**NESTED QUERIES – PRACTICE QUESTIONS**

**LIMIT clause and sub-queries that return only one row**

1a. Display all employees and sort the results by hiredate (most recent first) as follows:

SELECT ename, hiredate

FROM emp

ORDER BY hiredate DESC;

|  |  |
| --- | --- |
| ENAME | HIREDATE |
| ADAMS | 1983-01-12 |
| SCOTT | 1982-12-09 |
| MILLER | 1982-01-23 |
| JAMES | 1981-12-03 |
| FORD | 1981-12-03 |
| KING | 1981-11-17 |
| MARTIN | 1981-09-28 |
| TURNER | 1981-09-08 |
| CLARK | 1981-06-09 |
| BLAKE | 1981-05-01 |
| JONES | 1981-04-02 |
| WARD | 1981-02-22 |
| ALLEN | 1981-02-20 |
| SMITH | 1980-12-17 |

1b. Using the LIMIT clause, display the employee who started most recently:

SELECT ename, hiredate

FROM emp

ORDER BY hiredate DESC

LIMIT 1;

|  |  |
| --- | --- |
| ENAME | HIREDATE |
| ADAMS | 1983-01-12 |

1c. Using the LIMIT clause with an OFFSET, display the third longest-serving employee:

SELECT ename, hiredate

FROM emp

ORDER BY hiredate

LIMIT 1 OFFSET 2;

|  |  |
| --- | --- |
| ENAME | HIREDATE |
| WARD | 1981-02-22 |

1d. Using a sub-query with the LIMIT clause to display those employees who work in the same department as the longest-serving employee. Sort results by employee name.

SELECT ename, deptno

FROM emp

WHERE deptno = (SELECT deptno

FROM emp

ORDER BY hiredate

LIMIT 1);

|  |  |
| --- | --- |
| ENAME | DEPTNO |
| ADAMS | 20 |
| FORD | 20 |
| JONES | 20 |
| SCOTT | 20 |
| SMITH | 20 |

2. Display the employee with the lowest salary using a nested query as follows:

SELECT ename,  monthly\_sal, deptno

         FROM emp

         WHERE monthly\_sal  = (SELECT MIN(monthly\_sal)

          FROM emp);

|  |  |  |
| --- | --- | --- |
| ENAME | MONTHLY\_SAL | DEPTNO |
| SMITH | 800 | 20 |

3. Display all the employees who have the same job as TURNER, we would use the nested query:

SELECT ename, job

FROM emp

WHERE job = (SELECT job

FROM emp

            WHERE ename = 'TURNER')

AND ename != 'TURNER';

|  |  |
| --- | --- |
| ENAME | JOB |
| ALLEN | SALESMAN |
| WARD | SALESMAN |
| MARTIN | SALESMAN |

4. Display the department(s) which has an average monthly salary bill greater than department 20:

            SELECT deptno, AVG(monthly\_sal) AS 'Average monthly salary'

            FROM  emp

            GROUP BY DEPTNO

            HAVING AVG(monthly\_sal)>(SELECT AVG(monthly\_sal)

                                                  FROM emp

                                                  WHERE deptno = 20);

|  |  |
| --- | --- |
| deptno | Average monthly salary |
| 10 | 2916.6666666667 |

**Sub-queries that could return more than one row**

5. Display the salesman who haven’t sold any of product 200380:

SELECT DISTINCT ename

FROM emp e

INNER JOIN customer cu ON cu.repid = e.empno

WHERE cu.repid NOT IN (SELECT c.repid

FROM ord o

INNER JOIN customer c

ON c.custid = o.custid

INNER JOIN item i

ON o.ordid = i.ordid

WHERE i.prodid = 200380);

|  |
| --- |
| ename |
| MARTIN |
| WARD |

6. To display the employee who earns the minimum salary in their department:

SELECT ename, monthly\_sal, deptno

FROM emp

WHERE (monthly\_sal, deptno) IN (SELECT MIN(monthly\_sal),  deptno

                                                  FROM emp

                                                  GROUP BY deptno)

ORDER BY deptno;

|  |  |  |
| --- | --- | --- |
| ename | monthly\_sal | deptno |
| MILLER | 1300 | 10 |
| SMITH | 800 | 20 |
| JAMES | 950 | 30 |

7. Display all employees who have at least one person reporting to them and sort the results by job:

          SELECT job,  ename,  empno,  deptno

          FROM emp e1

          WHERE EXISTS (SELECT \*

                                    FROM emp e2

                                     WHERE e2.mgr = e1.empno)

ORDER BY job;

|  |  |  |  |
| --- | --- | --- | --- |
| job | ename | empno | deptno |
| ANALYST | SCOTT | 7788 | 20 |
| ANALYST | FORD | 7902 | 20 |
| MANAGER | JONES | 7566 | 20 |
| MANAGER | BLAKE | 7698 | 30 |
| MANAGER | CLARK | 7782 | 10 |
| PRESIDENT | KING | 7839 | 10 |

**Correlated sub-queries**

8. Display the employees who earn a salary greater than the average salary for their department:

            SELECT empno,  ename,  monthly\_sal,  deptno

            FROM emp e1

            WHERE monthly\_sal > (SELECT AVG(monthly\_sal)

                                                FROM emp e2

                                                WHERE e2.deptno = e1.deptno);

|  |  |  |  |
| --- | --- | --- | --- |
| empno | ename | monthly\_sal | deptno |
| 7499 | ALLEN | 1600 | 30 |
| 7566 | JONES | 2975 | 20 |
| 7698 | BLAKE | 2850 | 30 |
| 7788 | SCOTT | 3000 | 20 |
| 7839 | KING | 5000 | 10 |
| 7902 | FORD | 3000 | 20 |

9. Display each manager and the number of employees that report to them:

SELECT ename AS 'Employee Name’,

(

         SELECT COUNT(ename)

FROM emp e2

WHERE e2.mgr = e1.empno

)

direct\_reports

FROM emp e1

WHERE direct\_reports > 0

ORDER BY ename;

|  |  |
| --- | --- |
| Employee Name | Direct\_reports |
| BLAKE | 5 |
| CLARK | 1 |
| FORD | 1 |
| JONES | 2 |
| KING | 3 |
| SCOTT | 1 |

**Inline queries**

10. Display the highest departmental salary bill in the company:

SELECT MAX(remuneration) AS 'Highest dept salary bill’

FROM (SELECT deptno, SUM(monthly\_sal \*12) + IFNULL(commission,0)

AS 'remuneration'

FROM emp

GROUP BY deptno);

|  |
| --- |
| Highest dept salary bill |
| 130500 |