## Lab 5 Database Systems

**Slides:**

Statement#1:

SELECT emp.empno, emp.ename, emp.deptno,  
 dept.deptno, dept.loc

FROM emp, dept

WHERE emp.deptno=dept.deptno;

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **EMPNO** | **ENAME** | **DEPTNO** | **DEPTNO** | **LOC** |
| 7782 | CLARK | 10 | 10 | NEW YORK |
| 7839 | KING | 10 | 10 | NEW YORK |
| 7934 | MILLER | 10 | 10 | NEW YORK |
| 7369 | SMITH | 20 | 20 | DALLAS |
| 7876 | ADAMS | 20 | 20 | DALLAS |
| 7902 | FORD | 20 | 20 | DALLAS |
| 7788 | SCOTT | 20 | 20 | DALLAS |
| 7566 | JONES | 20 | 20 | DALLAS |
| 7499 | ALLEN | 30 | 30 | CHICAGO |
| 7698 | BLAKE | 30 | 30 | CHICAGO |
| 7654 | MARTIN | 30 | 30 | CHICAGO |
| 7900 | JAMES | 30 | 30 | CHICAGO |
| 7844 | TURNER | 30 | 30 | CHICAGO |
| 7521 | WARD | 30 | 30 | CHICAGO |

Statement#2:

SELECT emp.empno, emp.ename, emp.deptno, dept.deptno, dept.loc FROM emp, dept WHERE emp.deptno=dept.deptno;

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **EMPNO** | **ENAME** | **DEPTNO** | **DEPTNO** | **LOC** |
| 7782 | CLARK | 10 | 10 | NEW YORK |
| 7839 | KING | 10 | 10 | NEW YORK |
| 7934 | MILLER | 10 | 10 | NEW YORK |
| 7369 | SMITH | 20 | 20 | DALLAS |
| 7876 | ADAMS | 20 | 20 | DALLAS |
| 7902 | FORD | 20 | 20 | DALLAS |
| 7788 | SCOTT | 20 | 20 | DALLAS |
| 7566 | JONES | 20 | 20 | DALLAS |
| 7499 | ALLEN | 30 | 30 | CHICAGO |
| 7698 | BLAKE | 30 | 30 | CHICAGO |
| 7654 | MARTIN | 30 | 30 | CHICAGO |
| 7900 | JAMES | 30 | 30 | CHICAGO |
| 7844 | TURNER | 30 | 30 | CHICAGO |
| 7521 | WARD | 30 | 30 | CHICAGO |

Statement#3:

SELECT e.empno, e.ename, e.deptno, d.deptno, d.loc FROM emp e, dept d

WHERE e.deptno=d.deptno;

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **EMPNO** | **ENAME** | **DEPTNO** | **DEPTNO** | **LOC** |
| 7782 | CLARK | 10 | 10 | NEW YORK |
| 7839 | KING | 10 | 10 | NEW YORK |
| 7934 | MILLER | 10 | 10 | NEW YORK |
| 7369 | SMITH | 20 | 20 | DALLAS |
| 7876 | ADAMS | 20 | 20 | DALLAS |
| 7902 | FORD | 20 | 20 | DALLAS |
| 7788 | SCOTT | 20 | 20 | DALLAS |
| 7566 | JONES | 20 | 20 | DALLAS |
| 7499 | ALLEN | 30 | 30 | CHICAGO |
| 7698 | BLAKE | 30 | 30 | CHICAGO |
| 7654 | MARTIN | 30 | 30 | CHICAGO |
| 7900 | JAMES | 30 | 30 | CHICAGO |
| 7844 | TURNER | 30 | 30 | CHICAGO |
| 7521 | WARD | 30 | 30 | CHICAGO |

Statement#4:

SELECT e.ename, e.sal, s.grade FROM emp e, salgrade s WHERE e.sal

BETWEEN s.losal AND s.hisal;

|  |  |  |
| --- | --- | --- |
| **ENAME** | **SAL** | **GRADE** |
| SMITH | 800 | 1 |
| ADAMS | 1100 | 1 |
| JAMES | 950 | 1 |
| WARD | 1250 | 2 |
| MARTIN | 1250 | 2 |
| MILLER | 1300 | 2 |
| ALLEN | 1600 | 3 |
| TURNER | 1500 | 3 |
| JONES | 2975 | 4 |
| BLAKE | 2850 | 4 |
| CLARK | 2450 | 4 |
| SCOTT | 3000 | 4 |
| FORD | 3000 | 4 |
| KING | 5000 | 5 |

Statement#5:

SELECT e.ename, d.deptno, d.dname FROM emp e, dept d

WHERE e.deptno(+) = d.deptno

ORDER BY e.deptno;

|  |  |  |
| --- | --- | --- |
| **ENAME** | **DEPTNO** | **DNAME** |
| CLARK | 10 | ACCOUNTING |
| KING | 10 | ACCOUNTING |
| MILLER | 10 | ACCOUNTING |
| SMITH | 20 | RESEARCH |
| ADAMS | 20 | RESEARCH |
| FORD | 20 | RESEARCH |
| SCOTT | 20 | RESEARCH |
| JONES | 20 | RESEARCH |
| ALLEN | 30 | SALES |
| BLAKE | 30 | SALES |
| MARTIN | 30 | SALES |
| JAMES | 30 | SALES |
| TURNER | 30 | SALES |
| WARD | 30 | SALES |
| **ENAME** | **DEPTNO** | **DNAME** |
|  | 40 | OPERATIONS |

Statement#6:

SELECT worker.ename||' works for '||manager.ename FROM emp worker, emp manager WHERE worker.mgr = manager.empno;

|  |
| --- |
| **WORKER.ENAME||'WORKSFOR'||MANAG** |
| SCOTT works for JONES |
| FORD works for JONES |
| ALLEN works for BLAKE |
| WARD works for BLAKE |
| JAMES works for BLAKE |
| TURNER works for BLAKE |
| MARTIN works for BLAKE |
| MILLER works for CLARK |
| ADAMS works for SCOTT |
| JONES works for KING |
| CLARK works for KING |
| BLAKE works for KING |
| SMITH works for FORD |

**Exercise:**

Q.1:

select e.ename, e.deptno, d.dname from emp e, dept d;

|  |  |  |
| --- | --- | --- |
| **ENAME** | **DEPTNO** | **DNAME** |
| SMITH | 20 | ACCOUNTING |
| ALLEN | 30 | ACCOUNTING |
| WARD | 30 | ACCOUNTING |
| JONES | 20 | ACCOUNTING |
| MARTIN | 30 | ACCOUNTING |
| BLAKE | 30 | ACCOUNTING |
| CLARK | 10 | ACCOUNTING |
| SCOTT | 20 | ACCOUNTING |
| KING | 10 | ACCOUNTING |
| TURNER | 30 | ACCOUNTING |
| ADAMS | 20 | ACCOUNTING |
| JAMES | 30 | ACCOUNTING |
| FORD | 20 | ACCOUNTING |
| MILLER | 10 | ACCOUNTING |
| **ENAME** | **DEPTNO** | **DNAME** |
| SMITH | 20 | RESEARCH |
| ALLEN | 30 | RESEARCH |
| WARD | 30 | RESEARCH |
| JONES | 20 | RESEARCH |
| MARTIN | 30 | RESEARCH |
| BLAKE | 30 | RESEARCH |
| CLARK | 10 | RESEARCH |
| SCOTT | 20 | RESEARCH |
| KING | 10 | RESEARCH |
| TURNER | 30 | RESEARCH |
| ADAMS | 20 | RESEARCH |
| JAMES | 30 | RESEARCH |
| FORD | 20 | RESEARCH |
| MILLER | 10 | RESEARCH |
| **ENAME** | **DEPTNO** | **DNAME** |
| SMITH | 20 | SALES |
| ALLEN | 30 | SALES |
| WARD | 30 | SALES |
| JONES | 20 | SALES |
| MARTIN | 30 | SALES |
| BLAKE | 30 | SALES |
| CLARK | 10 | SALES |
| SCOTT | 20 | SALES |
| KING | 10 | SALES |
| TURNER | 30 | SALES |
| ADAMS | 20 | SALES |
| JAMES | 30 | SALES |
| FORD | 20 | SALES |
| MILLER | 10 | SALES |

Q.2:

select e.job, d.loc from emp e, dept d where d.deptno=30

|  |  |
| --- | --- |
| **JOB** | **LOC** |
| CLERK | CHICAGO |
| SALESMAN | CHICAGO |
| SALESMAN | CHICAGO |
| MANAGER | CHICAGO |
| SALESMAN | CHICAGO |
| MANAGER | CHICAGO |
| MANAGER | CHICAGO |
| ANALYST | CHICAGO |
| PRESIDENT | CHICAGO |
| SALESMAN | CHICAGO |
| CLERK | CHICAGO |
| CLERK | CHICAGO |
| ANALYST | CHICAGO |
| CLERK | CHICAGO |

Q.3:

select e.ename, d.dname, d.loc from emp e, dept d where e.comm is not null

|  |  |  |
| --- | --- | --- |
| **ENAME** | **DNAME** | **LOC** |
| ALLEN | ACCOUNTING | NEW YORK |
| WARD | ACCOUNTING | NEW YORK |
| MARTIN | ACCOUNTING | NEW YORK |
| TURNER | ACCOUNTING | NEW YORK |
| ALLEN | RESEARCH | DALLAS |
| WARD | RESEARCH | DALLAS |
| MARTIN | RESEARCH | DALLAS |
| TURNER | RESEARCH | DALLAS |
| ALLEN | SALES | CHICAGO |
| WARD | SALES | CHICAGO |
| MARTIN | SALES | CHICAGO |
| TURNER | SALES | CHICAGO |
| ALLEN | OPERATIONS | BOSTON |
| WARD | OPERATIONS | BOSTON |
| **ENAME** | **DNAME** | **LOC** |
| MARTIN | OPERATIONS | BOSTON |
| TURNER | OPERATIONS | BOSTON |

Q.4:

select e.ename, d.dname from emp e, dept d where e.ename like '%A%' or e.ename like 'A%' or e.ename like '%A'

|  |  |
| --- | --- |
| **ENAME** | **DNAME** |
| ALLEN | ACCOUNTING |
| WARD | ACCOUNTING |
| MARTIN | ACCOUNTING |
| BLAKE | ACCOUNTING |
| CLARK | ACCOUNTING |
| ADAMS | ACCOUNTING |
| JAMES | ACCOUNTING |
| ALLEN | RESEARCH |
| WARD | RESEARCH |
| MARTIN | RESEARCH |
| BLAKE | RESEARCH |
| CLARK | RESEARCH |
| ADAMS | RESEARCH |
| JAMES | RESEARCH |
| **ENAME** | **DNAME** |
| ALLEN | SALES |
| WARD | SALES |
| MARTIN | SALES |
| BLAKE | SALES |
| CLARK | SALES |
| ADAMS | SALES |
| JAMES | SALES |
| ALLEN | OPERATIONS |
| WARD | OPERATIONS |
| MARTIN | OPERATIONS |
| BLAKE | OPERATIONS |
| CLARK | OPERATIONS |
| ADAMS | OPERATIONS |
| JAMES | OPERATIONS |

Q.5:

select e.ename, e.job, d.deptno, d.dname from emp e, dept d where d.loc='DALLAS'

|  |  |  |  |
| --- | --- | --- | --- |
| **ENAME** | **JOB** | **DEPTNO** | **DNAME** |
| SMITH | CLERK | 20 | RESEARCH |
| ALLEN | SALESMAN | 20 | RESEARCH |
| WARD | SALESMAN | 20 | RESEARCH |
| JONES | MANAGER | 20 | RESEARCH |
| MARTIN | SALESMAN | 20 | RESEARCH |
| BLAKE | MANAGER | 20 | RESEARCH |
| CLARK | MANAGER | 20 | RESEARCH |
| SCOTT | ANALYST | 20 | RESEARCH |
| KING | PRESIDENT | 20 | RESEARCH |
| TURNER | SALESMAN | 20 | RESEARCH |
| ADAMS | CLERK | 20 | RESEARCH |
| JAMES | CLERK | 20 | RESEARCH |
| FORD | ANALYST | 20 | RESEARCH |
| MILLER | CLERK | 20 | RESEARCH |

Q.6:

select e1.ename as "Employee", e1.empno as "Emp#", e2.ename as "Manager", e2.mgr as "Mgr#" from emp e1, emp e2 where e1.mgr=e2.empno

|  |  |  |  |
| --- | --- | --- | --- |
| **Employee** | **Emp#** | **Manager** | **Mgr#** |
| SCOTT | 7788 | JONES | 7839 |
| FORD | 7902 | JONES | 7839 |
| ALLEN | 7499 | BLAKE | 7839 |
| WARD | 7521 | BLAKE | 7839 |
| JAMES | 7900 | BLAKE | 7839 |
| TURNER | 7844 | BLAKE | 7839 |
| MARTIN | 7654 | BLAKE | 7839 |
| MILLER | 7934 | CLARK | 7839 |
| ADAMS | 7876 | SCOTT | 7566 |
| JONES | 7566 | KING |  |
| CLARK | 7782 | KING |  |
| BLAKE | 7698 | KING |  |
| SMITH | 7369 | FORD | 7566 |

Q.7:

select e1.ename as "Employee", e1.empno as "Emp#", e2.ename as "Manager", e2.mgr as "Mgr#" from emp e1, emp e2 where e1.mgr=e2.empno(+)

|  |  |  |  |
| --- | --- | --- | --- |
| **Employee** | **Emp#** | **Manager** | **Mgr#** |
| SCOTT | 7788 | JONES | 7839 |
| FORD | 7902 | JONES | 7839 |
| ALLEN | 7499 | BLAKE | 7839 |
| WARD | 7521 | BLAKE | 7839 |
| JAMES | 7900 | BLAKE | 7839 |
| TURNER | 7844 | BLAKE | 7839 |
| MARTIN | 7654 | BLAKE | 7839 |
| MILLER | 7934 | CLARK | 7839 |
| ADAMS | 7876 | SCOTT | 7566 |
| JONES | 7566 | KING |  |
| CLARK | 7782 | KING |  |
| BLAKE | 7698 | KING |  |
| SMITH | 7369 | FORD | 7566 |
| KING | 7839 |  |  |

Q.8:

select e1.deptno as "Department", e1.ename as "Employee", e2.ename as "Colleague" from emp e1, emp e2 where e1.deptno=e2.deptno AND e1.ename<>e2.ename

|  |  |  |
| --- | --- | --- |
| **Department** | **Employee** | **Colleague** |
| 10 | KING | CLARK |
| 10 | MILLER | CLARK |
| 10 | CLARK | KING |
| 10 | MILLER | KING |
| 10 | CLARK | MILLER |
| 10 | KING | MILLER |
| 20 | ADAMS | SMITH |
| 20 | FORD | SMITH |
| 20 | SCOTT | SMITH |
| 20 | JONES | SMITH |
| 20 | SMITH | ADAMS |
| 20 | FORD | ADAMS |
| 20 | SCOTT | ADAMS |
| 20 | JONES | ADAMS |

Q.9:

1-describe salgrade

2- select e.ename, e.job, d.dname, e.sal, s.grade from emp e, dept d, salgrade s where e.deptno=d.deptno and e.sal between s.losal and s.hisal

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ENAME** | **JOB** | **DNAME** | **SAL** | **GRADE** |
| MILLER | CLERK | ACCOUNTING | 1300 | 2 |
| CLARK | MANAGER | ACCOUNTING | 2450 | 4 |
| KING | PRESIDENT | ACCOUNTING | 5000 | 5 |
| SMITH | CLERK | RESEARCH | 800 | 1 |
| SCOTT | ANALYST | RESEARCH | 3000 | 4 |
| FORD | ANALYST | RESEARCH | 3000 | 4 |
| ADAMS | CLERK | RESEARCH | 1100 | 1 |
| JONES | MANAGER | RESEARCH | 2975 | 4 |
| JAMES | CLERK | SALES | 950 | 1 |
| BLAKE | MANAGER | SALES | 2850 | 4 |
| TURNER | SALESMAN | SALES | 1500 | 3 |
| ALLEN | SALESMAN | SALES | 1600 | 3 |
| WARD | SALESMAN | SALES | 1250 | 2 |
| MARTIN | SALESMAN | SALES | 1250 | 2 |

Q.10:

select e1.ename, e1.hiredate from emp e1, emp e2 where e2.ename='BLAKE' and e1.hiredate>e2.hiredate

|  |  |
| --- | --- |
| **ENAME** | **HIREDATE** |
| MARTIN | 28-SEP-81 |
| CLARK | 09-JUN-81 |
| SCOTT | 09-DEC-82 |
| KING | 17-NOV-81 |
| TURNER | 08-SEP-81 |
| ADAMS | 12-JAN-83 |
| JAMES | 03-DEC-81 |
| FORD | 03-DEC-81 |
| MILLER | 23-JAN-82 |

Q.11

select e1.ename as "Employee", e1.hiredate as "Emp Hiredate", e2.ename as "Manager", e2.hiredate as "MgrHiredate" from emp e1, emp e2 where e1.mgr=e2.empno and e1.hiredate<e2.hiredate

|  |  |  |  |
| --- | --- | --- | --- |
| **Employee** | **Emp Hired** | **Manager** | **MgrHireda** |
| ALLEN | 20-FEB-81 | BLAKE | 01-MAY-81 |
| WARD | 22-FEB-81 | BLAKE | 01-MAY-81 |
| JONES | 02-APR-81 | KING | 17-NOV-81 |
| CLARK | 09-JUN-81 | KING | 17-NOV-81 |
| BLAKE | 01-MAY-81 | KING | 17-NOV-81 |
| SMITH | 17-DEC-80 | FORD | 03-DEC-81 |

**Quiz:**

Q.1

select ename, to\_char(hiredate, 'fmddth "of" MONTH "," YYYY') as "Hire Date", concat(trunc(months\_between(sysdate, hiredate)/12), ' years') as "Employment Duration" from emp;

select ename, to\_char(hiredate, 'fmddth "of" MONTH "," YYYY') as "Hire Date", concat(

concat(trunc(months\_between(sysdate, hiredate)/12), ' years and '),

concat(months\_between(sysdate, hiredate)- trunc(months\_between(sysdate, hiredate)/12)/12, 'as months') ) as "Employment Duration" from emp;