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CS 486/586 Introduction to DBMS

Summer 2022

Homework Assignment 3

Part I - Subqueries

This part of the assignment is based on the Spy relational database. For each statement below, write a SQL query to find the answer to that question. Show the query, first 5 rows of the result relation, and row count. Use subqueries for all answers in this section.

1) List the name of the mission with the highest mission_id.

> **Answer**
>
> SELECT name FROM mission
>
> WHERE mission_id = (SELECT MAX(mission_id) FROM mission);

```
u22adb20=> SELECT name FROM mission
u22adb20-> WHERE mission_id = (SELECT MAX(mission_id) FROM mission);
        name
--------------------
Code Red Worm Attack
1 row)
```

Number of rows returned = 1 row

2) List the agents (agent_id, last, salary) who are on a 'Majestic' mission that is ongoing.

Answer

SELECT agent_id, last, salary FROM agent

WHERE agent_id IN

(SELECT DISTINCT t.agent_id FROM mission m, securityclearance s,teamrel t

WHERE m.mission_status='ongoing' AND m.access_id =s.sc_id

AND s.sc_level = 'Majestic' AND m.team_id=t.team_id);

```
 agent_id |        last        |  salary
----------+--------------------+---------
        3 | Cohen              |    55920
        4 | Cowan              |    66554
       20 | Jones              |    50171
       39 | Barnard            |    55622
       59 | Shapiro            |    52302
       69 | Yan                |    56702
       70 | Yang               |    67392
       81 | Heinlein           |    54263
       87 | Brock              |    56704
```

Number of rows returned = 100 rows

3) Find the skill and the number of people, that the least people have that skill(s).

Answer

SELECT s.skill, count(sr.agent_id) AS number_of_people

FROM skill s, skillrel sr

where sr.skill_id = s.skill_id

GROUP BY s.skill

ORDER BY COUNT(sr.agent_id)ASC LIMIT 1;

```
SulaaduBau-> ORDER BY COUNT(S..
 skill  | number_of_people
--------+------------------
 Sniper |                 3
(1 row)
```

Number of rows returned =1 row

Part II - Views

4)   Write an SQL view definition that displays agent names(first, last), the affiliation they belong to and the description of the affiliation(s). Show your view definition and the first 5 rows returned when you use SELECT * from the view, and the row count.

Answer

CREATE VIEW AgentAffiliation AS

SELECT a.first, a.last, af.aff_id, af.description

FROM agent a, affiliation af, affiliationrel ar

WHERE ar.aff_id = af.aff_id

AND ar.agent_id = a.agent_id;

```
    first     |     last      | aff_id |                 description
--------------+---------------+--------+--------------------------------------------------
Bill          | Bundt         |     15 | Russian Foreign Intelligence
Mathew        | Cohen         |      8 | International Police Organisation
George        | Fairley       |      7 | Security Service of Ukraine
George        | Fairley       |     23 | Secret terrorist group in Sicily
Bill          | Heeman        |     14 | Dutch Millitary Intelligence
Bill          | Heeman        |     15 | Russian Foreign Intelligence
Bill          | Heeman        |     30 | Secret Columbian Narcotics Dealers
Andrew        | James         |     16 | British Intelligence
Andrew        | James         |     27 | Secret society for Arms dealers
John          | Johnston      |      1 | Canadian Security Intelligence Service
John          | Johnston      |     19 | Egyptian General Intelligence
George        | Jones         |      2 | Australian Security Intelligence Organization
```

Number of rows returned = 954 rows

5) Write an SQL view definition that displays unique mission (name), the team(name) that performed this mission and the text of the missions security clearance level (access id) and description. Show your view definition and the first 5 rows returned when you SELECT * from the view, and the row count.

 Answer

CREATE VIEW MissionTeamSecurityclearance AS

SELECT DISTINCT m.name AS mission_name, t.name AS team_name,

sc.sc_level, sc.description

FROM mission m, team t, securityclearance sc

WHERE m.team_id = t.team_id AND m.access_id=sc.sc_id;

```
    mission_name     |    team_name    |    sc_level    |             description
---------------------+-----------------+----------------+------------------------------------
 Oliphaunt           | Cha Cha Cha     | Secret         | Fifth highest level of access
 Smial               | Haberdash       | Magellon       | Third highest level of access
 Crossroads          | FlyOnTheWall    | Magellon       | Third highest level of access
 Gelion              | Boat Team 1     | Majestic       | Second highest level of access
 Turac               | Swing Voters    | Majestic       | Second highest level of access
 Aman                | Haberdash       | Majestic       | Second highest level of access
 Mindolluin          | Rimspeed        | Unclassified   | Lowest level of clearance
 Lograd              | Giraffe         | Unclassified   | Lowest level of clearance
 Razar               | Timebomb        | Unclassified   | Lowest level of clearance
 Middle Earth        | Roadkill        | Unclassified   | Lowest level of clearance
 Gold King           | Camaro          | Magellon       | Third highest level of access
 Tower of the Sun    | Vikings         | Unclassified   | Lowest level of clearance
 Leaflock            | SqueakyClean    | Secret         | Fifth highest level of access
```

Number of rows returned = 404 rows