DATABASE SYSTEMS

Assignment-2

SQL

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Problem# 1 (Introduction to SQL)

1.1 - Select all information from SALGRADE table.
1.2 - Select all information from EMP table.
1.3 - List all employees who have a salary between 1000 and 2000.
1.4 - List department numbers and names in department name order.
1.5 - Display all the different job types.
1.6 - List the details of the employees in departments 10 and 20 in alphabetical order of names.
1.7 - List names and jobs of all clerks in department 20.
1.8 - Display all employees names which have TH or LL in them.
1.9 - List details for all employees who have a manager.
1.10 - Display names and total remuneration for all employees.
1.11 - Display all employees who were hired during 1983.
1.12 - Display name, annual salary and commission of all salespeople whose monthly salary is greater than their commission. The output should be ordered by salary, in descending order.
1.13 - Display all employee information in ascending order of manager number. King must be last.

Solution

1. Select * from SALGRADE;
2. Select * from EMP;
3. Select * from emp where sal between 1000 and 2000;
4. Select deptno,dname from dept order by dname;
5. Select distinct job from emp;
6. Select * from emp where deptno in(10,20) order by ename;
7. Select ename,job from emp where lower(job)='clerk' and deptno=20;
8. Select ename from emp where ename like ('%TH%') or ename like ('%LL%');
9. Select * from emp where lower(job)='manager';
10. Select ename,comm from emp;
11. Select * from emp where hiredate = '12-JAN-83';
12. Select ename,sal*12 as annsal ,comm from emp where lower(job)='salesman' and sal>comm order by sal desc;
13. Select * from emp order by mgr;

Problem# 2 (Using Functions)

This exercise covers functions not just in the SELECT but in WHERE and ORDER BY clauses. Note the column alias which have been used.

2.1 - List the employee name and salary increased by 15% and expressed as a whole number of dollars.
2.2 - Display each employee's name and hiredate from dept. 20.
2.3 - Display each employee name with hiredate, and salary review date. Assume review date is one year after hiredate. Order the output in ascending review date order.
2.4 - Print a list of employees displaying just the salary amount if more than 1500. If exactly 1500 display 'On Target', if less than 1500 display 'Below 1500'.
2.5 - Write a query which will return the DAY of the week (i.e. MONDAY,) for any date entered in the format: DD.MM.YY.
2.6 - Employees hired on or before the 15th of any month are paid on the last Friday of that month. Those hired after the 15th are paid on the last Friday of the following month. Print a list of employees, their hiredate and first pay date. Sort on hiredate.
2.7 - Write a query to calculate the length of time any employee has been with the company.

Solution

1. Select ename,sal*0.15 as "whole number of dollors" from emp;
2. Select ename,hiredate from emp where deptno=20;
3. Select ename,hiredate,hiredate+365 as "salary review date" from emp order by "salary review date";
4. Select ename,sal,CASE WHEN(sal<1500) THEN 'Below' WHEN(sal=1500) THEN 'On Target' ELSE '' END RESULT from emp;
5. Select to_char(hiredate,'DAY,DD-MON-YYYY') from emp;
6.
7. Select ename, trunc(months_between(sysdate,hiredate)/12) as "Employee Job Years" from emp;

Problem# 3 (Group Functions)

3.1 - Find the minimum salary of all employees.
3.2 - Find the minimum, maximum and average salaries of all employees.
3.3 - List the minimum and maximum salary for each job type.
3.4 - Find out how many managers there are without listing them.
3.5 - Find the average salary and average total remuneration for each job type. Remember salesmen earn commission.
3.6 - Find out the difference between highest and lowest salaries.
3.7 - Find all departments which have more than 3 employees.
3.8 - Check whether all employee numbers are indeed unique.

3.9 - List lowest paid employees working for each manager. Exclude any groups where the minimum salary is less than 1000. Sort the output by salary.

Solution

1. Select min(sal) from emp;
2. Select min(sal),max(sal),avg(sal) from emp;
3. Select min(sal),max(sal) from emp group by(job);
4. Select count(*) from emp where job='MANAGER';
5. Select trunc(avg(sal)),trunc(avg(nvl(comm,0))) from emp group by(job);
6. Select count(*)-2 from emp;
7. SELECT DEPTNO,COUNT(emp) FROM EMP HAVING COUNT(emp) >3 GROUP BY DEPTNO;
8. Select unique(empno) from emp;
9. Select sal from emp where sal<1000 or sal=(select min(sal) from emp where job='MANAGER') order by sal;

Problem# 4 (Joins)

4.1 - Display all employee names and their department name, in department name order.
4.2 - Display all employee names, department number and name.
4.3 - Display the name, location and department of employees whose salary is more than 1500 a month.
4.4 - Produce a list showing employees' salary grades.
4.5 - Show only employees on grade 3.
4.6 - Show all employees in Dallas.
4.7 - List the employee name, job salary, grade and department name for everyone in the company except clerks. Sort on salary, displaying the highest salary first.
4.8 - Display the department that has no employees.
4.9 - List all employees by name and number along with their manager's name and number.
4.10 - Modify solution to question 10 to display KING who has no manager.
4.11 - Find the job that was filled in the first half of 1983, and the same job that was filled during the same period in 1984.
4.12 - Find all employees who joined the company before their manager.

Solution

1. Select ename,dname from emp,dept where emp.deptno=dept.deptno;
2. Select ename,emp.deptno,dname from emp,dept where emp.deptno=dept.deptno;
3. Select ename,loc,dname from emp,dept where emp.deptno=dept.deptno and sal>1500;
4. Select ename,sal,grade from emp,salgrade where sal between losal and hisal;
5. Select ename,sal,grade from emp,salgrade where grade=3 and sal between losal and hisal;
6. Select ename,loc from emp,dept where emp.deptno=dept.deptno and loc='DALLAS';
7. Select ename,job,sal,grade,dname from emp,dept,salgrade where emp.deptno=dept.deptno and sal between losal and hisal order by sal desc;
8. Select dname,ename from emp,dept where emp.deptno(+)=dept.deptno;
9. Select worker.ename,worker.empno,manager.ename as ManagerName,manager.empno as ManagerNo from emp worker,emp manager where worker.mgr=manager.empno;
10. Select worker.ename,worker.empno,manager.ename as ManagerName,manager.empno as ManagerNo from emp worker,emp manager where worker.mgr=manager.empno(+);

Problem# 5 (Sub queries)

5.1 - Write a query to display the employee name and hiredate for all employees in the same department as Blake. Exclude Blake.
5.2 - Create a query to display the employee number and name for all employees who earn more than the average salary. Sort the results in descending order of salary.
5.3 - Write a query that will display employee number and name for all employees who work in a department with any employee whose name contains a T.
5.4 - Display the employee name, department number, and job title for all employees whose department location is Dallas.
5.5 - Display the employee and salary of all employees who report to King.
5.6 - Display the department number, name, and job for all employees in the Sales department.

5.7 - Write a query to display the name, department number, and salary of any employee whose department number and salary match the department number and salary of any employee who earns a commission.
5.8 - Display the name, department name, and salary of any employee whose salary and commission match the salary and commission of any employee located in Dallas.
5.9 - Create a query to display the name, hiredate, and salary for all employees who have the same salary and commission as Scott.
5.10 - Create a query to display the employees that earn a salary that is higher than the salary of all of the clerks. Sort the results on salary from highest to lowest.

Solution

1. Select ename,hiredate from emp,dept where emp.deptno=dept.deptno AND dname='SALES' AND ename not like 'BLAKE';
2. Select empno,ename from emp where sal>(select avg(sal) from emp) order by sal desc;
3. Select empno,ename from emp,dept where emp.deptno=dept.deptno AND ename like '%T%';
4. Select ename,dept.deptno,job from emp,dept where emp.deptno=dept.deptno AND loc=(select loc from dept where loc='DALLAS');
5. Select worker.ename,worker.sal from emp worker,emp manager where worker.mgr=manager.empno AND manager.ename='KING';
6. Select dept.deptno,dname,job from emp,dept where emp.deptno=dept.deptno AND dname='SALES';
7. Select ename,dept.deptno,sal from emp,dept where emp.deptno=dept.deptno AND comm is not null;
8. Select ename,dept.deptno,sal from emp,dept where emp.deptno=dept.deptno AND loc=(select loc from dept where loc='DALLAS');
9. Select ename,hiredate,sal from emp where sal=(select sal from emp where ename='SCOTT') AND comm=(select comm from emp where ename='SCOTT');
10. Select ename,sal from emp where sal>(select max(sal) from emp where job='CLERK') order by sal desc;