

Green University of Bangladesh Department of Computer Science and Engineering (CSE)

Faculty of Sciences and Engineering

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Project on

Course Title: Database System Lab

Course Code: **CSE 210** Section: **191 DA**

Project Title: Hostel Management System

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Project Status	
Marks:	Signature:

Comments:	Date:

CONTENTS

1.	Introduction	03
2.	Requirements & Design.	04
3.	Entities & Attributes	06
4.	Implementation & Results	09
5.	Evaluation	20
6.	Limitation	20
7	Discussion	20

1. INTRODUCTION:

The project is aims to build a database management system to manage the Hostel easily. The aim of the project is to provide effective tools to maintain the Hostel. It will help to manage a hostel of school, college or university. This project is to get rid from manual entry and record system and try to give easy and simple database management system for hostels. The project is included ER Diagram, Conceptual Schema, and other supporting requirement information.

> Purpose:

This project is designed to keep the record of the students living in hostel, allocation of rooms, we are trying to make this management system as much as simple and easy as we can, but we will try to cover all the basic elements use for hostel management database.

Objective:

- To deal with Hostel Management System in an easy and an efficient manner.
- Create strong and secrete database that allows for any connection in a secret way, to prevent any outside or inside attacks.

Scope of the Project:

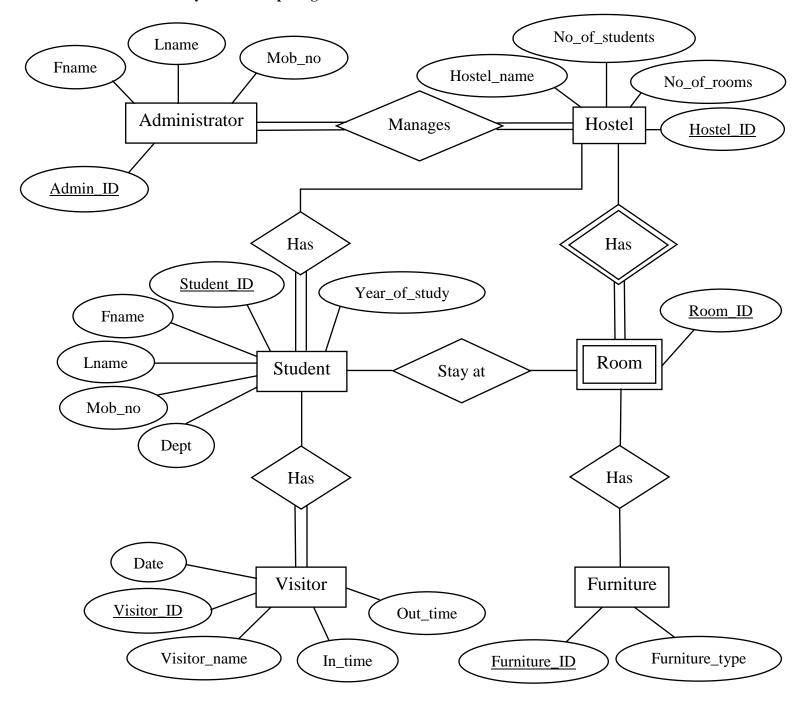
- Hostel Management System is designed for Hostel (like schools, Universities).
- There will be predefined criteria for the Reservation to the hostels.
- She/he checks the attested application forms of the students obtained from the internet and verify it with the student database.
- If the students are found eligible then they are allotted to the hostel Room.

Overview of Project:

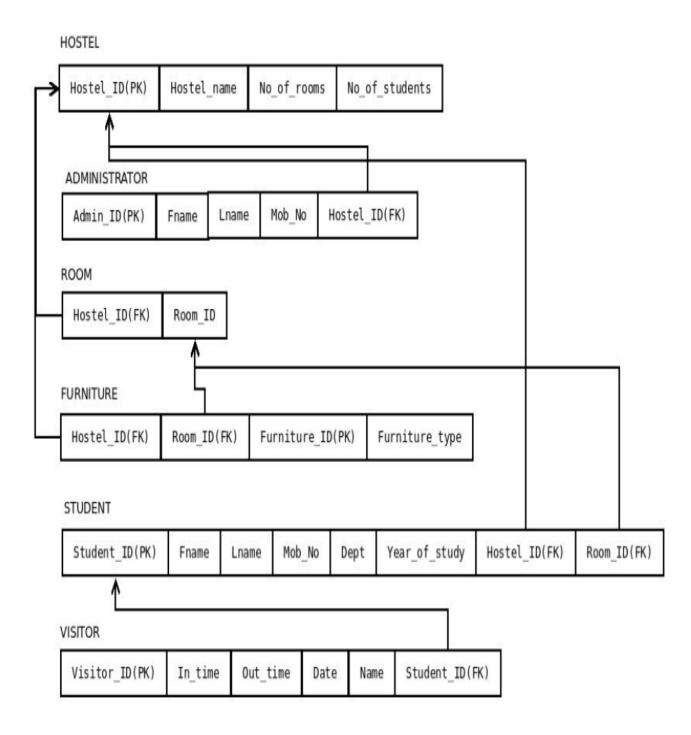
Hostel Management System is a web application which aims at computerization of the current procedure of allocating hostel rooms. Currently, the process involves students filling up the forms and submitting them in respective hostel offices which involves a lot of paperwork, hence less efficient.

2. REQUIREMENTS & DESIGN:

- **Requirements:**
 - We have used XAMPP Control Panel.
 - Create a SQL server.
- Design:
 - Entity Relationship Diagram:



Conceptual Schema:



3. ENTITIES AND ATTRIBUTES:

This section of the document explains the entities used in the project, their attributes and how they will work together. Basically, this is intended to make the design easier and more understandable for everyone.

Entities:

- 1. Hostel
- 2. Administrator
- 3. Student
- 4. Room
- 5. Visitor
- 6. Furniture

> Hostel:

An Institution has many hostels and each hostel is represented using this 'Hostel' entity. Hostel model takes part in the following relationships.

- Hostel manages Administrator.
- Hostel has Student.
- Hostel has Room.

Attributes:

Name	Data type	Туре
Hostel_ID	integer	Primary Key attribute
Hostel_name	string	Non_key attribute
No_of_rooms	integer	Non_key attribute
no_of_students	integer	Non_key attribute

> Administrator:

Every hostel has an administrator and is represented using the 'administrator' entity. Administrator entity takes part in following relationships.

Administrator manages Hostel.

Attributes:

Name	Data type	Туре	
Admin_ID	integer	Primary Key attribute	
Fname	string	Non_key attribute	
Lname	string	Non_key attribute	
Mob_no	string	Non_key attribute	
Hostel_ID	integer	Foreign Key attribute	

> Student:

Every hostel has students and they are represented by the 'student' entity. Student entity participates in the following relationships.

- Student has Hostel.
- Student has visitor.
- Student stays at room.

Attributes:

Name	Data type Type		
Student_ID	integer	Primary Key attribute	
Fname	string	Non_key attribute	
Lname	string	Non_key attribute	
Mob_no	string	Non_key attribute	
Dept	string	Non_key attribute	
Year_of_study	integer	Non_key attribute	
Hostel_ID	integer	Foreign Key attribute	
Room_ID	integer	Foreign Key attribute	

> Room:

Every Hostel has rooms and they are represented using 'room' entity. Room entity participates in the following relationships.

- Room has Hostel.
- Room stays at Student.
- Room has Furniture.

Attributes:

Name	Data type	Туре
Room_ID	integer	Primary Key attribute
Hostel_ID	integer	Foreign Key attribute

> Visitor:

Every student has visitors and they are represented using 'Visitor' entity. Visitor entity participates in the following relationships.

Visitor has Student.

Attributes:

Name	Data type	Туре	
Visitor_ID	integer	Primary Key attribute	
In_time	Date-time field	Non_key attribute	
Out_time	Date-time field	Non_key attribute	
Date	Date-time field	Non_key attribute	
Visitor_name	string	Non_key attribute	
Student_ID	integer	Foreign Key attribute	

> Furniture:

Every room has furniture and they are represented using 'furniture' entity. Furniture participated in following relationships.

• Furniture has Room.

Attributes:

Name	Data type	Туре
Furniture_ID	integer	Primary Key attribute
Furniture_type	string	Non_key attribute
Hostel_ID	integer	Foreign Key attribute
Room_ID	integer	Foreign Key attribute

4. IMPLEMENTATION & RESULTS:

> Implementation:

- Filtering data
- Sorting data
- Joining data
- Make Relationship each other tables.

> Results:

1. <u>Describe table:</u>





Your SQL query has been executed successfully.

DESCRIBE hostel

+ Options

Field	Туре	Null	Key	Default	Extra
hostel_id	int(11)	NO	PRI	NULL	
hostel_name	varchar(255)	NO		NULL	
no_of_rooms	int(11)	NO		NULL	
no_of_students	int(11)	NO		NULL	

Your SQL query has been executed successfully.

DESCRIBE room

+ Options

Field	Type	Null	Key	Default	Extra
hostel_id	int(11)	NO	MUL	NULL	
room_id	int(11)	NO	PRI	NULL	

Your SQL query has been executed successfully.

DESCRIBE student

+ Options

Field	Туре	Null	Key	Default	Extra
student_id	int(11)	NO	PRI	NULL	
fname	varchar(255)	NO		NULL	
Iname	varchar(255)	NO		NULL	
mob_no	varchar(20)	NO		NULL	
dept	varchar(100)	NO		NULL	
year_of_study	int(11)	NO		NULL	
hostel_id	int(11)	NO	MUL	NULL	
room_id	int(11)	NO	MUL	NULL	

DESCRIBE V	isitor				
+ Options					
Field	Туре	Null	Key	Default	Extra
visitor_id	int(11)	NO	PRI	NULL	
in_time	time	NO		NULL	
out_time	time	NO		NULL	
date	date	NO		NULL	
name	varchar(255)	NO		NULL	
student id	int(11)	NO	MUL	NULL	

2. Value insert into tables:

i. Administrator:

admin_id	fname	Iname	mob_no	hostel_id
5001	Md	Monir	01631132848	1001
5002	Sourav	Ahamed	01700011122	1002
5003	Atikur	Rahman	01835455565	1003
5004	Omit	Kumer	01588426754	1004
5005	Tariqui	Islam	01712455232	1005

ii. <u>Furniture:</u>

hostel_id	room_id	furniture_id	furniture_type
1001	2001	3001	Bad
1001	2001	3002	Table
1001	2001	3003	Chair
1001	2001	3004	Water_Filtter
1001	2001	3005	Table_light
1001	2002	3006	Bad
1001	2002	3007	Table
1001	2002	3008	Chair
1001	2002	3009	Sofa
1001	2002	3010	AC
1001	2002	3011	Shoe_Rack
1001	2002	3012	Table_light
1001	2002	3013	Tea_Table
1001	2003	3014	Bad
1001	2003	3015	Chair
1001	2003	3016	Table

	hostel	room	furniture	furniture_type
1002	2 20	006	3036	Bad
1002	2 20	006	3037	Table
1002	2 20	006	3038	Chair
1002	2 20	006	3039	Water_Filtter
1002	2 20	006	3040	Table_light
1002	2 20	007	3041	Bad
1002	2 20	007	3042	Table
1002	2 20	007	3043	Chair
1002	2 20	007	3044	Sofa
1002	2 20	007	3045	AC
1002	2 20	007	3046	Shoe_Rack
1002	2 20	007	3047	Table_light
1002	2 20	007	3048	Tea_Table
1002	2 20	800	3049	Bad
1002	2 20	800	3050	Chair
1002	2 20	800	3051	Table

hostel_id	room_id	furniture_id	furniture_type ▼
1005	2028	3202	AC
1005	2028	3203	Shoe_Rack
1005	2028	3204	Table_light
1005	2028	3205	Tea_Table
1005	2029	3206	Bad
1005	2029	3207	Chair
1005	2029	3208	Table
1005	2029	3209	Table_light
1005	2029	3210	Tv_Table
1005	2029	3211	Fan
1005	2029	3212	Clock
1005	2030	3213	Bad
1005	2030	3214	Chair
1005	2030	3215	Table

iii. <u>Hostel:</u>

hostel_id	hostel_name	no_of_rooms	no_of_students
1001	Kazi Nazrul Hall	5	15
1002	Jasim Uddin Hall	8	25
1003	Begun Rakeya Hall	7	20
1004	Motiur Rahman Hall	6	15
1005	Sekh Muzib Hall	9	25

iv. Room:

hostel_id	room_id
1001	2001
1001	2002
1001	2003
1001	2004
1001	2005
1002	2006
1002	2007
1002	2008
1002	2009
1002	2010
1002	2011
1002	2012
1002	2013
1003	2014
1003	2015
1003	2016

v. Student:

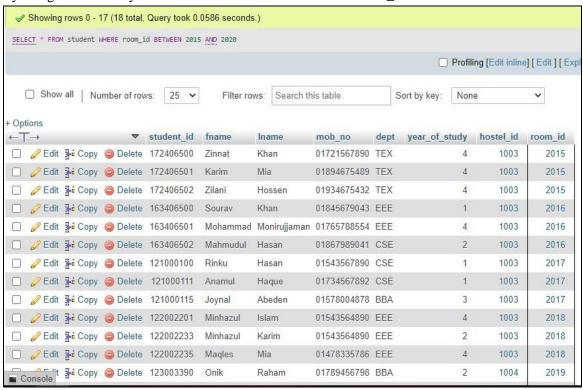
student_id	fname	Iname	mob_no	dept	year_of_study	hostel_id	room_id
121000100	Rinku	Hasan	01543567890	CSE	1	1003	2017
121000111	Anamul	Haque	01734567892	CSE	1	1003	2017
121000115	Joynal	Abeden	01578004878	ВВА	3	1003	2017
121506101	Kawsar	Hossain	01723567893	CSE	1	1005	2032
121506115	Simon	Akon	01890567893	CSE	1	1005	2032
121506125	Kabir	Haque	01578078932	CSE	1	1005	2032
122002201	Minhazul	Islam	01543564890	EEE	4	1003	2018
122002233	Minhazul	Karim	01543564890	EEE	2	1003	2018
122002235	Magles	Mia	01478335786	EEE	4	1003	2018
122005501	Rita	Rahman	01803784497	TEX	3	1004	2021
122005505	Sanjida	Haque	01901784567	CSE	1	1004	2021
122005510	Akhi	Kajol	01503784497	CSE	3	1004	2021
123003390	Onik	Raham	01789456798	ВВА	2	1004	2019
123003391	Rahman	Haque	01989456798	ВВА	2	1004	2019
123003395	Niaz	Hossain	01589456798	ВВА	2	1004	2019
123309824	Jalal	Chisty	01675698675	EEE	1	1005	2031

vi. Visitor:

visitor_id	in_time	out_time	date	name	student_id
9001	10:11:12	12:00:15	2020-03-10	Mojibor Alam	163005050
9002	08:30:20	05:00:30	2020-05-03	Akbar Mirja	191906101
9003	05:00:25	10:30:30	2020-05-12	Rahmat Ali	121506125
9004	01:15:45	05:32:03	2020-06-01	Ratan Mia	172305929
9005	03:20:45	06:35:07	2020-06-11	Jinnat Khondokar	183306824
9006	02:15:32	08:12:06	2020-06-15	Yasin Khan	183306856
9007	11:20:35	08:15:09	2020-06-17	Sagor Biswas	123309898
9008	12:10:55	06:40:08	2020-06-20	Rivan Jommader	172305935
9009	10:11:55	05:35:08	2020-06-25	Kholilur Rahman	193003055
9010	09:45:50	10:55:07	2020-06-29	Abdus Sobhan	161103041

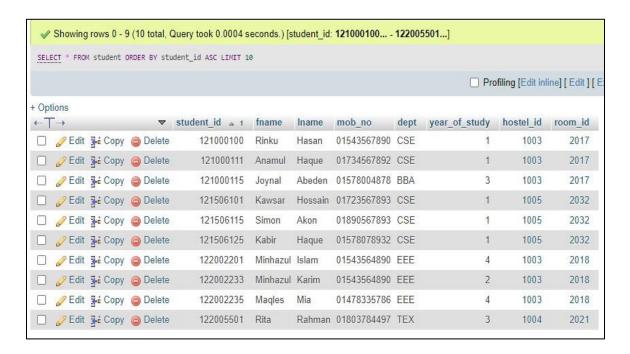
3. Student in room(2015-2020) from student table:

By using **Between** keyword here I have found all student in room_id 2015-2020.



4. First 10 students in hostel:

Order by keyword shows us in ascending and descending order. Here I have used ascending order and limit 10 to shows the first 10 student in hostel by their student_id.



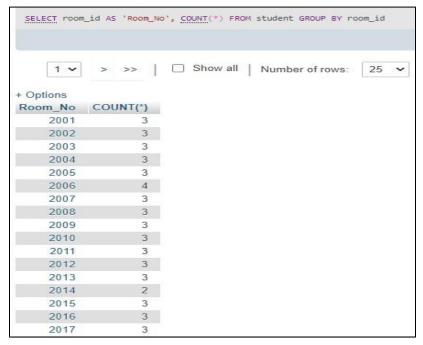
5. Total Student in Hostel:

Count aggregate function are used to perform counting total tuples in a table. Here I have found total 100 student in our STUDENT table.



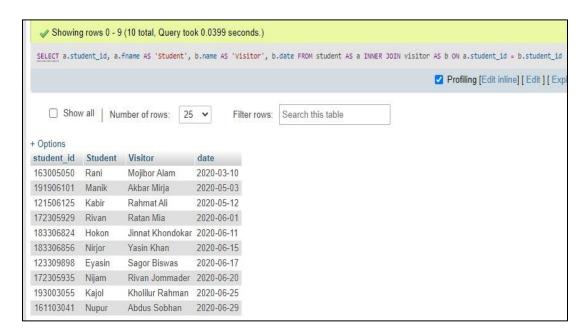
6. Students in a room:

A particular room how much student are consist are found by using **Count** aggregate function and **Group By** keyword.

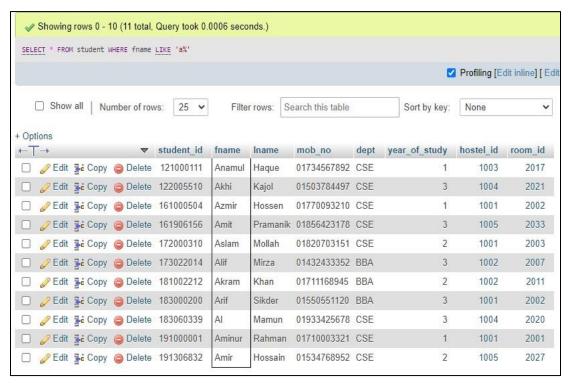


7. Finding visitors:

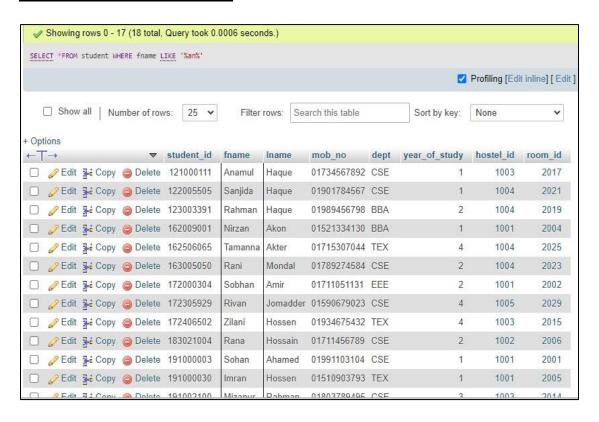
Here I have list out the visitors and the date when he/s has visited the Hostel. Those are found by using Inner Join with STUDENT & VISITOR table.



8. Student Name starting with 'a':

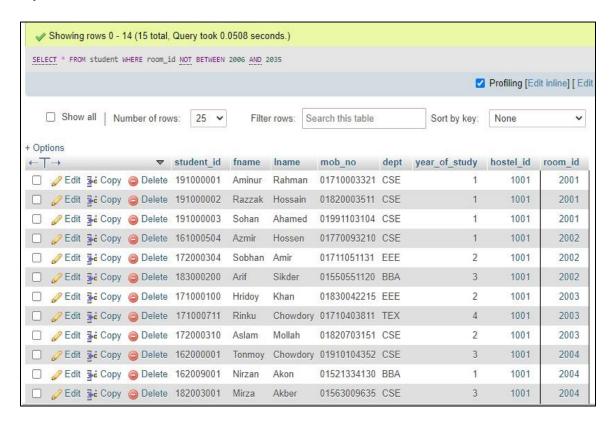


9. Find the Student names with 'an':

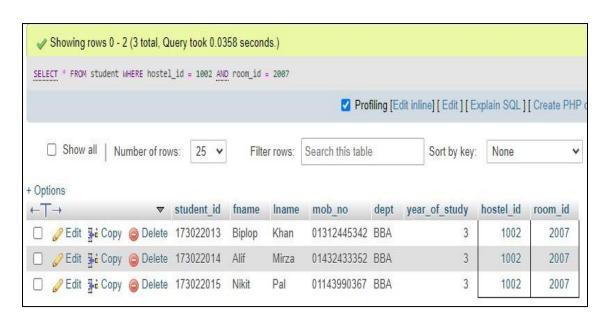


10. All Student except Room 2006 - 2035:

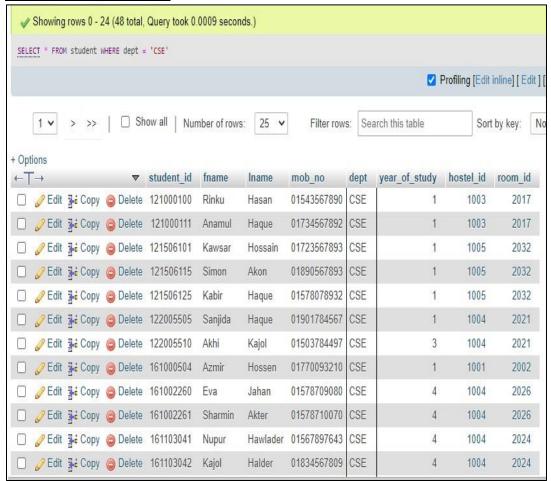
Here I have listed the students who is not between room_id 2006-2035 by using **Not Between** keyword.



11. Filter using AND operation:

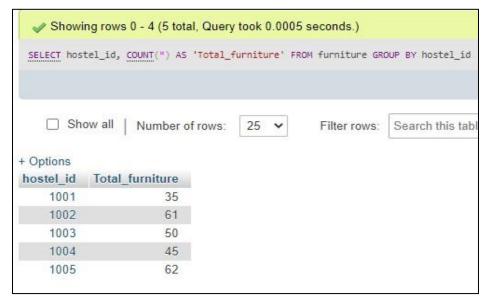


12. Filter CSE Dept students:



13. Total furniture list:

Here I'm counted the total furniture in the hostel using **Group By** keyword and **Count** aggregate function.



Page 19 of 20

5. EVALUATION:

I'm tried to completed this project using XAMPP Control Panel and also using SQL Server.

6. LIMITATION:

- I have completed 80% part of our project.
- I didn't build up any software package for the users.

7. DISCUSSION:

This hostel management system is designed for universities and colleges where can easily manage the data of students and related things. For the best understanding first, we have to define the project scope or the scenario because the different problems can be solved with different designs and more than one scenario can be created for each problem. People design them according to their thinking. I am also creating some type of scenario so that our design can be a bit specific for some kind of situation.