

PROGRAM 4:STUDENT FACULTY DATABASE

Consider the following database for student enrolment for course:

STUDENT (snum: integer, sname: string, major: string, level: string, age: integer)

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

ENROLLED (snum: integer, cname: string)

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

The meaning of these relations is straightforward; for example, Enrolled has one record per student-class pair

such that the student is enrolled in the class. Level is a two character code with 4 different values (example: Junior: JR etc)

Write the following queries in SQL.

No duplicates should be printed in any of the answers.

STUDENT TABLE

The screenshot shows the MySQL Workbench interface. The SQL editor contains the following queries:

```
56 • insert into faculty values(11,'Harish',1000);
57 • insert into faculty values(12,'MV',1000);
58 • insert into faculty values(13,'Mira',1001);
59 • insert into faculty values(14,'Shiva',1002);
60 • insert into faculty values(15,'Nupur',1000);
61
62 • commit;
63 • select * from faculty;
64
```

The Result Grid shows the output of the query:

fid	fname	deptid
11	Harish	1000
12	MV	1000
13	Mira	1001
14	Shiva	1002
15	Nupur	1000

The Output panel shows the execution details:

#	Time	Action	Message	Duration / Fetch
47	23:04:00	select * from faculty LIMIT 0, 10	5 row(s) returned	0.031 sec / 0.000 sec

CLASS TABLE

MySQL Workbench

Yashaswini

File Edit View Query Database Server Tools Scripting Help

labprogram1 labprogram2 labprogram3* labprogram4* labprogram5*

Limit to 10 rows

68

•

insert into class values('class1','12/11/15 10:15:16','R1',14);

69

•

insert into class values('class2','12/11/15 10:15:20','R2',12);

70

•

insert into class values('class10','12/11/15 10:15:16','R128',14);

71

•

insert into class values('class3','12/11/15 10:15:25','R3',12);

72

•

insert into class values('class4','12/11/15 20:15:20','R4',14);

73

•

insert into class values('class5','12/11/15 20:15:20','R3',15);

74

•

insert into class values('class6','12/11/15 13:20:20','R2',14);

75

•

insert into class values('class7','12/11/15 10:10:10','R3',14);

76

•

77

•

select * from class;

Result Grid

Filter Rows:

Edit Export/Import Wrap Cell Content

cname	metts_at	room	fid
class1	2012-11-15 10:15:16	R1	14
class10	2012-11-15 10:15:16	R128	14
class2	2012-11-15 10:15:20	R2	12
class3	2012-11-15 10:15:25	R3	12
class4	2012-11-15 20:15:20	R4	14
class5	2012-11-15 20:15:20	R3	15
class6	2012-11-15 13:20:20	R2	14
class7	2012-11-15 10:10:10	R3	14

class 8

Apply Revert Context Help Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
50	22:04:48	insert into class values('class7','12/11/15 10:10:10','R3',14);	1 row(s) affected	0.000 sec

MySQL Workbench

Yashaswini

File Edit View Query Database Server Tools Scripting Help

labprogram1 labprogram2 labprogram3* labprogram4* labprogram5*

Limit to 10 rows

81

•

insert into enrolled values(1,'class1');

82

•

insert into enrolled values(2,'class1');

83

•

insert into enrolled values(3,'class3');

84

•

insert into enrolled values(4,'class3');

85

•

insert into enrolled values(5,'class4');

86

•

insert into enrolled values(1,'class5');

87

•

insert into enrolled values(2,'class5');

88

•

insert into enrolled values(3,'class5');

89

•

insert into enrolled values(4,'class5');

90

•

insert into enrolled values(5,'class5');

91

•

Result Grid

Filter Rows:

Edit Export/Import Wrap Cell Content Fetch rows

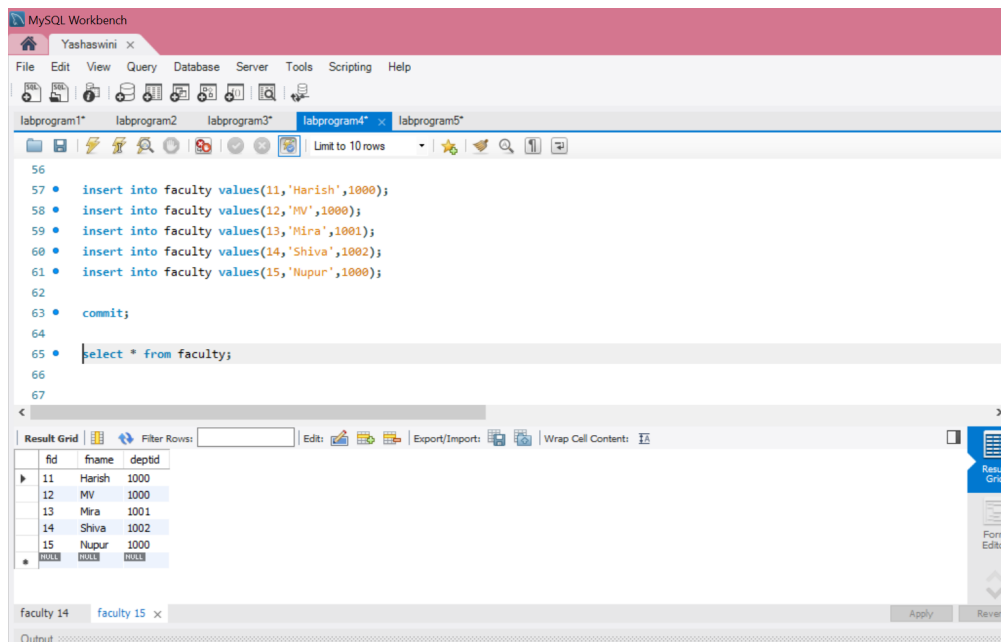
snum	cname
1	class1
2	class1
3	class3
4	class3
5	class4
1	class5
2	class5
3	class5
4	class5
5	class5

enrolled 10

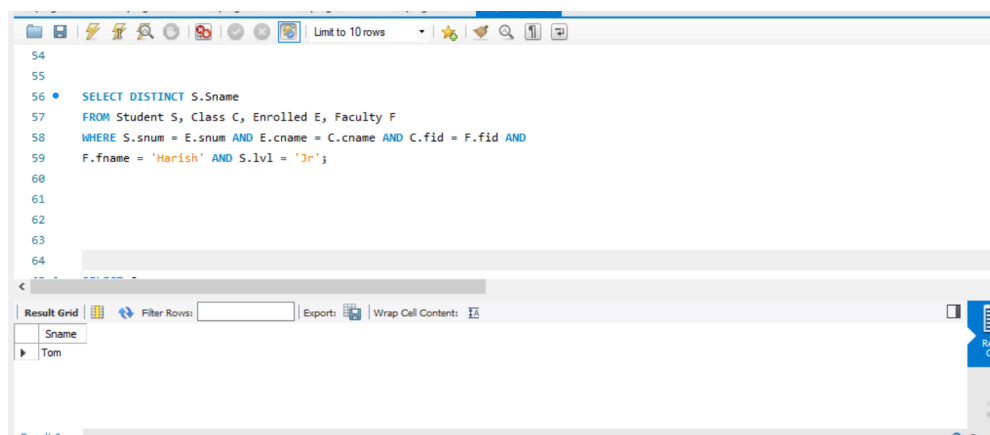
Apply Revert Context Help Snippets

Output

FACULTY TABLE



i. Find the names of all Juniors (level = JR) who are enrolled in a class taught by



ii. Find the names of all classes that either meet in room R128 or have five or more Students enrolled.

```

64
65 • SELECT C.cname
66 FROM class C
67 WHERE C.room = 'R128'
68 OR C.cname IN (SELECT E.cname
69 FROM enrolled E
70 GROUP BY E.cname
71 HAVING COUNT(*) >= 5);
72
73
74

```

The screenshot shows a SQL IDE with a query editor and a result grid. The query is as follows:

```

SELECT C.cname
FROM class C
WHERE C.room = 'R128'
OR C.cname IN (SELECT E.cname
FROM enrolled E
GROUP BY E.cname
HAVING COUNT(*) >= 5);

```

The result grid shows the following data:

cname
class10
class5
RAHUL

iii. Find the names of all students who are enrolled in two classes that meet at the same time.

```

72
73
74
75 • SELECT DISTINCT S.sname
76 FROM student S
77 WHERE S.snum IN (SELECT E1.snum
78 FROM enrolled E1, enrolled E2, class C1, class C2
79 WHERE E1.snum = E2.snum AND E1.cname <> E2.cname
80 AND E1.cname = C1.cname
81 AND E2.cname = C2.cname AND C1.metts_at = C2.metts_at);
82

```

The screenshot shows a SQL IDE with a query editor and a result grid. The query is as follows:

```

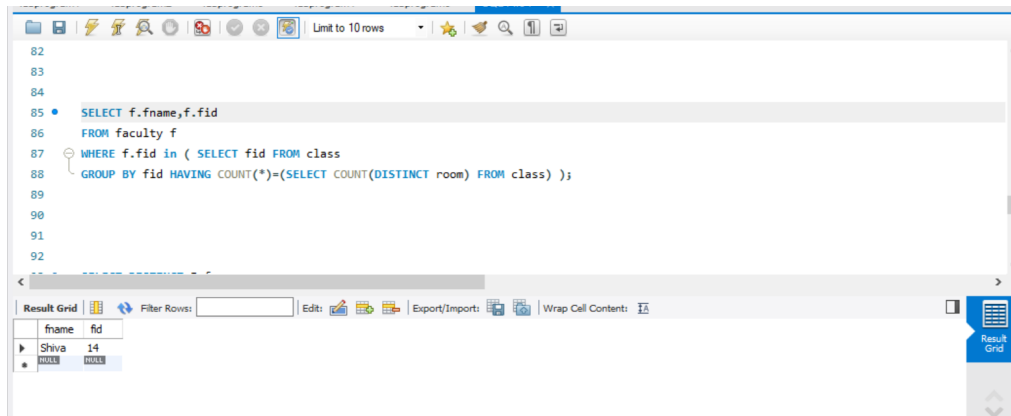
SELECT DISTINCT S.sname
FROM student S
WHERE S.snum IN (SELECT E1.snum
FROM enrolled E1, enrolled E2, class C1, class C2
WHERE E1.snum = E2.snum AND E1.cname <> E2.cname
AND E1.cname = C1.cname
AND E2.cname = C2.cname AND C1.metts_at = C2.metts_at);

```

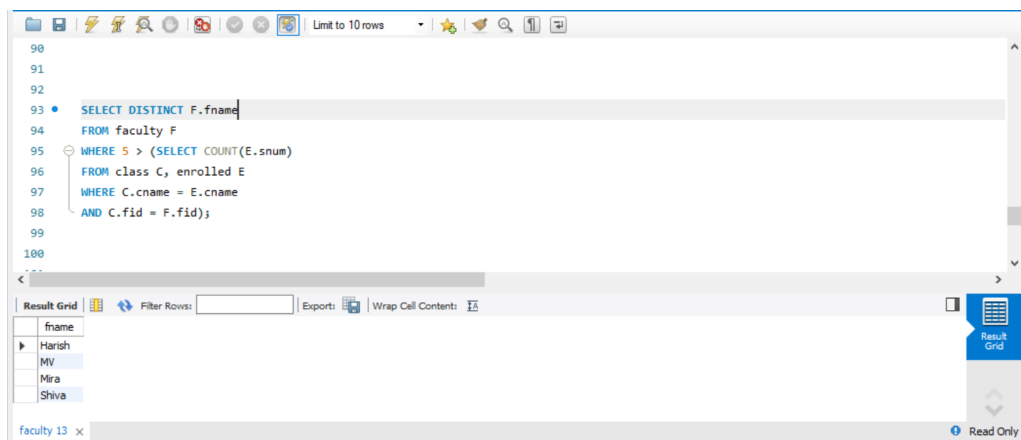
The result grid shows the following data:

sname
Rahul

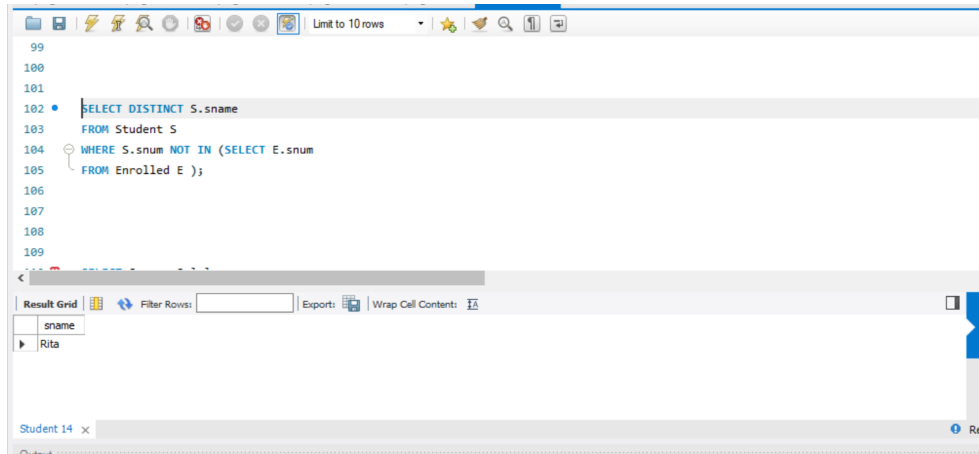
iv. Find the names of faculty members who teach in every room in which some class is taught.



v. Find the names of faculty members for whom the combined enrolment of the courses that they teach is less than five.



vi. Find the names of students who are not enrolled in any class.



vii. 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).

