CS 486/586 Introduction to DBMS
Spring 2022

Assignment 3 – Subqueries, Views
Due: Friday, Apr 22, 11:59PM on Canvas
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Part I - Subqueries (60 pts total)

1) List the name of the mission with the lowest mission_id. (20 points)

Answer: -

select name from mission where mission_id = (select min(mission_id) from mission);

The screenshot depicting the query and its result is given below: -

```
spr2022adb35=> select name from mission
spr2022adb35-> where mission_id = (
spr2022adb35(> select min(mission_id) from mission);
   name
-----------
 Third Age
(1 row)

spr2022adb35=>
```

2) List the agents (agent_id, first, last) who have been on a 'Presidential' mission that succeeded. (20 points)

Answer: -

SELECT agent_id, first, last FROM agent WHERE agent_id IN (SELECT tr.agent_id FROM teamrel tr, mission m WHERE TR.team_id = m.team_id AND m.access_id IN (SELECT sc_id FROM securityclearance WHERE sc_level = 'Presidential') AND mission_status = 'success');

The screenshot depicting the query and its results is given below: -

a) Creating a view to store the results (as the number of rows is 142 for this select query)

```
create view testing
as
(SELECT agent_id, first, last FROM agent
WHERE agent_id IN
```

(SELECT tr.agent_id FROM teamrel tr, mission m
WHERE TR.team_id = m.team_id AND m.access_id
IN (SELECT sc_id FROM securityclearance
WHERE sc_level = 'Presidential')
AND mission_status = 'success'));

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```
spr2022adb35=> create view testing
spr2022adb35-> as
spr2022adb35-> (SELECT agent_id, first, last FROM agent
spr2022adb35(> WHERE agent_id IN
spr2022adb35(> (SELECT tr.agent_id FROM teamrel tr, mission m
spr2022adb35(> WHERE TR.team_id = m.team_id AND m.access_id
spr2022adb35(> IN (SELECT sc_id FROM securityclearance
spr2022adb35(> WHERE sc_level = 'Presidential')
spr2022adb35(> AND mission_status = 'success'));
CREATE VIEW
```

b) Checking the count of rows in this view

```
spr2022adb35=> select count(*) from testing;
 count
-------
   142
(1 row)
```

c) Displaying the result rows using select * from testing limit 40;

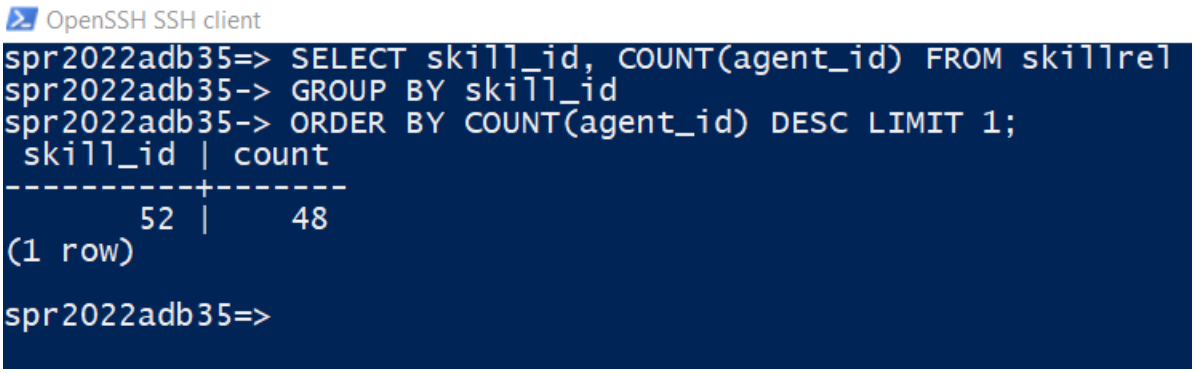
```
spr2022adb35=> spr2022adb35=> select * from testing limit 40;
 agent_id |  first   |      last
----------+----------+-----------------
        1 | Nick     | Black
        3 | Mathew   | Cohen
        4 | Jim      | Cowan
       20 | George   | Jones
       25 | Jim      | Maier
       39 | Nicolas  | Barnard
       48 | Bill     | Bellegarde
       55 | John     | House
       61 | Matt     | Song
       70 | George   | Yang
       80 | Mathew   | Hakanson
       83 | Jason    | Amezcua
       84 | George   | Cohen
       85 | Nick     | Coeckx
       87 | Tim      | Brock
       94 | David    | Kadam
       95 | Allon    | Kuhn
       96 | Tom      | Lymar
      108 | Michail  | Yu
      131 | Bob      | Foster
      141 | Nick     | House
      145 | Jim      | Platis
      152 | Jason    | Noel
      160 | George   | Singh
      168 | Richard  | Venkatesh
      172 | Nick     | Avendano
      174 | Travis   | Balasubramanian
      179 | Alex     | Brunner
      183 | George   | DeFreez
      184 | Jim      | Ducosdray
      185 | Josef    | Ellis
      186 | Bob      | Ferguson
      191 | Nickolas | Huynh
      199 | David    | Lyu
      212 | Tom      | Sathyam
      223 | Kate     | Wu
      233 | Pluto    | Anderson
      252 | Ethan    | Petallas
      256 | Pete     | Ward
      265 | Kristin  | Bliss
(40 rows)
```

3) Find the skill and the number of people, that the most people have that skill(s). (20 points)

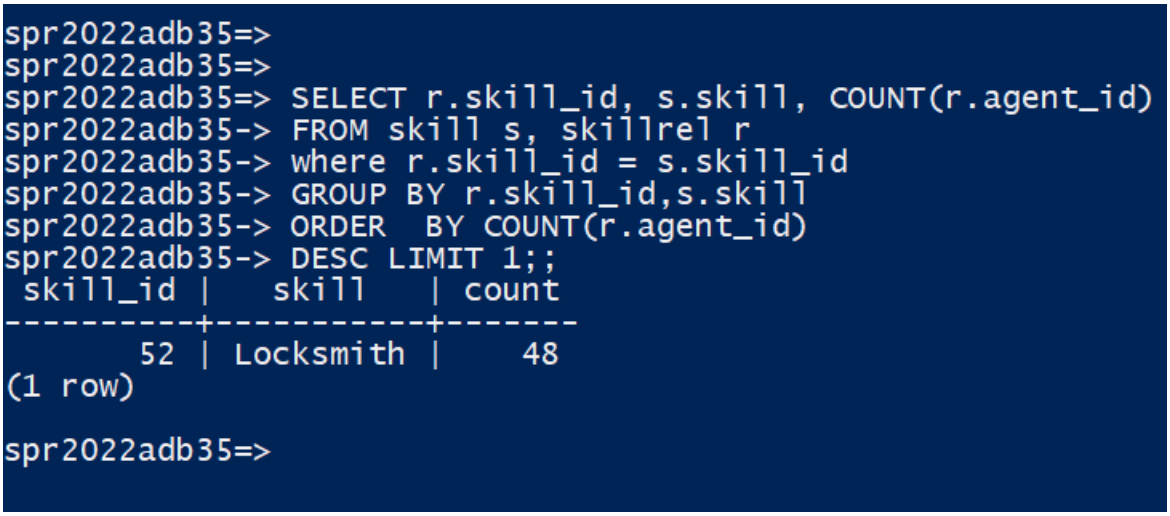
Answer: -

SELECT skill_id, COUNT(agent_id) FROM skillrel GROUP BY skill_id ORDER BY COUNT(agent_id) DESC LIMIT 1;

The screenshot below depicts the result of the above query: -



Method-2: -
SELECT r.skill_id, s.skill, COUNT(r.agent_id) FROM skill s, skillrel r where r.skill_id = s.skill_id GROUP BY r.skill_id,s.skill ORDER BY COUNT(r.agent_id) DESC LIMIT 1;



Part II - Views (40 pts total)

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 SELECT * from the view, and the row count. (20 points)

Answer: - CREATE VIEW agent_affiliation AS SELECT ag.first, ag.last, af.aff_id, af.description FROM agent ag, affiliation af, affiliationrel afr WHERE ag.agent_id = afr.agent_id AND afr.aff_id = af.aff_id;

The screenshot below gives the create view, count of tuples in view and lists some of the records

```
spr2022adb35=> CREATE VIEW agent_affiliation
spr2022adb35-> AS SELECT ag.first, ag.last, af.aff_id, af.description
spr2022adb35-> FROM agent ag, affiliation af, affiliationrel afr
spr2022adb35-> WHERE ag.agent_id =  afr.agent_id
spr2022adb35-> AND afr.aff_id = af.aff_id;
CREATE VIEW
spr2022adb35=> select count(*) from agent_affiliation;
 count
-------
   954
(1 row)

spr2022adb35=> select * from agent_affiliation limit 20;
    first     |   last    | aff_id |              description
--------------+-----------+--------+---------------------------------------
 John         | Johnston  |      1 | Canadian Security Intelligence Service
 Pete         | Pickering |      1 | Canadian Security Intelligence Service
 Michail      | Cushing   |      1 | Canadian Security Intelligence Service
 George       | Mak       |      1 | Canadian Security Intelligence Service
 Jamil        | Mitri     |      1 | Canadian Security Intelligence Service
 Robert       | Casteel   |      1 | Canadian Security Intelligence Service
 Nick         | Fedrick   |      1 | Canadian Security Intelligence Service
 Mary         | Curtis    |      1 | Canadian Security Intelligence Service
 Chris        | Cockerham |      1 | Canadian Security Intelligence Service
 Jason        | Velez     |      1 | Canadian Security Intelligence Service
 Bill         | White     |      1 | Canadian Security Intelligence Service
 George       | Serewis   |      1 | Canadian Security Intelligence Service
 George       | Undem     |      1 | Canadian Security Intelligence Service
 David        | Carper    |      1 | Canadian Security Intelligence Service
 Thad         | Talent    |      1 | Canadian Security Intelligence Service
 Norm         | Murray    |      1 | Canadian Security Intelligence Service
 Mitch        | Murkowski |      1 | Canadian Security Intelligence Service
 Ethan        | Watt      |      1 | Canadian Security Intelligence Service
 Lilly        | Schofield |      1 | Canadian Security Intelligence Service
 Hembert-Glen | Voss      |      1 | Canadian Security Intelligence Service
(20 rows)

spr2022adb35=>
```

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. (20 points)

Answer: - CREATE VIEW mission_sub AS SELECT DISTINCT m.name mission_name, t.name team_name, s.sc_level, s.description FROM mission m, team t, securityclearance s WHERE m.team_id = t.team_id AND m.access_id = s.sc_id;

The screenshot below gives the creat view, count of elements in the view and lists down some of the elements of the view: -

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```
spr2022adb35=> CREATE VIEW mission_sub
spr2022adb35-> AS
spr2022adb35-> SELECT DISTINCT m.name mission_name, t.name team_name,
spr2022adb35-> s.sc_level, s.description
spr2022adb35-> FROM mission m, team t, securityclearance s
spr2022adb35-> WHERE m.team_id = t.team_id AND m.access_id = s.sc_id;
CREATE VIEW
spr2022adb35=>
spr2022adb35=> select count(*) from mission_sub;
 count
-------
   404
(1 row)

spr2022adb35=>
spr2022adb35=> select * from mission_sub limit 20;
     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
 Appledore             | Blaster      | Majestic     | Second highest level of access
 Curtain               | Terminator   | Magellon     | Third highest level of access
 City of the Trees     | SqueakyClean | Magellon     | Third highest level of access
 Code Red Worm Attack  | Wired        | Magellon     | Third highest level of access
 Chicken Burrito       | Boat Team 1  | Top Secret   | Fourth highest level of access
 Minas Ithil           | ShowBiz      | Secret       | Fifth highest level of access
 Sandheaver            | Haberdash    | Top Secret   | Fourth highest level of access
(20 rows)

spr2022adb35=>
```