Aggregate Functions

Queries

```sql
3        -- Q1
4   *    SELECT  empid, name
5        FROM  professor
6        WHERE StartYear = (SELECT min(Startyear) FROM professor);
7
8        -- Q2
9   *    SELECT RollNo, s.Name
10       FROM Student s, Professor p
11       WHERE s.Advisor = p.EmpId AND s.sex = p.sex;
12
13       -- Q3
14  *    SELECT EmpId, Name
15       FROM Professor
16       WHERE EmpId IN
17  ⊖       (SELECT Advisor
18           FROM Student
19           WHERE sex='f'
20           GROUP BY advisor
21           HAVING COUNT(Advisor) >= 1);
22
23       -- Q4
24  *    SELECT DeptId, Name
25       FROM department
26       WHERE DeptId NOT IN
27  ⊖       (SELECT DISTINCT(DeptNo)
28           FROM course
29           WHERE Credits=4);
```

```sql
-- Q5
SELECT RollNo
FROM Enrollment
WHERE CourseId IN
    (SELECT CourseId
     FROM teaching
     WHERE EmpId=5)
GROUP BY RollNo
HAVING Count(RollNo)=(SELECT COUNT(CourseId)
                      FROM teaching
                      WHERE EmpId = 5);

-- Q6
SELECT RollNo
FROM enrollment
WHERE CourseId IN
    (SELECT Prereqcourse
     FROM Prerequisite
     WHERE CourseId='CS789')
AND Grade IN ('S' ,'A')
GROUP BY RollNo
HAVING COUNT(RollNo)=
    (SELECT Count(Prereqcourse)
     FROM prerequisite
     WHERE courseID='CS789');
```

```sql
57    -- Q7
58    SELECT Name, Phone
59    FROM department;
60
61    -- Q8
62    SELECT RollNo
63    FROM enrollment
64    WHERE CourseId IN ('CS232', 'CS230')
65    GROUP BY RollNo
66    HAVING COUNT(RollNo)=1 ;
67
68    -- Q9
69    SELECT RollNo
70    FROM enrollment
71    WHERE CourseId IN ('CS232', 'CS230')
72    GROUP BY RollNo
73    HAVING COUNT(RollNo)=2;
74
```

```sql
76    -- Q10
77    SELECT DISTINCT(RollNo)
78    FROM enrollment
79    WHERE RollNo NOT IN
80        (SELECT RollNo
81         FROM enrollment
82         WHERE CourseId='CS230');
83
```

Outputs:

```
mysql> SELECT  empid, name  FROM  professor  WHERE StartYear = (SELECT min(Startyear) FROM professor);
+-------+-----------+
| empid | name      |
+-------+-----------+
|     3 | Venugopal |
+-------+-----------+
1 row in set (0.01 sec)

mysql> SELECT RollNo, s.Name
    -> FROM Student s, Professor p
    -> WHERE s.Advisor = p.EmpId AND s.sex = p.sex;
+----------+----------+
| RollNo   | Name     |
+----------+----------+
| 21110001 | Aniruth  |
| 21110088 | Prathosh |
| 21110032 | Jaiko    |
| 21110311 | Trisha   |
| 21110011 | Vishal   |
+----------+----------+
5 rows in set (0.00 sec)

mysql> SELECT EmpId, Name
    -> FROM Professor
    -> WHERE EmpId IN
    -> (SELECT Advisor
    ->     FROM Student
    ->     WHERE sex='f'
    ->     GROUP BY advisor
    ->     HAVING COUNT(Advisor) >= 1);
+-------+------------------+
| EmpId | Name             |
+-------+------------------+
|     2 | Santhi Natarajan |
|     4 | Sundharakuamr KB |
+-------+------------------+
2 rows in set (0.00 sec)

mysql> SELECT DeptId, Name
    -> FROM department
    -> WHERE DeptId NOT IN
    -> (SELECT DISTINCT(DeptNo)
    ->     FROM course
    ->     WHERE Credits=4);
+--------+------+
| DeptId | Name |
+--------+------+
|     5 | CHEM |
|     7 | BME  |
+--------+------+
2 rows in set (0.00 sec)
```

```
mysql> SELECT RollNo
    -> FROM Enrollment
    -> WHERE CourseId IN
    -> (SELECT CourseId
    ->     FROM teaching
    ->     WHERE EmpId=5)
    -> GROUP BY RollNo
    -> HAVING Count(RollNo)=
    -> (SELECT COUNT(CourseId)
    -> FROM teaching
    -> WHERE EmpId = 5);
+----------+
| RollNo   |
+----------+
| 21110007 |
| 21110011 |
+----------+
2 rows in set (0.00 sec)

mysql> SELECT RollNo
    -> FROM enrollment
    -> WHERE CourseId IN
    -> (SELECT Prereqcourse
    ->     FROM Prerequisite
    ->     WHERE CourseId='CS789')
    -> AND Grade IN ('S' ,'A')
    -> GROUP BY RollNo
    -> HAVING COUNT(RollNo)=
    -> (SELECT Count(Prereqcourse)
    ->     FROM prerequisite
    ->     WHERE courseID='CS789');
+----------+
| RollNo   |
+----------+
| 21110001 |
| 21110011 |
+----------+
2 rows in set (0.01 sec)

mysql> SELECT Name, Phone
    -> FROM department;
+-------+-------+
| Name  | Phone |
+-------+-------+
| CSE   |  1212 |
| CHEM  |  1202 |
| BME   |  1322 |
| CIVIL |  1022 |
+-------+-------+
4 rows in set (0.01 sec)
```

```
mysql> SELECT RollNo
    -> FROM enrollment
    -> WHERE CourseId IN ('CS232', 'CS230')
    -> GROUP BY RollNo
    -> HAVING COUNT(RollNo)=1;
+----------+
| RollNo   |
+----------+
| 21110001 |
| 21110088 |
+----------+
2 rows in set (0.00 sec)

mysql> SELECT RollNo
    -> FROM enrollment
    -> WHERE CourseId IN ('CS232', 'CS230')
    -> GROUP BY RollNo
    -> HAVING COUNT(RollNo)=2;
+----------+
| RollNo   |
+----------+
| 21110007 |
| 21110011 |
+----------+
2 rows in set (0.00 sec)
```

```
mysql> SELECT DISTINCT(RollNo)
    -> FROM enrollment
    -> WHERE RollNo NOT IN
    ->      (SELECT RollNo
    ->      FROM enrollment
    ->      WHERE CourseId='CS230');
+----------+
| RollNo   |
+----------+
| 21110088 |
| 21110032 |
+----------+
2 rows in set (0.00 sec)
```