SOFTENG 351: Lab #5

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1)

a)

```
SELECT Dname, COUNT(*)
FROM DEPARTMENT, EMPLOYEE
WHERE Dno=Dnumber
GROUP BY Dnumber
HAVING AVG(Salary)>30000;
```

Dname	COUNT(*)
Research	4
Administration	3
Headquarters	1

b)

Yes it is possible. The question is ambiguous so I will assume that the required query is: For each department whose average male employee salary is more than $30,000, retrieve the department name and the number of male employees working for that department.

```
SELECT Dname, COUNT(*)
FROM DEPARTMENT, EMPLOYEE
WHERE Dno=Dnumber AND Sex="M"
GROUP BY Dnumber
HAVING AVG(Salary)>30000;
```

Dname	COUNT(*)
Research	3
Headquarters	1

2)

a)

$$\pi_{Fname,Lname}(\sigma_{(Dno=4\ AND\ Salary>40000)\ OR\ (Dno=5\ AND\ Salary<30000)}(EMPLOYEE))$$

b)

$$DEP4\_EMPS \leftarrow \sigma_{Dno=4}(EMPLOYEE)$$

$$RESULT1 \leftarrow \pi_{Ssn}(DEP4\_EMPS)$$

$$RESULT2(Ssn) \leftarrow \pi_{Super\_ssn}(DEP4\_EMPS)$$

$$RESULT \leftarrow RESULT1 \cup RESULT2$$

c)

$$RESULT(First\_Name, Last\_Name) \leftarrow \pi_{Fname,Lname}(\sigma_{Super\_ssn\ IS\ NULL}(EMPLOYEE))$$