Name: Apurba Koirala

Reg no: 22BCE3799

Subject Code: BCSE302P

Course Title: Database Systems

Lab Slot: L33 + L34

Guided by: Dr. Shashank Mouli Satapathy

QN.1

For the relational schema given as part of Assessment – 1, write the SQL queries to get the following information.

1. Find the employee names having salary greater than Rs.25000.

QUERIES: select * from employee where SALARY > 25000;

OUTPUT:

```
FNAME           MN LNAME           SSN       BDATE
--------------- -- --------------- --------- ---------
ADDRESS                                       S     SALARY SUPERSSN
--------------------------------------------- - ---------- ---------
     DEPNO
----------
Doug            E  Gilbert         554433221 09-JUN-60
11 S 59 E, Salt Lake                          M      80000
City, UT
         3

Joyce           P  AN              543216789 07-FEB-78
35 S 18 E, Salt Lake City, UT                 F      70000

FNAME           MN LNAME           SSN       BDATE
--------------- -- --------------- --------- ---------
ADDRESS                                       S     SALARY SUPERSSN
--------------------------------------------- - ---------- ---------
     DEPNO
----------
         5

Franklin        T  Wong            333445555 08-DEC-45
638 Voss, Houston, TX                         M      40000 554433221
         5

Jennifer        S  Wallace         987654321 20-JUN-31

FNAME           MN LNAME           SSN       BDATE
--------------- -- --------------- --------- ---------
ADDRESS                                       S     SALARY SUPERSSN
--------------------------------------------- - ---------- ---------
     DEPNO
----------
291 Berry, Bellaire, TX                       F      43000 554433221
         4

John            B  Smith           123456789 09-JAN-55
731 Fondren, Houston, TX                      M      30000 333445555
         5


FNAME           MN LNAME           SSN       BDATE
--------------- -- --------------- --------- ---------
ADDRESS                                       S     SALARY SUPERSSN
--------------------------------------------- - ---------- ---------
     DEPNO
----------
Ramesh          K  Narayan         666884444 15-SEP-52
975 Fire Oak, Humble, TX                      M      38000 333445555
         5

James           E  Borg            888665555 10-NOV-27
450 Stone, Houston, TX                        M      55000 543216789
         1

FNAME           MN LNAME           SSN       BDATE
--------------- -- --------------- --------- ---------
ADDRESS                                       S     SALARY SUPERSSN
--------------------------------------------- - ---------- ---------
     DEPNO
----------
```

```
Robert          F  Scott           943775543 21-JUN-42
2365 Newcastle Rd, Bellaire, TX               M      58000 888665555
         1


8 rows selected.
```

2. Find the employee names whose salary lies in the range between 30000 and 70000.

QUERIES:

SELECT * FROM employee WHERE SALARY > 30000 AND SALARY < 70000;

OUTPUT:

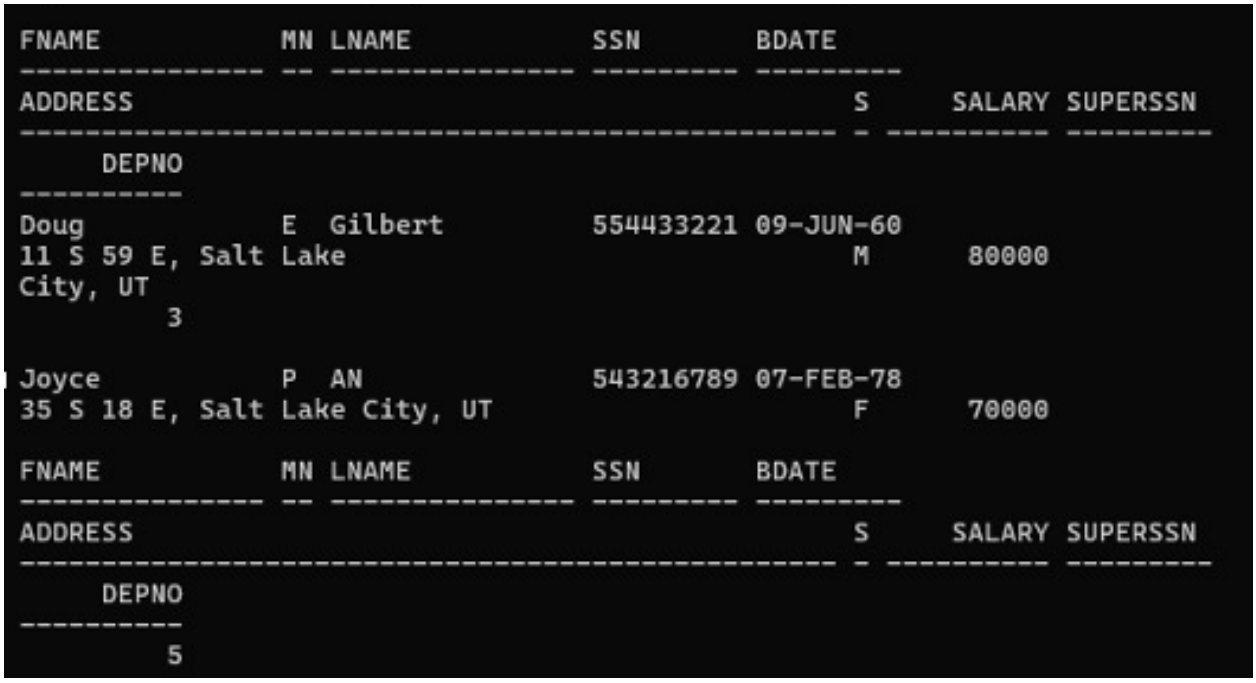
```
FNAME           MN LNAME           SSN       BDATE
--------------- -- --------------- --------- ---------
ADDRESS                                           S     SALARY SUPERSSN
------------------------------------------------- - ---------- ---------
     DEPNO
----------
Franklin        T  Wong            333445555 08-DEC-45
638 Voss, Houston, TX                             M      40000 554433221
         5

Jennifer        S  Wallace         987654321 20-JUN-31
291 Berry, Bellaire, TX                           F      43000 554433221
         4

FNAME           MN LNAME           SSN       BDATE
--------------- -- --------------- --------- ---------
ADDRESS                                           S     SALARY SUPERSSN
------------------------------------------------- - ---------- ---------
     DEPNO
----------

Ramesh          K  Narayan         666884444 15-SEP-52
975 Fire Oak, Humble, TX                          M      38000 333445555
         5

James           E  Borg            888665555 10-NOV-27
450 Stone, Houston, TX                            M      55000 543216789

FNAME           MN LNAME           SSN       BDATE
--------------- -- --------------- --------- ---------
ADDRESS                                           S     SALARY SUPERSSN
------------------------------------------------- - ---------- ---------
     DEPNO
----------
         1

Robert          F  Scott           943775543 21-JUN-42
2365 Newcastle Rd, Bellaire, TX                   M      58000 888665555
         1
```

3. Find the employees who have no supervisor.

QUERIES:

SELECT * FROM employee WHERE SUPERSSN IS NULL;

OUTPUT:



4. Display the bdate of all employee s in the format ‘DDthMonthYYYY’.

QUERIES:

SELECT TO_CHAR(BDATE, 'DDthMonthYYYY') AS formatted_bdate FROM employee;

OUTPUT:

```
FORMATTED_BDATE
-----------------------------------------
09THJune      1960
07THFebruary  1978
08THDecember  2045
20THJune      2031
09THJanuary   1955
15THSeptember1952
31STJuly      1962
10THNovember  2027
19THJuly      1958
29THMarch     1959
21STJune      2042

11 rows selected.
```

5. Display the employee names whose bdate is on or before 1978.

QUERIES:

SELECT FNAME,MNAME,LNAME FROM employee WHERE BDATE <=TO_DATE('31-Dec-1978','DD-MM-YYYY');

OUTPUT:

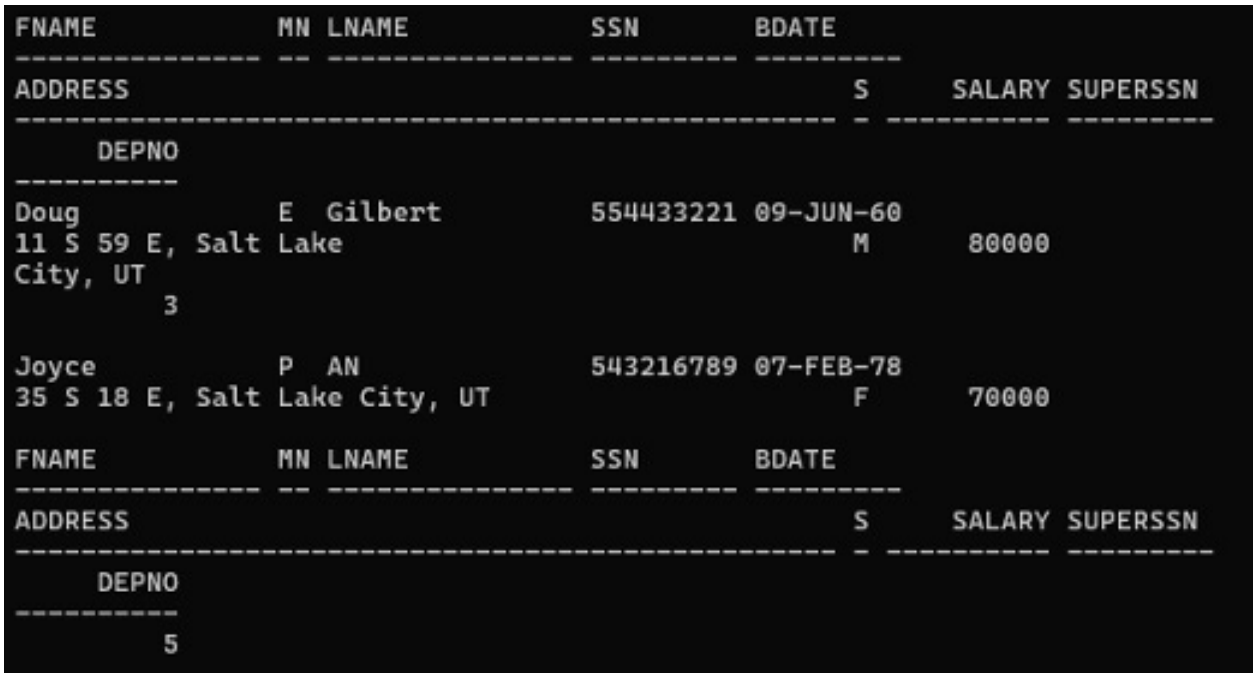
```
FNAME           MN LNAME
--------------- -- ---------------
Doug            E  Gilbert
Joyce           P  AN
John            B  Smith
Ramesh          K  Narayan
Joyce           A  English
Alicia          J  Zelaya
Ahmad           V  Jabbar

7 rows selected.
```

6. Display the employee names having ‘salt lake’ in their address.

QUERIES:

SELECT * FROM employee WHERE UPPER(Address) LIKE '%SALT LAKE%';

OUTPUT:



```
FNAME           MN LNAME           SSN       BDATE
--------------- -- --------------- --------- ---------
ADDRESS                                       S     SALARY SUPERSSN
--------------------------------------------- - ---------- ---------
     DEPNO
----------
Doug            E  Gilbert         554433221 09-JUN-60
11 S 59 E, Salt Lake                          M      80000
City, UT
         3

Joyce           P  AN              543216789 07-FEB-78
35 S 18 E, Salt Lake City, UT                 F      70000

FNAME           MN LNAME           SSN       BDATE
--------------- -- --------------- --------- ---------
ADDRESS                                       S     SALARY SUPERSSN
--------------------------------------------- - ---------- ---------
     DEPNO
----------
         5
```

7. Display the department name that starts with ’M’.

QUERIES:

SELECT DNAME FROM DEPT WHERE UPPER(DNAME) LIKE 'M%';

OUTPUT:

```
DNAME
--------------
Manufacture
```

8. Display the department names' that ends with 'E'.

QUERIES:

SELECT DNAME FROM DEPT WHERE UPPER(DNAME) LIKE '%E';

OUTPUT:

```
DNAME
--------------
Manufacture
Finance
```

9. Display the names of all the employees having supervisor with any of the following SSN 554433221, 333445555.

QUERIES:

SELECT FNAME,MNAME,LNAME FROM employee WHERE SUPERSSN =
'554433221' OR SUPERSSN = '333445555';

OUTPUT:

```
FNAME           MN LNAME
--------------- -- ---------------
Franklin        T  Wong
Jennifer        S  Wallace
John            B  Smith
Ramesh          K  Narayan
Joyce           A  English
```

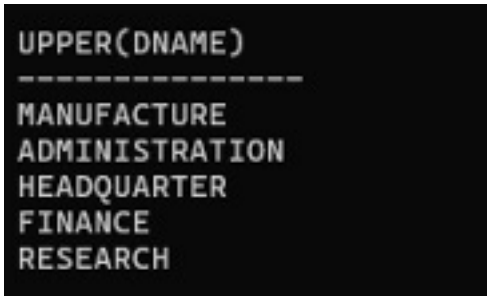
10. Display all the department names in upper case and lower case.

QUERIES:

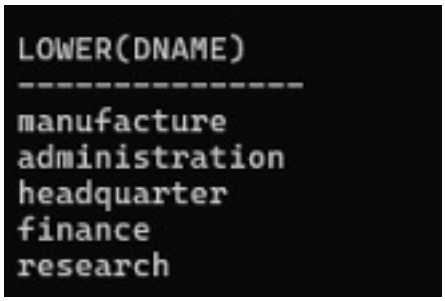
SELECT UPPER(DNAME) FROM DEPT; SELECT

LOWER(DNAME) FROM DEPT;

OUTPUT:



```
UPPER(DNAME)
--------------
MANUFACTURE
ADMINISTRATION
HEADQUARTER
FINANCE
RESEARCH
```



```
LOWER(DNAME)
--------------
manufacture
administration
headquarter
finance
research
```

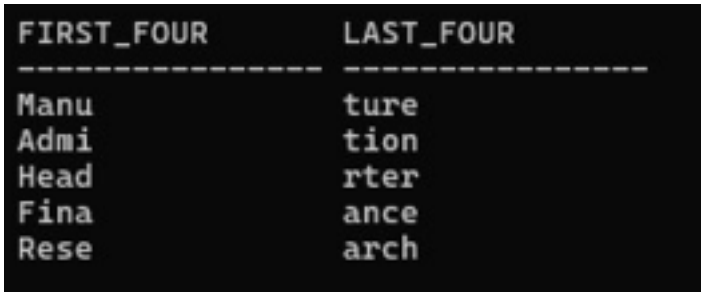
11. Display the first four characters and last four of the department names using ltrim and Rtrim.

QUERIES:

SELECT LTRIM(RTRIM(SUBSTR(DNAME, 1, 4))) AS first_four, LTRIM(RTRIM(SUBSTR(DNAME,

-4))) AS last_four FROM DEPT;

OUTPUT:



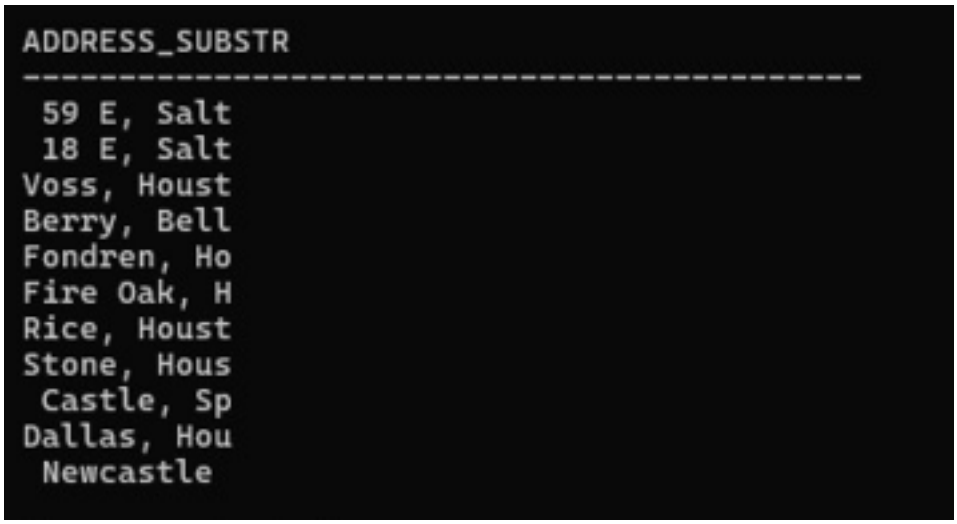
```
FIRST_FOUR      LAST_FOUR
--------------- ---------------
Manu            ture
Admi            tion
Head            rter
Fina            ance
Rese            arch
```

12. Display the substring of the Address (starting from 5th position to 11th position) of all Employees.

QUERIES:

SELECT SUBSTR(ADDRESS, 5, 11) AS address_substr FROM employee;

OUTPUT:



13. Display the Mgrstartdate on adding three months to it

QUERIES:

SELECT ADD_MONTHS(MGRSTARTDATE, 3) AS new_start_date FROM DEPT;

OUTPUT:

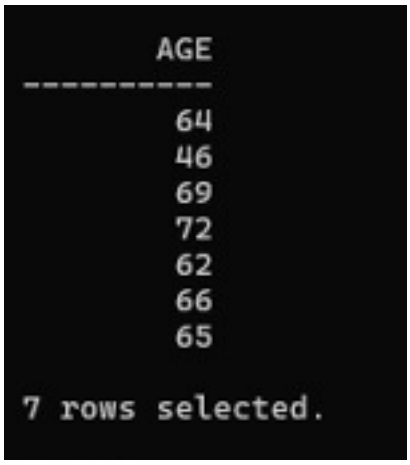
14. Display the age of all the employees rounded to two digits.

QUERIES:

SELECT ROUND(EXTRACT(YEAR FROM SYSDATE) - EXTRACT(YEAR
FROM BDATE)) AS age
FROM employee

WHERE EXTRACT(YEAR FROM SYSDATE) - EXTRACT(YEAR FROM BDATE) >= 0;

OUTPUT:



15. Find the last day and next day of the month in which each manager has joined **QUERIES:**

SELECT LAST_DAY(MGRSTARTDATE) AS last_day_of_month, ADD_MONTHS(MGRSTARTDATE, 1) AS next_day_of_month FROM DEPT;

OUTPUT:

QN.2

For the relational schema given as part of Assessment – 1, write the SQL queries using Group Functions to get the following information.

1. How many different departments are there in the ‘employee’ table.

QUERIES:

SELECT COUNT(DISTINCT DEPNO) AS DISTINCT_DEPT FROM employee;

OUTPUT:

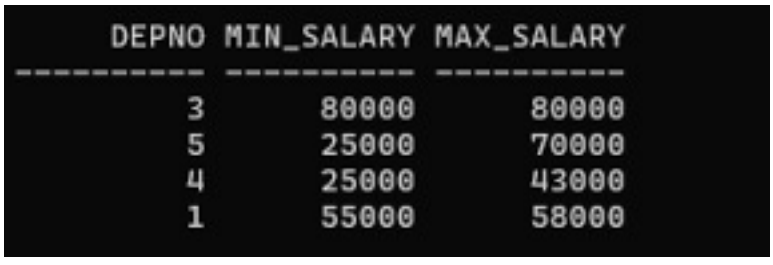
2. For each department display the minimum and maximum employee salaries.

QUERIES:

SELECT DEPNO, MIN(SALARY) AS min_salary, MAX(SALARY) AS max_salary FROM employee

GROUP BY DEPNO;

OUTPUT:

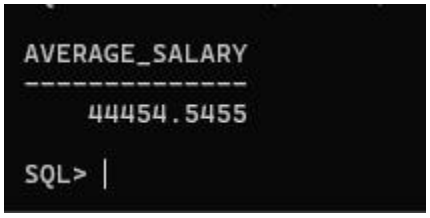


3. Print the average annual salary.

QUERIES:

SELECT AVG(SALARY) AS average_salary FROM employee;

OUTPUT:

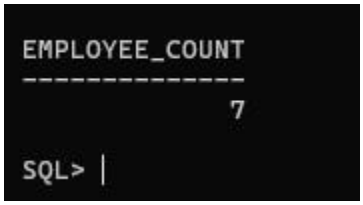


4. Count the number of employees over 30 age.

QUERIES:

SELECT COUNT(*) AS employee_count FROM employee WHERE EXTRACT(YEAR FROM SYSDATE)

- EXTRACT(YEAR FROM BDATE) > 30; **OUTPUT:**

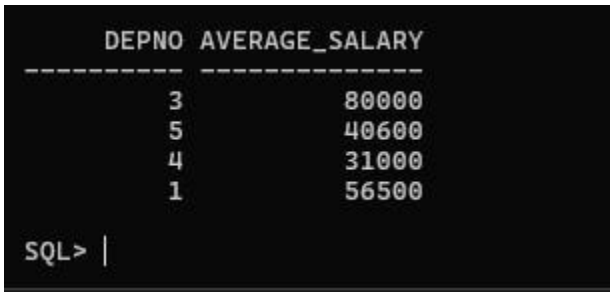


5. Print the Department name and average salary of each department.

QUERIES:

SELECT DEPNO, AVG(SALARY) AS average_salary FROM employee GROUP BY
DEPNO;

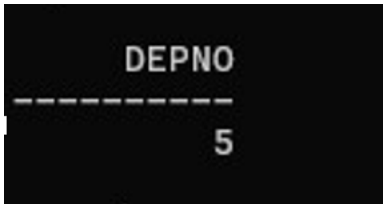
OUTPUT:



6. Display the department name which contains more than 30 employees.

QUERIES:

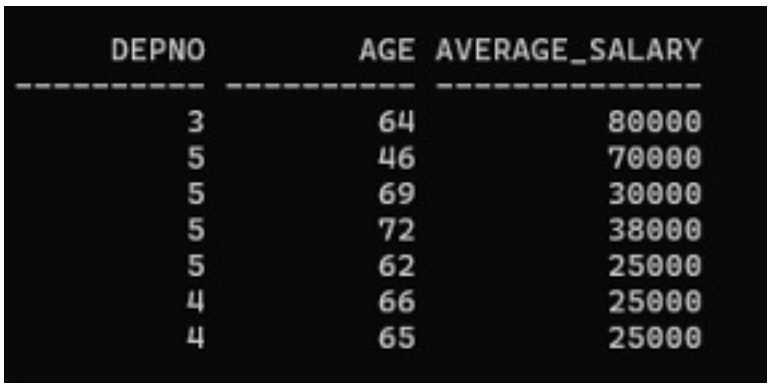
SELECT DEPNO FROM employee GROUP BY DEPNO HAVING COUNT(*) > 3; **OUTPUT:**



```
    DEPNO
----------
         5
```

7. Calculate the average salary of employees by department and age **QUERIES:**

SELECT DEPNO, EXTRACT(YEAR FROM SYSDATE) - EXTRACT(YEAR
FROM BDATE) AS age, AVG(SALARY) AS average_salary FROM employee
GROUP BY DEPNO, EXTRACT(YEAR FROM SYSDATE) - EXTRACT(YEAR
FROM BDATE) HAVING EXTRACT(YEAR FROM SYSDATE) - EXTRACT(YEAR FROM BDATE) >= 0;
OUTPUT:

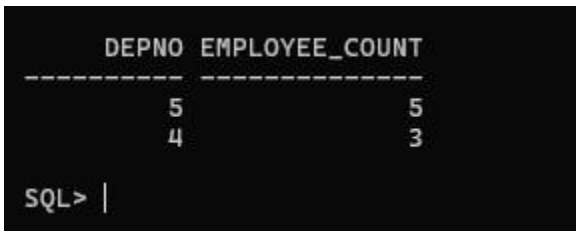


DEPNO	AGE	AVERAGE_SALARY
3	64	80000
5	46	70000
5	69	30000
5	72	38000
5	62	25000
4	66	25000
4	65	25000

8. Count separately the number of employees in the finance and research department.

QUERIES:
SELECT DEPNO, COUNT(*) AS employee_count FROM employee WHERE
DEPNO IN (4, 5) GROUP BY DEPNO;

OUTPUT:



DEPNO	EMPLOYEE_COUNT
5	5
4	3

SQL>

9. List out the employees based on their seniority.

QUERIES:

SELECT FNAME, LNAME, BDATE, EXTRACT(YEAR FROM SYSDATE) EXTRACT(YEAR FROM BDATE) AS age FROM employee WHERE BDATE <=
SYSDATE ORDER BY BDATE ASC; **OUTPUT:**

FNAME	LNAME	BDATE	AGE
Ramesh	Narayan	15-SEP-52	72
John	Smith	09-JAN-55	69
Alicia	Zelaya	19-JUL-58	66
Ahmad	Jabbar	29-MAR-59	65
Doug	Gilbert	09-JUN-60	64
Joyce	English	31-JUL-62	62
Joyce	AN	07-FEB-78	46

10. List out the employees who works in ‘manufacture’ department group by first name.

QUERIES:

SELECT FNAME, COUNT(*) AS employee_count FROM employee WHERE DEPNO = 1 GROUP BY FNAME;

OUTPUT:

FNAME	EMPLOYEE_COUNT
James	1
Robert	1

SQL>