

SQL Lab.1

Requirements

The department of computer engineering is creating a simple database to store some educational management data. There will contain 6 relations; **Professor**, **Student**, **Course**, **Section**, **Teaches** and **Takes**. You have to proceed as follows:

1. Create a Database named “REGISTRATION_DB”

```
CREATE DATABASE REGISTRATION_DB;
```

2. Create 6 tables in your database system using the following SQL commands

2.1. Professor (pid, pname, salary)

```
CREATE TABLE Professor (  
  pid VARCHAR(8) NOT NULL,  
  pname VARCHAR(256) NOT NULL,  
  salary INT NOT NULL,  
  PRIMARY KEY (pid)) ;
```

2.2. Student (student_id, name, year, email)

```
CREATE TABLE Student (  
  student_id VARCHAR(16) NOT NULL,  
  name VARCHAR(256) NOT NULL,  
  year INT NOT NULL ,  
  email VARCHAR(256),  
  PRIMARY KEY (student_id));
```

2.3. Course (cid, title, dept_name, credits)

```
CREATE TABLE Course (  
  cid VARCHAR(8) NOT NULL ,  
  title VARCHAR(256) NOT NULL ,  
  dept_name VARCHAR(256) NOT NULL ,  
  credits INT NOT NULL ,  
  PRIMARY KEY (cid)) ;
```

2.4. Section (cid, sect_id, semester, year, building, room, timeslot_id)

```
CREATE TABLE Section (
cid VARCHAR(8) NOT NULL ,
sect_id VARCHAR(8) NOT NULL ,
semester VARCHAR(16) NOT NULL,
year YEAR NOT NULL,
building VARCHAR(256) NOT NULL,
room VARCHAR(16) NOT NULL ,
timeslot_id VARCHAR(8) NOT NULL ,
PRIMARY KEY (cid , sect_id , semester , year),
FOREIGN KEY (cid) REFERENCES course (cid));
```

2.5. Teaches (pid, cid, sect_id, semester, year)

Type an SQL command to create Teaches table and execute the command on your DB.

2.6. Takes (student_id, cid, sect_id, semester, year, grade)

Type an SQL command to create Takes table and execute the command on your DB.

3. Insert Data into table

3.1. Professor

pid	pname	salary
001	Michael	35,000
002	Simon	40,000
003	William	25,000
004	Ken	40,000
005	Steve	50,000

Try typing the following SQL commands.

```
INSERT INTO professor (pid, pname , salary)
VALUES ('001', 'Michael', '35000'),
('002', 'Simon', '40000'),
('003', 'William', '25000'),
('004', 'Ken', '40000'),
('005', 'Steve', '50000');
```

3.2. Student

student_id	Name	year	e-mail
57723547	Jasmine	1	57723547@student.chula.ac.th
57712358	Lotus	1	57712358@student.chula.ac.th
56756421	Orchid	2	56756421@student.chula.ac.th
56717931	Rose	2	56717931@student.chula.ac.th
55748896	Tulip	3	55748896@student.chula.ac.th
55489317	Zinnia	3	55489317@student.chula.ac.th

Try typing the following SQL commands.

```
INSERT INTO student (student_id, name , year , email)
VALUES ('57723547', 'Jasmine', '1', '57723547@student.chula.ac.th'),
('57712358', 'Lotus', '1', '57712358@student.chula.ac.th'),
('56756421', 'Orchid', '2', '56756421@student.chula.ac.th'),
('56717931', 'Rose', '2', '56717931@student.chula.ac.th'),
('55748896', 'Tulip', '3', '55748896@student.chula.ac.th'),
('55489317', 'Zinnia', '3', '55489317@student.chula.ac.th');
```

Now, type an SQL command to insert your own information into student table and execute the command on your DB.

3.3. Course

cid	title	dept_name	credits
101001	Physics	Science	3
101002	Mathematics	Science	3
201001	Programming	Computer Engineering	2
201002	Database Systems	Computer Engineering	3
301001	Software Engineering	Computer Engineering	3

Try inserting the data into the course table.

```
INSERT INTO course (cid , title , dept_name , credits)
VALUES ('101001', 'Physics', 'Science', '3'),
('101002', 'Mathematics', 'Science', '3'),
('201001', 'Programming', 'Computer Engineering', '2'),
('201002', 'Database Systems', 'Computer Engineering', '3'),
('301001', 'Software Engineering', 'Computer Engineering', '3');
```

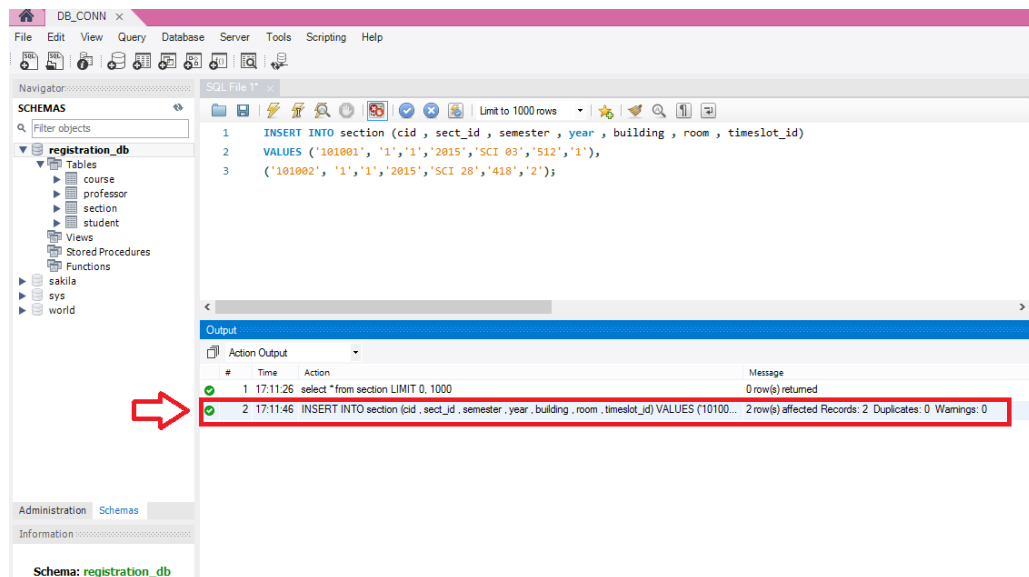
3.4. Section

cid	sect_id	semester	year	building	room	timeslot_id
101001	1	1	2015	SCI 03	512	1
101002	1	1	2015	SCI 28	418	2
101002	2	1	2015	SCI 28	317	3
201001	1	Summer	2015	Eng 3	305	3
201001	2	Summer	2015	Eng 3	405	3
201001	3	Summer	2015	Eng 3	309	1
201002	1	2	2015	Eng 100	405	2
301001	1	2	2015	Eng 3	309	2
301001	2	2	2015	Eng 3	305	1

Try inserting the first 2 rows of the data.

```
INSERT INTO section (cid , sect_id , semester , year , building , room , timeslot_id)
VALUES ('101001', '1','1','2015','SCI 03','512','1'),
('101002', '1','1','2015','SCI 28','418','2');
```

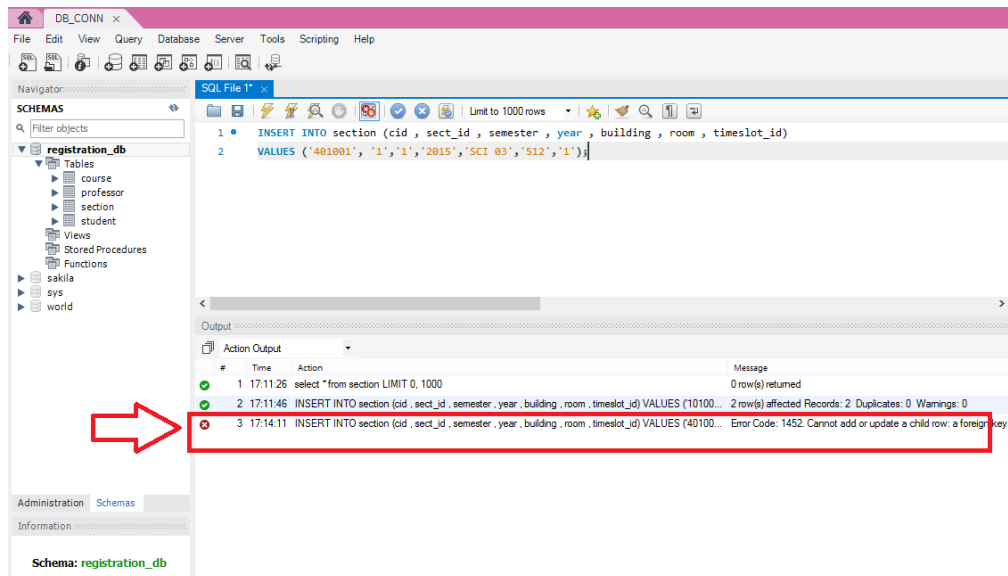
Since **cid** is defined as a foreign key from course table, the system will first check whether the input **cids** (101001 and 101002) appear in the course table or not. If they are, the insertion will be successfully executed.



Now, try inserting the following values into section table

```
INSERT INTO section (cid , sect_id , semester , year , building , room , timeslot_id)
VALUES ('401001', '1','1','2015','SCI 03','512','1');
```

Since the current data in the course table does not contain the course id 401001, an **error message** will be displayed.



3.5. Teaches

pid	cid	sect_id	semester	year
001	101001	1	1	2015
002	101002	1	1	2015
002	101002	2	1	2015
004	201002	1	2	2015
005	301001	1	2	2015
005	301001	2	2	2015
003	201001	1	summer	2015
003	201001	2	summer	2015
003	201001	3	summer	2015

Type an SQL command to insert the above information into Teaches table and execute the command on your DB.

3.6. Takes

student_id	cid	sect_id	semester	year	grade
57723547	101001	1	1	2015	A
57712358	101001	1	1	2015	A
57723547	101002	1	1	2015	B+
57712358	101002	2	1	2015	B
56756421	201001	1	summer	2015	A
56717931	201001	3	summer	2015	B
55748896	201002	1	2	2015	A
55489317	301001	2	2	2015	C

Type an SQL command to insert the above information into Takes table and execute the command on your DB.

4. Create SQL commands to query the following information from the

“REGISTRATION_DB” database:

4.1 Display all courses opened in 2/2015.

4.2 Show list of professors teaching in summer/2015.

4.3 Which professors earn the highest salary?

4.4 Show the class information (building, room#, and timeslot_id) of every course in 1/2015.

4.5 How many 2nd-year students do we have?

5. Capture your MySQLWorkbench screenshot showing the SQL commands written along with the resulting tables for problems 4.1 – 4.5 through MyCourseVille homework submission page.