

DBMS Practical Assignment 3

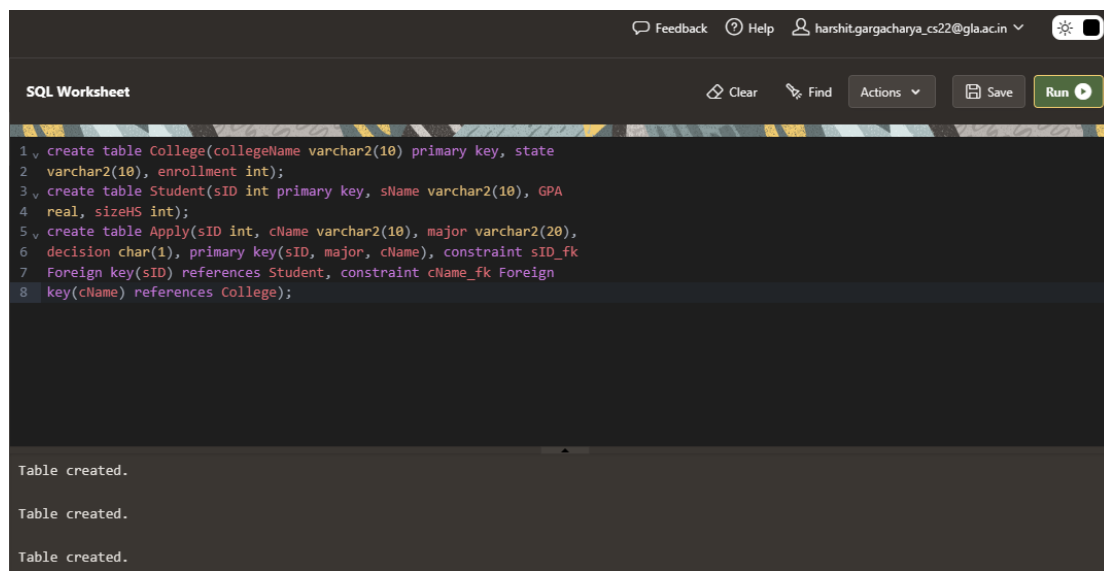
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Course : B.Tech. (CSE)

Creating the tables :-

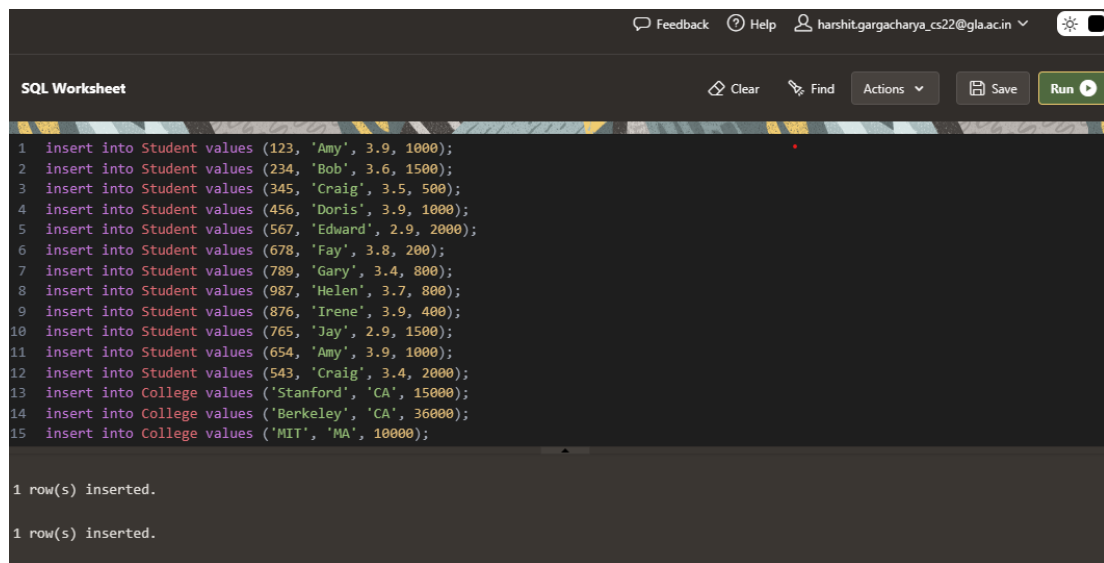


The screenshot shows a web-based SQL Worksheet interface. At the top, there's a header with 'Feedback', 'Help', and a user profile 'harshitgargacharya_cs22@glia.ac.in'. Below the header, the title 'SQL Worksheet' is followed by buttons for 'Clear', 'Find', 'Actions', 'Save', and 'Run'. The main area contains eight SQL queries for creating tables: College, Student, Apply, and decision, with their respective attributes and constraints. Below the queries, the output shows 'Table created.' repeated three times.

```
1 create table College(collegeName varchar2(10) primary key, state
2 varchar2(10), enrollment int);
3 create table Student(sID int primary key, sName varchar2(10), GPA
4 real, sizeHS int);
5 create table Apply(sID int, cName varchar2(10), major varchar2(20),
6 decision char(1), primary key(sID, major, cName), constraint sID_fk
7 Foreign key(sID) references Student, constraint cName_fk Foreign
8 key(cName) references College);
```

Table created.
Table created.
Table created.

Inserting values in tables :-



The screenshot shows the same SQL Worksheet interface as before. The main area contains fifteen SQL queries for inserting data into the Student and College tables. Below the queries, the output shows '1 row(s) inserted.' repeated twice.

```
1 insert into Student values (123, 'Amy', 3.9, 1000);
2 insert into Student values (234, 'Bob', 3.6, 1500);
3 insert into Student values (345, 'Craig', 3.5, 500);
4 insert into Student values (456, 'Doris', 3.9, 1000);
5 insert into Student values (567, 'Edward', 2.9, 2000);
6 insert into Student values (678, 'Fay', 3.8, 200);
7 insert into Student values (789, 'Gary', 3.4, 800);
8 insert into Student values (987, 'Helen', 3.7, 800);
9 insert into Student values (876, 'Irene', 3.9, 400);
10 insert into Student values (765, 'Jay', 2.9, 1500);
11 insert into Student values (654, 'Amy', 3.9, 1000);
12 insert into Student values (543, 'Craig', 3.4, 2000);
13 insert into College values ('Stanford', 'CA', 15000);
14 insert into College values ('Berkeley', 'CA', 36000);
15 insert into College values ('MIT', 'MA', 10000);
```

1 row(s) inserted.
1 row(s) inserted.

Queries

1. Produce a combine table in which each student is combine with every other application.

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SQL Worksheet Clear Find Actions Save Run

1 SELECT * FROM STUDENT,APPLY;

SID	SNAME	GPA	SIZEHS	SID	CNAME	MAJOR	DECISION
123	Amy	3.9	1000	123	Stanford	CS	Y
123	Amy	3.9	1000	123	Stanford	EE	N
123	Amy	3.9	1000	123	Berkeley	CS	Y
123	Amy	3.9	1000	123	Cornell	EE	Y
123	Amy	3.9	1000	234	Berkeley	biology	N
123	Amy	3.9	1000	345	MIT	bioengine	Y
123	Amy	3.9	1000	345	Cornell	bioengine	N
123	Amy	3.9	1000	345	Cornell	CS	Y
123	Amy	3.9	1000	345	Cornell	EE	N
123	Amy	3.9	1000	678	Stanford	history	Y
123	Amy	3.9	1000	987	Stanford	CS	Y
123	Amy	3.9	1000	987	Berkeley	CS	Y
123	Amy	3.9	1000	876	Stanford	CS	N
123	Amy	3.9	1000	876	MIT	biology	Y
123	Amy	3.9	1000	876	MIT	marine bi	N
123	Amy	3.9	1000	765	Stanford	history	Y
123	Amy	3.9	1000	765	Cornell	history	N
123	Amy	3.9	1000	765	Cornell	psycholog	Y
123	Amy	3.9	1000	543	MIT	CS	N
234	Bob	3.6	1500	123	Stanford	CS	Y
234	Bob	3.6	1500	123	Stanford	EE	N
234	Bob	3.6	1500	123	Berkeley	CS	Y
234	Bob	3.6	1500	123	Cornell	EE	Y
234	Bob	3.6	1500	234	Berkeley	biology	N

234	Bob	3.6	1500	345	MIT	bioengin	Y
234	Bob	3.6	1500	345	Cornell	bioengin	N
234	Bob	3.6	1500	345	Cornell	CS	Y
234	Bob	3.6	1500	345	Cornell	EE	N
234	Bob	3.6	1500	678	Stanford	history	Y
234	Bob	3.6	1500	987	Stanford	CS	Y
234	Bob	3.6	1500	987	Berkeley	CS	Y
234	Bob	3.6	1500	876	Stanford	CS	N
234	Bob	3.6	1500	876	MIT	biology	Y
234	Bob	3.6	1500	876	MIT	marine b	N
234	Bob	3.6	1500	765	Stanford	history	Y
234	Bob	3.6	1500	765	Cornell	history	N
234	Bob	3.6	1500	765	Cornell	psycholo	Y
234	Bob	3.6	1500	543	MIT	CS	N
345	Craig	3.5	500	123	Stanford	CS	Y
345	Craig	3.5	500	123	Stanford	EE	N
345	Craig	3.5	500	123	Berkeley	CS	Y
345	Craig	3.5	500	123	Cornell	EE	Y
345	Craig	3.5	500	234	Berkeley	biology	N
345	Craig	3.5	500	345	MIT	bioengin	Y
345	Craig	3.5	500	345	Cornell	bioengin	N
345	Craig	3.5	500	345	Cornell	CS	Y
345	Craig	3.5	500	345	Cornell	EE	N
345	Craig	3.5	500	678	Stanford	history	Y
345	Craig	3.5	500	987	Stanford	CS	Y
345	Craig	3.5	500	987	Berkeley	CS	Y

2. Give Student ID, name, GPA and name of college and major each student applied to.

Feedback
Help
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SQL Worksheet
Clear
Find
Actions
Save
Run

```
1 SELECT sId,sNAME,GPA,cName,major FROM STUDENT NATURAL JOIN APPLY;
```

SID	SNAME	GPA	CNAME	MAJOR	
123	Amy	3.9	Berkeley	CS	
123	Amy	3.9	Stanford	CS	
123	Amy	3.9	Cornell	EE	
123	Amy	3.9	Stanford	EE	
234	Bob	3.6	Berkeley	biology	
345	Craig	3.5	Cornell	CS	
345	Craig	3.5	Cornell	EE	
345	Craig	3.5	Cornell	bioengineering	
345	Craig	3.5	MIT	bioengineering	
543	Craig	3.4	MIT	CS	
678	Fay	3.8	Stanford	history	
765	Jay	2.9	Cornell	history	
765	Jay	2.9	Stanford	history	
765	Jay	2.9	Cornell	psychology	
876	Irene	3.9	Stanford	CS	
876	Irene	3.9	MIT	biology	
876	Irene	3.9	MIT	marine biology	
987	Helen	3.7	Berkeley	CS	
987	Helen	3.7	Stanford	CS	

3. Find detail of applications who applied to California State.

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SQL Worksheet Clear Find Actions Save Run

```
1 SELECT * FROM APPLY INNER JOIN COLLEGE ON APPLY.cName=COLLEGE.collegeName WHERE STATE='CA';
```

SID	CNAME	MAJOR	DECISION	COLLEGE	STATE	ENROLLMENT
123	Stanford	CS	Y	Stanford	CA	15000
123	Stanford	EE	N	Stanford	CA	15000
123	Berkeley	CS	Y	Berkeley	CA	36000
234	Berkeley	biology	N	Berkeley	CA	36000
678	Stanford	history	Y	Stanford	CA	15000
987	Stanford	CS	Y	Stanford	CA	15000
987	Berkeley	CS	Y	Berkeley	CA	36000
876	Stanford	CS	N	Stanford	CA	15000
765	Stanford	history	Y	Stanford	CA	15000

4. IDs, name, GPA of students and name of college with GPA > 3.7 applying to Stanford.

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SQL Worksheet Clear Find Actions Save Run

```
1 SELECT sID,sName,GPA,cName FROM STUDENT NATURAL JOIN APPLY WHERE GPA>3.7 AND cName='Stanford';
```

SID	SNAME	GPA	CNAME
123	Amy	3.9	Stanford
123	Amy	3.9	Stanford
678	Fay	3.8	Stanford
876	Irene	3.9	Stanford

5. Find detail of Student who apply to CS major and their application are rejected.

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SQL Worksheet Clear Find Actions Save Run

```
1 SELECT sID,sName,GPA,sizeHS FROM STUDENT NATURAL JOIN APPLY WHERE major='CS' AND decision='N';
```

SID	SNAME	GPA	SIZEHS
876	Irene	3.9	400
543	Craig	3.4	2000

6. Find detail of student and application who applied to colleges at New York.

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SQL Worksheet Clear Find Actions Save Run

```
1 SELECT sID,sName,GPA,sizeHS,cName,major,decision FROM STUDENT NATURAL JOIN APPLY INNER JOIN COLLEGE ON COLLEGE.collegeName=apply.cName
2 WHERE STATE='NY';
```

SID	SNAME	GPA	SIZEHS	CNAME	MAJOR	DECISION
123	Amy	3.9	1000	Cornell	EE	Y
345	Craig	3.5	500	Cornell	bioengineering	N
345	Craig	3.5	500	Cornell	CS	Y
345	Craig	3.5	500	Cornell	EE	N
765	Jay	2.9	1500	Cornell	history	N
765	Jay	2.9	1500	Cornell	psychology	Y

7. Find detail of student who have not applied to any of college.

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SQL Worksheet Clear Find Actions Save Run

```
1 SELECT * FROM STUDENT LEFT OUTER JOIN APPLY ON STUDENT.sID=APPLY.sID WHERE cName IS NULL;
```

SID	SNAME	GPA	SIZEHS	SID	CNAME	MAJOR	DECISION
567	Edward	2.9	2000	-	-	-	-
654	Amy	3.9	1000	-	-	-	-
456	Doris	3.9	1000	-	-	-	-
789	Gary	3.4	800	-	-	-	-

Download CSV

8. Find college where no student have applied.

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SQL Worksheet Clear Find Actions Save Run

```
1 SELECT collegeName FROM COLLEGE LEFT OUTER JOIN APPLY ON COLLEGE.collegeName=apply.cName WHERE MAJOR IS NULL;
```

COLLEGEName

Harvard

Download CSV

10. Find name and GPA of applicants who apply to any college whose enrollment is not more than 25000.

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SQL Worksheet Clear Find Actions Save Run

```
1 SELECT DISTINCT sName,GPA FROM STUDENT NATURAL JOIN APPLY INNER JOIN COLLEGE ON COLLEGE.collegeName=APPLY.cName AND enrollment<=25000;
```

SNAME	GPA
Craig	3.4
Amy	3.9
Craig	3.5
Helen	3.7
Fay	3.8
Jay	2.9
Irene	3.9

11. Find pair of students (sID) having same GPA. (each pair should occur just once in result).

Feedback
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SQL Worksheet
Clear
Find
Actions
Save
Run

```
1 SELECT a.sID,b.sID FROM STUDENT a INNER JOIN STUDENT b ON a.GPA=b.GPA AND a.sID<b.sID;
```

SID	SID
123	456
543	789
123	876
456	876
654	876
567	765
123	654
456	654