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COMP3421 Assignment 6

Q1: Find all information about managers who are 25 years old or younger and live in California ('CA').

```
+-----------+
|           |
+-----------+
| Question 1 |
+-----------+
1 row in set, 1 warning (0.00 sec)

mysql> select *
    -> from manages M, employee E
    -> where E.age <= 25 and E.residenceState = 'CA' and E.eid = M.eid;
+------+-----+------------------+------+-----------+------+--------+----------------+------------+
| eid  | did | managesStartDate | eid  | name      | age  | salary | residenceState | startDate  |
+------+-----+------------------+------+-----------+------+--------+----------------+------------+
| 2937 | 214 | 2017-01-06       | 2937 | Sally2937 |  22  | 65000  | CA             | 2017-04-05 |
| 3172 | 132 | 2017-05-22       | 3172 | Sally3172 |  20  | 36475  | CA             | 2017-10-02 |
+------+-----+------------------+------+-----------+------+--------+----------------+------------+
2 rows in set (0.01 sec)
```

Q2: Find the name, salary, age, and residence state of all 20-year-old or younger managers who live in Indiana ('IN').

```
+-----------+
|           |
+-----------+
| Question 2 |
+-----------+
1 row in set, 1 warning (0.00 sec)

mysql> select E.name, E.salary, E.age, E.residenceState
    -> from manages M, employee E
    -> where E.age <= 20 and E.residenceState = 'IN' and E.eid = M.eid;
Empty set (0.00 sec)
```

No managers who live in Indiana, 20 years old or younger. Confirmed using the following query.

```
mysql> select * from manages M, employee E where E.residenceState = 'IN' and e.eid = m.eid;
+------+-----+-----------------+------+-----------+------+--------+---------------+------------+
| eid  | did | managesStartDate | eid  | name      | age  | salary | residenceState | startDate  |
+------+-----+-----------------+------+-----------+------+--------+---------------+------------+
| 1468 | 402 | 2017-05-13      | 1468 | Sally1468 |  46  | 29144  | IN            | 2017-02-14 |
| 1610 | 495 | 2017-08-03      | 1610 | Sally1610 |  38  | 66145  | IN            | 2017-05-23 |
| 2249 | 222 | 2017-08-21      | 2249 | Sally2249 |  44  | 30213  | IN            | 2017-07-09 |
| 4365 |  74 | 2017-02-08      | 4365 | Sally4365 |  32  | 35380  | IN            | 2017-06-22 |
| 5203 | 192 | 2017-07-07      | 5203 | Sally5203 |  65  | 56206  | IN            | 2017-07-08 |
| 5286 | 358 | 2017-04-04      | 5286 | Sally5286 |  43  | 52202  | IN            | 2017-11-14 |
| 5462 | 469 | 2017-09-08      | 5462 | Sally5462 |  56  | 74898  | IN            | 2017-08-23 |
| 5535 | 130 | 2017-09-03      | 5535 | Sally5535 |  23  | 67829  | IN            | 2017-11-10 |
| 6464 |  48 | 2017-06-22      | 6464 | Sally6464 |  33  | 38910  | IN            | 2017-12-08 |
| 6782 | 335 | 2017-06-12      | 6782 | Sally6782 |  31  | 62184  | IN            | 2017-02-24 |
| 7012 | 382 | 2017-04-20      | 7012 | Sally7012 |  36  | 32518  | IN            | 2017-07-08 |
| 7619 | 491 | 2017-10-07      | 7619 | Sally7619 |  27  | 66001  | IN            | 2017-08-20 |
| 7931 | 319 | 2017-04-24      | 7931 | Sally7931 |  36  | 48400  | IN            | 2017-02-18 |
| 8601 | 154 | 2017-08-06      | 8601 | Sally8601 |  64  | 29655  | IN            | 2017-05-24 |
| 8601 | 254 | 2017-04-25      | 8601 | Sally8601 |  64  | 29655  | IN            | 2017-05-24 |
| 9246 | 137 | 2017-11-10      | 9246 | Sally9246 |  57  | 48024  | IN            | 2017-07-23 |
| 9906 | 129 | 2017-03-25      | 9906 | Sally9906 |  23  | 20564  | IN            | 2017-08-25 |
+------+-----+-----------------+------+-----------+------+--------+---------------+------------+
17 rows in set (0.00 sec)
```

Q3: Find the names and salary of 25-year-old employees who work for departments located on the fourth floor in Alaska ('AK').

```
+------------+
|            |
+------------+
| Question 3 |
+------------+
1 row in set, 1 warning (0.00 sec)

mysql> select E.name, E.salary
    -> from Employee E, department D, WorksFor WF
    -> where E.age = 25 and D.floor = 4 and D.stateLocated = 'AK' and E.eid = WF.eid and D.did = WF.did;
+-----------+--------+
| name      | salary |
+-----------+--------+
| Sally3122 |  21189 |
+-----------+--------+
1 row in set (0.00 sec)
```

Q4: Find the name, salary, and EID of 49-year-old employees who work for a department located in Alaska ('AK') but live in California ('CA').

```
mysql> select "Question 4" as " ";
+------------+
|            |
+------------+
| Question 4 |
+------------+
1 row in set, 1 warning (0.00 sec)

mysql> select E.name, E.salary, E.EID
    -> From Employee E, department D, worksFor WF
    -> where e.age = 49 and D.stateLocated = 'AK' and E.residenceState = 'CA' and E.eid = WF.eid and D.did = WF.did;
+-----------+--------+------+
| name      | salary | EID  |
+-----------+--------+------+
| Sally4280 |  69137 | 4280 |
+-----------+--------+------+
1 row in set (0.00 sec)
```

Q5: Find the total number of employees.

```
mysql> select "Question 5" as " ";
+------------+
|            |
+------------+
| Question 5 |
+------------+
1 row in set, 1 warning (0.00 sec)

mysql> select count(distinct e.eid)
    -> from employee E;
+-----------------------+
| count(distinct e.eid) |
+-----------------------+
|                 10000 |
+-----------------------+
1 row in set (0.00 sec)
```

Q6: Find the number of employees who are managers.

```
+------------+
|            |
+------------+
| Question 6 |
+------------+
1 row in set, 1 warning (0.00 sec)

mysql> select count(distinct e.eid)
    -> from employee E, manages M
    -> where e.eid = m.eid;
+-----------------------+
| count(distinct e.eid) |
+-----------------------+
|                   485 |
+-----------------------+
1 row in set (0.00 sec)
```

Q7: Find the number of employees who are not managers.

```
+-----------+
|           |
+-----------+
| Question 7 |
+-----------+
1 row in set, 1 warning (0.00 sec)

mysql> select count(distinct e.eid)
    -> from employee E
    -> where e.eid not in (select m.eid from manages M);
+----------------------+
| count(distinct e.eid) |
+----------------------+
|                 9515 |
+----------------------+
1 row in set (0.01 sec)
```

Q8: Find the (eid,number) pair for employees who are managing two or more departments where "number" is the number of departments they are managing.

```
+-----------+
|           |
+-----------+
| Question 8 |
+-----------+
1 row in set, 1 warning (0.00 sec)

mysql> select e.eid, count(*) as number
    -> from employee e, manages m
    -> where e.eid = m.eid
    -> group by e.eid
    -> having count(*) >= 2;
+------+--------+
| eid  | number |
+------+--------+
| 1230 |      2 |
| 9226 |      2 |
| 1085 |      2 |
| 1822 |      2 |
| 7096 |      2 |
| 7025 |      2 |
| 8601 |      2 |
| 5164 |      2 |
| 9077 |      2 |
| 6244 |      2 |
| 7925 |      2 |
| 6379 |      2 |
| 7283 |      2 |
| 2447 |      2 |
| 2093 |      2 |
+------+--------+
15 rows in set (0.00 sec)
```

Q9: Present the (name1, salary1, name2, salary2), where salary1 is the salary of the employee with name1 and salary2 corresponds with name2, of all employee pairs where both are living in California ('CA'), one is a 24-year-old manager, the other (who can be any age) is not a manager, and the manager earns more than three times the other employee.

```
+------------+
|            |
+------------+
| Question 9 |
+------------+
1 row in set, 1 warning (0.00 sec)

mysql> select e1.name, e1.salary, e2.name, e2.salary
    -> from employee E1, employee E2, manages M
    -> where e1.residenceState = 'CA' and e1.age = 24 and e1.eid = m.eid and e2.residenceState = 'CA' and e1.salary > 3 * e2.salary;
Empty set (0.00 sec)
```

There are no 24-year-old managers living in 'CA'. Confirmed using the following query:

```
mysql> select * from employee e, manages m where e.age = 24 and e.eid = m.eid;
+------+-----------+-----+--------+---------------+------------+------+------+-----------------+
| eid  | name      | age | salary | residenceState | startDate | eid  | did  | managesStartDate |
+------+-----------+-----+--------+---------------+------------+------+------+-----------------+
| 2390 | Sally2390 | 24  | 22318  | IA            | 2017-09-14 | 2390 | 432  | 2017-02-04      |
| 3202 | Sally3202 | 24  | 33696  | GA            | 2017-05-10 | 3202 | 290  | 2017-02-20      |
| 3672 | Sally3672 | 24  | 79170  | ID            | 2017-03-12 | 3672 | 65   | 2017-11-19      |
| 4585 | Sally4585 | 24  | 75334  | LA            | 2017-12-12 | 4585 | 113  | 2017-06-23      |
| 4765 | Sally4765 | 24  | 66623  | KS            | 2017-04-18 | 4765 | 76   | 2017-01-03      |
| 5193 | Sally5193 | 24  | 79765  | ID            | 2017-08-28 | 5193 | 7    | 2017-03-04      |
| 5481 | Sally5481 | 24  | 50841  | IA            | 2017-07-14 | 5481 | 121  | 2017-07-18      |
| 6244 | Sally6244 | 24  | 43133  | IL            | 2017-11-18 | 6244 | 218  | 2017-02-25      |
| 6244 | Sally6244 | 24  | 43133  | IL            | 2017-11-18 | 6244 | 343  | 2017-12-01      |
| 6413 | Sally6413 | 24  | 24612  | MD            | 2017-08-23 | 6413 | 281  | 2017-04-22      |
| 6806 | Sally6806 | 24  | 75403  | CT            | 2017-06-15 | 6806 | 403  | 2017-12-07      |
| 8396 | Sally8396 | 24  | 36642  | GA            | 2017-12-07 | 8396 | 41   | 2017-04-16      |
| 9077 | Sally9077 | 24  | 21693  | IA            | 2017-02-03 | 9077 | 210  | 2017-08-22      |
| 9077 | Sally9077 | 24  | 21693  | IA            | 2017-02-03 | 9077 | 394  | 2017-07-28      |
+------+-----------+-----+--------+---------------+------------+------+------+-----------------+
14 rows in set (0.00 sec)
```

Q10: For each department in Alaska ('AK') that has 25 or more employees working for it and a supply budget < $7,000, present the did, budget, and number of employees that work in that department.

```
mysql> select "Question 10" as " ";
+-------------+
|             |
+-------------+
| Question 10 |
+-------------+
1 row in set, 1 warning (0.00 sec)

mysql> select d.did, d.supplyBudget, count(e.eid)
    -> from department d, employee e, worksFor WF
    -> where d.supplyBudget < 7000 and d.stateLocated = 'AK' and e.eid = wf.eid and d.did = wf.did
    -> group by d.did
    -> having count(e.eid) > 25;
+------+--------------+--------------+
| did  | supplyBudget | count(e.eid) |
+------+--------------+--------------+
|  42  |         6904 |           26 |
| 254  |         5436 |           28 |
| 365  |         5459 |           26 |
+------+--------------+--------------+
3 rows in set (0.00 sec)
```

Q11: For each state, present the salary of the average 20-year-old manager (i.e., average salary of mangers who are 20 years old) who lives in that state and the number of such managers. Note: Your results can omit states that do not have any 20-year-old managers living in them.

```
+-------------+
|             |
+-------------+
| Question 11 |
+-------------+
1 row in set, 1 warning (0.00 sec)

mysql> select e.residenceState, AVG(e.salary)
    -> from employee e, manages m
    -> where e.age = 20 and e.eid = m.eid
    -> group by e.residenceState;
+----------------+----------------+
| residenceState | AVG(e.salary)  |
+----------------+----------------+
| MD             |          56635 |
| AK             |          62004 |
| IL             |        52069.5 |
| CA             |          36475 |
| HI             |          45921 |
| ME             |          50546 |
| CT             |          62845 |
+----------------+----------------+
7 rows in set (0.00 sec)
```