## Q1. The Relational Model

### Q1.1.

Students ( sno, surname, givename, major )
Staff ( eno, surname, givename, department, rank )
Class ( cno, lecturer*, day, time, room )
Enrol ( sno*, cno*, grade )

### Q1.2.

**Student**

```
CREATE TABLE Student
(
   sno char(20)       NOT NULL        ,
   surname char(30)                   ,
   givename char(30)                  ,
   major char(30)                     ,
   PRIMARY KEY (sno)
);
```

**Staff**

```
CREATE TABLE Staff
(
   eno char(20)       NOT NULL        ,
   surname char(30)                   ,
   givename char(30)                  ,
   department char(30)                ,
   rank char(30)                      ,
   PRIMARY KEY (eno)
);
```

**Class**

```
CREATE TABLE Class
(
   cno char(20)       NOT NULL                ,
   lecturer char(20)  NOT NULL                ,
   day char(30)                               ,
   time char(30)                              ,
```

```
   room char(30)                                    ,
   PRIMARY KEY (cno)                                ,
   FOREIGN KEY (lecturer) references Staff (eno)
);
```

**Enrol**

```
CREATE TABLE Enrol
(
   sno char(20)       NOT NULL                      ,
   cno char(20)       NOT NULL                      ,
   grade char(20)                                   ,
   FOREIGN KEY (sno) references Student (sno)  ,
   FOREIGN KEY (cno) references Class (cno )    ,
   PRIMARY KEY (sno, cno)
);
```

**Q.1.3.**

**Student**

```
INSERT INTO Student VALUES ('s1001', 'Smith', 'Tom', 'History');
INSERT INTO Student VALUES ('s1002', 'Chin', 'Ann', 'Maths');
INSERT INTO Student VALUES ('s1003', 'Lee', 'Perry', 'Arts');
INSERT INTO Student VALUES ('s1005', 'Smith', 'John', 'History');
INSERT INTO Student VALUES ('s1006', 'River', 'Jane', 'Arts');
```

**Staff**

```
INSERT INTO Staff VALUES ('e123', 'Bowl', 'Alex', 'Maths', 'Lecturer');
INSERT INTO Staff VALUES ('e205', 'Cox', 'Kevin', 'CSC', 'Associate Professor');
INSERT INTO Staff VALUES ('e301', 'Jones', 'David', 'Arts', 'Senior Lecturer');
```

**Class**

```
INSERT INTO Class VALUES ('isys155', 'e123', 'Wed', '17:30', '80.01.12');
INSERT INTO Class VALUES ('cosc121', 'e205', 'Thu', '08:30', '12.10.02');
INSERT INTO Class VALUES ('artc131', 'e301', 'Mon', '10:30', '10.08.09');
INSERT INTO Class VALUES ('cosc101', 'e205', 'Tue', '14:30', '14.09.05');
```

**Enrol**

```
INSERT INTO Enrol VALUES ('s1001', 'isys155', 'HD');
INSERT INTO Enrol VALUES ('s1003', 'cosc121', ' ');
INSERT INTO Enrol VALUES ('s1005', 'artc131', 'CR');
INSERT INTO Enrol VALUES ('s1006', 'cosc101', ' ');
```

## Q2. SQL

### Q2.1.

The query will show the field number and the title of the field table with the state of field number ranging from 500 to 599 or the title name should include the DATA word in it. The DATA word can be placed at the beginning of the title, in the middle, or at the end.

### Q2.2.

```
Select paper.panum, paper.title, author.acnum, interest.fieldnum
From paper, author, interest
Where paper.panum = author.panum
    AND author.acnum = interest.acnum;
```

### Q2.3.

```
Select COUNT (acnum)
From academic
Where deptnum = 100;
```

### Q2.4.

```
Select title
From paper
Order by title ASC;
```

### Q2.5.

```
Select *
From field
Where title like 'Data%'
    AND title NOT like 'Database%';
```

**Q2.6.**

```
Select paper.panum, paper.title, author.acnum
From paper, author
Where paper.panum = author.acnum;
```

**Q2.7.**

```
Select famname, givename
From academic, department
Where (acnum >= 200 AND acnum <= 299)
    AND department.descrip='RMIT CS'
Order by famname ASC;
```

**Q2.8.**

```
Select famname, givename
From academic, department
Where academic.deptnum=department.deptnum
   AND state = 'VIC'
         OR state = 'Vic'
Order by famname ASC;
```

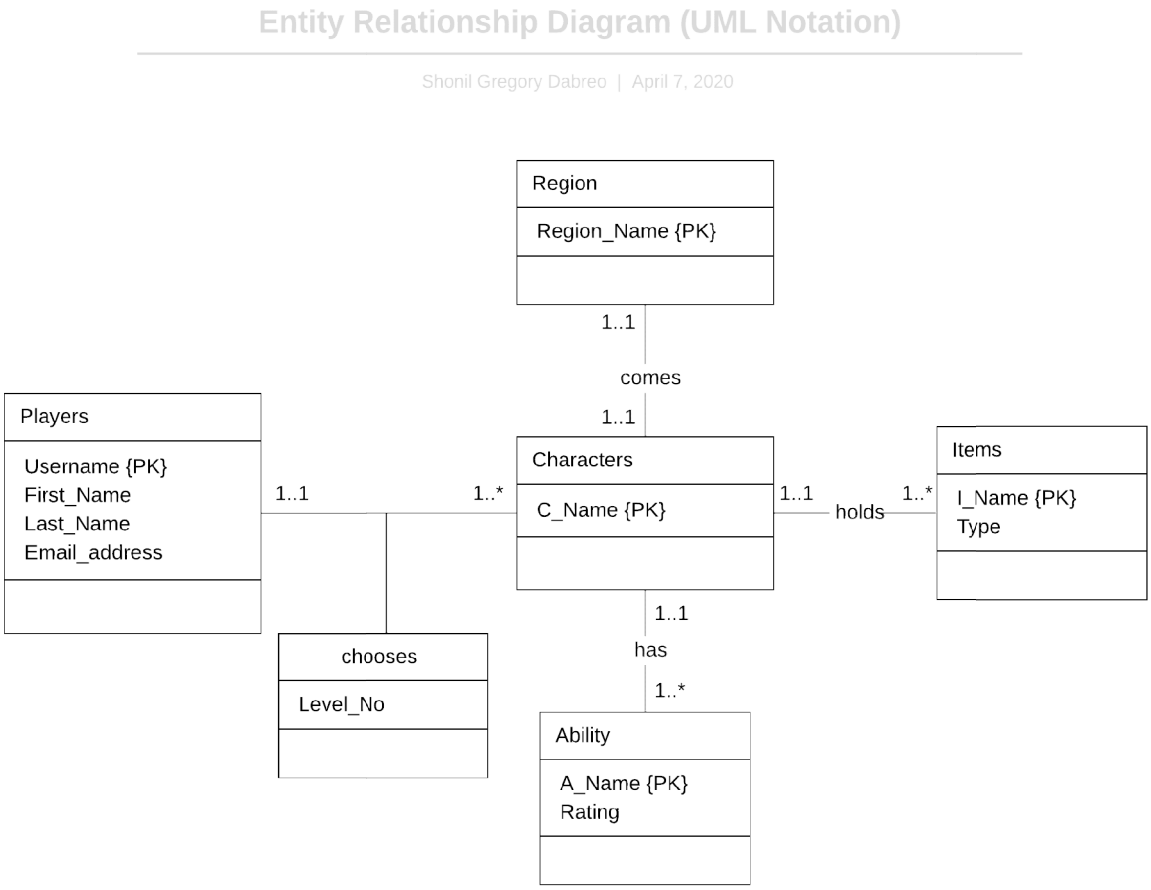
**Q2.9.**

```
Select famname, givename
From academic
Where title IS NULL
Order by famname ASC;
```

**Q2.10.**

```
Select COUNT (distinct instname)
From department;
```

**Q3. ER**




**Assumptions:**

1. Assuming that the Players class includes the information of the registered players.