Brenda Woodard #873464752

Database Assignment 5 - SQL Queries

1) Find the name, age, and salary of employees who are under 23 and who earn more than 79500.

```
select e.name, e.age, e.salary
from employee e
where e.age < 23
and e.salary > 79500;
```

```
+-----------+------+--------+
| name      | age  | salary |
+-----------+------+--------+
| Sally132  |   20 |  79826 |
| Sally1374 |   21 |  79559 |
| Sally1634 |   22 |  79989 |
| Sally3126 |   21 |  79933 |
| Sally3807 |   21 |  79885 |
| Sally5955 |   21 |  79877 |
| Sally7061 |   22 |  79667 |
| Sally8829 |   20 |  79587 |
| Sally9123 |   20 |  79563 |
| Sally9666 |   22 |  79795 |
+-----------+------+--------+
10 rows in set (0.01 sec)
```

2) Find the name and salary of managers who earn less than 22000

```
select e.name, e.salary
```

```
from employee e, manages m

where e.eid = m.eid

and e.salary < 22000;


+-----------+--------+

| name      | salary |

+-----------+--------+

| Sally524  |  20158 |

| Sally3541 |  21495 |

| Sally5260 |  20901 |

| Sally5287 |  20426 |

| Sally5561 |  20054 |

| Sally6617 |  20330 |

| Sally7733 |  20731 |

| Sally8264 |  20028 |

| Sally8809 |  20929 |

| Sally8948 |  20871 |

| Sally9063 |  20256 |

+-----------+--------+

11 rows in set (0.00 sec)
```

3) Find the eid and dateStartedManaging of managers who started working before Jan 10, 2017.

i.e., dateStartedManaging < "2017-01-10"

```
select m.eid, m.dateStartedManaging

from manages m

where dateStartedManaging < "2017-01-10";


+------+---------------------+

| eid  | dateStartedManaging |
```

```
+------+---------------------+
| 3001 | 2017-01-06          |
| 3575 | 2017-01-03          |
| 3664 | 2017-01-02          |
|  510 | 2017-01-02          |
| 8547 | 2017-01-03          |
| 8917 | 2017-01-03          |
| 4436 | 2017-01-04          |
| 3946 | 2017-01-02          |
| 1290 | 2017-01-09          |
| 1981 | 2017-01-03          |
| 8266 | 2017-01-03          |
| 1539 | 2017-01-01          |
| 2558 | 2017-01-03          |
+------+---------------------+
13 rows in set (0.00 sec)
```

4) Find the name and salary of the employee who manages the "department238" department

i.e., dname = "department238"

```
select e.name, e.salary
from employee e, manages m, department d
where e.eid = m.eid and m.did = d.did
and d.name = "department238";
```

```
+-----------+--------+
| name      | salary |
+-----------+--------+
| Sally9817 |  53878 |
```

```
+-----------+--------+
1 row in set (0.00 sec)
```

5) Find the eid of employees who work in exactly 4 departments

   Hint: use aggregates/group by/having

```
select w.eid
from worksfor w
group by w.eid
having count(w.did) = 4;
```

```
+------+
| eid  |
+------+
|  819 |
| 1022 |
| 1187 |
| 1431 |
| 1578 |
| 1717 |
| 1978 |
| 2323 |
| 2495 |
| 2531 |
| 2648 |
| 3770 |
| 3791 |
| 3836 |
| 4618 |
| 4732 |
```

| 6539 |

| 7006 |

| 7026 |

| 7645 |

| 7943 |

| 8033 |

| 8048 |

| 8162 |

| 8610 |

| 8673 |

| 9253 |

+------+

27 rows in set (0.01 s

6) Find the eid, residenceState, age, did and state the department is located in for all those 28 year old

employees that work in a department located in a state different than the state they live in.

```
select e.eid, e.residenceState, e.age, d.did, d.stateLocated
from employee e, worksfor w, department d
where e.eid = w.eid and w.did = d.did
and e.age = 28
and e.residenceState != d.stateLocated;
```

eid	residenceState	age	did	stateLocated
8056	IL	28	1	KS
3601	AK	28	2	DE
1276	DE	28	4	MD

1846	AZ	28	4	MD
7633	HI	28	4	MD
8429	CT	28	5	CA
372	GA	28	7	FL
933	AZ	28	8	DE
334	DE	28	15	GA
83	LA	28	17	FL
2749	MD	28	20	AZ
3546	AK	28	25	ID
6704	HI	28	31	ME
4233	CA	28	39	IN
7403	MD	28	40	IL
6497	IA	28	41	AZ
3350	AZ	28	42	GA
9642	ME	28	42	GA
2563	CA	28	46	ME
5094	CO	28	53	AZ
8130	FL	28	54	MD
8157	CO	28	54	MD
5136	CO	28	55	IL
4449	HI	28	56	DE
9584	AL	28	57	CA
7596	AL	28	61	IL
397	ID	28	66	IA
5728	FL	28	66	IA
8587	FL	28	72	KS
8715	CA	28	74	AK
298	CO	28	75	CA
9761	IN	28	75	CA
5060	IL	28	78	KY
6136	CO	28	83	AK

5190	AK	28	88	GA
4018	CA	28	94	GA
7883	IN	28	94	GA
1983	ME	28	97	IN
2707	FL	28	100	GA
6514	KS	28	100	GA
4559	CA	28	102	IA
9338	ID	28	103	CO
9669	DE	28	103	CO
1703	CA	28	106	IL
2080	FL	28	107	IA
4279	IN	28	113	KY
4779	AL	28	113	KY
2619	MD	28	114	KY
5842	AK	28	119	ID
423	IA	28	120	AZ
2222	CA	28	120	AZ
1846	AZ	28	123	IL
9578	KS	28	123	IL
2118	KS	28	125	AK
9836	LA	28	127	HI
8034	ID	28	128	IA
4150	LA	28	132	AZ
7596	AL	28	137	CA
341	HI	28	139	DE
4279	IN	28	140	CO
8655	AK	28	144	KS
6560	CT	28	146	FL
8040	KS	28	147	MD
2010	CO	28	148	GA
985	AL	28	154	DE

25	HI	28	158	KY
5908	IA	28	158	KY
9894	AK	28	165	AZ
852	CA	28	177	CO
7376	LA	28	182	KY
3213	ME	28	188	IN
1779	AL	28	195	AZ
2529	IN	28	196	AK
6605	ID	28	199	AZ
8056	IL	28	201	GA
9382	LA	28	203	ME
1046	CO	28	205	FL
2018	AZ	28	206	AL
2009	CO	28	212	ME
8194	IN	28	217	CA
3460	AK	28	223	CA
751	AZ	28	225	KS
3766	AZ	28	230	HI
6991	KY	28	230	HI
9110	CO	28	231	GA
6488	AK	28	232	KY
4682	IN	28	234	IL
2018	AZ	28	240	GA
2786	ID	28	240	GA
2374	IL	28	242	CO
817	MD	28	245	FL
7541	CT	28	250	LA
7597	ME	28	252	IL
385	CA	28	257	AL
5154	IN	28	259	AZ
4007	KS	28	264	CO

4779	AL	28	264	CO
4585	CT	28	265	ID
498	IN	28	271	MD
7747	GA	28	271	MD
4521	HI	28	276	IN
4209	AK	28	284	AL
4199	AL	28	287	IA
5642	HI	28	292	IL
544	IA	28	295	CO
7583	AZ	28	296	AK
1482	LA	28	297	IL
3370	MD	28	297	IL
1614	AZ	28	301	DE
3083	KY	28	301	DE
7847	FL	28	303	KS
3980	AK	28	307	ME
8037	MD	28	307	ME
1393	IN	28	309	GA
3465	AK	28	317	IL
1162	CO	28	323	MD
3699	AL	28	326	IA
7044	IL	28	326	IA
7540	DE	28	335	HI
9104	KS	28	335	HI
6385	FL	28	336	AZ
9894	AK	28	340	IL
7792	CA	28	342	FL
4726	IA	28	343	IN
664	CT	28	349	ME
2048	AK	28	354	MD
2048	AK	28	355	AZ

6917	LA	28	356	AK
7868	MD	28	356	AK
2995	AL	28	359	IL
5490	DE	28	363	IA
7007	IL	28	364	FL
9529	CA	28	364	FL
64	CT	28	368	GA
4709	AK	28	372	DE
7747	GA	28	382	IA
5187	FL	28	387	IN
3970	AZ	28	391	AK
3704	LA	28	393	CA
5560	DE	28	396	ID
3363	CA	28	399	MD
4450	ME	28	399	MD
7757	HI	28	400	IN
1899	CO	28	412	FL
9005	LA	28	412	FL
3060	AZ	28	417	IN
9709	CO	28	418	LA
4779	AL	28	424	CA
1295	GA	28	425	HI
6796	FL	28	432	HI
2662	AZ	28	433	FL
3278	FL	28	434	AK
6497	IA	28	434	AK
7246	AL	28	434	AK
2118	KS	28	437	HI
3363	CA	28	441	CO
7187	IA	28	441	CO
2451	KS	28	445	AZ

| 5362 | AZ | 28 | 446 | CA |

| 4682 | IN | 28 | 447 | IA |

| 7662 | IN | 28 | 447 | IA |

| 4806 | CA | 28 | 448 | AZ |

| 4901 | MD | 28 | 449 | CT |

| 9970 | AZ | 28 | 450 | KS |

| 6670 | IL | 28 | 455 | CO |

| 2890 | ME | 28 | 462 | MD |

| 7972 | GA | 28 | 462 | MD |

| 6444 | LA | 28 | 473 | FL |

| 4423 | AZ | 28 | 474 | LA |

| 46 | KY | 28 | 476 | LA |

| 3423 | AZ | 28 | 476 | LA |

| 7596 | AL | 28 | 485 | IN |

| 7187 | IA | 28 | 488 | AZ |

| 3699 | AL | 28 | 491 | HI |

| 3576 | FL | 28 | 493 | KY |

| 4839 | IL | 28 | 493 | KY |

| 7232 | CT | 28 | 498 | IN |

| 1659 | CT | 28 | 500 | ID |

| 6233 | MD | 28 | 500 | ID |

| 8652 | IL | 28 | 500 | ID |

+------+----------------+------+-----+--------------+

180 rows in set (0.01 sec)

7) For each age (20, 21, 22...69) of employees, print out how many employees within each age group work in a

department located in a different state than they live in.

```
select count(e.age)

from employee e, worksfor w, department d
```

```
where e.eid = w.eid and w.did = d.did
and e.residenceState != d.stateLocated
group by e.age;

+--------------+
| count(e.age) |
+--------------+
|          206 |
|          238 |
|          207 |
|          200 |
|          206 |
|          198 |
|          198 |
|          211 |
|          219 |
|          216 |
|          249 |
|          212 |
|          204 |
|          229 |
|          217 |
|          228 |
|          236 |
|          187 |
|          180 |
|          207 |
|          232 |
|          226 |
|          233 |
|          228 |
```

```
|          218 |
|          202 |
|          200 |
|          243 |
|          234 |
|          198 |
|          189 |
|          219 |
|          194 |
|          206 |
|          205 |
|          187 |
|          216 |
|          218 |
|          186 |
|          194 |
|          212 |
|          200 |
|          192 |
|          194 |
|          209 |
|          214 |
|          209 |
|          192 |
|          198 |
|          191 |
+--------------+
50 rows in set (0.02 sec)
```

8) Find the eid, residence state, did, and department state for every managers who manages a department located in AK

```
select e.eid, e.residenceState, d.did, d.stateLocated
from employee e, manages m, department d
where e.eid = m.eid and m.did = d.did
and d.stateLocated = "AK";
```

```
+------+----------------+-----+--------------+
| eid  | residenceState | did | stateLocated |
+------+----------------+-----+--------------+
| 9322 | IA             |  10 | AK           |
| 8650 | GA             |  23 | AK           |
| 7248 | KY             |  24 | AK           |
| 1944 | HI             |  44 | AK           |
| 8859 | IA             |  74 | AK           |
| 7562 | MD             |  83 | AK           |
| 9063 | ID             | 115 | AK           |
| 7277 | LA             | 125 | AK           |
| 9045 | AZ             | 141 | AK           |
| 3997 | IL             | 152 | AK           |
| 1933 | CT             | 196 | AK           |
| 8017 | AL             | 248 | AK           |
| 5154 | IN             | 255 | AK           |
| 4267 | FL             | 283 | AK           |
| 2538 | KS             | 289 | AK           |
| 2593 | LA             | 296 | AK           |
| 8054 | HI             | 302 | AK           |
| 6279 | ME             | 333 | AK           |
| 5452 | GA             | 339 | AK           |
| 3913 | ID             | 356 | AK           |
| 2657 | AL             | 362 | AK           |
| 6255 | IA             | 391 | AK           |
```

| 3894 | ME | 434 | AK |

+------+----------------+-----+--------------+

23 rows in set (0.00 sec)

9) Find the eid, residence state, did, and stateLocated for every employee who is 28 years old and works for a

department located in CO

```
select e.eid, e.residenceState, d.did, d.stateLocated
from employee e, department d, worksfor w
where e.eid = w.eid and w.did = d.did
and e.age = 28
and d.stateLocated = "CO";
```

+------+----------------+-----+--------------+

| eid | residenceState | did | stateLocated |

+------+----------------+-----+--------------+

| 9338 | ID | 103 | CO |

| 9669 | DE | 103 | CO |

| 4279 | IN | 140 | CO |

| 852 | CA | 177 | CO |

| 2374 | IL | 242 | CO |

| 4007 | KS | 264 | CO |

| 4779 | AL | 264 | CO |

| 544 | IA | 295 | CO |

| 3363 | CA | 441 | CO |

| 7187 | IA | 441 | CO |

| 6670 | IL | 455 | CO |

+------+----------------+-----+--------------+

11 rows in set (0.00 sec)

10) Find the eid, residence state, did, and department state for every 28 year old employee that lives in the same

state of one or more of the departments they work in

```
select e.eid, e.residenceState, d.did, d.stateLocated
from employee e, department d, worksfor w
where e.eid = w.eid and w.did = d.did
and e.age = 28
and e.residenceState = d.stateLocated;
```

```
+------+----------------+-----+--------------+
| eid  | residenceState | did | stateLocated |
+------+----------------+-----+--------------+
| 1842 | FL             |  17 | FL           |
| 4058 | MD             | 130 | MD           |
| 9642 | ME             | 212 | ME           |
| 7940 | CT             | 229 | CT           |
| 3785 | AZ             | 269 | AZ           |
| 4276 | AK             | 333 | AK           |
| 6695 | IL             | 359 | IL           |
| 8169 | IN             | 379 | IN           |
|  582 | IN             | 417 | IN           |
+------+----------------+-----+--------------+
9 rows in set (0.01 sec)
```

11) find the eid of employees who are managing two or more departments

```
select e.eid
```

```
from employee e, manages m

where e.eid = m.eid

group by e.eid

having count(m.did) >= 2;


+------+

| eid  |

+------+

|  275 |

|  669 |

| 1315 |

| 1619 |

| 1720 |

| 5242 |

| 6134 |

| 6255 |

| 6677 |

| 7200 |

| 8266 |

| 8635 |

| 8650 |

| 8917 |

| 9111 |

+------+

15 rows in set (0.00 sec)
```

12) find eid, did, and manging starting date for all employees found in the previous problem. Hint: use "in" and a

nested query

```
select m.eid, m.did, m.dateStartedManaging
```

```
from manages m
where m.eid in (
       select e.eid
       from employee e, manages m
       where e.eid = m.eid
       group by e.eid
       having count(m.did) >= 2 ) ;
```

eid	did	dateStartedManaging
8650	23	2017-08-15
6677	76	2017-06-11
1619	77	2017-03-11
9111	78	2017-02-20
669	79	2017-09-25
1619	95	2017-04-24
5242	119	2017-12-19
1720	133	2017-05-03
1315	150	2017-01-24
7200	172	2017-11-20
8266	187	2017-03-11
8917	192	2017-01-03
9111	198	2017-04-08
8635	242	2017-09-12
6677	250	2017-12-08
1315	279	2017-03-19
8635	280	2017-08-04
6255	304	2017-05-24
6134	343	2017-01-18
8266	344	2017-01-03

```
| 1720 | 372 | 2017-06-08          |
| 6255 | 391 | 2017-08-17          |
| 5242 | 406 | 2017-10-15          |
| 8917 | 410 | 2017-10-20          |
| 7200 | 417 | 2017-03-03          |
|  669 | 426 | 2017-09-04          |
| 8650 | 435 | 2017-09-11          |
|  275 | 436 | 2017-02-09          |
| 6134 | 473 | 2017-02-06          |
|  275 | 491 | 2017-04-16          |
+------+-----+---------------------+
30 rows in set (0.00 sec)
```

13) find the did and number of employees for each department with 10 or fewer employees

```
select w.did, count(w.eid)
from worksfor w
group by w.did
having count(w.eid) < 10;
```

```
+-----+--------------+
| did | count(w.eid) |
+-----+--------------+
| 370 |            7 |
+-----+--------------+
1 row in set (0.00 sec)
```

14) Find the average employee salary for each department whose did is < 6.

In other words, for each of those departments find the average salary of employees who work for that department

```
select AVG(e.salary)
from employee e, department d, worksfor w
where e.eid = w.eid and w.did = d.did
group by w.did
having w.did < 6;
```

```
+--------------------+
| AVG(e.salary)      |
+--------------------+
|            54719.5 |
|           53719.75 |
|  54542.09090909091 |
| 43076.470588235294 |
| 53958.933333333334 |
+--------------------+
5 rows in set (0.02 sec)
```