

## **Exercise 1**

A university DB contains information about professors (identified by SIN) and courses (identified by course ID). Professors teach courses; each of the following situations concerns the Teaches relationship set.

List all candidate keys of the Teaches relationship set. a. Professors can teach the same course in several semesters, and each offering must be recorded. b. Professors can teach the same course in several semesters, but only the most recent such offering needs to be records. Assume the above Situation (b) applies in all subsequent situations.

List all the keys possible in each of the following situations.

a. Every professor teaches a course, and every course is taught by some professor. b. Every professor teaches exactly one course, and every course is taught by exactly one professor.

```
mysql> create database university;
Query OK, 1 row affected (0.14 sec)

mysql> use university;
Database changed
mysql> create table professors key
-> (SIN int(10) primary key,
-> name varchar(10),
-> course_teach varchar(10));
Query OK, 0 rows affected, 1 warning (0.18 sec)

mysql> select * from professors;
Empty set (0.01 sec)

mysql> show professors;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version
for the right syntax to use near 'professors' at line 1
mysql> desc professors;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| SIN   | int  | NO   | PRI | NULL    |       |
| name  | varchar(10) | YES |     | NULL    |       |
| course_teach | varchar(10) | YES |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.01 sec)

mysql>
```

```
mysql> show course;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version
for the right syntax to use near 'course' at line 1
mysql> desc course;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| cid   | int  | NO   | PRI | NULL    |       |
| course_name | varchar(10) | YES |     | NULL    |       |
| duration | varchar(10) | YES |     | NULL    |       |
| fees  | varchar(10) | YES |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.01 sec)

mysql> create table semister
-> (sem_id int(10) primary key,
-> no_sem int(10));
Query OK, 0 rows affected, 2 warnings (0.18 sec)

mysql> desc semister;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| sem_id | int  | NO   | PRI | NULL    |       |
| no_sem | int  | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.01 sec)

mysql>
```

List all the keys possible in each of the following situations.

FLOWCHART:

- 1.start
- 2.create database name as university.
- 3.use university database.

4.create table name as professors with SIN is primary key

create table professors

- > (SIN int(10) primary key,
- > name varchar(10),
- > course\_teach varchar(10));

5.create table name as course with cid as primary key

create table course

- > (cid int(10) primary key,
- > course\_name varchar(10),
- > duration varchar(10),
- > fees varchar(10));

6.create table semister sem\_id is primary key

create table semister

- > (sem\_id int(10) primary key,
- > no\_sem int(10));

7.exit

1.

CANDIDATE KEY (SIN ,cid ,sem\_id)

2.

primary key are SIN,Cid,Sem\_id.

foreign key cid,sem\_id.

Alternate key (SIN,Course\_teach),(cid,fees),(sem\_id,no\_sem)