

Q2. Supply suitable CREATE TABLE statements to implement the diagram you in Q1. Care should be taken to include the necessary foreign key constraints to the various relationship types in your above diagram.

For each table you create, both the SQL statement(s) and a screenshot of the creation should be supplied (showing any foreign key constraints).

```
mysql> DROP DATABASE IF EXISTS UniversityTimetable_DB;  
Query OK, 0 rows affected, 1 warning (0.00 sec)
```

```
mysql> DROP DATABASE IF EXISTS UniversityTimetableDB;  
Query OK, 8 rows affected (0.05 sec)
```

```
mysql> CREATE DATABASE UniversityTimetableDB;  
Query OK, 1 row affected (0.00 sec)
```

```
mysql> USE UniversityTimetableDB;  
Database changed
```

```
mysql> DROP TABLE IF EXISTS `Program`;  
Query OK, 0 rows affected, 1 warning (0.00 sec)
```

```
mysql> CREATE TABLE `Program` (  
->   `program_id` VARCHAR(8) NOT NULL PRIMARY KEY,  
->   `name` VARCHAR(10) NOT NULL,  
->   `department` VARCHAR(8) NOT NULL  
-> );  
Query OK, 0 rows affected (0.24 sec)
```

```
mysql> DROP TABLE IF EXISTS `Lecturer`;
Query OK, 0 rows affected, 1 warning (0.00 sec)
```

```
mysql> CREATE TABLE `Lecturer` (
  -> `lecturer_id` INT(8) NOT NULL PRIMARY KEY,
  -> `lec_name` VARCHAR(10) NOT NULL,
  -> `office_number` VARCHAR(8) NOT NULL,
  -> `dept` VARCHAR(10) NOT NULL,
  -> `email` VARCHAR(20) NOT NULL
  -> );
Query OK, 0 rows affected (0.12 sec)
```

```
mysql> DROP TABLE IF EXISTS `Student`;
Query OK, 0 rows affected, 1 warning (0.00 sec)
```

```
mysql> CREATE TABLE `Student` (
  -> `student_id` INT(8) NOT NULL PRIMARY KEY,
  -> `name` VARCHAR(20) NOT NULL,
  -> `date_of_birth` DATE NOT NULL,
  -> `program_id` VARCHAR(8) NOT NULL,
  -> `date_registered` DATETIME NOT NULL,
  -> FOREIGN KEY (program_id) REFERENCES Program(program_id)
  -> );
Query OK, 0 rows affected (0.12 sec)
```

```
mysql> DROP TABLE IF EXISTS `Tutor`;
Query OK, 0 rows affected, 1 warning (0.00 sec)
```

```
mysql> CREATE TABLE `Tutor` (
  -> `tutor_id` INT(8) NOT NULL PRIMARY KEY,
  -> `name` VARCHAR(20) NOT NULL,
  -> `program_id` VARCHAR(8) NOT NULL,
  -> FOREIGN KEY (program_id) REFERENCES Program(program_id)
  -> );
Query OK, 0 rows affected (0.07 sec)
```

```
mysql> DROP TABLE IF EXISTS `Modules`;
Query OK, 0 rows affected, 1 warning (0.00 sec)
```

```
mysql> CREATE TABLE `Modules` (
  ->   `module_code` VARCHAR(8) NOT NULL PRIMARY KEY,
  ->   `mod_name` VARCHAR(20) NOT NULL,
  ->   `lecturer_id` INT(8) NOT NULL,
  ->   FOREIGN KEY (lecturer_id) REFERENCES Lecturer(lecturer_id)
  -> );
Query OK, 0 rows affected (0.09 sec)
```

```
mysql> DROP TABLE IF EXISTS `Lecture`;
Query OK, 0 rows affected, 1 warning (0.00 sec)
```

```
mysql> CREATE TABLE `Lecture` (
  ->   `lecture_id` INT(8) NOT NULL PRIMARY KEY,
  ->   `room` VARCHAR(8) NOT NULL,
  ->   `date` DATE NOT NULL,
  ->   `time` TIME NOT NULL,
  ->   `lecturer_id` INT(8) NOT NULL,
  ->   FOREIGN KEY (lecturer_id) REFERENCES Lecturer(lecturer_id)
  -> );
Query OK, 0 rows affected (0.05 sec)
```

```
mysql> DROP TABLE IF EXISTS `ProgramModules`;
Query OK, 0 rows affected, 1 warning (0.00 sec)
```

```
mysql> CREATE TABLE `ProgramModules` (
  ->   `program_id` VARCHAR(8) NOT NULL,
  ->   `module_code` VARCHAR(8) NOT NULL,
  ->   FOREIGN KEY (program_id) REFERENCES Program(program_id),
  ->   FOREIGN KEY (module_code) REFERENCES Modules(module_code),
  ->   PRIMARY KEY(program_id, module_code)
  -> );
Query OK, 0 rows affected (0.06 sec)
```

```
mysql> DROP TABLE IF EXISTS `ModulesLectures`;
Query OK, 0 rows affected, 1 warning (0.00 sec)
```

```
mysql> CREATE TABLE `ModulesLectures` (
  -> `module_code` VARCHAR(8) NOT NULL,
  -> `lecture_id` INT(8) NOT NULL,
  -> FOREIGN KEY (module_code) REFERENCES Modules(module_code),
  -> FOREIGN KEY (lecture_id) REFERENCES Lecture(lecture_id),
  -> PRIMARY KEY(lecture_id, module_code)
  -> );
Query OK, 0 rows affected (0.05 sec)
```

```
mysql> EXPLAIN Program;
```

Field	Type	Null	Key	Default	Extra
program_id	varchar(8)	NO	PRI	NULL	
name	varchar(10)	NO		NULL	
department	varchar(8)	NO		NULL	

3 rows in set (0.02 sec)

```
mysql> DESCRIBE Lecturer;
```

Field	Type	Null	Key	Default	Extra
lecturer_id	int(8)	NO	PRI	NULL	
lec_name	varchar(10)	NO		NULL	
office_number	varchar(8)	NO		NULL	
dept	varchar(10)	NO		NULL	
email	varchar(20)	NO		NULL	

5 rows in set (0.00 sec)

```
mysql> DESCRIBE Student;
```

Field	Type	Null	Key	Default	Extra
student_id	int(8)	NO	PRI	NULL	
name	varchar(20)	NO		NULL	
date_of_birth	date	NO		NULL	
program_id	varchar(8)	NO	MUL	NULL	
date_registered	datetime	NO		NULL	

5 rows in set (0.00 sec)

```
mysql> DESCRIBE Tutor;
```

Field	Type	Null	Key	Default	Extra
tutor_id	int(8)	NO	PRI	NULL	
name	varchar(20)	NO		NULL	
program_id	varchar(8)	NO	MUL	NULL	

3 rows in set (0.01 sec)

```
mysql> DESCRIBE Modules;
```

Field	Type	Null	Key	Default	Extra
module_code	varchar(8)	NO	PRI	NULL	
mod_name	varchar(20)	NO		NULL	
lecturer_id	int(8)	NO	MUL	NULL	

3 rows in set (0.00 sec)

```
mysql> DESCRIBE Lecture;
```

Field	Type	Null	Key	Default	Extra
lecture_id	int(8)	NO	PRI	NULL	
room	varchar(8)	NO		NULL	
date	date	NO		NULL	
time	time	NO		NULL	
lecturer_id	int(8)	NO	MUL	NULL	

5 rows in set (0.01 sec)

```
mysql> DESCRIBE ProgramModules;
```

Field	Type	Null	Key	Default	Extra
program_id	varchar(8)	NO	PRI	NULL	
module_code	varchar(8)	NO	PRI	NULL	

2 rows in set (0.01 sec)

```
mysql> DESCRIBE ModulesLectures;
```

Field	Type	Null	Key	Default	Extra
module_code	varchar(8)	NO	PRI	NULL	
lecture_id	int(8)	NO	PRI	NULL	

2 rows in set (0.00 sec)

```
mysql> ALTER TABLE Program CHANGE name name VARCHAR(25) NOT NULL;
Query OK, 1 row affected (0.12 sec)
Records: 1 Duplicates: 0 Warnings: 0
```

```
mysql> INSERT INTO Program VALUES ("CS101", "Computer Science BSc", "CSI");
Query OK, 1 row affected (0.00 sec)
```

```
mysql> SELECT * FROM Program;
+-----+-----+-----+
| program_id | name                | department |
+-----+-----+-----+
| AR666      | Sociology & French | Humanities |
| CS101      | Computer Science BSc | CSI       |
| EN899      | Civil Engineering  | Engineering |
| PS345      | Applied Psychology  | Psychology |
+-----+-----+-----+
4 rows in set (0.00 sec)
```

```
mysql> SELECT * FROM Lecturer;
+-----+-----+-----+-----+-----+
| lecturer_id | name          | office_number | dept      | email          |
+-----+-----+-----+-----+-----+
| 123         | Robert Morris | 301A          | Psychology | rmorris@ucd.ie |
| 124         | Rhona Wilson  | 508T          | CSI       | rwilson@ucd.ie |
| 125         | Mary Fahy     | 322F          | Engineerin | mfahy@ucd.ie   |
+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

```
mysql> INSERT INTO Student VALUES ("14942312", "Terrence Stokes", "1990-08-23", "CS101", "2013-08-22 13:23:34");
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM Student;
+-----+-----+-----+-----+-----+
| student_id | name          | date_of_birth | program_id | date_registered |
+-----+-----+-----+-----+-----+
| 14942312   | Terrence Stokes | 1990-08-23    | CS101      | 2013-08-22 13:23:34 |
+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)
```

```
mysql> INSERT INTO Tutor VALUES ("15556893", "Chri Mickhov", "AR666");
Query OK, 1 row affected (0.02 sec)

mysql> SELECT * FROM Tutor;
+-----+-----+-----+
| tutor_id | name          | program_id |
+-----+-----+-----+
| 15556893 | Chri Mickhov | AR666      |
+-----+-----+-----+
1 row in set (0.00 sec)
```

```
mysql> INSERT INTO Modules VALUES ("COMP30510", "SQL Programming", "124");
Query OK, 1 row affected, 1 warning (0.00 sec)
```

```
mysql> SELECT * FROM Modules;
+-----+-----+-----+
| module_code | mod_name      | lecturer_id |
+-----+-----+-----+
| COMP3051    | SQL Programming |          124 |
+-----+-----+-----+
1 row in set (0.00 sec)
```

```
mysql> INSERT INTO Lecture VALUES ("300", "305H", "2014-02-17", "16:00:00", "124");
Query OK, 1 row affected (0.00 sec)
```

```
mysql> SELECT * FROM Lecture;
+-----+-----+-----+-----+-----+
| lecture_id | room | date      | time      | lecturer_id |
+-----+-----+-----+-----+-----+
|          300 | 305H | 2014-02-17 | 16:00:00 |          124 |
+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)
```