

DATABASE MANAGEMENT SYSTEMS LAB

CSL-220

LAB JOURNAL 6



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LAB JOURNAL 6

True and False:

Determine the validity of the following three statements. Circle either True or False.

1. Group functions work across many rows to produce one result per group.

ANSWER:

True

2. Group functions include nulls in calculations.

ANSWER:

False

3. The WHERE clause restricts rows prior to inclusion in a group calculation.

ANSWER:

True

LAB TASK:

TASK NO 1:

Write a query to list the number of jobs available in the employee's table

QUERY:

```
SELECT  
COUNT ( JOB )  
FROM EMP;
```

OUTPUT:

```
SQL> /*  
SQL> MALIK ZOHAIB MUSTAFA  
SQL> 01-134192-030  
SQL> BSCS-4B  
SQL>  
SQL> JOURNAL 6  
SQL>  
SQL>  
SQL> TASK 1  
SQL>  
SQL> */  
SQL>  
SQL> SELECT  
2  COUNT ( JOB )  
3  FROM EMP;  
  
COUNT ( JOB )  
-----  
14
```

TASK NO 2:

Write a query to get the total salaries payable to employees

QUERY:

```
SELECT  
SUM ( SAL ) "TOTAL SALARY"  
FROM EMP;
```

OUTPUT:

```
SQL> /*  
SQL> MALIK ZOHAIB MUSTAFA  
SQL> 01-134192-030  
SQL> BSCS-4B  
SQL>  
SQL> JOURNAL 6  
SQL>  
SQL> TASK 2  
SQL> */  
SQL> SELECT  
2   SUM ( SAL ) "TOTAL SALARY"  
3   FROM EMP;
```

```
TOTAL SALARY  
-----  
29025
```

TASK NO 3:

Write a query to get the minimum salary from employee's table

QUERY:

```
SELECT  
  
MIN ( SAL ) "MINIMUM SALARY"  
  
FROM EMP;
```

OUTPUT:

```

SQL>
SQL> /*
SQL> MALIK ZOHAIB MUSTAFA
SQL> 01-134192-030
SQL> BSCS-4B
SQL>
SQL> JOURNAL 6
SQL>
SQL> TASK 2
SQL> */
SQL> SELECT
  2 MIN ( SAL ) "MINIMUM SALARY"
  3 FROM EMP;

```

```

MINIMUM SALARY
-----

```

```

      800

```

TASK NO 4:

Write a query to get the maximum salary of an employee

QUERY:

```

SELECT
MAX(SAL) "MAXIMUM SALARY"
FROM EMP;

```

OUTPUT:

```

SQL>
SQL> /*
SQL> MALIK ZOHAIB MUSTAFA
SQL> 01-134192-030
SQL> BSCS-4B
SQL>
SQL> JOURNAL 6
SQL>
SQL> TASK 4
SQL> */
SQL> SELECT
  2 MAX(SAL) "MAXIMUM SALARY"
  3 FROM EMP;

```

```

MAXIMUM SALARY
-----

```

```

      5000

```

TASK NO 5:

Write a query to get the average salary and number of employees working the department 20

QUERY:

```
SELECT
AVG(SAL) "AVERAGE SALARY",
COUNT(*)"NUMBER OF EMPLOYEES"
FROM
EMP
WHERE
DEPTNO=20;
```

OUTPUT:

```
SQL>
SQL>
SQL> /*
SQL> MALIK ZOHAIB MUSTAFA
SQL> 01-134192-030
SQL> BSCS-4B
SQL>
SQL> JOURNAL 6
SQL>
SQL> TASK 5
SQL> */
SQL> SELECT
  2  AVG(SAL) "AVERAGE SALARY",
  3  COUNT(*)"NUMBER OF EMPLOYEES"
  4  FROM
  5  EMP
  6  WHERE
  7  DEPTNO=20;
```

AVERAGE SALARY	NUMBER OF EMPLOYEES
2175	5

TASK NO 6:

Write a query to get the highest, lowest, sum, and average salary of all employees

QUERY:

```
SELECT ROUND (MAX (sal), 0) "Maximum", ROUND (MIN (sal), 0) "Minimum", ROUND (SUM (sal), 0) "Sum", ROUND (AVG (sal), 0) "Average" FROM emp;
```

OUTPUT:

```
SQL> SELECT ROUND (MAX (sal), 0) "Maximum", ROUND (MIN (sal), 0) "Minimum", ROUND (SUM (sal), 0) "Sum", ROUND (AVG (sal), 0) "Average" FROM emp;
```

Maximum	Minimum	Sum	Average
5000	800	29025	2073

```
SQL> |
```

TASK NO 7:

Write a query to get the number of employees with the same job

QUERY:

```
SELECT JOB,
```

```
COUNT(*)
```

```
FROM EMP
```

```
GROUP BY JOB;
```

OUTPUT:

```
SQL> /*
SQL> MALIK ZOHAIB MUSTAFA
SQL> 01-134192-030
SQL> BSCS-4B
SQL>
SQL> JOURNAL 6
SQL>
SQL> TASK 7
SQL> */
SQL> SELECT JOB, COUNT(*) FROM EMP
      2  GROUP BY JOB;
```

JOB	COUNT(*)
CLERK	4
SALESMAN	4
PRESIDENT	1
MANAGER	3
ANALYST	2

TASK NO 8:

Write a query to get the difference between the highest and lowest salaries

QUERY:

```
SELECT
```

```
MAX(SAL)-MIN(SAL) "DIFFERENCE"
```

```
FROM EMP;
```

OUTPUT:

```
SQL> /*
SQL> MALIK ZOHAIB MUSTAFA
SQL> 01-134192-030
SQL> BSCS-4B
SQL>
SQL> JOURNAL 6
SQL>
SQL> TASK 8
SQL> */
SQL> SELECT
  2  MAX(SAL)-MIN(SAL) "DIFFERENCE"
  3  FROM EMP;
```

```
DIFFERENCE
-----
      4200
```

TASK NO 9:

Write a query to find the manager ID and the salary of the lowest-paid employee for that manager

QUERY:

```
SELECT MGR, MIN(SAL)
FROM EMP
WHERE MGR IS NOT NULL
GROUP BY MGR
ORDER BY MIN(SAL) DESC;
```

OUTPUT:

```

SQL> /*
SQL> MALIK ZOHAIB MUSTAFA
SQL> 01-134192-030
SQL> BSCS-4B
SQL>
SQL> JOURNAL 6
SQL>
SQL> TASK 9
SQL> */
SQL>
SQL> SELECT MGR, MIN(SAL)
2  FROM EMP
3  WHERE MGR IS NOT NULL
4  GROUP BY MGR
5  ORDER BY MIN(SAL) DESC;

```

MGR	MIN(SAL)
7566	3000
7839	2450
7782	1300
7788	1100
7698	950
7902	800

6 rows selected.

TASK NO 10:

Write a query to get the department ID and the total salary payable in each department

QUERY:

```

SELECT
DEPTNO,
SUM(SAL)
FROM EMP
GROUP BY DEPTNO;

```

OUTPUT:


```

SQL>
SQL> /*
SQL> MALIK ZOHAIB MUSTAFA
SQL> 01-134192-030
SQL> BSCS-4B
SQL>
SQL> JOURNAL 6
SQL>
SQL> TASK 10
SQL> */
SQL> SELECT DEPTNO, SUM(SAL) FROM EMP
      2  GROUP BY DEPTNO;

```

DEPTNO	SUM(SAL)
30	9400
20	10875
10	8750

~~~~~

### **TASK NO 11:**

Write a query to get the average salary for each job ID excluding programmer

#### **QUERY:**

```

SELECT JOB,
      AVG(SAL)
FROM
EMP
WHERE
      JOB <> 'PROGRAMMER'
GROUP BY JOB;

```

#### **OUTPUT:**

```

SQL> /*
SQL> MALIK ZOHAIB MUSTAFA
SQL> 01-134192-030
SQL> BSCS-4B
SQL>
SQL> JOURNAL 6
SQL>
SQL> TASK 11
SQL> */
SQL> SELECT JOB,
      2   AVG(SAL)
      3   FROM
      4   EMP
      5   WHERE
      6   JOB < > 'PROGRAMMER'
      7   GROUP BY JOB;

```

| JOB       | AVG(SAL)   |
|-----------|------------|
| CLERK     | 1037.5     |
| SALESMAN  | 1400       |
| PRESIDENT | 5000       |
| MANAGER   | 2758.33333 |
| ANALYST   | 3000       |

## TASK NO 12:

Find the highest, lowest, sum, and average salary of all employees. Label the columns Maximum, Minimum, Sum, and Average, respectively. Round your results to the nearest whole number

### QUERY:

```

SELECT ROUND(MAX(SAL),0) "MAXIMUM",
      ROUND(MIN(SAL),0)"MINIMUM",
      ROUND(SUM(SAL),0)"SUM",
      ROUND(AVG(SAL),0)"AVERAGE"
FROM EMP;

```

### OUTPUT:

```

SQL> /*
SQL> MALIK ZOHAIB MUSTAFA
SQL> 01-134192-030
SQL> BSCS-4B
SQL>
SQL> JOURNAL 6
SQL>
SQL> TASK 12
SQL> */
SQL>
SQL> SELECT ROUND(MAX(SAL),0) "MAXIMUM",
2  ROUND(MIN(SAL),0)"MINIMUM",
3  ROUND(SUM(SAL),0)"SUM",
4  ROUND(AVG(SAL),0)"AVERAGE"
5  FROM EMP;

```

| MAXIMUM | MINIMUM | SUM   | AVERAGE |
|---------|---------|-------|---------|
| 5000    | 800     | 29025 | 2073    |

### TASK NO 13:

Determine the number of managers without listing them. Label the column Number of Managers

#### QUERY:

```

SELECT
COUNT( DISTINCT MGR ) "NUMBER OF MANAGER"
FROM
EMP;

```

#### OUTPUT:

```

SQL>
SQL> /*
SQL> MALIK ZOHAIB MUSTAFA
SQL> 01-134192-030
SQL> BSCS-4B
SQL>
SQL> JOURNAL 6
SQL>
SQL> TASK 13
SQL> */
SQL>
SQL> SELECT
  2  COUNT( DISTINCT MGR ) "NUMBER OF MANAGER"
  3  FROM
  4  EMP;

```

```

NUMBER OF MANAGER
-----
                        6

```

## TASK NO 14:

Find the difference between the highest and lowest salaries. Label the column  
DIFFERENCE

### QUERY:

```

SELECT
MAX(SAL) – MIN(SAL) "DIFFERENCE"
FROM
EMP;

```

### OUTPUT:

```

SQL> /*
SQL> MALIK ZOHAIB MUSTAFA
SQL> 01-134192-030
SQL> BSCS-4B
SQL>
SQL> JOURNAL 6
SQL>
SQL> TASK 14
SQL> */
SQL>
SQL> SELECT
  2  MAX(SAL) – MIN(SAL) "DIFFERENCE"
  3  FROM
  4  EMP;

```

```

DIFFERENCE
-----
        4200

```

## TASK NO 15:

Find the difference between the highest and lowest salaries. Label the column  
DIFFERENCE

### QUERY:

```
SELECT  
MAX(SAL) - MIN(SAL) "DIFFERENCE"  
FROM  
EMP;
```

### OUTPUT:

```
SQL> /*  
SQL> MALIK ZOHAIB MUSTAFA  
SQL> 01-134192-030  
SQL> BSCS-4B  
SQL>  
SQL> JOURNAL 6  
SQL>  
SQL> TASK 15  
SQL> */  
SQL>  
SQL> SELECT  
2  MAX(SAL) - MIN(SAL) "DIFFERENCE"  
3  FROM  
4  EMP;
```

DIFFERENCE

-----  
4200

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END OF LAB JOURNAL

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