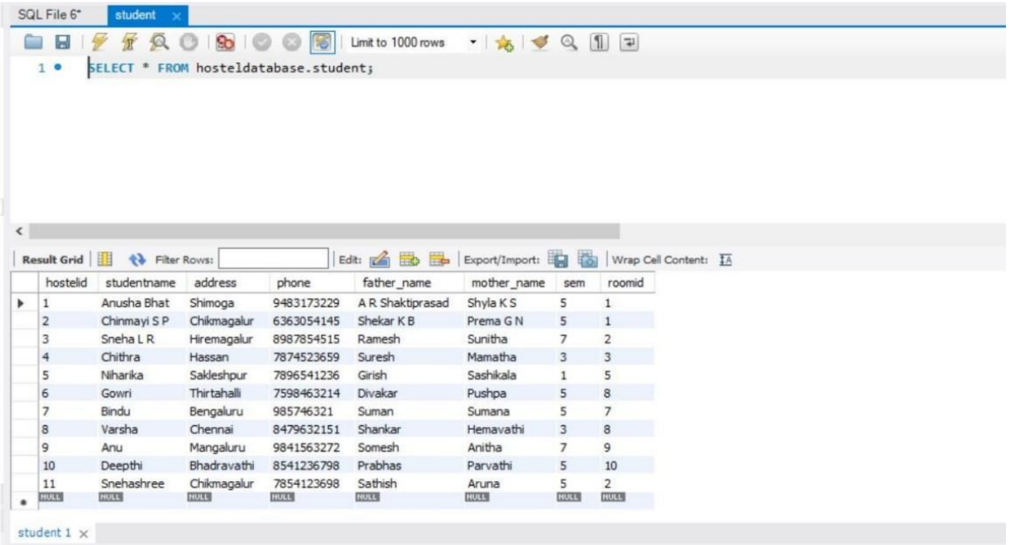


```
use hosteldatabase;
show tables;
```

Tables_in_hosteldatabase
fee
hostellogin1
login
logout
rooms
student

Snapshot 4.1: list of tables in hostel database management system

4.1.1 Student:

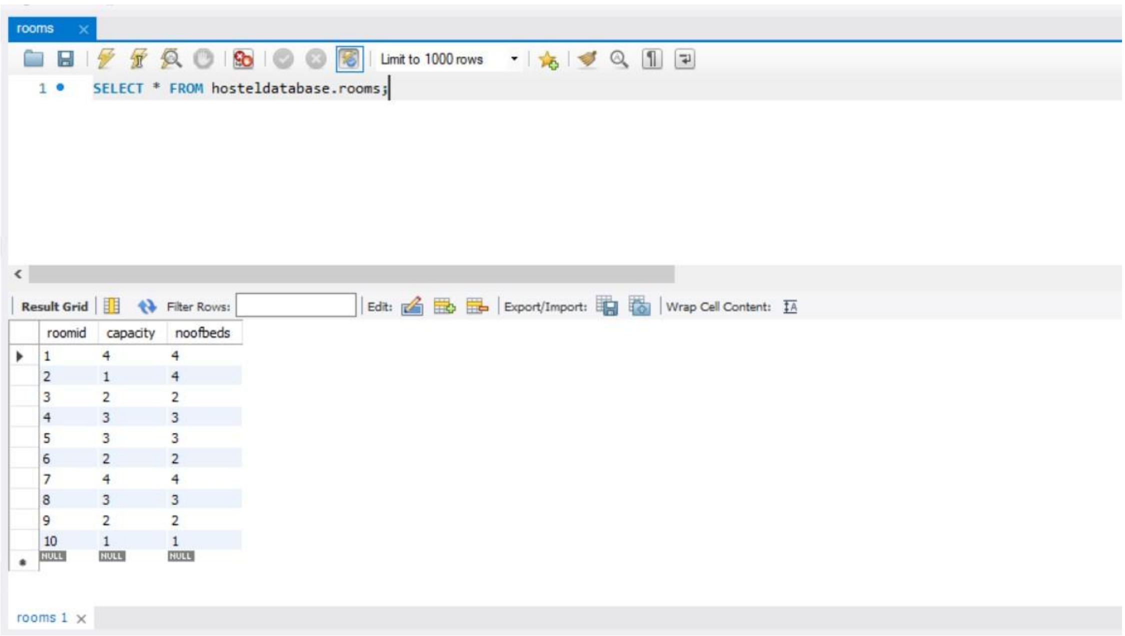


```
SELECT * FROM hosteldatabase.student;
```

hostelid	studentname	address	phone	father_name	mother_name	sem	roomid
1	Anusha Bhat	Shimoga	9483173229	A R Shaktiprasad	Shyla K S	5	1
2	Chinmayi S P	Chikmagalur	6363054145	Shekar K B	Prema G N	5	1
3	Sneha L R	Hiremagalur	8987854515	Ramesh	Sunitha	7	2
4	Chithra	Hassan	7874523659	Suresh	Mamatha	3	3
5	Niharika	Sakleshpur	7896541236	Girish	Sashikala	1	5
6	Gowri	Thirtahalli	7598463214	Divakar	Pushpa	5	8
7	Bindu	Bengaluru	985746321	Suman	Sumana	5	7
8	Varsha	Chennai	8479632151	Shankar	Hemavathi	3	8
9	Anu	Mangaluru	9841563272	Somesh	Anitha	7	9
10	Deepthi	Bhadravathi	8541236798	Prabhas	Parvathi	5	10
11	Snehashree	Chikmagalur	7854123698	Sathish	Aruna	5	2
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Table 4.2: student details

4.1.2 Rooms:

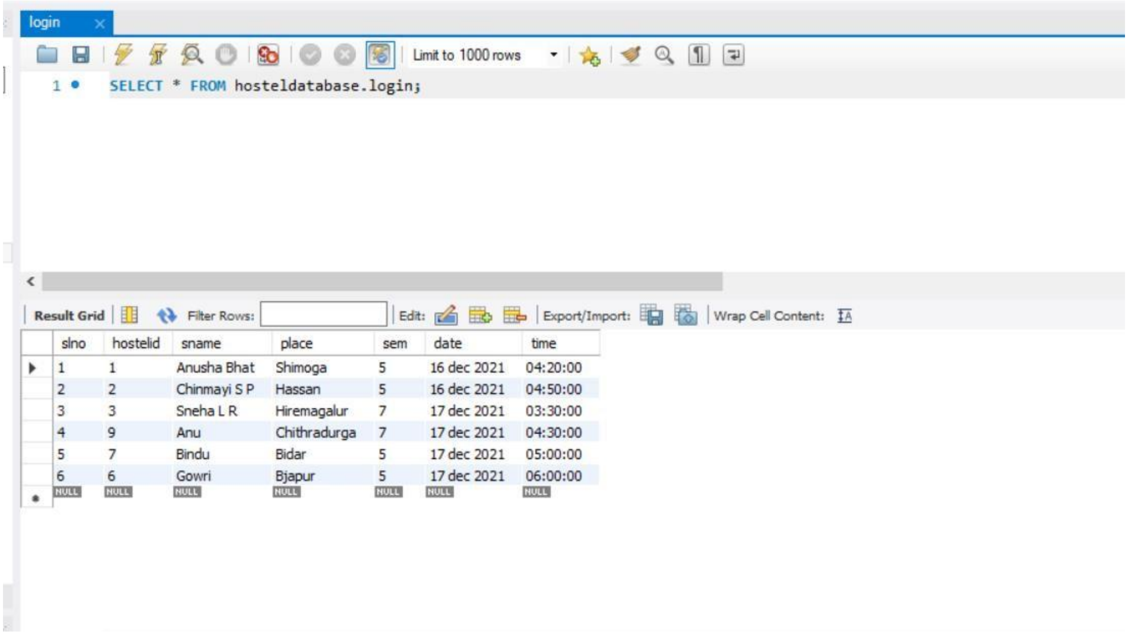


```
SELECT * FROM hosteldatabase.rooms;
```

roomid	capacity	noofbeds
1	4	4
2	1	4
3	2	2
4	3	3
5	3	3
6	2	2
7	4	4
8	3	3
9	2	2
10	1	1
NULL	NULL	NULL

Table 4.3: room details

4.1.3 Login:

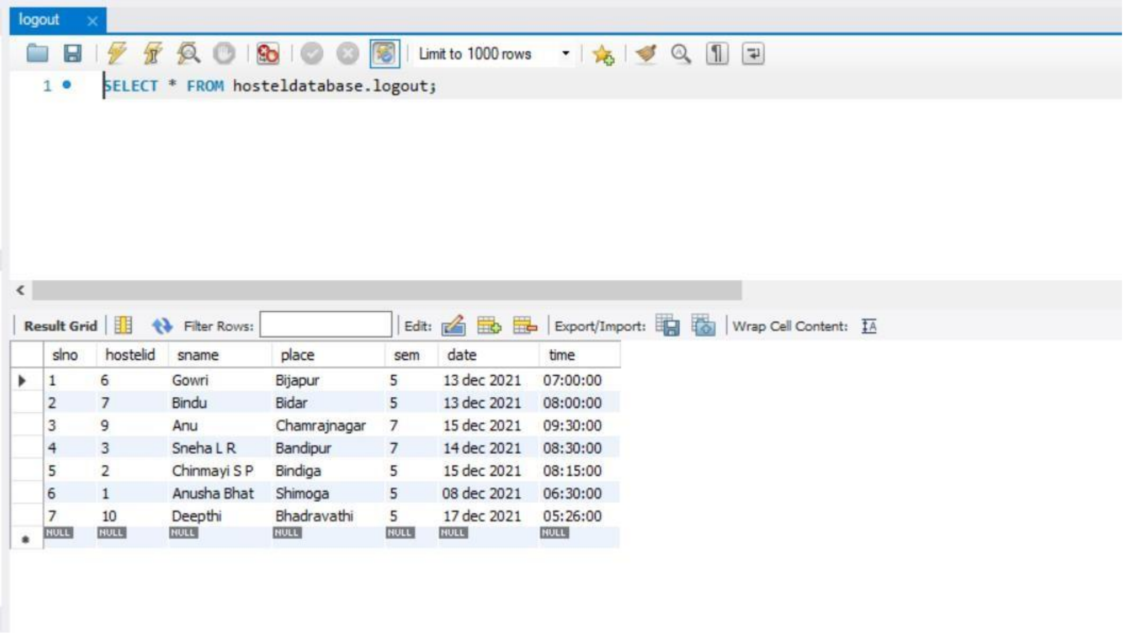


```
SELECT * FROM hosteldatabase.login;
```

slno	hostelid	sname	place	sem	date	time
1	1	Anusha Bhat	Shimoga	5	16 dec 2021	04:20:00
2	2	Chinmayi S P	Hassan	5	16 dec 2021	04:50:00
3	3	Sneha L R	Hiremagalur	7	17 dec 2021	03:30:00
4	9	Anu	Chithradurga	7	17 dec 2021	04:30:00
5	7	Bindu	Bidar	5	17 dec 2021	05:00:00
6	6	Gowri	Bjapur	5	17 dec 2021	06:00:00
NULL	NULL	NULL	NULL	NULL	NULL	NULL

Table 4.4: login details

4.1.4 Logout:

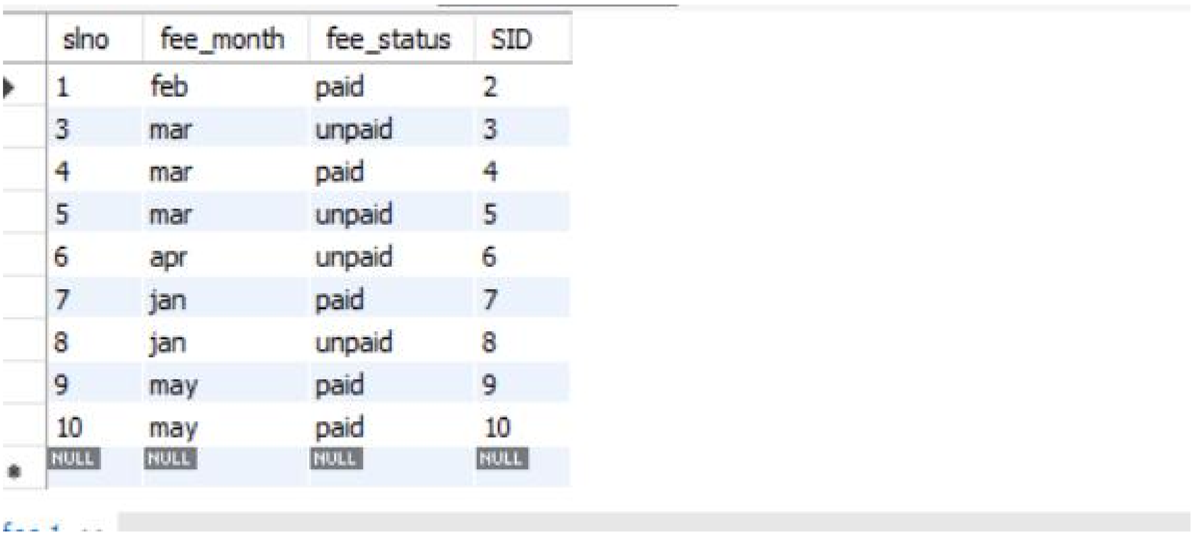


```
SELECT * FROM hosteldatabase.logout;
```

slno	hostelid	sname	place	sem	date	time
1	6	Gowri	Bijapur	5	13 dec 2021	07:00:00
2	7	Bindu	Bidar	5	13 dec 2021	08:00:00
3	9	Anu	Chamrajnagar	7	15 dec 2021	09:30:00
4	3	Sneha L R	Bandipur	7	14 dec 2021	08:30:00
5	2	Chinmayi S P	Bindiga	5	15 dec 2021	08:15:00
6	1	Anusha Bhat	Shimoga	5	08 dec 2021	06:30:00
7	10	Deepthi	Bhadravathi	5	17 dec 2021	05:26:00
NULL	NULL	NULL	NULL	NULL	NULL	NULL

Table 4.5: logout details

4.1.5 FEE:



slno	fee_month	fee_status	SID
1	feb	paid	2
3	mar	unpaid	3
4	mar	paid	4
5	mar	unpaid	5
6	apr	unpaid	6
7	jan	paid	7
8	jan	unpaid	8
9	may	paid	9
10	may	paid	10
NULL	NULL	NULL	NULL

Table 4.6: Fee Details

4.2 **Connecting to MYSQL using mysql.connector Code to Database**

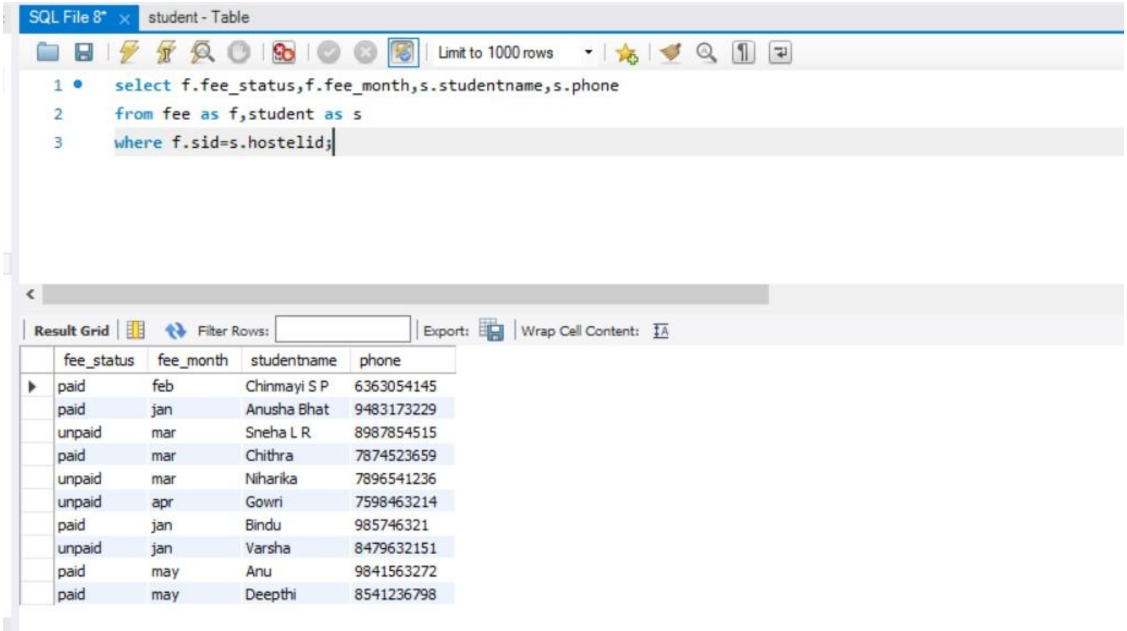
```
from mysql.connector import (connection)

mydb = connection.MySQLConnection(
   host = "localhost",
   user = "root",
   passwd = "Anusha@123",
   database = "hostel"

   )
cursor = mydb.cursor()
```

4.3 **Tkinter Code to Create Desktop application**

```
def root():
root= Tk()


root.geometry("700x466")
root.title("HOSTEL DATABASE")

canvas = Canvas(root, width = 700, height = 466)
canvas.pack()
img =ImageTk.PhotoImage(Image.open
('C:\\Users\\ASHHOKABHAT\\OneDrive\\Desktop\\dbms\\h1.jpg'))
 canvas.create_image(20, 20, anchor=NW, image=img)


 ide=Label(root,text='LOGIN PAGE',bg="#041d78",fg="#83e6e6",font=('bold',30))

  ide.place(x=180,y=30)

  but1= Button(root, text="HOSTEL LOGIN",
  font=("italic",20),bg="#83e6e6",command=lambda:[Hostellogin()])

  but1.place(x=190,y=170)


   but2= Button(root, text="STUDENT LOGIN",
   font=("italic",20),bg="#83e6e6",command=lambda:[LOG(),root.quit])
   but2.place(x=190,y=250)
   root.mainloop()

   root()
   exit(0)
```

4.4 MySQL Query

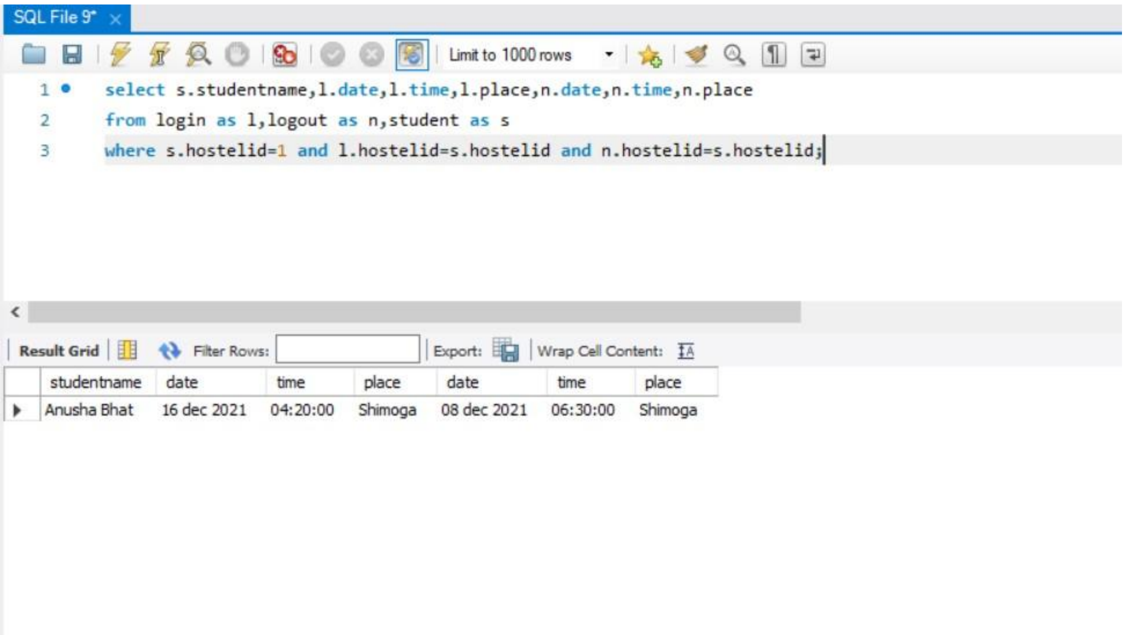
1.Retrieve the fee status and paid month of each student



```
select f.fee_status,f.fee_month,s.studentname,s.phone
from fee as f,student as s
where f.sid=s.hostelid;
```

fee_status	fee_month	studentname	phone
paid	feb	Chinmayi S P	6363054145
paid	jan	Anusha Bhat	9483173229
unpaid	mar	Sneha L R	8987854515
paid	mar	Chithra	7874523659
unpaid	mar	Niharika	7896541236
unpaid	apr	Gowri	7598463214
paid	jan	Bindu	985746321
unpaid	jan	Varsha	8479632151
paid	may	Anu	9841563272
paid	may	Deepthi	8541236798

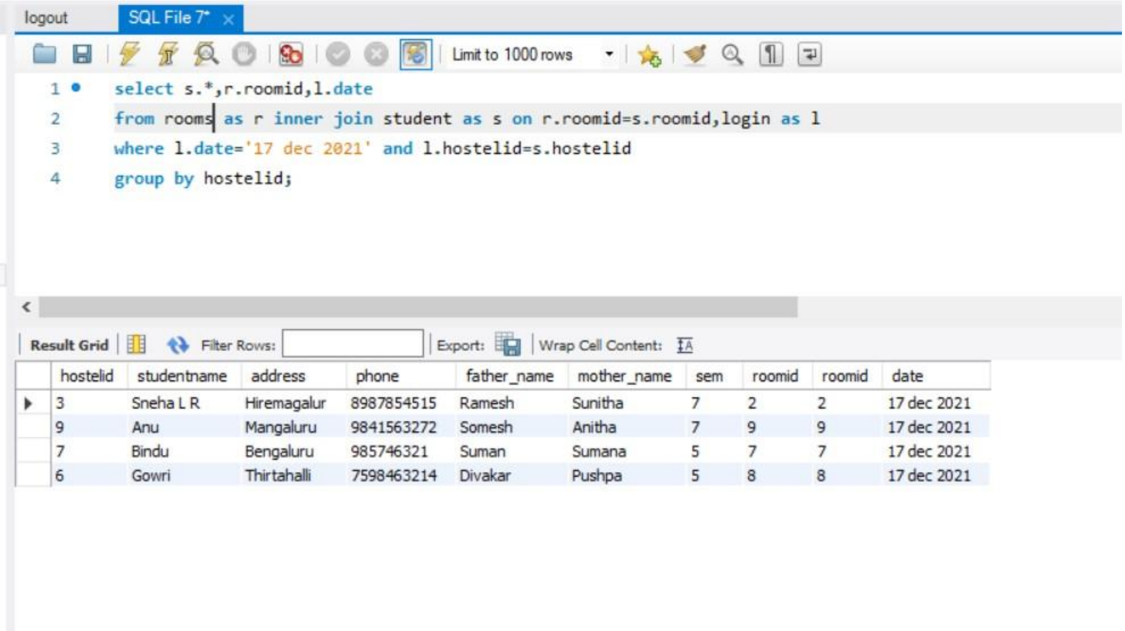
2. Retrieve the logout details of a student whose hostelid=1



```
select s.studentname,l.date,l.time,l.place,n.date,n.time,n.place
from login as l,logout as n,student as s
where s.hostelid=1 and l.hostelid=s.hostelid and n.hostelid=s.hostelid;
```

studentname	date	time	place	date	time	place
Anusha Bhat	16 dec 2021	04:20:00	Shimoga	08 dec 2021	06:30:00	Shimoga

3. Retrieve details of student who login on particular date.

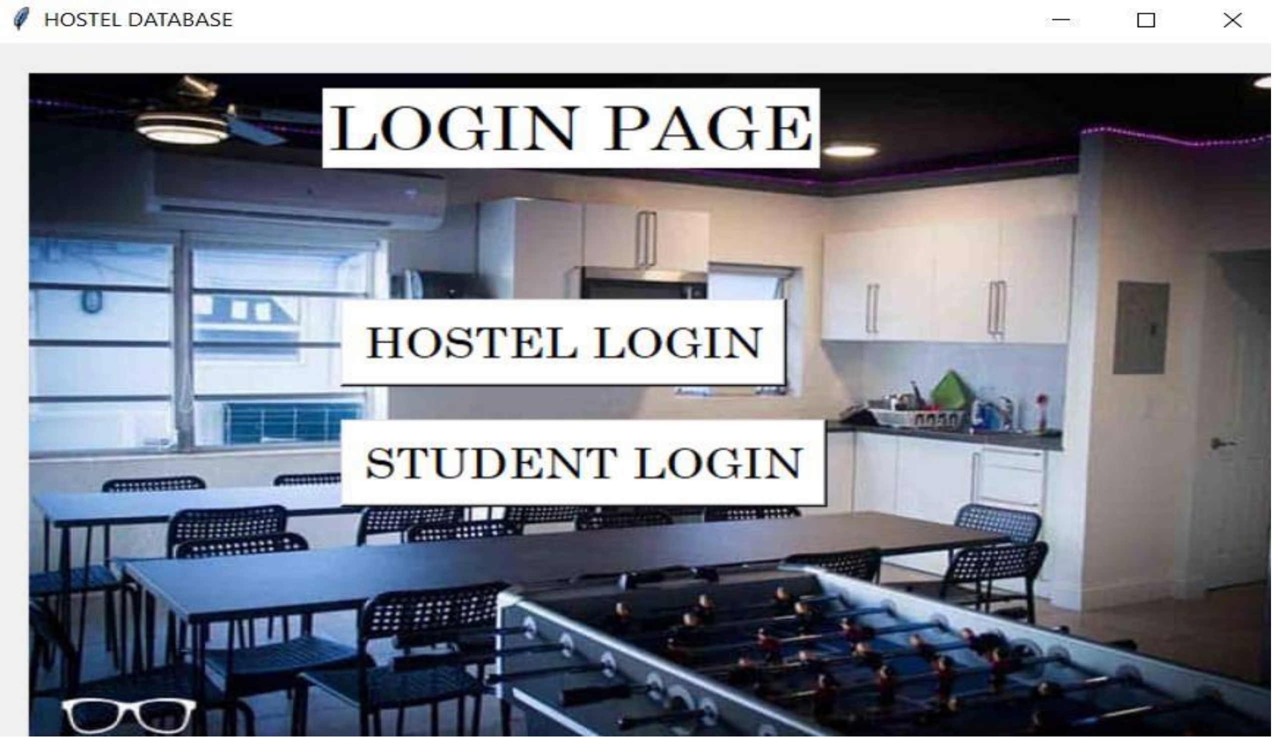


```
select s.*,r.roomid,l.date
from rooms as r inner join student as s on r.roomid=s.roomid,login as l
where l.date='17 dec 2021' and l.hostelid=s.hostelid
group by hostelid;
```

hostelid	studentname	address	phone	father_name	mother_name	sem	roomid	roomid	date
3	Sneha L R	Hiremagalur	8987854515	Ramesh	Sunitha	7	2	2	17 dec 2021
9	Anu	Mangaluru	9841563272	Somesh	Anitha	7	9	9	17 dec 2021
7	Bindu	Bengaluru	985746321	Suman	Sumana	5	7	7	17 dec 2021
6	Gowri	Thirtahalli	7598463214	Divakar	Pushpa	5	8	8	17 dec 2021

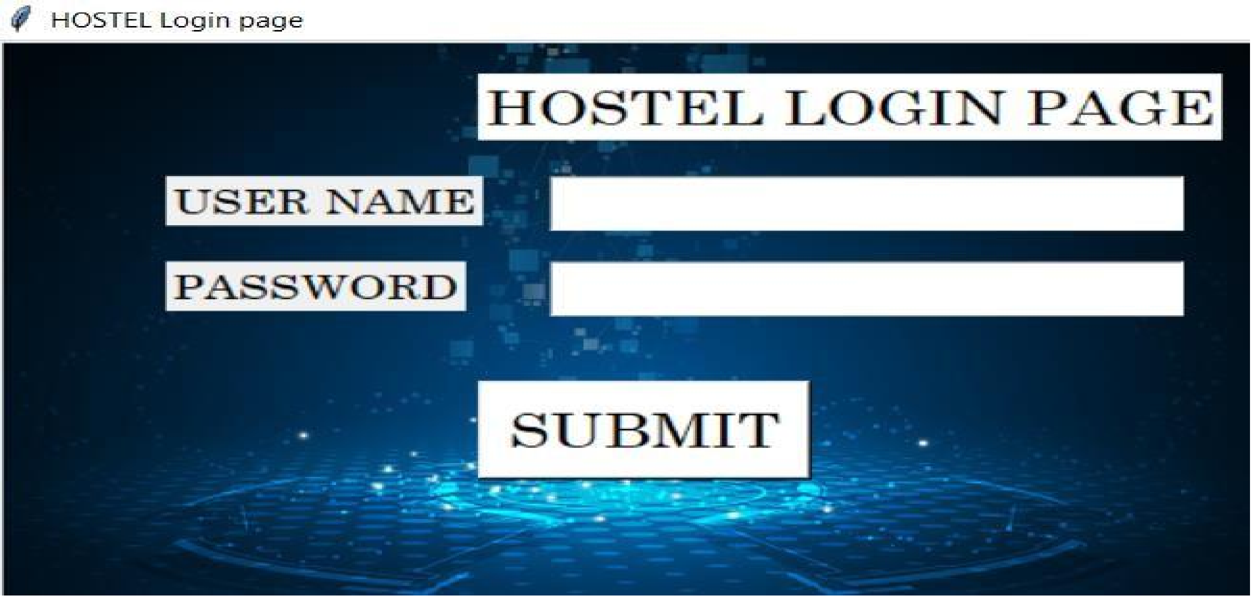
CHAPTER 5

RESULTS 5.1 OUTPUT 1



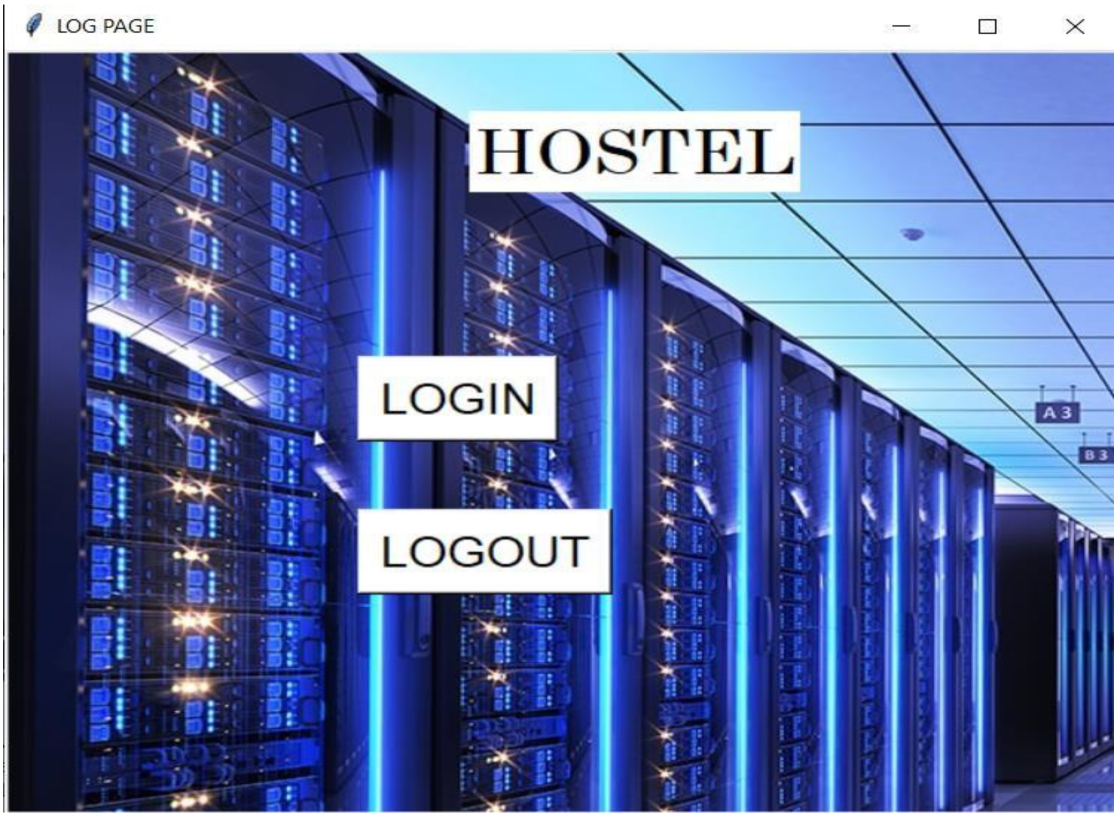
Snapshot 5.1: Snapshot displays for Hostel Database Management

3 5.2 OUTPUT 2



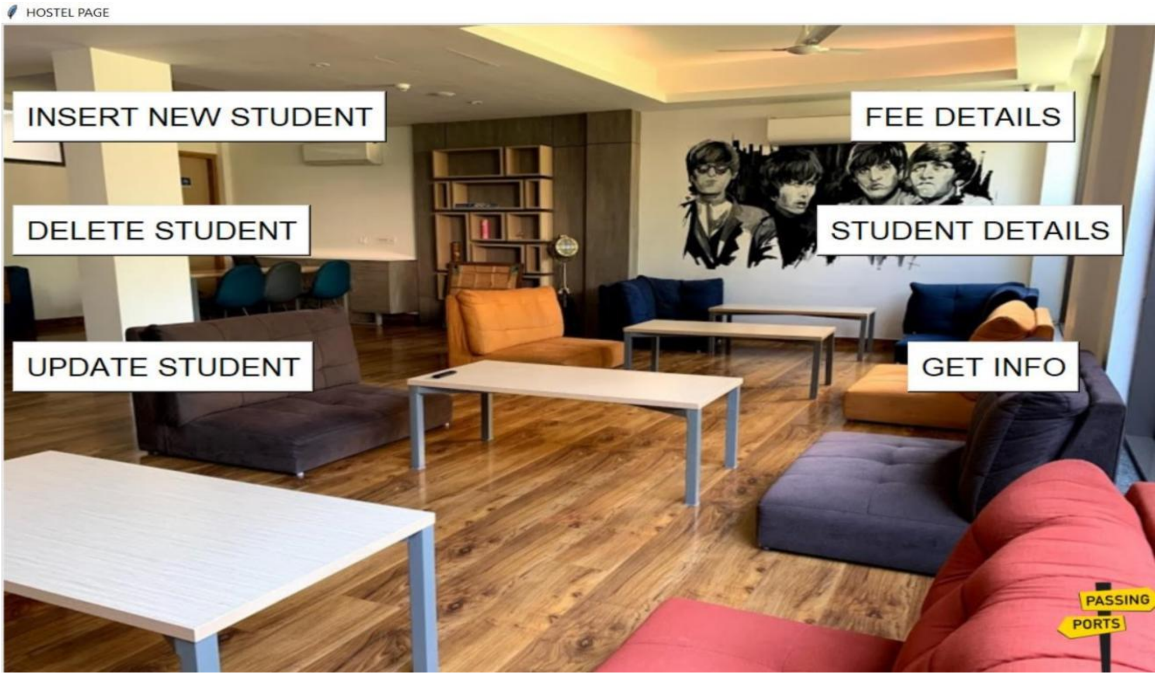
Snapshot 5.2: Snapshot displays hostel login page

4 5.3 OUTPUT 3



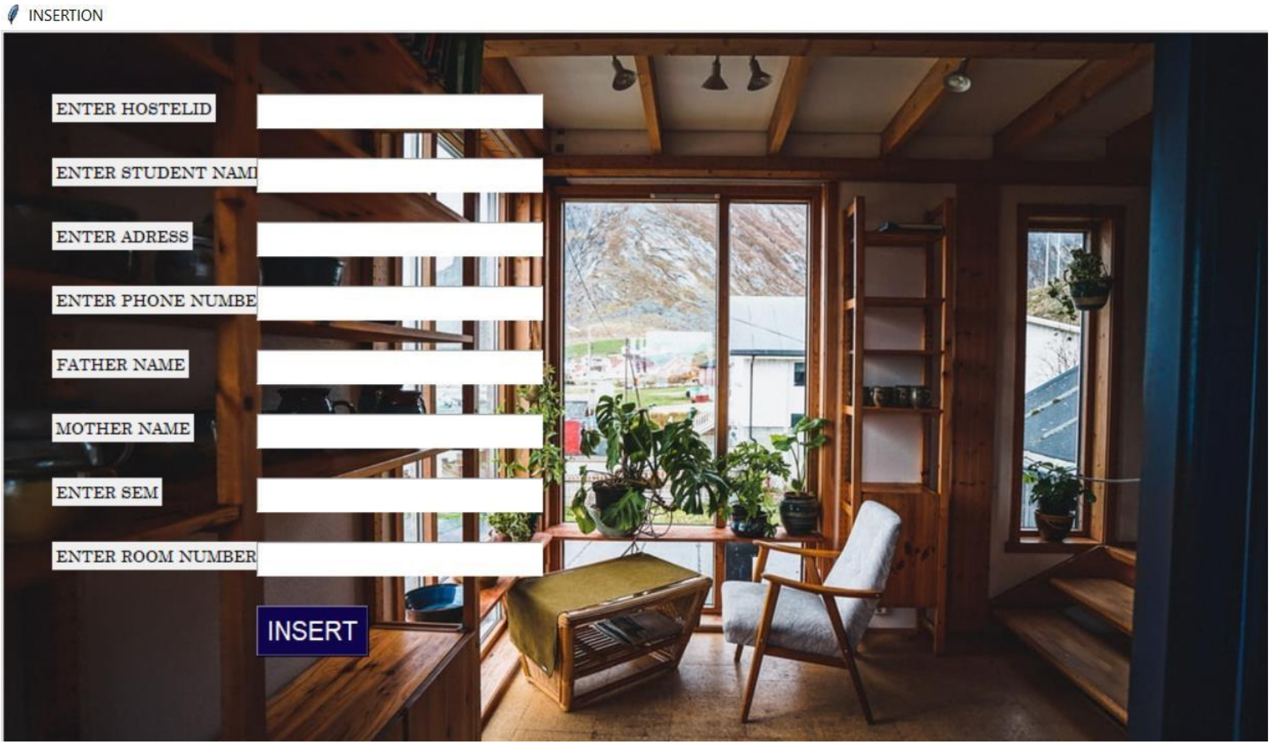
Snapshot 5.3 : Snapshot displays options for login and logout page

5 5.4 OUTPUT 4



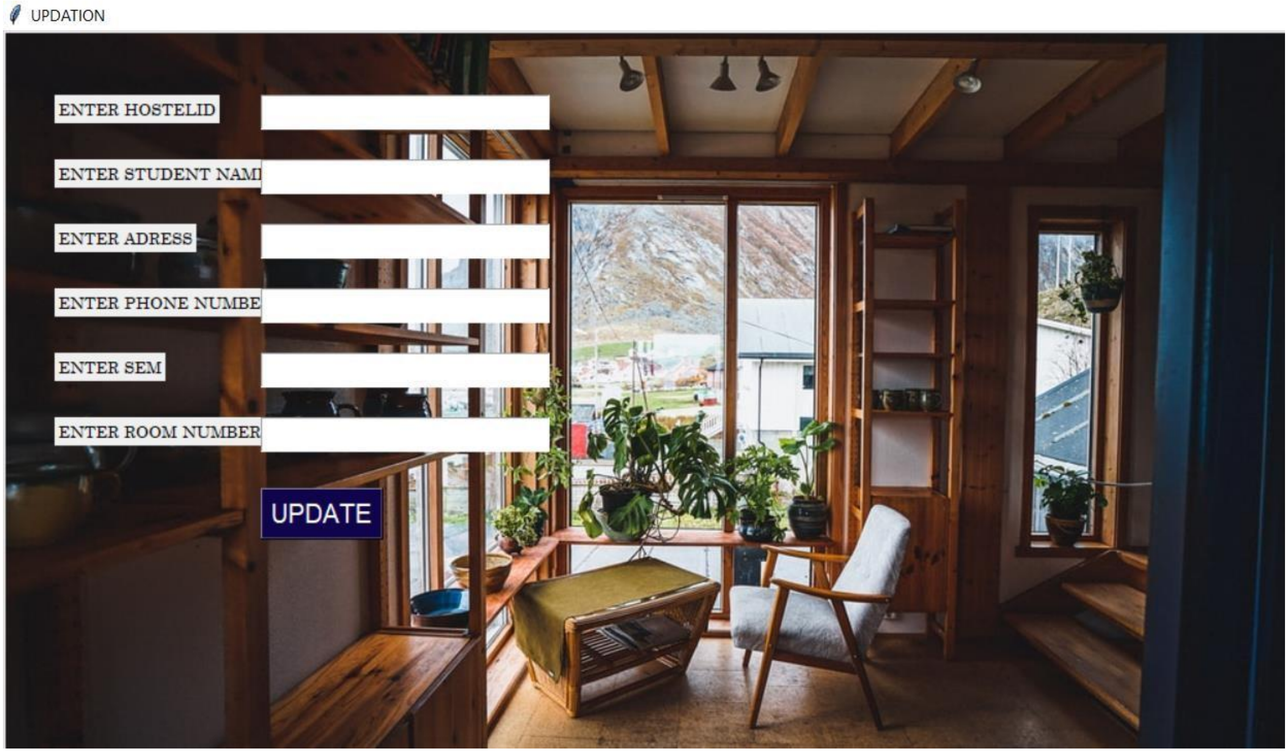
Snapshot 5.4 : Snapshot displays menu

6 5.5 OUTPUT 5



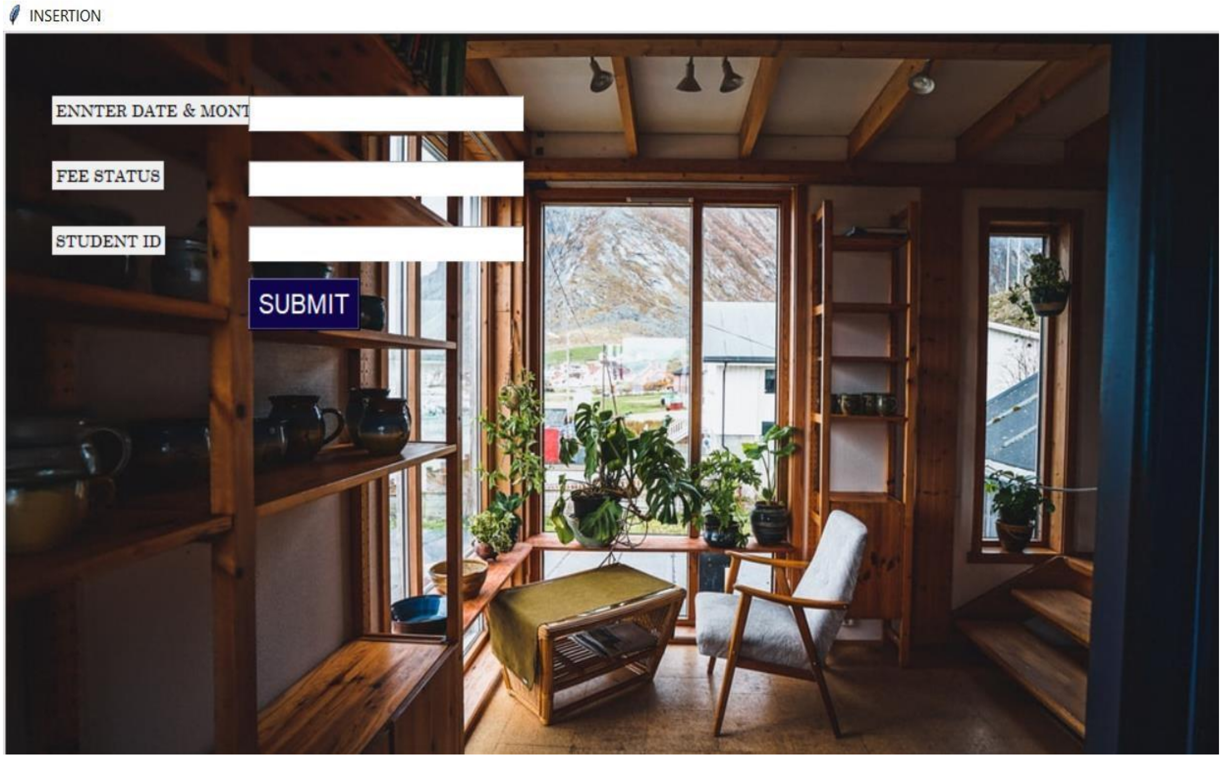
Snapshot 5.5 : Snapshot displays insertion page

7 5.6 OUTPUT 6



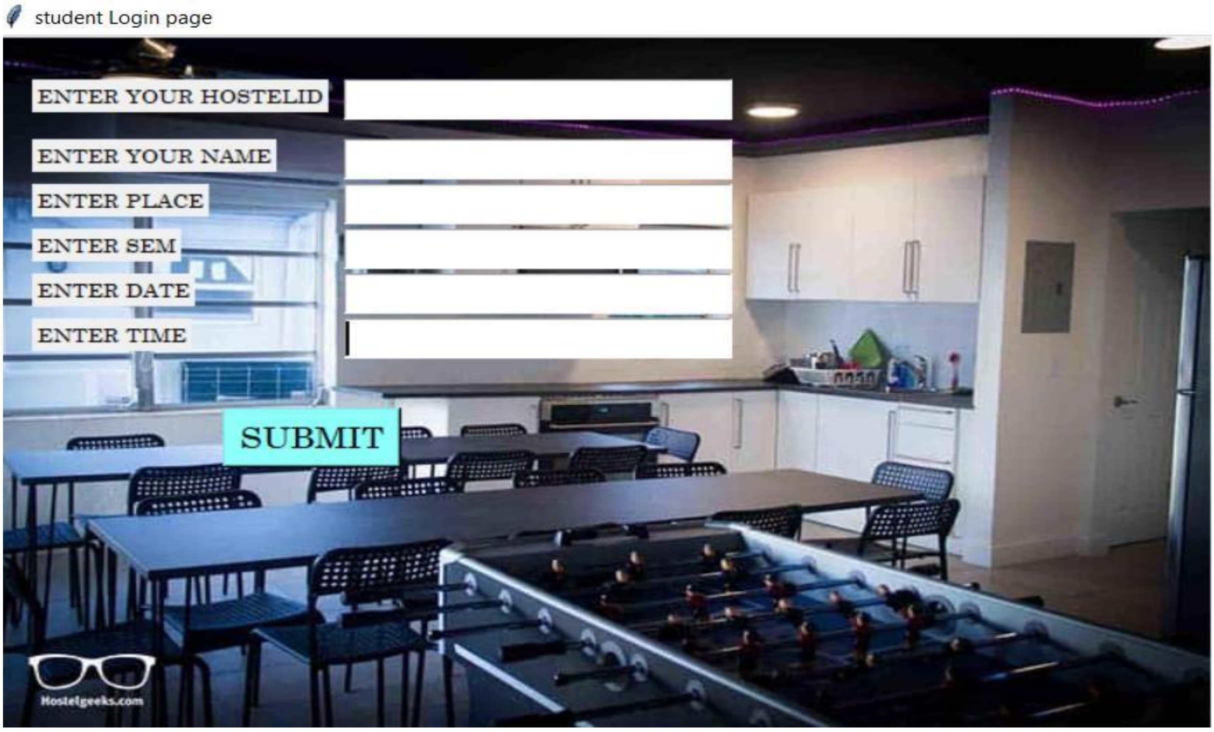
Snapshot 5.6 : Snapshot displays updation page

8 5.7 OUTPUT 7



Snapshot 5.7 : Snapshot displays the fee details page

9 5.8 OUTPUT 8



Snapshot 5.8 : Snapshot displays the student login page

Chapter 6 CONCLUSION AND FUTURE ENHANCEMENT

10 6.1 Conclusion

This project gave us the idea about, how large data are stored inside a database and organised so that it can be retrieved easily and in a more efficient way. It also helped us in learning to create application using Python code and connecting the back end with the front end using the python and mysql-connector code, so that any actions that are performed in the front end are reflected in the back end and also any modifications made at the back end can also be seen in the front end. It also gave us complete idea about how the queries retrieve data from multiple tables and the working of structured procedure and the triggers. This project is used to maintain Hostel Student Tracking System efficiently.

11 6.2 Future enhancement

In future this system can be extended to the desired level so that it can adapt to the changing technology and enhance its performance. The latest data can also be included into the database so that the future retrieval keeps all the necessary data that has been updated. The system can be provided with any sort of queries to perform the required actions with the help of the schema. It also performs some computations that can be altered or modified as per the latest requirements.

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