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**5TH SEMESTER**

# **Hostel Management**

**DBMS Project**

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(PES1UG20CS527)**

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# **HOSTEL MANAGEMENT**

A simple project on hostel database management, using Streamlit for its user interaction front-end.

**By DHRUV JYOTI GARODIA**



**PES**  
**UNIVERSITY**

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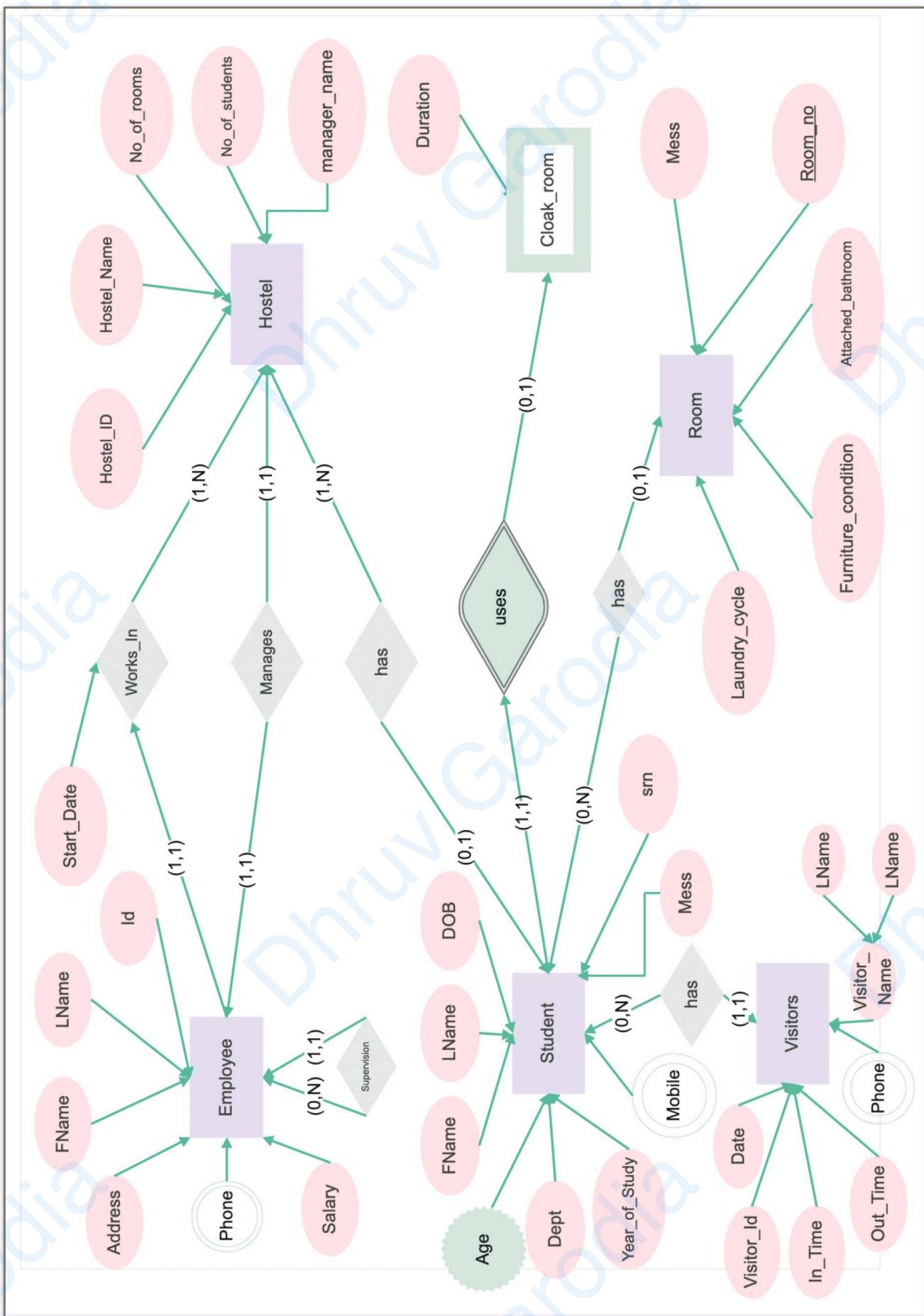
# Preamble

The main intention to make this project was to help the hostel administration maintain a record and keep track of all the children they are taking care of and the employees working for the system . Their current primeval system of maintaining a physical record of all the people , was way too hectic for both the students and the support staff , as both had to fill in long detail sheets for records. They will be able to retrieve , insert , modify and delete data in a much more efficient and safe way. Efficiency is increased by making use of triggers , stored triggers , functions to minimise info that needs to be entered by the end user. Safety will be guaranteed due to use of constraints and the inherent recovery system.

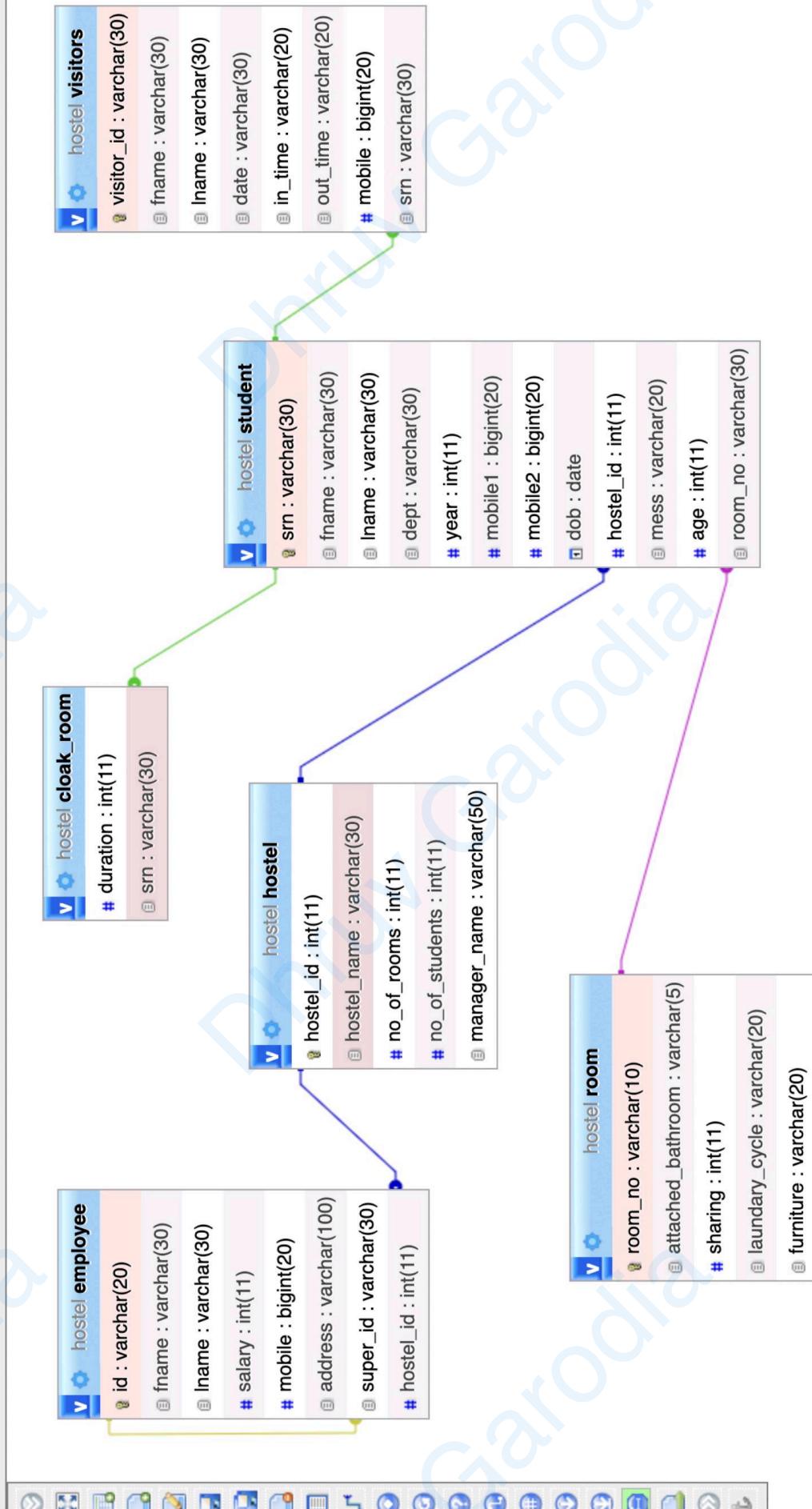
I have tried to reduce manual labor and help the administration maintain better records for the students and employees. My system also has the feature to keep a track of the visitors visiting their beloved living in the hostel. To add to the feature list and application, we also help maintain a record of the number of rooms in each building (block) in our hostel and the rooms allocated to a student.

As the hostel also provides us with cloak room service to keep our valuables , with a monthly subscription policy , in case we are going out on a semester break or a vacation . We help maintain which room has been rented by whom and for what duration.

# Chapter 1 - ER diagram



# Chapter 2 - Relational Schema



# Chapter 3 - DDL Statements

## CREATION OF TABLES -

```
CREATE TABLE IF NOT EXISTS hostel(hostel_id int  
PRIMARY KEY,hostel_name varchar(30),no_of_rooms  
int NOT NULL,no_of_students int,manager_name  
varchar(50))
```

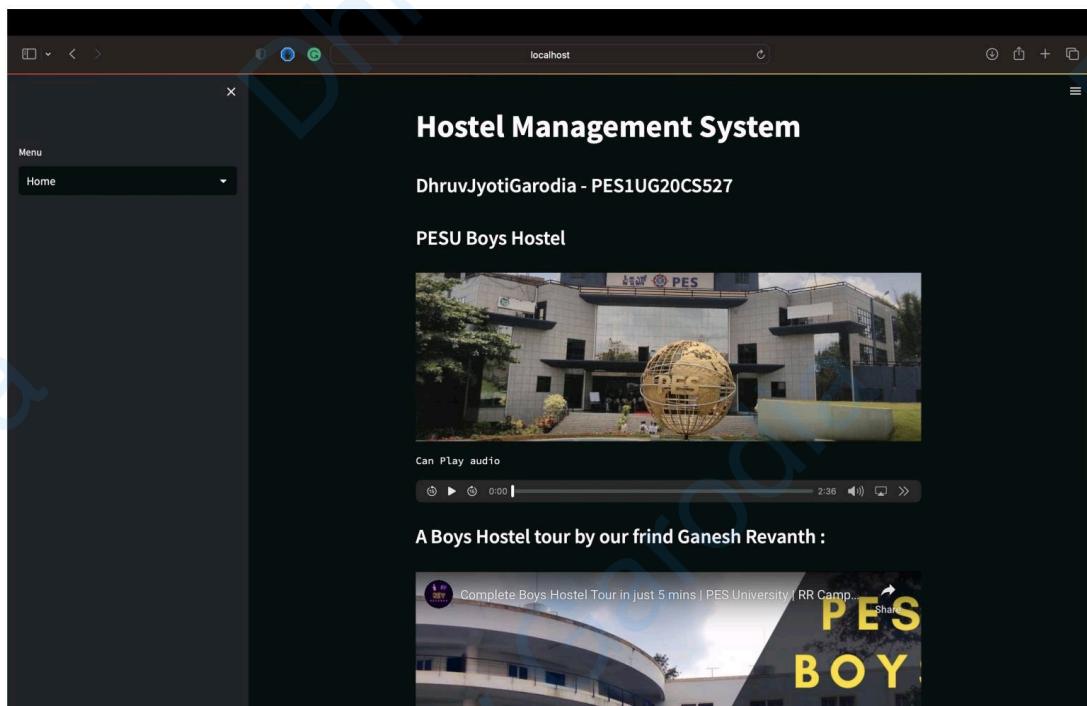
```
CREATE TABLE IF NOT EXISTS employee(id varchar(20)  
PRIMARY KEY,fname varchar(30),lname  
varchar(30),salary int,mobile bigint,address  
varchar(100),super_id varchar(30),hostel_id  
int,FOREIGN KEY(super_id) REFERENCES employee(id),  
CONSTRAINT FK_EMP FOREIGN KEY(hostel_id)  
REFERENCES hostel(hostel_id) ON DELETE CASCADE)
```

```
CREATE TABLE IF NOT EXISTS student(srn varchar(30)  
PRIMARY KEY,fname varchar(30),lname  
varchar(30),dept varchar(30),year int,mobile1 bigint  
NOT NULL,mobile2 bigint NOT NULL,dob date NOT  
NULL,age int,hostel_id int,mess varchar(20), FOREIGN  
KEY(hostel_id) REFERENCES hostel(hostel_id))
```

```
CREATE TABLE IF NOT EXISTS visitors(visitor_id  
varchar(30) PRIMARY KEY,fname varchar(30),lname  
varchar(30),date varchar(30),in_time  
varchar(20),out_time varchar(20),mobile bigint NOT  
NULL,srn varchar(30),FOREIGN KEY(srn) REFERENCES  
student(srn))
```

```
CREATE TABLE IF NOT EXISTS room(room_no
varchar(10) PRIMARY KEY, attached_bathroom
varchar(5),sharing int,laundary_cycle
varchar(20),furniture varchar(20))
```

```
CREATE TABLE IF NOT EXISTS cloak_room(duration int
NOT NULL,srn varchar(30),CONSTRAINT FK_CLK
FOREIGN KEY(srn) REFERENCES student(srn) ON
DELETE CASCADE)
```

A screenshot of a web browser showing the "Hostel Management System". The title bar says "localhost". The main content area has a dark background with white text. It displays the title "Hostel Management System" and a subtitle "DhruvJyotiGarodia - PES1UG20CS527". A dropdown menu on the left says "Add data" and "Student". The main form is titled "Add Student details". It contains fields for "Enter SRN:", "Your mobile number:", "Enter your First Name:", "Your parents mobile number:", "Enter your Last Name:", "When's your birthday", "Department enrolled in:", "Your birthday is: 2002-11-23", "year of study:", "Block number:", "Selected mess:", "Selected mess:", "Enter your room number:", "selected : 3", "Enter your room number:", "hb603", and "Food Court".

## VIEW -

The screenshot shows a web application titled "Hostel Management System" running on "localhost". The menu on the left is set to "Student". The main content area displays "View Student details" and a table titled "View all Students :". The table has columns: srn, fname, lname, dept, year, mobile1, mobile2, dob, and f. The data is as follows:

srn	fname	lname	dept	year	mobile1	mobile2	dob	f	
0	PES1UG20CS088	ATHARVA	GADAD	CSE	3	7892497809	9538877537	2001-11-30	1
1	PES1UG20CS510	VISHNUUSREE	MENON	CSE	3	9890666985	9482058291	2002-11-14	1
2	PES1UG20CS527	DHRUV	GARODIA	CSE	3	7044363314	9831060876	2002-07-02	1
3	PES1UG20CS669	Shal	Sinha	CSE	3	9789897566	9813421584	2002-11-23	1
4	PES1UG21CS830	NIKHIL	RAVULA	CSE	2	7021382239	9769678238	2001-06-05	1

A dropdown menu below the table lists student IDs: "PES1UG20CS088", "PES1UG20CS510", "PES1UG20CS527", "PES1UG20CS669", and "PES1UG21CS830". A message at the bottom asks "Do you want to UPDATE or DELETE a record ?".

## UPDATE -

The screenshot shows the "Update" form for a student record. The "Student" menu is selected. The form asks "Do you want to UPDATE or DELETE a record ?" with "Update" selected. It then asks "Choose the SRN :" with "PES1UG20CS669" selected. The form fields include:

- Enter your First Name : Shal
- Your mobile number : 9789897566.00
- Enter your Last Name : Sinha
- Your parents mobile number : 9813421584.00
- Department enrolled in : CSE
- When's your birthday : 2002/11/23
- year of study : 3
- Your birthday is: 2002-11-23
- selected : 3
- Block number : 4
- Enter your room number : NB603
- Selected mess : Namdhari

At the bottom, there is a button "Update student detail" and a success message "Student record has been updated successfully".

## DELETE -

The screenshot shows a web browser window with the URL `localhost`. The page title is `DhruvJyotiGarodia - PES1UG20CS527`. On the left, there is a sidebar with a `Menu` section containing a `Hostel` item. The main content area has a heading `View Hostel details`. Below it, a dropdown menu is open, showing a list of hostels with their IDs and names: 0 : 1, 1 : 2, 2 : 3, 3 : 4, 4 : 5, and 5 : 6. A bolded number '1' is at the bottom of this list. A message asks, "Do you want to UPDATE or DELETE a record ?". A dropdown menu below it is set to `Delete`. Another dropdown menu labeled "Choose the hostel\_id :" shows the value `5`. A question "Do you want to delete ::5" is displayed in a brown bar. A button labeled "Delete hostel detail" is present. A green success message at the bottom states "Hostel has been deleted successfully".

# Chapter 4 - Populating our database

```
INSERT INTO
student(srn, fname, lname, dept, year, mobile1, mobile2, dob, hostel_id, mess)
VALUES(%s, %s, %s, %s, %s, %s, %s, %s, %s, %s),
(srн, fнame, lнame, dеpt, yr, mobile1, mobile2, d, hоstel_id, mess)
```

```
INSERT INTO
employee(id, fname, lname, salary, mobile, address, super_id, hostel_id)
VALUES(%s, %s, %s, %s, %s, %s, %s, %s),
(id, fнame, lнame, salary, mobile, address, super, hоstel_id)
```

```
INSERT INTO
hostel(hostel_id, hostel_name, no_of_rooms, no_of_students, manager_
name) VALUES(%s, %s, %s, %s, %s),
(hostel_id, hоstel_name, no_of_rooms, no_of_students, manager_name)
```

```
INSERT INTO visitors
(visitor_id, fname, lname, date, in_time, out_time, mobile, srn) VALUES (%s,
%s, %s, %s, %s, %s, %s, %s),
(visitor_id, fнame, lнame, date, in_time, out_time, mobile, srn)
```

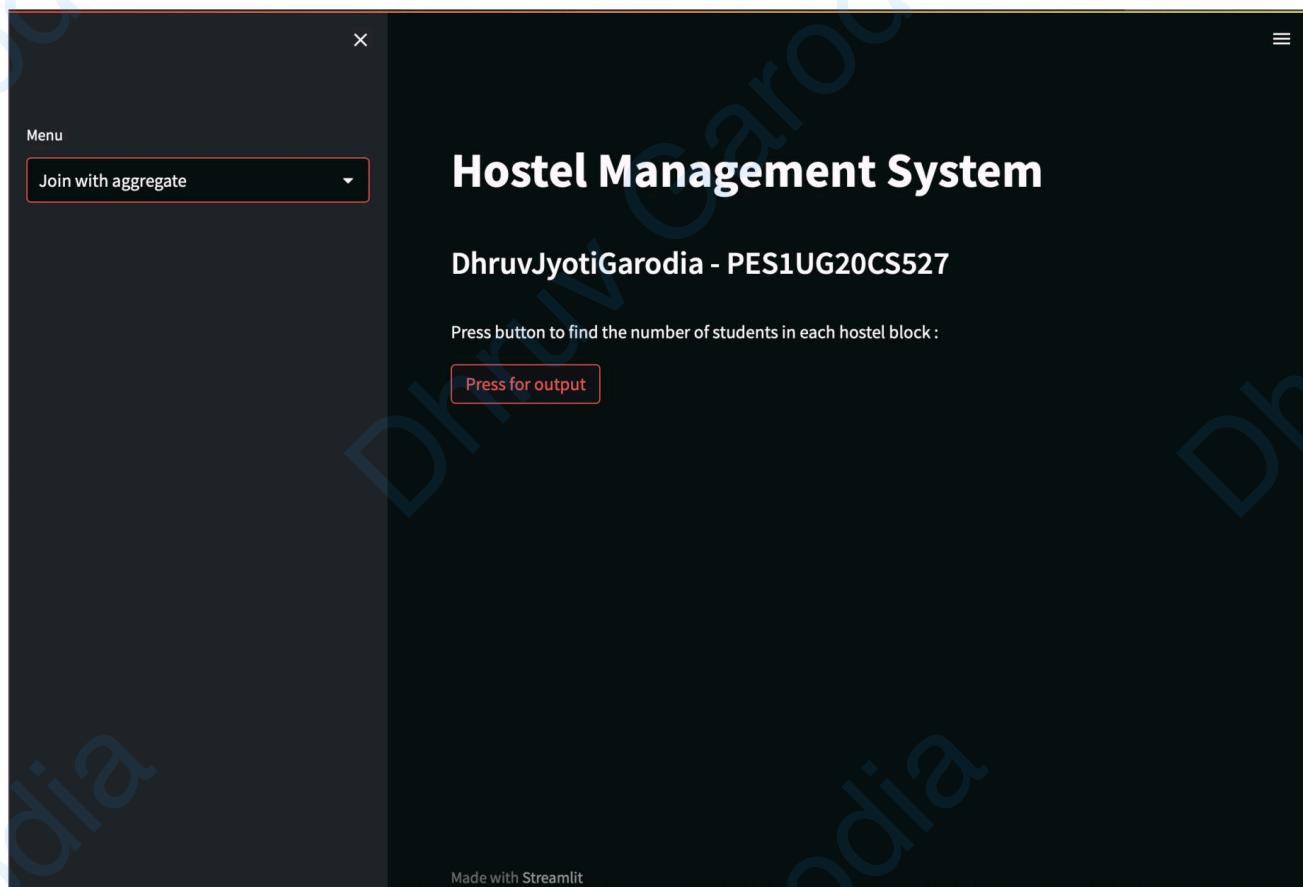
```
INSERT INTO
room(room_no, attached_bathroom, sharing, laundry_cycle, furniture)
VALUES (%s, %s, %s, %s, %s),
(room_no, attached_bathroom, sharing, laundry_cycle, furniture)
```

```
INSERT INTO cloak_room(duration, srn) VALUES(%s, %s),(duration, srn)
```

# Chapter 5 & 6 - Join Query and Aggregate Function

This query helps us find the number of students living in each hostel block

```
select count(s.srn),s.hostel_id from hostel as h inner join student as s where h.hostel_id=s.hostel_id group by s.hostel_id
```



The screenshot shows a Streamlit application running on a local host. The title "Hostel Management System" is displayed prominently at the top. Below it, a user profile "DhruvJyotiGarodia - PES1UG20CS527" is shown with a profile picture. A message encourages the user to "Press button to find the number of students in each hostel block:". A button labeled "Press for output" is present. A data table titled "The output:" displays the following information:

	count(srms)	hostel_id
0	1	1
1	3	4

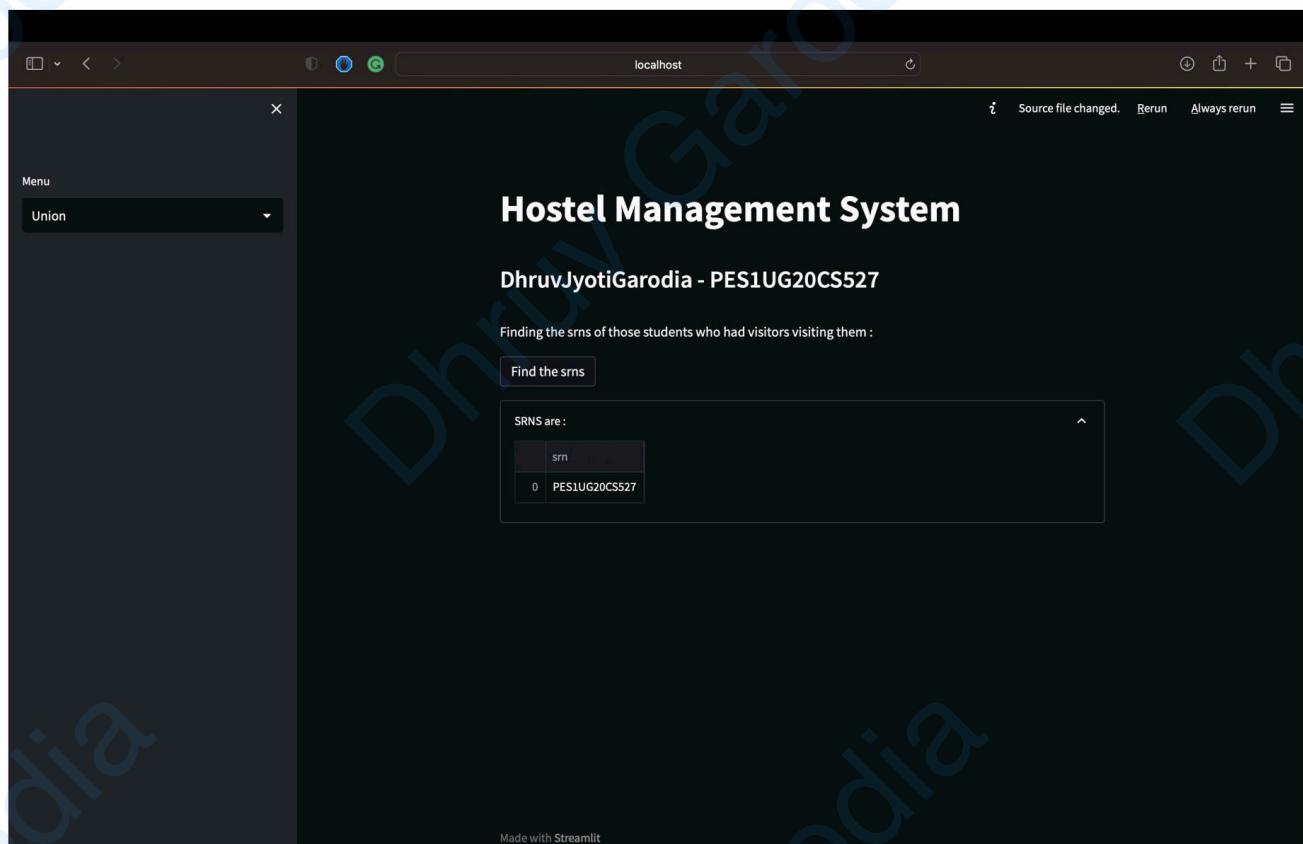
At the bottom left, a small note says "Made with Streamlit". On the far left, there is a sidebar with a "Menu" section containing a dropdown menu item "Join with aggregate".

# Chapter 7 - Set Operation

The set operation performed is “INTERSECT” .

It helps us find the list of students whose kit and kins have had come to visit them in the hostel.

```
select count(s.srn),s.hostel_id from hostel as h inner join student as s where h.hostel_id=s.hostel_id group by s.hostel_id
```



# Chapter 8 - Functions and Procedures

```
DELIMITER $$  
create procedure calc()  
begin  
declare todaydate DATE;  
select current_date() into todaydate;  
update student  
set age=year(todaydate)-year(dob);  
end $$  
delimiter ;
```

```
DELIMITER $$  
CREATE FUNCTION count_visitors(cnt int)  
RETURNS varchar(500)  
DETERMINISTIC  
BEGIN  
DECLARE op varchar(500);  
if (cnt>5) then  
    SET op = "you had a lot of visitors visiting you.";  
elseif (cnt>0) then  
    SET op = "you had visitors visiting you.";  
else  
    SET op = "you had no visitors visiting you.";  
end if;  
return op;  
END; $$  
DELIMITER ;
```

# Chapter 9 - Triggers and Cursors

We cannot insert a hostel\_id more than 6

```
delimiter $$
```

```
create trigger my_trigger  
before insert  
on hostel for each row
```

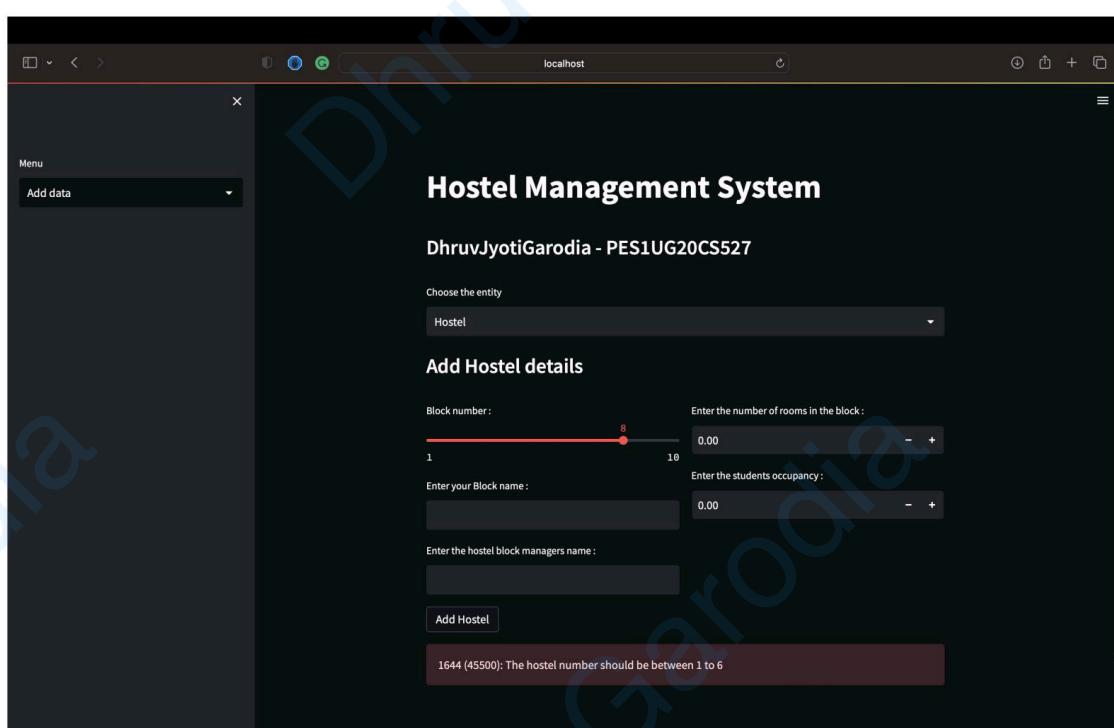
```
begin
```

```
declare my_msg_error varchar(120);  
declare num int;  
SET my_msg_error = ('The hostel number should be  
between 1 to 6');
```

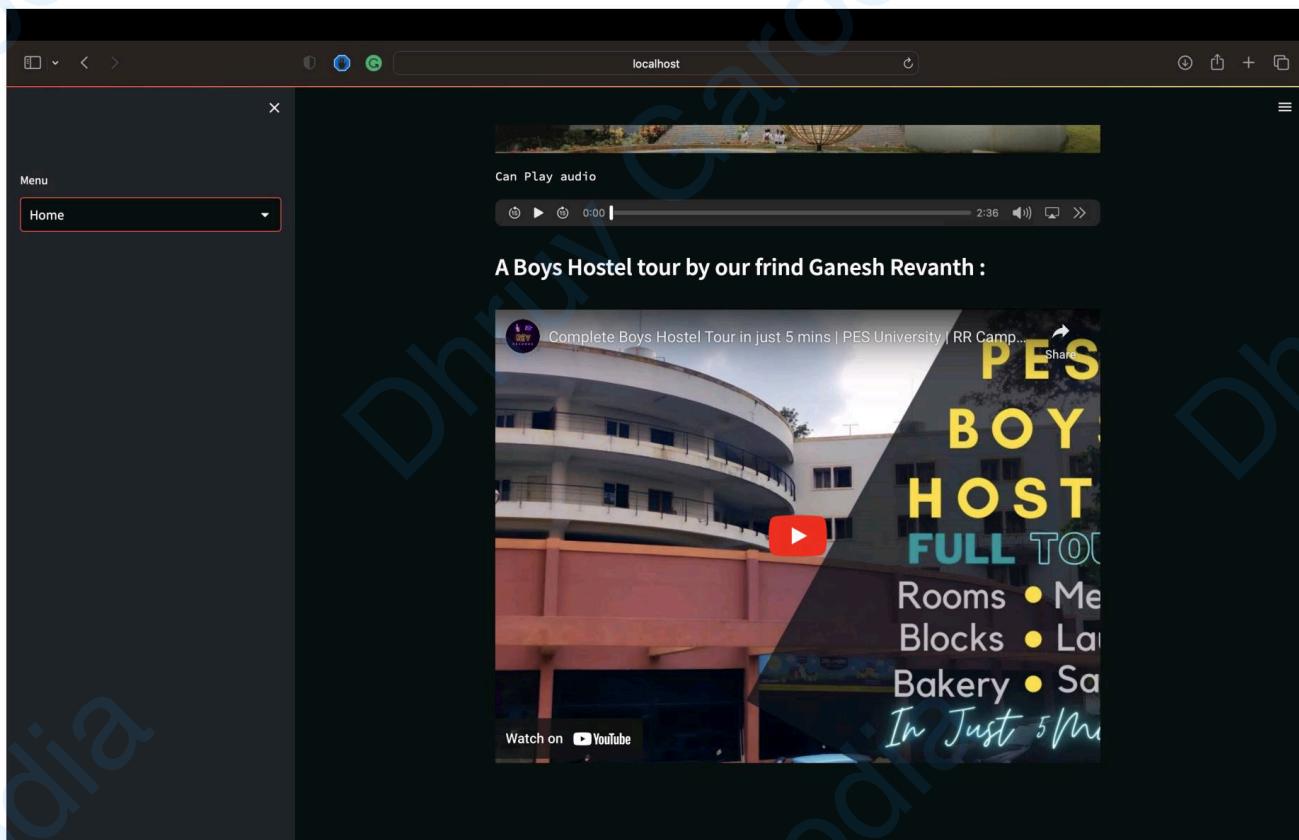
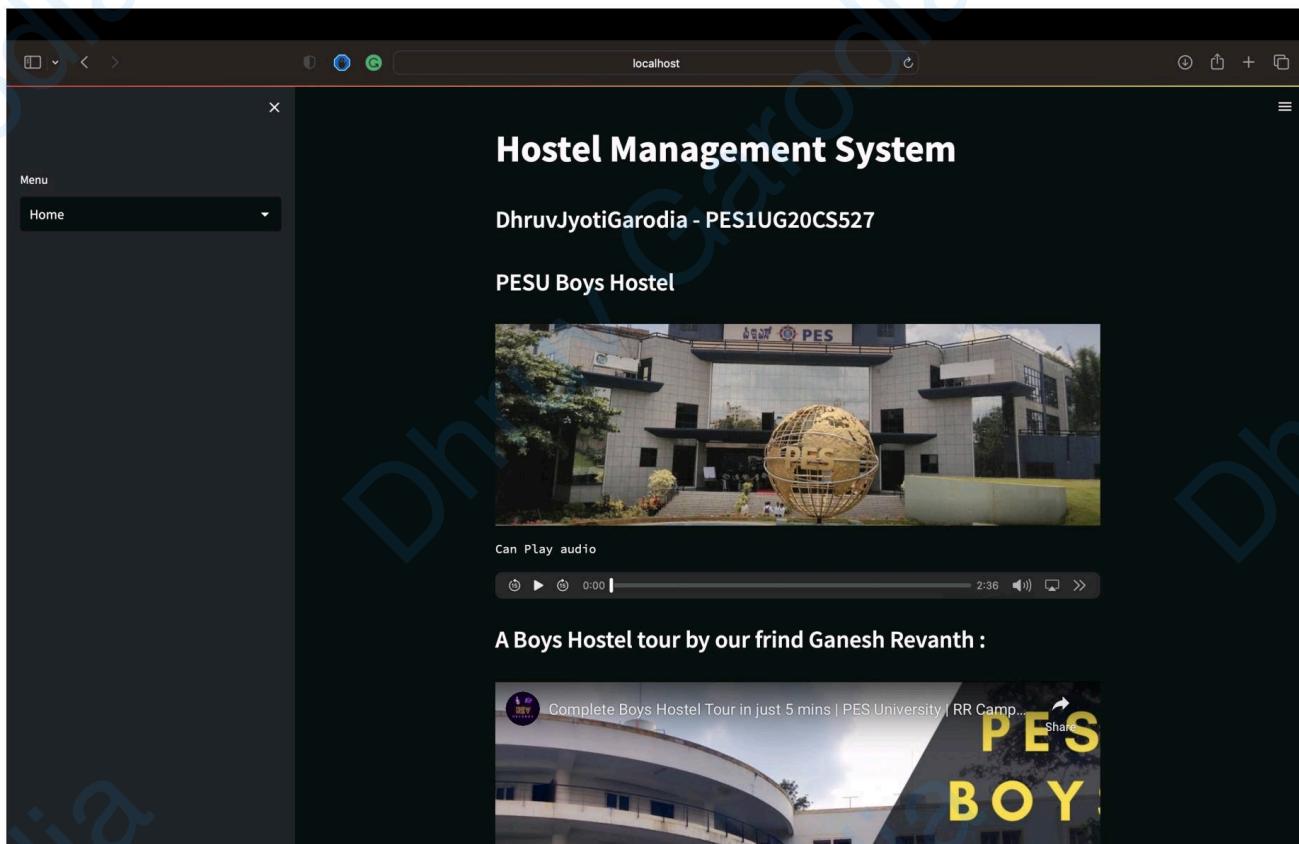
```
if (new.hostel_id )>6 then  
    SIGNAL SQLSTATE '45500'  
    set MESSAGE_TEXT = my_msg_error;  
end if;
```

```
end $$
```

```
delimiter ;
```



# Chapter 10 - Developing Front-end



# Chapter 11 - Custom Query

Giving custom query and getting the output on the web-user interface. We can fetch the data and present it as a table. We need to give column names as input and the respective data will be mapped to the respective columns.

The screenshot shows a Streamlit application window titled "Hostel Management System". The title bar indicates the URL is "localhost". The sidebar on the left has a "Menu" section with a dropdown menu currently set to "Custom Query". The main content area displays the following interface:

- A text input field labeled "Enter comma separated list of Column Names:" containing the value "room\_no,attached\_bathroom,sharing,laundry\_cycle,furniture".
- A text input field labeled "Enter the sql quer:" containing the value "select \* from room".
- A table titled "Query output:" showing the results of the SQL query. The table has columns: room\_no, attached\_bathroom, sharing, laundry\_cycle, and furniture. The data is as follows:

	room_no	attached_bathroom	sharing	laundry_cycle	furniture
0	IH415	No		1 Mon-Thurs	Need mai
1	MM605	Yes		2 Tues-Fri	Good
2	NB603	Yes		3 Tues-Fri	Good

At the bottom of the application window, there is a small text "Made with Streamlit".

# Chapter 12 - Suggested Modifications

Write a procedure to find out the number of students in each room and in each hostel block. Also find the number of rooms that are there in each block.

The screenshot shows a dark-themed application window titled "Hostel Management System". In the top right corner, there is a small green house icon. Below the title, it says "DhruvJyotiGarodia - PES1UG20CS527". A "Menu" dropdown on the left is set to "Modify". In the center, there is a button labeled "Check the modification". Below it, a section titled "show the no.of rooms in a block wrt block\_id" displays a table:

	hostel_id	hostel_name	no_of_rooms	sharing
0	1	IH BLOCK	158	1
1	5	MM BLOCK	60	1
2	4	NB BLOCK	136	1
3	4	NB BLOCK	136	3
4	4	NB BLOCK	136	3
5	4	NB BLOCK	136	3
6	4	NB BLOCK	136	3

Below the table, a section titled "no of students in each room" shows another table:

	count(sr)	room_no
0	1	IH415
1	2	MM605
2	4	NB603

This screenshot shows the same application window as the previous one, but with different data displayed. It features a table of room counts by block:

	hostel_id	hostel_name	no_of_rooms	sharing
3	4	NB BLOCK	136	3
4	4	NB BLOCK	136	3
5	4	NB BLOCK	136	3
6	4	NB BLOCK	136	3

Below this, two sections show student counts: "no of students in each room" and "no.of students in each block".

The "no of students in each room" table is identical to the one in the previous screenshot:

	count(sr)	room_no
0	1	IH415
1	2	MM605
2	4	NB603

The "no.of students in each block" table is as follows:

	count(sr)	hostel_id
0	1	1
1	5	4
2	1	5

At the bottom of the window, it says "Made with Streamlit".