**Practice 5 Joellyn Johnson, jajohnson23**

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

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

True/False

TRUE

2. Group functions include nulls in calculations.

True/False

FALSE – unless you use the NVL, NVL2 or COALESCE function to include nulls

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

True/False

TRUE – WHERE restricts inclusion before group calculation, HAVING restricts groups

4. Display the highest, lowest, sum, and average salary of all employees. Label the

columns Maximum, Minimum, Sum, and Average, respectively. Round your

results to the decimal position. Save your SQL statement in a file called *p5q4.sql*.

SQL> SELECT MAX(sal) AS Maximum,

2 MIN(sal) AS Minimum,

3 SUM(sal) AS SUM,

4 ROUND (AVG(sal), 0) AS Average

5 FROM emp;

MAXIMUM MINIMUM SUM AVERAGE

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5000 800 29025 2073

5. Modify *p5q4.sql* to display the minimum, maximum, sum, and average salary for

each job type. Resave to a file called *p5q5.sql*. Rerun your query.

SQL> SELECT job,

2 MAX(sal) AS Maximum,

3 MIN(sal) AS Minimum,

4 SUM(sal) AS SUM,

5 ROUND (AVG(sal), 0) AS Average

6 FROM emp

7 GROUP BY job;

JOB MAXIMUM MINIMUM SUM AVERAGE

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CLERK 1300 800 4150 1038

SALESMAN 1600 1250 5600 1400

PRESIDENT 5000 5000 5000 5000

MANAGER 2975 2450 8275 2758

ANALYST 3000 3000 6000 3000

6. Write a query to display the number of people with the same job.

SQL> SELECT job, COUNT(job) AS "COUNY(\*)"

2 FROM emp

3 GROUP BY job;

JOB COUNY(\*)

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CLERK 4

SALESMAN 4

PRESIDENT 1

MANAGER 3

ANALYST 2

7. Determine the number of managers without listing them. Label the column

Number of Managers.

SQL> SELECT COUNT(DISTINCT(mgr)) AS "Number of Managers"

2 FROM emp;

Number of Managers

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6

8. Write a query that will display the difference between the highest and lowest

salaries. Label the column DIFFERENCE.

SQL> SELECT (MAX(sal) - MIN(sal))

2 AS DIFFERENCE

3 FROM emp;

DIFFERENCE

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4200

9. Display the manager number and the salary of the lowest paid employee for that

manager. Exclude anyone where the manager id is not known. Exclude any

groups where the minimum salary is less than $1000. Sort the output in

descending order of salary.

SQL> SELECT mgr, MIN(sal)

2 FROM emp

3 WHERE mgr IS NOT Null

4 GROUP BY mgr

5 HAVING MIN(sal) >= 1000

6 ORDER BY MIN(sal) DESC;

MGR MIN(SAL)

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7566 3000

7839 2450

7782 1300

7788 1100 10. Write a query to display the department name, location name, number of

employees, and the average salary for all employees in that department. Label

the columns’ dname, loc, Number of People, and Salary, respectively.

SQL> SELECT dept.dname, dept.loc,

2 COUNT (emp.ename) AS "Number of People",

3 AVG(emp.sal)

4 FROM dept, emp

5 WHERE dept.deptno = emp.deptno

6 GROUP BY dept.dname, dept.loc;

DNAME LOC Number of People AVG(EMP.SAL)

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RESEARCH DALLAS 5 2175

SALES CHICAGO 6 1566.66667

ACCOUNTING NEW YORK 3 2916.66667

The following two questions are very challenging.

11. Create a query that will display the total number of employees and of that total

the number who were hired in 1980, 1981, 1982, and 1987. Give appropriate

column headings.

SQL> SELECT COUNT(empno) AS TOTAL,

2 COUNT(CASE WHEN hiredate >= '01-JAN-80'

3 AND hiredate <= '31-DEC-80' THEN 1 ELSE NULL END) as "1980",

4 COUNT(CASE WHEN hiredate >= '01-JAN-81'

5 AND hiredate <= '31-DEC-81' THEN 1 ELSE NULL END) as "1981",

6 COUNT(CASE WHEN hiredate >= '01-JAN-82'

7 AND hiredate <= '31-DEC-82' THEN 1 ELSE NULL END) as "1982",

8 COUNT(CASE WHEN hiredate >= '01-JAN-87'

9 AND hiredate <= '31-DEC-87' THEN 1 ELSE NULL END) as "1987"

10 FROM EMP;

TOTAL 1980 1981 1982 1987

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14 1 10 1 2

12. Create a matrix query to display the job, the salary for that job based upon

department number and the total salary for that job for all departments, giving

each column an appropriate heading.

SQL> SELECT job,

2 dept10 DEPT\_10,

3 dept20 DEPT\_20,

4 dept30 DEPT\_30

5 FROM (SELECT job,

6 sum(decode(deptno,10,sal)) DEPT10,

7 sum(decode(deptno,20,sal)) DEPT20,

8 sum(decode(deptno,30,sal)) DEPT30

9 FROM emp

10 GROUP BY job)

11 ORDER BY job;

JOB DEPT\_10 DEPT\_20 DEPT\_30

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ANALYST 6000

CLERK 1300 1900 950

MANAGER 2450 2975 2850

PRESIDENT 5000

SALESMAN 5600