

## LAB-4 (program)

### **PROGRAM 4: STUDENT FACULTY DATABASE**

Consider the following database for student enrollment for course :

**STUDENT** (snum: integer, sname: string, major: string, lvl: string, age: integer)

**CLASS** (cname: string, meets at: time, room: string, fid: integer)

**ENROLLED** (snum: integer, cname: string)

**FACULTY** (fid: integer, fname: string, deptid: integer)

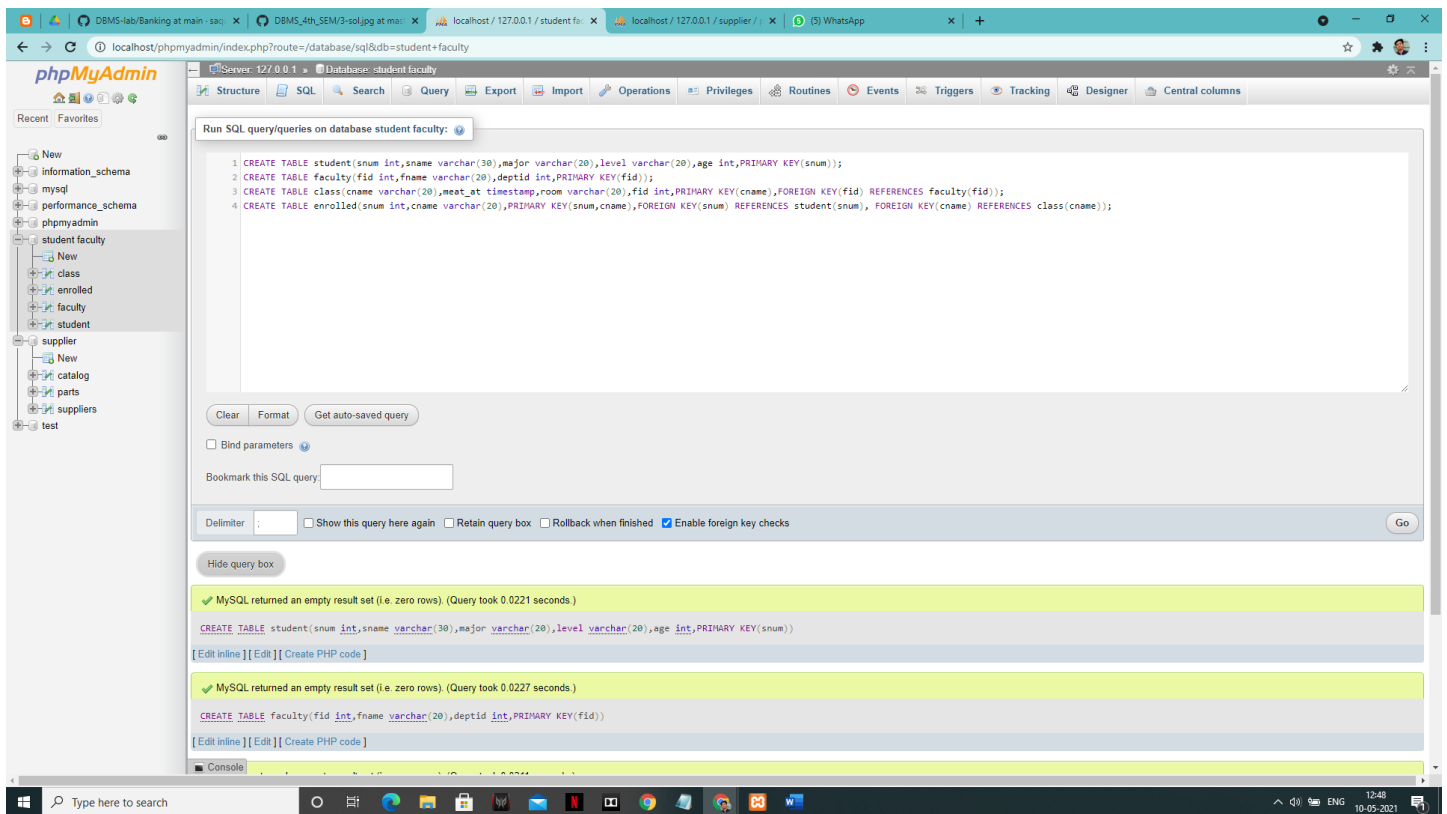
Write the following queries in SQL. No duplicates should be printed in any of the answers.

i. Create above mentioned tables

ii. insert records into each of the tables

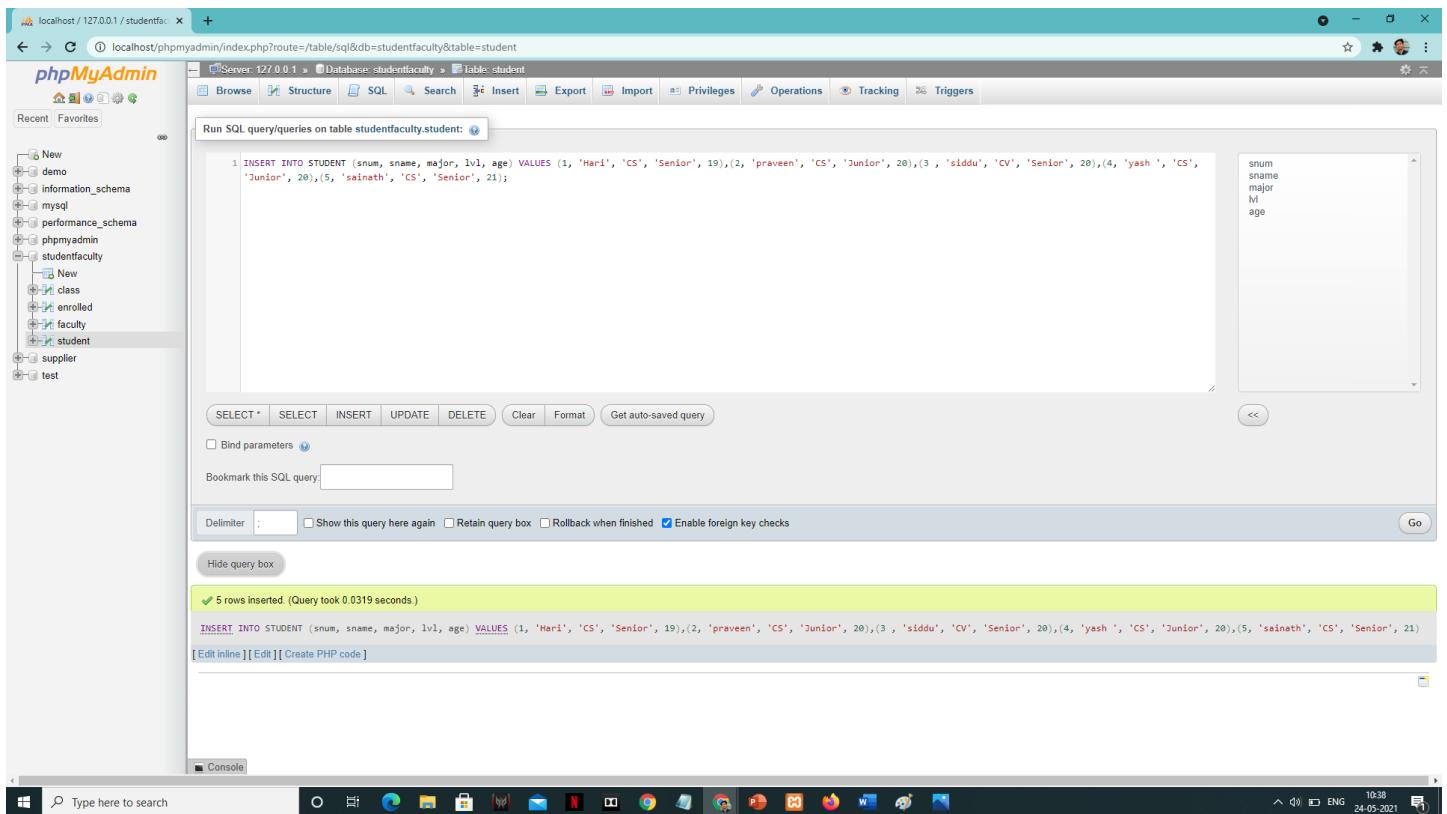
- 1) Find the names of all Juniors (level = JR) who are enrolled in a class taught by
- 2) Find the names of all classes that either meet in room R128 or have five or more Students enrolled.
- 3) Find the names of all students who are enrolled in two classes that meet at the same time.
- 4) Find the names of faculty members who teach in every room in which some class is taught.
- 5) Find the names of faculty members for whom the combined enrollment of the courses that they teach is less than five.
- 6) Find the names of students who are not enrolled in any class.
- 7) For each age value that appears in Students, find the level value that appears most often. For example, if there are more FR level students aged 18 than SR, JR, or SO students aged 18, you should print the pair (18, FR).
- 8) Create the above tables by properly specifying the primary keys and the foreign keys.**

**Create table:-**

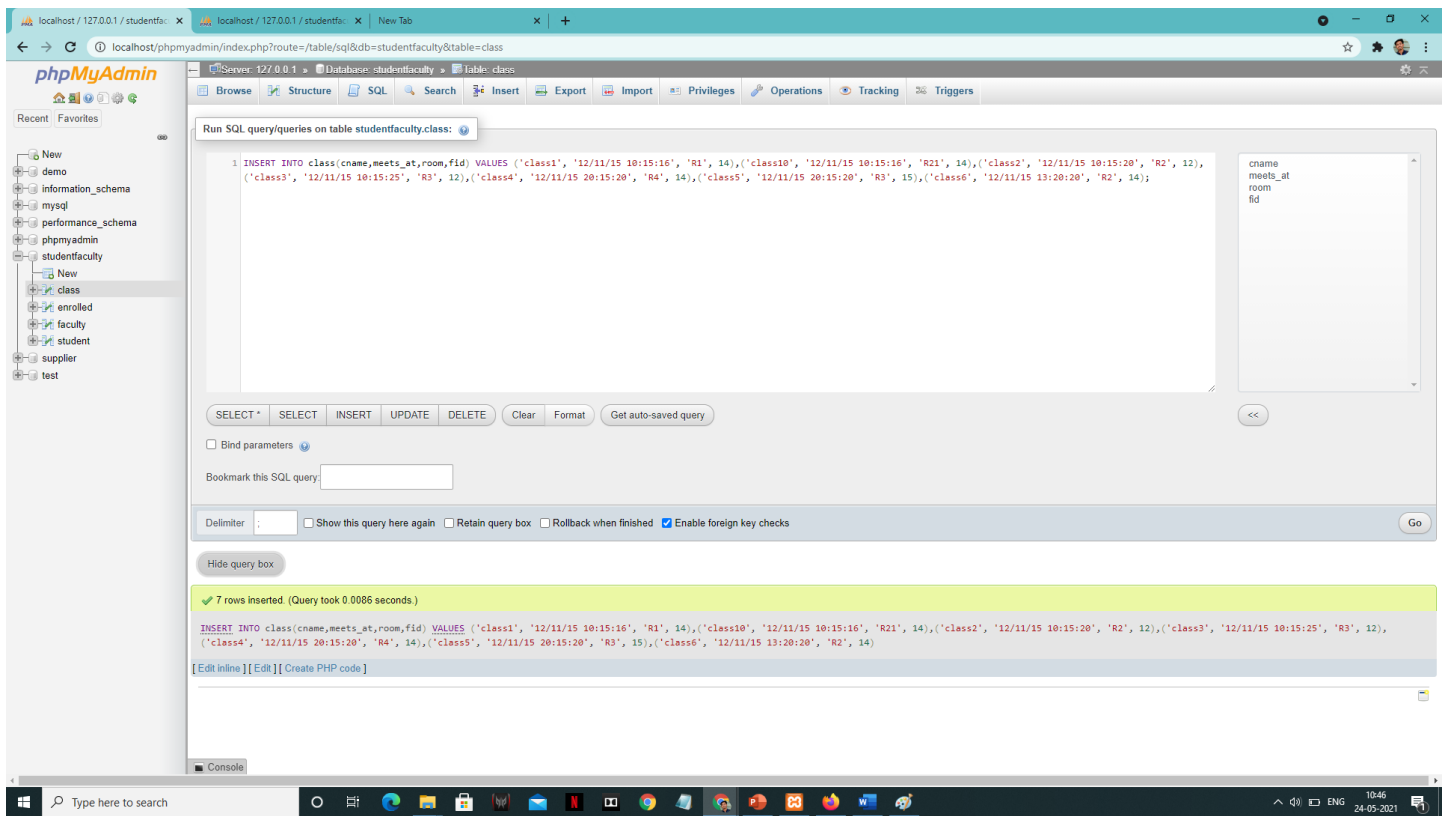


2) Enter tuples for each relation.

‘student’ table:



**'class' table:**



‘enrolled’ table:

localhost / 127.0.0.1 / studentfa: X | New Tab

localhost/phpmyadmin/index.php?route=/table/sql&db=studentfaculty&table=enrolled

Server: 127.0.0.1 Database: studentfaculty Table: enrolled

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers

Run SQL query/queries on table studentfaculty.enrolled:

```
1 INSERT into enrolled (snum, cname) VALUES(1, 'class1'),(2, 'class1'),(3, 'class3'),(4, 'class3'),(5, 'class4'),(1, 'class5'),(3, 'class5');
```

SELECT \* SELECT INSERT UPDATE DELETE Clear Format Get auto-saved query

☐ Bind parameters

Bookmark this SQL query:

Delimiter: ☐ Show this query here again ☐ Retain query box ☐ Rollback when finished ☒ Enable foreign key checks Go

Hide query box

7 rows inserted (Query took 0.0092 seconds)

```
INSERT into enrolled (snum, cname) VALUES(1, 'class1'),(2, 'class1'),(3, 'class3'),(4, 'class3'),(5, 'class4'),(1, 'class5'),(3, 'class5')
```

[Edit inline] [Edit] [Create PHP code]

Console

## Faculty value:-

localhost / 127.0.0.1 / studentfa: X | New Tab

localhost/phpmyadmin/index.php?route=/table/sql&db=studentfaculty&table=faculty

Server: 127.0.0.1 Database: studentfaculty Table: faculty

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers

Run SQL query/queries on table studentfaculty.faculty:

```
1 INSERT INTO faculty(fid, fname, deptid) VALUES (10, 'rahul', 1000),
2 (11, 'karan', 1000),(12, 'SK', 1001),(13, 'Neha', 1001),(14, 'Shiva', 1002),(15, 'krishna', 1000);
```

SELECT \* SELECT INSERT UPDATE DELETE Clear Format Get auto-saved query

☐ Bind parameters

Bookmark this SQL query:

Delimiter: ☐ Show this query here again ☐ Retain query box ☐ Rollback when finished ☒ Enable foreign key checks Go

Hide query box

6 rows inserted (Query took 0.0082 seconds)

```
INSERT INTO faculty(fid, fname, deptid) VALUES (10, 'rahul', 1000), (11, 'karan', 1000),(12, 'SK', 1001),(13, 'Neha', 1001),(14, 'Shiva', 1002),(15, 'krishna', 1000)
```

[Edit inline] [Edit] [Create PHP code]

Console

1:-

The screenshot shows the phpMyAdmin web interface. The left sidebar displays a database structure tree with the following items: New, demo, information\_schema, mysql, performance\_schema, phpmyadmin, studentfaculty, New, class, enrolled, faculty, student, supplier, and test. The 'studentfaculty' database is selected, and the 'student' table is highlighted. The main panel shows a SQL query editor with the following query:

```
1 SELECT DISTINCT S.Sname
2 FROM student S, class C, enrolled E, faculty F
3 WHERE S.snum = E.snum AND E.cname = C.cname AND C.fid = F.fid AND
4 F.fname = 'SK' AND S.lvl = 'Junior';
5
```

Below the query editor, there are buttons for 'Clear', 'Format', and 'Get auto-saved query'. There is also a checkbox for 'Bind parameters' and a text input for 'Bookmark this SQL query:'. The 'Delimiter' is set to semicolon, and 'Enable foreign key checks' is checked. A 'Hide query box' button is also present.

The query results are displayed in a table with the following data:

Sname
yash

The interface also includes a 'Query results operations' section with buttons for 'Print', 'Copy to clipboard', 'Export', 'Display chart', and 'Create view'. The bottom status bar shows the system time as 11:23 on 24-05-2021.

2:-

localhost / 127.0.0.1 / studentfac... x localhost / 127.0.0.1 / studentfac... x New Tab

localhost/phpmyadmin/index.php?route=/database/sql&db=studentfaculty

phpMyAdmin

Recent Favorites

- New
- demo
- information\_schema
- mysql
- performance\_schema
- phpmyadmin
- studentfaculty
  - New
  - class
  - enrolled
  - faculty
  - student
  - supplier
  - test

Server: 127.0.0.1 Database: studentfaculty Table: class

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers

Run SQL query/queries on database studentfaculty:

```
1 SELECT * FROM class as c WHERE c.room='R21' or c.cname in (SELECT cname from enrolled GROUP BY cname HAVING COUNT(cname)>=5);
2
3
```

Clear Format Get auto-saved query

☐ Bind parameters

Bookmark this SQL query:

Delimiter: ☐ Show this query here again ☐ Retain query box ☐ Rollback when finished ☒ Enable foreign key checks Go

Hide query box

Showing rows 0 - 0 (1 total, Query took 0.0235 seconds)

```
SELECT * FROM class as c WHERE c.room='R21' or c.cname in (SELECT cname from enrolled GROUP BY cname HAVING COUNT(cname)>=5)
```

☐ Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

☐ Show all Number of rows: 25 Filter rows: Search this table

+ Options

	cname	meets_at	room	fid
<input type="checkbox"/> Edit Copy Delete	class10	2012-11-15 10:15:16	R21	14

☐ Check all With selected: ☐ Edit ☐ Copy ☐ Delete ☐ Export

☐ Show all Number of rows: 25 Filter rows: Search this table

Query results operations

☐ Print ☐ Copy to clipboard ☐ Export ☐ Display chart ☐ Create view

☐ Bookmark this SQL query

Console ☐ I let every user access this bookmark

3:-

4:-

5:-

localhost / 127.0.0.1 / studentfa - X | New Tab

localhost/phpmyadmin/index.php?route=/database/sql&db=studentfaculty

Server: 127.0.0.1 | Database: studentfaculty | Table: faculty

Run SQL query/queries on database studentfaculty:

```
1 SELECT DISTINCT F.fname FROM faculty F WHERE S> (SELECT COUNT(E.snum) FROM class C,enrolled E WHERE C.cname =E.cname AND C.fid =F.fid);
```

Clear Format Get auto-saved query

☐ Bind parameters

Bookmark this SQL query:

Delimiter: ☐ Show this query here again ☐ Retain query box ☐ Rollback when finished ☒ Enable foreign key checks

Go

Hide query box

Showing rows 0 - 5 (6 total, Query took 0.0071 seconds)

```
SELECT DISTINCT F.fname FROM faculty F WHERE S> (SELECT COUNT(E.snum) FROM class C,enrolled E WHERE C.cname =E.cname AND C.fid =F.fid)
```

☐ Profiling [ Edit inline ] [ Edit ] [ Explain SQL ] [ Create PHP code ] [ Refresh ]

☐ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

+ Options

					fname
<input type="checkbox"/>	Edit	Copy	Delete		raahul
<input type="checkbox"/>	Edit	Copy	Delete		karan
<input type="checkbox"/>	Edit	Copy	Delete		SK
<input type="checkbox"/>	Edit	Copy	Delete		Neha
<input type="checkbox"/>	Edit	Copy	Delete		Shiva
<input type="checkbox"/>	Edit	Copy	Delete		krishna

☐ Check all | With selected: Edit Copy Delete Export

☐ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Console | Query results operations

Type here to search

11:38 24-05-2021

6:-

localhost / 127.0.0.1 / studentfa - X | New Tab

localhost/phpmyadmin/index.php?route=/database/sql&db=student+faculty

Server: 127.0.0.1 | Database: studentfaculty | Table: student

Run SQL query/queries on database studentfaculty:

```
1 SELECT DISTINCT S.sname FROM student S WHERE S.snum NOT IN (SELECT E.snum FROM enrolled E );
```

Clear Format Get auto-saved query

☐ Bind parameters

Bookmark this SQL query:

Delimiter: ☐ Show this query here again ☐ Retain query box ☐ Rollback when finished ☒ Enable foreign key checks

Go

Hide query box

Showing rows 0 - 0 (1 total, Query took 0.0035 seconds)

```
SELECT DISTINCT S.sname FROM student S WHERE S.snum NOT IN (SELECT E.snum FROM enrolled E )
```

☐ Profiling [ Edit inline ] [ Edit ] [ Explain SQL ] [ Create PHP code ] [ Refresh ]

☐ Show all | Number of rows: 25 | Filter rows: Search this table

+ Options

				sname
<input type="checkbox"/>	Edit	Copy	Delete	hari

☐ Check all | With selected: Edit Copy Delete Export

☐ Show all | Number of rows: 25 | Filter rows: Search this table

Query results operations

Print Copy to clipboard Export Display chart Create view

Bookmark this SQL query

Console

Type here to search

11:50 10-05-2021



7:-

localhost / 127.0.0.1 / studentfa - X | New Tab

localhost/phpmyadmin/index.php?route=/database/sql&db=studentfaculty

phpMyAdmin

Recent Favorites

- New
- demo
- information\_schema
- mysql
- performance\_schema
- phpmyadmin
- studentfaculty
- New
- class
- enrolled
- faculty
- student
- supplier
- test

Run SQL query/queries on database studentfaculty:

```
1 SELECT S.age, S.lvl FROM student S GROUP BY S.age, S.lvl HAVING S.lvl IN (SELECT S1.lvl FROM student S1 WHERE S1.age = S.age GROUP BY S1.lvl, S1.age HAVING COUNT(*) >= ALL (SELECT COUNT(*) FROM student S2 WHERE S1.age = S2.age GROUP BY S2.lvl, S2.age));
```

Clear Format Get auto-saved query

☐ Bind parameters

Bookmark this SQL query:

Delimiter: ☐ Show this query here again ☐ Retain query box ☐ Rollback when finished ☒ Enable foreign key checks

Hide query box

Showing rows 0 - 2 (3 total, Query took 0.0225 seconds)

```
SELECT S.age, S.lvl FROM student S GROUP BY S.age, S.lvl HAVING S.lvl IN (SELECT S1.lvl FROM student S1 WHERE S1.age = S.age GROUP BY S1.lvl, S1.age HAVING COUNT(*) >= ALL (SELECT COUNT(*) FROM student S2 WHERE S1.age = S2.age GROUP BY S2.lvl, S2.age));
```

☐ Profiling [ Edit inline ] [ Edit ] [ Explain SQL ] [ Create PHP code ] [ Refresh ]

☐ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

+ Options

				age	lvl
<input type="checkbox"/>	Edit	Copy	Delete	19	Senior
<input type="checkbox"/>	Edit	Copy	Delete	20	Junior
<input type="checkbox"/>	Edit	Copy	Delete	21	Senior

☐ Check all | With selected: Edit Copy Delete Export

☐ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Query results operations

Console Copy to clipboard Export Display chart Create view

Type here to search

11:49 24-05-2021