



OCTOBER 16, 2024

HOMEWORK 3 B

CS 457 B

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20281 - SFBU

1. (7.5)

- a. QUERY – **SELECT** Dname, **COUNT**(*) **FROM** DEPARTMENT, EMPLOYEE **WHERE** Dnumber = Dno **GROUP BY** Dname **HAVING** **AVG**(Salary) > 30000;

Dname varchar	COUNT(*) bigint
Research	4
Headquarters	1
Administration	3

- b. QUERY – **SELECT** Dname, **COUNT**(*) **AS** Male_Employees **FROM** DEPARTMENT, EMPLOYEE **WHERE** Dnumber = Dno **AND** Sex = 'M' **AND** Salary > 30000 **GROUP BY** Dname;

Dname varchar	Male_Employees bigint
Research	2
Headquarters	1

Yes, this query can be used and executed in SQL without any issues. SQL is quite capable of handling multiple conditions using WHERE syntax and can group all the results using the GROUP BY syntax. SQL can also aggregate specific subsets of the data in each department

2. (7.6)

```
1 CREATE TABLE STUDENT (  
2     Name VARCHAR(50),  
3     Student_number INT PRIMARY KEY,  
4     Class INT,  
5     Major VARCHAR(50)  
6 );  
7  
8  
9 -- Grade Table  
10 CREATE TABLE GRADE_REPORT (  
11     Student_number INT,  
12     Section_identifier INT,  
13     Grade CHAR(1)  
14 );  
15  
16 INSERT INTO STUDENT (Name, Student_number, Class, Major)  
17 VALUES  
18 ('Smith', 17, 1, 'CS'),  
19 ('Brown', 8, 2, 'CS'),  
20 ('Jones', 12, 1, 'EE');  
21  
22 INSERT INTO GRADE_REPORT (Student_number, Section_identifier, Grade)  
23 VALUES  
24 (17, 112, 'B'),  
25 (17, 119, 'C'),  
26 (8, 85, 'A'),  
27 (8, 92, 'A'),  
28 (8, 102, 'B'),  
29 (8, 135, 'A'),  
30 (12, 155, 'A'),  
31 (12, 160, 'A'),  
32 (12, 170, 'A'),  
33 (12, 175, 'A');  
34
```

Name varchar(50)	* Student_number int	Class int	Major varchar(50)
Brown	8	2	CS
Jones	12	1	EE
Smith	17	1	CS

Student_number int	Section_identifier int	Grade char(1)
17	112	B
17	119	C
8	85	A
8	92	A
8	102	B
8	135	A
12	155	A
12	160	A
12	170	A
12	175	A

- a. QUERY – `SELECT S.Name, S.Major FROM STUDENT S WHERE NOT EXISTS (SELECT G.Student_number
FROM GRADE_REPORT G WHERE G.Student_number = S.Student_number AND G.Grade <> 'A');`

Name varchar	Major varchar
Jones	EE

- b. QUERY - `SELECT S.Name, S.Major FROM STUDENT S WHERE NOT EXISTS (SELECT G.Student_number FROM GRADE_REPORT G WHERE G.Student_number = S.Student_number AND G.Grade = 'A');`

Name varchar	Major varchar
Smith	CS

3. (7.7)

- a. QUERY – `SELECT E1.Fname FROM EMPLOYEE E1 WHERE E1.Dno = (SELECT Dno FROM EMPLOYEE WHERE Salary = (SELECT MAX(Salary) FROM EMPLOYEE));`

Fname varchar
James

- b. QUERY – `SELECT E1.Fname FROM EMPLOYEE E1 WHERE E1.Super_ssn IN (SELECT E2.Ssn FROM EMPLOYEE E2 WHERE E2.Super_ssn = '888665555');`

Fname varchar
John
Joyce
Ramesh
Ahmad
Alicia

- c. QUERY – `SELECT E1.FName FROM EMPLOYEE E1 WHERE E1.Salary >= (SELECT MIN(Salary) FROM EMPLOYEE) + 10000;`

FName varchar
Franklin
Ramesh
James
Jennifer


TABLE DATA**1. EMPLOYEE TABLE**

* FName varchar(15)	Minit char(1)	* Lname varchar(15)	* Ssn char(9)	Bdate date	Address varchar(30)	Sex char(1)	Salary decimal(10,2)	Super_ssn char(9)	* Dno int
John	B	Smith	123456789	1965-01-09	731 Fondren, Houston, TX	M	30000.00	333445555	5
Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	40000.00	888665555	5
Joyce	A	English	453453453	1972-07-31	631 Rice, Houston, TX	F	25000.00	333445555	5
Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	38000.00	333445555	5
James	E	Borg	888665555	1937-11-10	450 Stone, Houston, TX	M	55000.00	(NULL)	1
Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire, TX	F	43000.00	888665555	4
Ahmad	V	Jabbar	987979897	1969-03-29	980 Dallas, Houston, TX	M	25000.00	987654321	4
Alicia	J	Zelaya	999887777	1968-01-19	321 Castle, Spring, TX	F	25000.00	987654321	4


2. DEPARTMENT TABLE

* Dname varchar(15)	* Dnumber int	* Mgr_ssn char(9)	Mgr_start_date date
Headquarters	1	888665555	1981-06-19
Administration	4	987654321	1995-01-01
Research	5	333445555	1988-05-22

3. DEPT_LOCATIONS TABLE

*  Dnumber int	* Dlocation varchar(15)
1	Houston
4	Stafford
5	Bellaire
5	Houston
5	Sugarland

4. PROJECT TABLE

* Pname varchar(15)	* Pnumber int	Plocation varchar(15)	*  Dnum int
ProductX	1	Bellaire	5
ProductY	2	Sugarland	5
ProductZ	3	Houston	5
Computerization	10	Stafford	4
Reorganization	20	Houston	1
Newbenefits	30	Stafford	4

5. WORKS_ON TABLE

* Essn char(9)	* Pno int	Hours decimal(3,1)
123456789	1	32.5
123456789	2	7.5
333445555	2	10.0
333445555	3	10.0
333445555	10	10.0
333445555	20	10.0
453453453	1	20.0
453453453	2	20.0
666884444	3	40.0
888665555	20	(NULL)
987654321	20	15.0
987654321	30	20.0
987979897	10	35.0
987979897	30	5.0
999887777	10	10.0
999887777	30	30.0

6. DEPENDENT TABLE

* Essn char(9)	* Dependent_name varchar(15)	Sex char(1)	Bdate date	Relationship varchar(8)
123456789	Alice	F	1988-12-30	Daughter
123456789	Elizabeth	F	1967-05-05	Spouse
123456789	Michael	M	1988-01-04	Son
333445555	Alice	F	1986-04-05	Daughter
333445555	Joy	F	1958-05-03	Spouse
333445555	Theodore	M	1983-10-25	Son
987654321	Abner	M	1942-02-28	Spouse