

CS 386/586 ASSIGNMENT 1

FALL 2011

Part One

Describe in English what the following SQL queries do. Also include (at most) the first five rows of the result for each query, and the total number of rows returned.

1.

(a) `SELECT * FROM Agent WHERE agent_id = 55;`

Display all information of the agent whose agent id is 55.

1 row

| agent_id | first | middle | last | address | city | country | salary | clearance_id |
|----------|-------|--------|-------|----------------|---------|---------|--------|--------------|
| 55 | John | NULL | House | 35 28th Avenue | Seattle | USA | 54803 | 5 |

(b) `SELECT DISTINCT city FROM Agent;`

Display all the cities associated with agents with no duplicate of city names.

46 rows

| city |
|-----------|
| Malaga |
| London |
| Jerusalem |
| Krakow |
| Cairo |

(c) `SELECT city FROM Agent;`

Display all cities associated with agents including duplicates.

662 rows

| city |
|----------|
| Athens |
| Paris |
| New York |
| Athens |
| New York |

(d) SELECT first, last FROM Agent WHERE salary > 52000 and salary < 55000;

Display the first and last names of the agents who have more than \$52000 and less than \$55000 salary per year.

106 rows

| first | last |
|--------|------------|
| Andrew | James |
| John | Johnston |
| Jim | Kieburz |
| George | Launchbury |
| George | McNamee |

(e) SELECT sc_level, description FROM Securityclearance;

Display all security levels and corresponding descriptions of security clearance.

7 rows

| sc_level | description |
|--------------|--------------------------------|
| Presidential | Highest level of access |
| Majestic | Second highest level of access |
| Magellon | Third highest level of access |
| Top Secret | Fourth highest level of access |
| Secret | Fifth highest level of access |

2.

(a) SELECT name, access_id FROM Mission WHERE mission_status='ongoing'
AND team_id=14;

Display the names and access IDs of ongoing missions allocated to team 14.

4 rows

| name | access_id |
|---------------------|-----------|
| Deeping Stream | 6 |
| Isengard | 3 |
| Pillars of the King | 5 |
| Deeping Coomb | 5 |

(b) `SELECT name, access_id FROM Mission M WHERE M.mission_status='ongoing'
AND M.team_id=14;`

Display the names and access IDs of ongoing missions allocated to team 14. (An alias M is used for Mission table.)

4 rows

| name | access_id |
|---------------------|-----------|
| Deeping Stream | 6 |
| Isengard | 3 |
| Pillars of the King | 5 |
| Deeping Coomb | 5 |

(c) `SELECT name, access_id FROM Mission WHERE Mission.mission_status='ongoing'
AND Mission.team_id=14;`

Display the names and access IDs of ongoing missions allocated to team 14. (The name of Mission table is used as qualifier for the attributes)

4 rows

| name | access_id |
|---------------------|-----------|
| Deeping Stream | 6 |
| Isengard | 3 |
| Pillars of the King | 5 |
| Deeping Coomb | 5 |

3.

(a) `SELECT * FROM Agent A, SecurityClearance S WHERE A.salary = 55262
AND S.sc_level = 'Majestic';`

Display all information of agents who have \$55262 salary per year combined with every record in the SecurityClearance table which has a security level of Majestic. (cross product)

4 rows

| agent_id | first | middle | last | address | city | country | salary | clearance_id | sc_id | sc_level | description |
|----------|----------|--------|-----------|------------------|-----------|---------|--------|--------------|-------|----------|--------------------------------|
| 125 | Bill | NULL | DiLiberty | 9-11 75th Avenue | New York | USA | 55262 | 4 | 2 | Majestic | Second highest level of access |
| 247 | Julien | NULL | Weber | 42 63rd Avenue | Madrid | Spain | 55262 | 1 | 2 | Majestic | Second highest level of access |
| 425 | Jim | NULL | Peroulis | 27 88th Avenue | Jerusalem | Israel | 55262 | 5 | 2 | Majestic | Second highest level of access |
| 1088 | Williams | NULL | Knoop | NULL | Madrid | Spain | 55262 | 2 | 2 | Majestic | Second highest level of access |

(b) `SELECT * FROM Agent A, SecurityClearance S WHERE A.clearance_id = S.sc_id
AND A.salary = 55262 AND S.sc_level = 'Majestic';`

Display all information of agents who have \$55262 salary per year and also have the security clearance level of Majestic.

1 row

| agent_id | first | middle | last | address | city | country | salary | clearance_id | sc_id | sc_level | description |
|----------|----------|--------|-------|---------|--------|---------|--------|--------------|-------|----------|--------------------------------|
| 1088 | Williams | NULL | Knoop | NULL | Madrid | Spain | 55262 | 2 | 2 | Majestic | Second highest level of access |

4.

(a) `SELECT A.first, A.last, A.city, A.country FROM Agent A, LanguageRel LR, Language L
WHERE A.agent_id = LR.agent_id AND LR.lang_id = L.lang_id AND L.language = 'Spanish';`

Display the first and last names, cities and countries for all agents who can speak in Spanish.

92 rows

| first | last | city | country |
|---------|------------|---------------|---------|
| John | Walpole | New York | USA |
| Pete | Consel | Athens | USA |
| Nicolas | Macon | San Francisco | USA |
| Tim | Tolmach | Athens | USA |
| George | van Santen | Paris | France |

(b) `SELECT A1.first, A1.last, A2.first, A2.last FROM Agent A1, Agent A2
WHERE A1.city = A2.city AND A1.country = A2.country
AND A1.clearance_id < A2.clearance_id AND A1.salary >= A2.salary;`

Display all pairs of agents who live in the same city and country such that one of them has the same or more salary than the other one with a lower security clearance id (higher security level).

4866 rows

| first | last | first | last |
|--------|---------|--------|---------|
| Mathew | Cohen | John | Walpole |
| George | Fairley | John | Walpole |
| Bill | Heeman | Pete | Moses |
| Bill | Heeman | Perry | Young |
| Bill | Heeman | Andrew | Milam |

Part Two

Write the SQL for the following queries. Show (at most) the first five rows of the result for each query and the number of rows returned. You should be able to write these SQL queries using only the features covered in the first week.

5. List the city, country and salary for agent Lilly Li.

```
SELECT city, country, salary
FROM Agent
WHERE first = 'Lilly' AND last = 'Li'
```

1 row

| city | country | salary |
|--------|---------|--------|
| Athens | USA | 67893 |

6. List the first and last names of all agents with Secret or Top Secret clearance. (Your query shouldn't depend on what clearance IDs are used for these clearance levels.)

```
SELECT A.first, A.last
FROM Agent A, SecurityClearance SC
WHERE A.clearance_id=SC.sc_id
      AND (SC.sc_level='Secret' OR SC.sc_level='Top Secret')
```

295 rows

| first | last |
|---------|-----------|
| Nick | Black |
| Mathew | Cohen |
| George | Fairley |
| Bill | Heeman |
| Kristin | Delcambre |

7. List the first and last names of all agents who speak at least two languages.

```
SELECT DISTINCT A.first, A.last
FROM Agent A, LanguageRel LR1, LanguageRel LR2
WHERE A.agent_id = LR1.agent_id AND
      A.agent_id = LR2.agent_id AND
      LR1.lang_id <> LR2.lang_id
```

538 rows

| first | last |
|---------|------------|
| George | Josephson |
| George | Cahill |
| Bill | Bayh |
| Serguie | Bikkenning |
| Orrin | Nelson |

8. List the name and status of all missions that have at least one agent with Majestic clearance. Don't repeat missions in your result.

```
SELECT DISTINCT M.name, M.mission_status
FROM Mission M, Team T, TeamRel TR, Agent A, SecurityClearance SC
WHERE M.team_id = T.team_id
      AND T.team_id = TR.team_id
      AND TR.agent_id = A.agent_id
      AND A.clearance_id = SC.sc_id
      AND SC.sc_level = 'Majestic'
```

377 rows

| name | mission_status |
|------------|----------------|
| Hay Gate | ongoing |
| Lograd | failed |
| Rasputin | failed |
| Melian | success |
| Mindolluin | failed |