INT 306

Database Management Systems

CA3 – Project

Hostel Management System

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■ Annexure 1 : Introduction

Essentially, a database management system (or DBMS) is just a computerized data-keeping system. Users of the system are provided with the ability to carry out a variety of actions on such a system for either managing the database structure itself or manipulating the data in the database. Data structures or types are used to classify database management systems (DBMSs).

This project's primary goal is to replace the manual input and record-keeping process with a straightforward database management system for hostels.

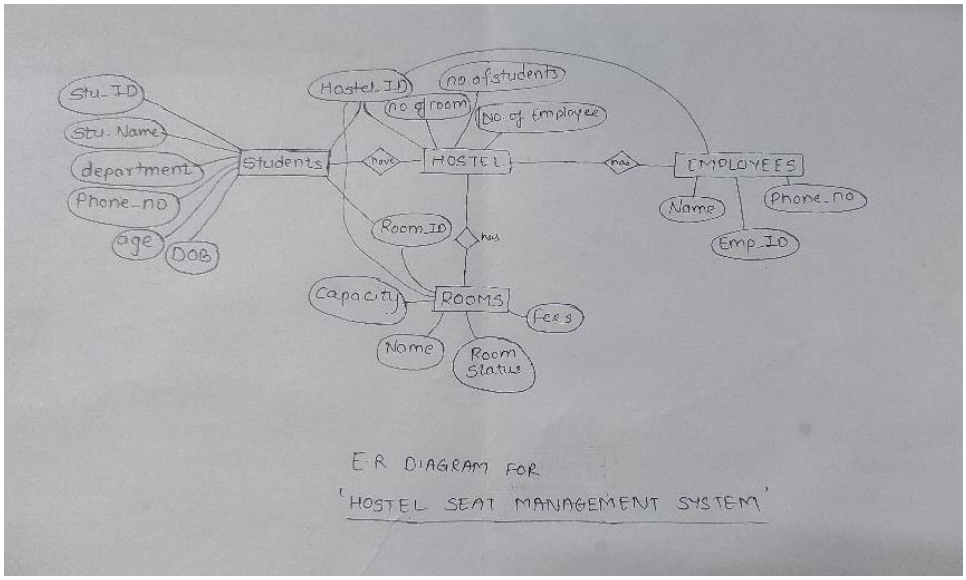
The project is simply designed to view all the data of the hostel at a time.

This project is intended to keep track of the students residing in the dorms, the rooms assigned to them, their monthly or semester dues, and many other things. However, we are attempting to make this management system as simple and straightforward as we can, while also making sure to cover all the essential components needed for a hostel management database.

✓ Assumptions:

- There is one hostel named **BH1**.
- All the students are allocated with rooms. The **Room ID** is given.
- The students are from different departments. They all are accommodated in BH1 with one student in one room.
- The presented project system is a prototype and do not contain any official information. Similar project can be made to display and manage data for different hostels.

■ Annexure 2: Design of the project



There are 4 main entities in the project viz.

- Students
- Hostel
- Rooms
- Hostel employees

1. Student

We chose this entity because students are the primary entity in the hostel and we will maintain a database of them as well as any logically connected items.

Attributes:

- ✓ Student Id (Primary key)
- ✓ Name
- ✓ Department
- ✓ Age
- ✓ Phone Number
- ✓ Hostel Id (foreign key)
- ✓ Room Id (foreign Key)

2. Hostel

Many institutions offer both boy's and girl's Hostels.

However, practically all of the job is the same in both hostels, so we are simply listing the boys here.

Attributes:

- ✓ Hostel Id (primary key)
- ✓ Total Number of rooms
- ✓ Total Number of students
- ✓ Total number of employees

3. Rooms

Students residing in the hostel are provided with rooms to live. Each room is allocated to one student.

Attributes:

- ✓ Room id (primary key)
- ✓ Capacity
- ✓ Hostel Id (foreign Key)
- ✓ Name of student
- ✓ Room status
- ✓ Fees

4. Hostel Employees

There is some staff working in each hostel for the facility of the students. It includes warden, and workers.

Attributes

- ✓ Name
- ✓ Employee Id (Primary Key)
- ✓ Hostel Id (foreign Key)
- ✓ Contact Number

■ Annexure 3: Screenshots

Table 1: **Hostel**

Description of the table

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
HOSTEL	HOSTEL_ID	Varchar2	20	-	-	1	-	-	-
	NO_OF_ROOMS	Number	-	-	-	-	✓	-	-
	NO_OF_STUDENTS	Number	-	-	-	-	✓	-	-
	NO_EMPLOYEES	Number	-	-	-	-	✓	-	-
									1 - 4

With values inserted:

HOSTEL_ID	NO_OF_ROOMS	NO_OF_STUDENTS	NO_EMPLOYEES
BH1	10	10	3

Table 2: **Students**

Description of the table

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
STUDENTS	STU_ID	Number	-	-	-	1	-	-	-
	STU_NAME	Char	20	-	-	-	✓	-	-
	DEPARTMENT	Char	10	-	-	-	✓	-	-
	AGE	Number	-	-	-	-	✓	-	-
	PHONE_NO	Number	-	-	-	-	✓	-	-
	DOB	Varchar2	20	-	-	-	✓	-	-
	HOSTEL_ID	Varchar2	20	-	-	-	✓	-	-
	ROOM_ID	Varchar2	10	-	-	-	✓	-	-
	FEE_STATUS	Char	10	-	-	-	✓	-	-
									1 - 9

With values inserted:

STU_ID	STU_NAME	DEPARTMENT	AGE	PHONE_NO	DOB	HOSTEL_ID	ROOM_ID	FEE_STATUS
1	CHINMAY	ECE	20	9988524865	11_MAY_02	BH1	H1	PAID
3	RAM	MEC	22	9465167812	24_FEBRUARY_00	BH1	H3	PAID
2	SHYAM	CSE	21	982468542	1_OCTOBER_01	BH1	H2	PENDING
4	SANTA	MEC	20	9184184351	30_MARCH_02	BH1	H4	PAID
5	BANTA	CSE	20	9941551541	1_JANUARY_02	BH1	H5	PENDING
6	VIKY	CSE	19	9844545545	5_OCTOBER_03	BH1	H6	PAID
7	HARSH	ECE	21	9885465536	3_DECEMBER_01	BH1	H7	PAID
8	SOURAV	ECE	22	9874563214	15_JUNE_00	BH1	H8	PENDING
9	ROSHAN	ECE	21	9764312587	15_JULY_01	BH1	H9	PENDING
10	AMAN	ECE	19	9632587412	1_MAY_03	BH1	H10	PENDING

Table 3**: Rooms**

Description of the table

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ROOMS	ROOM_ID	Varchar2	10	-	-	1	-	-	-
	HOSTEL_ID	Varchar2	20	-	-	-	✓	-	-
	CAP	Number	-	-	-	-	✓	-	-
	STU_NAME	Char	20	-	-	-	✓	-	-
	ROOM_STATUS	Char	10	-	-	-	✓	-	-
	FEES	Number	-	-	-	-	✓	-	-
									1 - 6

With values inserted

ROOM_ID	HOSTEL_ID	CAP	STU_NAME	ROOM_STATUS	FEES
H1	BH1	1	CHINMAY	FULL	10000
H2	BH1	1	SHAM	NOT_FULL	0
H3	BH1	1	RAM	FULL	10000
H4	BH1	1	SANTA	FULL	10000
H5	BH1	1	BANTA	NOT_FULL	0
H6	BH1	1	LAKSHMAN	FULL	10000
H7	BH1	1	HARSH	FULL	10000
H8	BH1	1	SAURAV	NOT_FULL	0
H9	BH1	1	ROSHAN	NOT_FULL	0
H10	BH1	1	AMAN	NOT_FULL	0

Table 4: **Hostel Employee**

Description of the table

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
HOS_EMPLOYEE	NAME	Char	10	-	-	-	✓	-	-
	EMP_ID	Varchar2	10	-	-	1	-	-	-
	HOSTEL_ID	Varchar2	20	-	-	-	✓	-	-
	CELL_NO	Number	-	-	-	-	✓	-	-
									1 - 4

With values inserted

NAME	EMP_ID	HOSTEL_ID	CELL_NO
RAMU	E1	BH1	9852147630
DAMU	E2	BH1	9988552211
SHAMU	E3	BH1	9123456780

■ Annexure 4: Code

//Table Hostels

```
CREATE TABLE HOSTEL
(
HOSTEL_ID VARCHAR2(20) PRIMARY KEY,
NO_OF_ROOMS NUMBER,
NO_OF_STUDENTS NUMBER,
NO_EMPLOYEES NUMBER
)
DESC HOSTEL
INSERT INTO HOSTEL VALUES
('BH1', 10, 10, 3)
SELECT * FROM HOSTEL
```

HOSTEL_ID	NO_OF_ROOMS	NO_OF_STUDENTS	NO_EMPLOYEES
BH1	10	10	3

//Table Students

```
CREATE TABLE STUDENTS
(
STU_ID NUMBER PRIMARY KEY,
STU_NAME CHAR(20),
DEPARTMENT CHAR(10),
AGE NUMBER,
PHONE_NO NUMBER,
DOB VARCHAR2(20),
HOSTEL_ID VARCHAR2(20) REFERENCES HOSTEL(HOSTEL_ID),
ROOM_ID VARCHAR2(10) REFEREN CES ROOMS(ROOM_ID),
FEE_STATUS CHAR(10)
)
```

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
STUDENTS	STU_ID	Number	-	-	-	1	-	-	-
	STU_NAME	Char	20	-	-	-	✓	-	-
	DEPARTMENT	Char	10	-	-	-	✓	-	-
	AGE	Number	-	-	-	-	✓	-	-
	PHONE_NO	Number	-	-	-	-	✓	-	-
	DOB	Varchar2	20	-	-	-	✓	-	-
	HOSTEL_ID	Varchar2	20	-	-	-	✓	-	-
	ROOM_ID	Varchar2	10	-	-	-	✓	-	-
	FEE_STATUS	Char	10	-	-	-	✓	-	-

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INSERT INTO STUDENTS VALUES

(01 , 'CHINMAY' , 'ECE' , 20 , 9988524865, '11_MAY_02' , 'BH1' ,'H1' , 'PAID')

INSERT INTO STUDENTS VALUES(02 , 'SHYAM' , 'CSE' , 21, 982468542, ' 1_OCTOBER_01' , 'BH1', 'H2' , 'PENDING')

INSERT INTO STUDENTS VALUES(03 , 'RAM' , 'MEC ', 22 , 9465167812 , '24_FEBRUARY_00' , 'BH1' ,'H3' , 'PAID');

INSERT INTO STUDENTS VALUES(04 , 'SANTA' , 'MEC' , 20 , 9184184351 , '30_MARCH_02' , 'BH1' ,'H4' , 'PAID');

INSERT INTO STUDENTS VALUES(05 , 'BANTA' , 'CSE' , 20 , 9941551541 , '1_JANUARY_02' , 'BH1' ,'H5' , 'PENDING');

INSERT INTO STUDENTS VALUES(06 , 'VIKY' , 'CSE' , 19 , 9844545545 , '5_OCTOBER_03' , 'BH1' , 'H6' , 'PAID');

INSERT INTO STUDENTS VALUES(07 , 'HARSH' , 'ECE' , 21 , 9885465536 , '3_DECEMBER_01' , 'BH1' ,'H7' , 'PAID');

INSERT INTO STUDENTS VALUES(08 , 'SOURAV' , 'ECE' , 22 , 9874563214 , '15_JUNE_00' , 'BH1' ,'H8' , 'PENDING');

INSERT INTO STUDENTS VALUES(09 , 'ROSHAN' , 'ECE' , 21 , 9764312587 , '15_JULY_01' , 'BH1' ,'H9' , 'PENDING');

INSERT INTO STUDENTS VALUES(10 , 'AMAN' , 'ECE' , 19 , 9632587412 , '1_MAY_03','BH1' , 'H10' , 'PENDING')

STU_ID	STU_NAME	DEPARTMENT	AGE	PHONE_NO	DOB	HOSTEL_ID	ROOM_ID	FEE_STATUS
1	CHINMAY	ECE	20	9988524865	11_MAY_02	BH1	H1	PAID
3	RAM	MEC	22	9465167812	24_FEBRUARY_00	BH1	H3	PAID
2	SHYAM	CSE	21	982468542	1_OCTOBER_01	BH1	H2	PENDING
4	SANTA	MEC	20	9184184351	30_MARCH_02	BH1	H4	PAID
5	BANTA	CSE	20	9941551541	1_JANUARY_02	BH1	H5	PENDING
6	VIKY	CSE	19	9844545545	5_OCTOBER_03	BH1	H6	PAID
7	HARSH	ECE	21	9885465536	3_DECEMBER_01	BH1	H7	PAID
8	SOURAV	ECE	22	9874563214	15_JUNE_00	BH1	H8	PENDING
9	ROSHAN	ECE	21	9764312587	15_JULY_01	BH1	H9	PENDING
10	AMAN	ECE	19	9632587412	1_MAY_03	BH1	H10	PENDING

//Table Rooms

```
CREATE TABLE ROOMS
(
ROOM_ID VARCHAR2(10) PRIMARY KEY,
HOSTEL_ID VARCHAR2(20) REFERENCES HOSTEL(HOSTEL_ID),
CAP NUMBER,
STU_NAME CHAR(20),
ROOM_STATUS CHAR(10),
FEES NUMBER
)
```

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ROOMS	ROOM_ID	Varchar2	10	-	-	1	-	-	-
	HOSTEL_ID	Varchar2	20	-	-	-	✓	-	-
	CAP	Number	-	-	-	-	✓	-	-
	STU_NAME	Char	20	-	-	-	✓	-	-
	ROOM_STATUS	Char	10	-	-	-	✓	-	-
	FEES	Number	-	-	-	-	✓	-	-
									1 - 6

```
INSERT INTO ROOMS VALUES( 'H1' , 'BH1' , 1 , 'CHINMAY' , 'FULL' , 10000 )
INSERT INTO ROOMS VALUES( 'H2' , 'BH1' , 1 , 'SHAM' , 'NOT_FULL' , 00 )
INSERT INTO ROOMS VALUES( 'H3' , 'BH1' , 1 , 'RAM' , 'FULL' , 10000 )
INSERT INTO ROOMS VALUES( 'H4' , 'BH1' , 1 , 'SANTA' , 'FULL' , 10000 )
INSERT INTO ROOMS VALUES( 'H5' , 'BH1' , 1 , 'BANTA' , 'NOT_FULL' , 00 )
INSERT INTO ROOMS VALUES( 'H6' , 'BH1' , 1 , 'LAKSHMAN' , 'FULL' , 10000 )
```

INSERT INTO ROOMS VALUES('H7' , 'BH1' , 1 , 'HARSH' , 'FULL' , 10000)

INSERT INTO ROOMS VALUES('H8' , 'BH1' , 1 , 'SAURAV' , 'NOT_FULL' , 00)

INSERT INTO ROOMS VALUES('H9' , 'BH1' , 1 , 'ROSHAN' , 'NOT_FULL' , 00)

INSERT INTO ROOMS VALUES('H10' ,'BH1' , 1 , 'AMAN' , 'NOT_FULL' , 00)

SELECT * FROM ROOMS

ROOM_ID	HOSTEL_ID	CAP	STU_NAME	ROOM_STATUS	FEES
H1	BH1	1	CHINMAY	FULL	10000
H2	BH1	1	SHAM	NOT_FULL	0
H3	BH1	1	RAM	FULL	10000
H4	BH1	1	SANTA	FULL	10000
H5	BH1	1	BANTA	NOT_FULL	0
H6	BH1	1	LAKSHMAN	FULL	10000
H7	BH1	1	HARSH	FULL	10000
H8	BH1	1	SAURAV	NOT_FULL	0
H9	BH1	1	ROSHAN	NOT_FULL	0
H10	BH1	1	AMAN	NOT_FULL	0

//***Table Hostel Employee***

CREATE TABLE HOS_EMPLOYEE

(

NAME CHAR(10),

EMP_ID VARCHAR2(10) PRIMARY KEY,

HOSTEL_ID VARCHAR2(20) REFERENCES HOSTEL(HOSTEL_ID),

CELL_NO NUMBER

)

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
HOS_EMPLOYEE	NAME	Char	10	-	-	-	✓	-	-
	EMP_ID	Varchar2	10	-	-	1	-	-	-
	HOSTEL_ID	Varchar2	20	-	-	-	✓	-	-
	CELL_NO	Number	-	-	-	-	✓	-	-

1 - 4

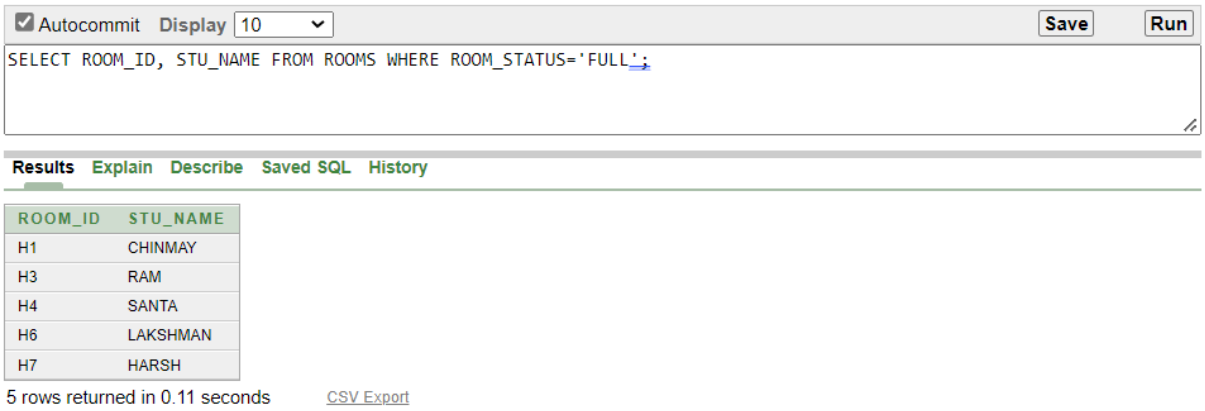
```
DECLARE

BEGIN

INSERT INTO HOS_EMPLOYEE VALUES( 'RAMU' ,'E1', 'BH1' , 9852147630);

INSERT INTO HOS_EMPLOYEE VALUES( 'DAMU' ,'E2', 'BH1' , 9988552211);

INSERT INTO HOS_EMPLOYEE VALUES( 'SHAMU' ,'E3', 'BH1' , 9123456780);

END

SELECT * FROM HOS_EMPLOYEE
```

NAME	EMP_ID	HOSTEL_ID	CELL_NO
RAMU	E1	BH1	9852147630
DAMU	E2	BH1	9988552211
SHAMU	E3	BH1	9123456780

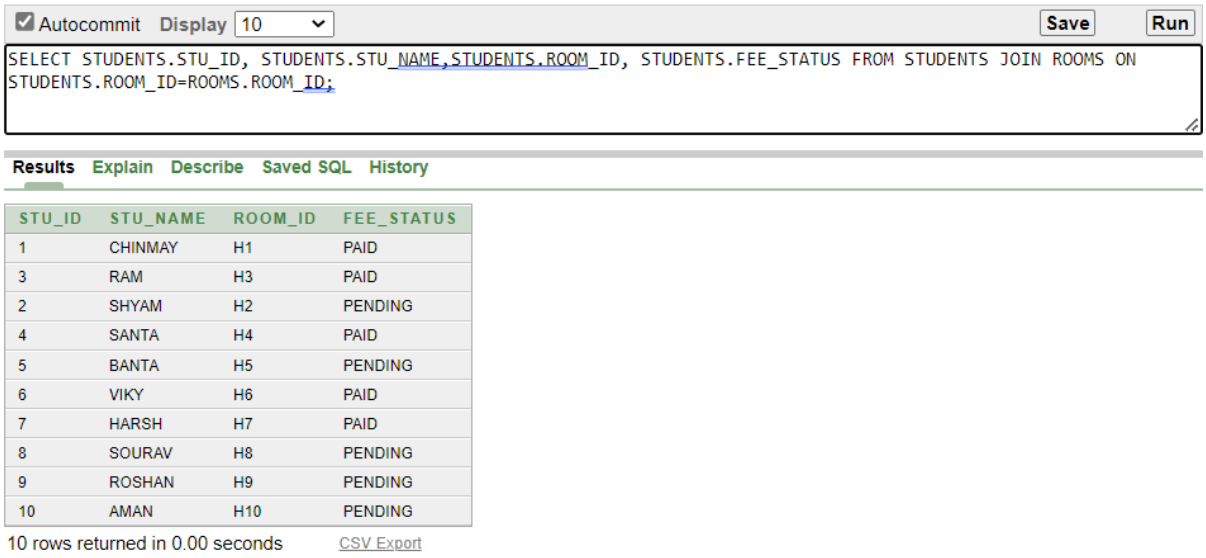
■ Annexure 5: Queries

DDL Queries

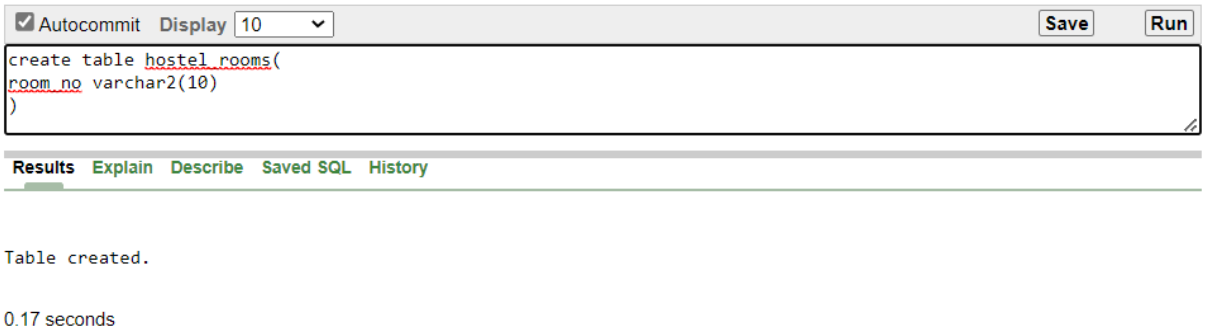
1.



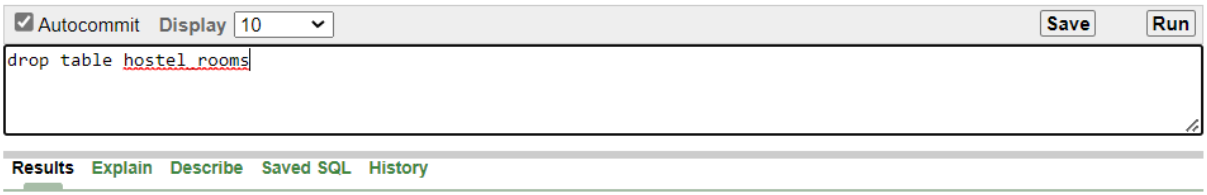
2.



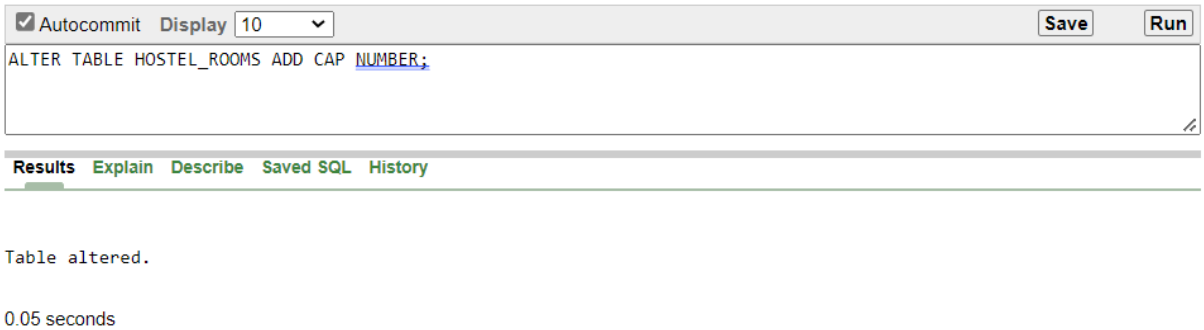
3.


Autocommit
Display 10
Save
Run
create table hostel_rooms(
room_no varchar2(10)
)
Results
Explain
Describe
Saved SQL
History
Table created.
0.17 seconds

4.


Autocommit
Display 10
Save
Run
drop table hostel_rooms
Results
Explain
Describe
Saved SQL
History
Table dropped.
1.61 seconds

5.


Autocommit
Display 10
Save
Run
ALTER TABLE HOSTEL_ROOMS ADD CAP NUMBER;
Results
Explain
Describe
Saved SQL
History
Table altered.
0.05 seconds

6.

Autocommit Display 10 Save Run

```
SELECT * FROM STUDENTS ORDER BY ROOM_ID;
```

Results Explain Describe Saved SQL History

STU_ID	STU_NAME	DEPARTMENT	AGE	PHONE_NO	DOB	HOSTEL_ID	ROOM_ID	FEE_STATUS
1	CHINMAY	ECE	20	9988524865	11_MAY_02	BH1	H1	PAID
10	AMAN	ECE	19	9632587412	1_MAY_03	BH1	H10	PENDING
2	SHYAM	CSE	21	982468542	1_OCTOBER_01	BH1	H2	PENDING
3	RAM	MEC	22	9465167812	24_FEBRUARY_00	BH1	H3	PAID
4	SANTA	MEC	20	9184184351	30_MARCH_02	BH1	H4	PAID
5	BANTA	CSE	20	9941551541	1_JANUARY_02	BH1	H5	PENDING
6	VIKY	CSE	19	9844545545	5_OCTOBER_03	BH1	H6	PAID
7	HARSH	ECE	21	9885465536	3_DECEMBER_01	BH1	H7	PAID
8	SOURAV	ECE	22	9874563214	15_JUNE_00	BH1	H8	PENDING
9	ROSHAN	ECE	21	9764312587	15_JULY_01	BH1	H9	PENDING

10 rows returned in 0.83 seconds CSV Export

7.

Autocommit Display 10 Save Run

```
SELECT DISTINCT STU_ID,STU_NAME,FEE_STATUS FROM STUDENTS;
```

Results Explain Describe Saved SQL History

STU_ID	STU_NAME	FEE_STATUS
9	ROSHAN	PENDING
7	HARSH	PAID
10	AMAN	PENDING
1	CHINMAY	PAID
4	SANTA	PAID
3	RAM	PAID
8	SOURAV	PENDING
5	BANTA	PENDING
6	VIKY	PAID
2	SHYAM	PENDING

10 rows returned in 0.18 seconds CSV Export

8.

Autocommit Display 10

```
SELECT STUDENTS.STU_ID, STUDENTS.STU_NAME,STUDENTS.ROOM_ID, STUDENTS.FEE_STATUS FROM STUDENTS JOIN ROOMS ON STUDENTS.ROOM_ID=ROOMS.ROOM_ID;
```

Results Explain Describe Saved SQL History

STU_ID	STU_NAME	ROOM_ID	FEE_STATUS
1	CHINMAY	H1	PAID
3	RAM	H3	PAID
2	SHYAM	H2	PENDING
4	SANTA	H4	PAID
5	BANTA	H5	PENDING
6	VIKY	H6	PAID
7	HARSH	H7	PAID
8	SOURAV	H8	PENDING
9	ROSHAN	H9	PENDING
10	AMAN	H10	PENDING

10 rows returned in 0.01 seconds CSV Export

DML Queries

1.

Autocommit Display 10 Save Run

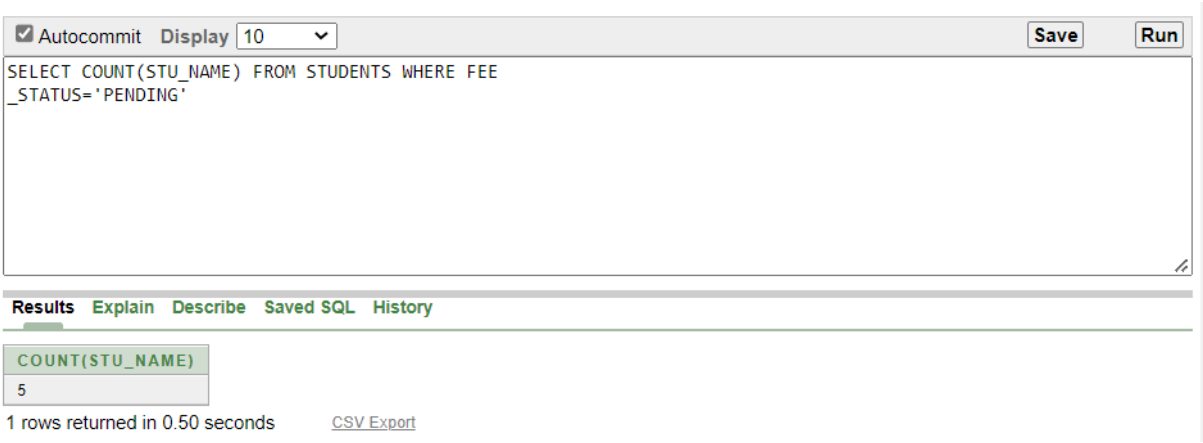
```
UPDATE HOSTEL SET NO_OF_ROOMS = 11 WHERE HOSTEL_ID='BH1';
```

Results Explain Describe Saved SQL History

```
1 row(s) updated.
```

0.57 seconds

2.


Autocommit
Display 10
Save
Run
SELECT COUNT(STU_NAME) FROM STUDENTS WHERE FEE
_STATUS='PENDING'
Results
Explain
Describe
Saved SQL
History
COUNT(STU_NAME)
5
1 rows returned in 0.50 seconds
CSV Export

Thankyou