

## Sub Query Exercise Solutions

```
CREATE TABLE StudentInfo (  
    SID INTEGER(7) PRIMARY KEY,  
    S_Name VARCHAR(30),  
    GPA FLOAT(3,2),  
    Major VARCHAR(30)  
);
```

```
CREATE TABLE Faculty (  
    FID INTEGER(7) PRIMARY KEY,  
    F_Name VARCHAR(30) NOT  
NULL,  
    F_Phone VARCHAR(15),  
    Salary FLOAT(7,2),  
    JoinDate DATETIME,  
    Dept VARCHAR(10)  
);
```

```
CREATE TABLE CourseInfo (  
    CID INTEGER(7) PRIMARY KEY,  
    C_Name VARCHAR(30) NOT  
NULL,  
    FID INTEGER(7),  
    CONSTRAINT CI_FID_FK  
    FOREIGN KEY (FID)  
    REFERENCES Faculty (FID)  
    ON DELETE CASCADE  
);
```

```
CREATE TABLE CourseGrade (  
    SID INTEGER(7) NOT NULL,  
    CID INTEGER(7) NOT NULL,  
    Grade VARCHAR(1) NOT NULL,  
    PRIMARY KEY (SID, CID),  
    CONSTRAINT CG_SID_FK  
    FOREIGN KEY (SID)  
    REFERENCES StudentInfo  
(SID)  
    ON DELETE CASCADE,  
    CONSTRAINT CG_CID_FK  
    FOREIGN KEY (CID)  
    REFERENCES CourseInfo  
(CID)  
    ON DELETE CASCADE  
);
```

1. Show the Course ID and grade of the courses that Jones has taken. **(1 result)**

```
SELECT CID, Grade  
FROM CourseGrade  
WHERE SID IN  
    (SELECT SID  
     FROM StudentInfo  
     WHERE S_Name = "Jones");
```

2. For each of the students with an IS major, show the Course ID and the grades of all the courses they have taken. **(8 results)**

```
SELECT CID, Grade  
FROM CourseGrade  
WHERE SID IN  
    (SELECT SID  
     FROM StudentInfo  
     WHERE Major = "IS");
```

## Sub Query Exercise Solutions

3. Show the phone number and name of the faculty who is teaching ISM 301. **(1 result)**

```
SELECT F_Name, F_Phone
FROM Faculty
WHERE FID IN
    (SELECT FID
     FROM CourseInfo
     WHERE C_Name = "ISM 301");
```

4. For each of the students whose name starts with an 'A', show the course name of all the courses that he/she has taken. **(2 results)**

```
SELECT C_Name
FROM CourseInfo
WHERE CID IN
    (SELECT CID
     FROM CourseGrade
     WHERE SID IN
         (SELECT SID
          FROM StudentInfo
          WHERE S_Name LIKE "A%"));
```

5. Show the name of the faculty who earns the highest salary. **(1 result)**

```
SELECT F_Name
FROM Faculty
WHERE Salary =
    (SELECT MAX(Salary)
     FROM Faculty);
```

6. Show the name(s) of the faculty who earns more than the average salary. **(2 results)**

```
SELECT F_Name
FROM Faculty
WHERE Salary >
    (SELECT AVG(Salary)
     FROM Faculty);
```

## Sub Query Exercise Solutions

7. Show the name(s) of the students who have gotten an A in ISM 218. **(3 results)**

```
SELECT S_Name
FROM StudentInfo
WHERE SID IN
    (SELECT SID
     FROM CourseGrade
     WHERE Grade = "A" AND CID IN
        (SELECT CID
         FROM CourseInfo
         WHERE C_Name = "ISM 218"));
```

8. Show the grade in the ISM 218 course for student ID 2. **(1 result)**

```
SELECT Grade
FROM CourseGrade
WHERE SID = 2 AND CID =
    (SELECT CID
     FROM CourseInfo
     WHERE C_Name = "ISM 218");
```

9. Show the name of the course where student ID 1 received an A. **(1 result)**

```
SELECT C_Name
FROM CourseInfo
WHERE CID IN
    (SELECT CID
     FROM CourseGrade
     WHERE Grade = "A" AND SID = 1);
```