**Exercise I: DDL Commands**

1. Create a table employee with the following structure

|  |  |  |
| --- | --- | --- |
| Column name | Constraint | Type of data |
| Empno | Not null | Integer value |
| Ename |  | Text |
| Job |  | Text |
| Mgr |  | Numeric value |
| Hiredate |  | Date |
| Sal |  | Float |
| Comm |  | Float |
| Deptno | Not null | Numeric value |

1. Create a table department with the following structure

|  |  |  |
| --- | --- | --- |
| Column name | Constraint | Type of data |
| Deptno | Not null | Integer value |
| Dname | Unique | Text |
| Loc |  | Text |

1. Modify employee table to add a column called age with data type date.
2. Modify employee table to add a column called grade with not null constraint.
3. Add a check constraint to the employee table to verify that the grade is always s,

a or f.

1. Modify employee table to change empno to a primary key constraint.
2. Modify employee table by adding a referential integrity constraint (foreign key) on deptno to department table.
3. Drop the column age from employee table.
4. Modify the column width of dname of department table to 100.
5. Drop the unique constraint on dname of department table.

1.

CREATE TABLE EMPLOYEE(

EMPNO INT NOT NULL,

ENAME VARCHAR (6),

JOB VARCHAR (9),

MGR INT,

HIREDATE DATE,

SAL FLOAT,

COMM FLOAT,

PRIMARY KEY (EMPNO),

DEPTNO INT NOT NULL

);

INSERT INTO EMPLOYEE(EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, DEPTNO)

VALUES (7369, 'SMITH', 'CLERK', 7902, '17-DEC-80', 800,20);

INSERT INTO EMPLOYEE(EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)

VALUES (7499, 'ALLEN', 'SALESMAN', 7698, '20-FEB-81', 1600,300,30);

INSERT INTO EMPLOYEE(EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)

VALUES (7521, 'WARD', 'SALESMAN', 7698, '22-FEB-81', 1250, 500, 30);

INSERT INTO EMPLOYEE(EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, DEPTNO)

VALUES (7566, 'JONES', 'MANAGER', 7839, '02-APR-81', 2975, 20);

INSERT INTO EMPLOYEE(EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)

VALUES (7654, 'MARTIN', 'SALESMAN', 7698, '28-SEP-81', 1250, 1400, 30);

INSERT INTO EMPLOYEE(EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, DEPTNO)

VALUES (7698, 'BLAKE', 'MANAGER', 7839, '01-MAY-81', 2850, 30);

INSERT INTO EMPLOYEE(EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, DEPTNO)

VALUES (7782, 'CLARK', 'MANAGER', 7839, '09-JUN-81', 2450, 10);

INSERT INTO EMPLOYEE(EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)

VALUES (7788, 'SCOTT', 'ANALYST', 7566, '09-DEC-82', 3000, 200, 20);

INSERT INTO EMPLOYEE(EMPNO, ENAME, JOB, HIREDATE, SAL, DEPTNO)

VALUES (7839, 'KING', 'PRESIDENT', '17-NOV-81', 5000, 10);

INSERT INTO EMPLOYEE(EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, DEPTNO)

VALUES (7844, 'TURNER', 'SALESMAN', 7698, '08-SEP-81', 1500, 30);

INSERT INTO EMPLOYEE(EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, DEPTNO)

VALUES (7876, 'ADAM', 'CLERK', 7788, '12-JAN-83', 1100, 20);

INSERT INTO EMPLOYEE(EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, DEPTNO)

VALUES (7900, 'JAMES', 'CLERK', 7698, '03-DEC-81', 950, 30);

INSERT INTO EMPLOYEE(EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)

VALUES (7902, 'FORD', 'ANALYST', 7566, '03-DEC-81', 3000, 200, 20);

INSERT INTO EMPLOYEE(EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, DEPTNO)

VALUES (7934, 'MILLER', 'CLERK', 7782, '23-JAN-82', 1300, 10);

2.

CREATE TABLE DEPARTMENT(

DEPTNO INT NOT NULL,

DNAME VARCHAR (10),

LOC VARCHAR (10),

PRIMARY KEY (DEPTNO)

);

INSERT INTO DEPARTMENT(DEPTNO, DNAME, LOC)

VALUES (10, 'ACCOUNTING', 'NEW YORK');

INSERT INTO DEPARTMENT(DEPTNO, DNAME, LOC)

VALUES (20, 'RESEARCH', 'DALLUS');

INSERT INTO DEPARTMENT(DEPTNO, DNAME, LOC)

VALUES (30, 'SALES', 'CHICAGO');

INSERT INTO DEPARTMENT(DEPTNO, DNAME, LOC)

VALUES (40, 'OPERATIONS', 'BOSTON');

3.

UPDATE EMPLOYEE

SET COMM = NULL

WHERE JOB = 'ANALYST';

4.

UPDATE EMPLOYEE

SET JOB = 'SALESMAN',SAL=1000,DEPTNO=30

WHERE ENAME = 'JONES';

5.

SELECT EMPNO,ENAME

FROM EMPLOYEE

WHERE JOB='MANAGER';

6.

SELECT \*

FROM EMPLOYEE

WHERE DEPTNO= 10 OR DEPTNO = 30;

7.

SELECT DISTINCT JOB

FROM EMPLOYEE;

8.

SELECT \*

FROM EMPLOYEE

WHERE ENAME LIKE 'SM%' ;

9.

SELECT SAL\*.10 PF FROM EMPLOYEE;

10.

SELECT ENAME,JOB,HIREDATE

FROM EMPLOYEE

WHERE HIREDATE>'20-FEB-81' AND HIREDATE<'1-MAY-81'

ORDER BY HIREDATE ASC;

11.

SELECT MAX(SAL),AVG(SAL) ,COUNT(DEPTNO)

FROM EMPLOYEE

WHERE DEPTNO=30;

12.

SELECT JOB,SUM(SAL)

FROM EMPLOYEE

GROUP BY JOB;

13.

SELECT COUNT(JOB) "TOTAL CLERK IN COMPANY"

FROM EMPLOYEE

WHERE JOB='CLERK';

14.

ALTER TABLE EMPLOYEE

ADD FOREIGN KEY(DEPTNO) REFERENCES DEPARTMENT(DEPTNO);

SELECT EMPLOYEE.DEPTNO , DEPARTMENT.DNAME

FROM DEPARTMENT

INNER JOIN EMPLOYEE

ON EMPLOYEE.DEPTNO = DEPARTMENT.DEPTNO

WHERE EMPLOYEE.JOB='CLERK'

GROUP BY EMPLOYEE.DEPTNO,DEPARTMENT.DEPTNO,DEPARTMENT.DNAME,EMPLOYEE.JOB HAVING COUNT(\*)=1;

15.

SELECT DISTINCT DEPTNO,COUNT(\*) MAXIMUM\_CLERKS

FROM EMPLOYEE

GROUP BY DEPTNO,JOB

HAVING COUNT (\*)= (SELECT MAX(MYCOUNT)

FROM( SELECT JOB,DEPTNO, COUNT(\*) MYCOUNT

FROM EMPLOYEE

WHERE JOB='CLERK'

GROUP BY DEPTNO,JOB

));

16.

SELECT COUNT(\*) AS COUNT,DEPARTMENT.DNAME

FROM EMPLOYEE

INNER JOIN DEPARTMENT ON EMPLOYEE.DEPTNO = DEPARTMENT.DEPTNO

GROUP BY DEPARTMENT.DNAME;

17.

SELECT JOB, MIN(SAL)

FROM EMPLOYEE

GROUP BY JOB

ORDER BY MIN(SAL) DESC;

18.

SELECT DEPTNO, AVGSAL

FROM

(

SELECT DEPTNO, AVG(SAL) AS AVGSAL

FROM EMPLOYEE

GROUP BY DEPTNO

)

WHERE AVGSAL=(SELECT MIN(AVGSAL)

FROM (SELECT DEPTNO, AVG(SAL) AS AVGSAL

FROM EMPLOYEE GROUP BY DEPTNO));

19.

SELECT JOB, MIN(SAL),MAX(SAL),AVG(SAL)

FROM EMPLOYEE

GROUP BY JOB;

20.

SELECT \*

FROM EMPLOYEE

WHERE ENAME LIKE '%AM%' ;

21.

SELECT DISTINCT A.EMPNO , A.ENAME, A.JOB,A.MGR,A.HIREDATE,A.SAL,A.COMM,A.DEPTNO

FROM EMPLOYEE A, EMPLOYEE B

WHERE A.DEPTNO = 10 AND A.SAL>=B.SAL AND B.DEPTNO=30;

22.

SELECT D.DNAME AS DEPARTMENT\_WITH\_NO\_EMPLOYEES

FROM DEPARTMENT D

LEFT JOIN EMPLOYEE E ON D.DEPTNO = E.DEPTNO

WHERE E.DEPTNO IS NULL

23.

SELECT A.ENAME AS EMPLOYEE\_NAME,

B.ENAME AS "SUPERVISOR\_NAME",B.DEPTNO AS "DEPARTMENT"

FROM EMPLOYEE A, EMPLOYEE B

WHERE A.MGR = B.EMPNO AND A.DEPTNO=B.DEPTNO;

24.

SELECT A.ENAME AS EMPLOYEE\_NAME,

B.ENAME AS "SUPERVISOR\_NAME"

FROM EMPLOYEE A, EMPLOYEE B

WHERE A.MGR = B.EMPNO ;

SELECT A.ENAME AS EMPLOYEE\_NAME,

B.ENAME AS "SUPERVISOR\_NAME"

FROM EMPLOYEE A, EMPLOYEE B

WHERE A.MGR = B.EMPNO AND A.ENAME=B.ENAME;

25.

SELECT COUNT(DISTINCT JOB)AS NUMBER\_OF\_JOBS

FROM EMPLOYEE;