DEPARTMENT OF MATHEMATICAL AND COMPUTATIONAL SCIENCES

NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL

MA611 – 4th Semester MCA 2024-2025

DATABASE SYSTEMS LAB

Assignment-6

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1. Create the following tables with the following attributes and constraints on them.

a. Employee (Fname, mname, lname, Ssn, Bdate, address, gender, salary, Super_Ssn,

Dept_num)

Lname, Ssn, Dept_num should be not null

b. Department (Dept_num, Dept_name, Mgr_Ssn, Mgr_startdate)

Dept_name should be unique

c. Department_locations (Dept_num, location)

Dept_num and location both are primary key

Dept_num is foreign key

d. Project (Proj_num, Proj_name, Proj_location, Dept_num)

e. Employee_Project (Ssn, Proj_num, Hours)

f. Dependent (Ssn, Dept_name, gender, bdate, relationship)

```
CREATE TABLE Employee (
    Fname VARCHAR(10),
    Mname VARCHAR(10),
    Lname VARCHAR(10) NOT NULL,
    Ssn CHAR(9) NOT NULL,
    Bdate DATE,
    Address VARCHAR(30),
    Gender CHAR(1), Salary DECIMAL(10, 2),
    Super_Ssn CHAR(9),
    Dept_num INT NOT NULL,
    PRIMARY KEY (Ssn)
 12      );

Table created.
```

```
CREATE TABLE Departments (
    Dept_num INT PRIMARY KEY,
    Dept_name VARCHAR(20) UNIQUE NOT NULL,
    Mgr_Ssn CHAR(9),
    Mgr_startdate DATE
  6      );

Table created.
```

```
CREATE TABLE Department_locations (
           Dept_num INT,
           Location VARCHAR(30),
           PRIMARY KEY (Dept_num, Location),
           FOREIGN KEY (Dept_num) REFERENCES Departments(Dept_num)  on delete cascade
  6             );

Table created.
```

```
CREATE TABLE Project (
              Proj_num INT PRIMARY KEY,
              Proj_name VARCHAR(20),Proj_location VARCHAR(30),
              Dept_num INT,
              FOREIGN KEY (Dept_num) REFERENCES Departments(Dept_num) on delete set NULL
  6                );

Table created.
```

```
CREATE TABLE Employee_Project (
        Ssn CHAR(9),
        Proj_num INT,
        Hours DECIMAL(5, 2),
        PRIMARY KEY (Ssn, Proj_num),
        FOREIGN KEY (Ssn) REFERENCES Employee(Ssn) on delete cascade,
        FOREIGN KEY (Proj_num) REFERENCES Project(Proj_num) on delete cascade
  8          );

Table created.
```

```
CREATE TABLE Dependent (
    Ssn CHAR(9),
    Dept_name VARCHAR(20),
    Gender CHAR(1),
    Bdate DATE,
    Relationship VARCHAR(20),
    PRIMARY KEY (Ssn, Dept_name)
  8       );

Table created.
```

2. Add two column blood group and hobbies to employee table.

```
SQL> Alter table employee add(b_group char(2),hobbies varchar(20));

Table altered.
```

3. Increase the size of column blood group to 15 to the employee table.

```
SQL> alter table employee modify(b_group char(15));

Table altered.
```

4.Drop column hobbies from the employee table.

```
SQL> alter table employee drop column hobbies;

Table altered.
```

5.Rename Employee Table to Employee_details.

```
SQL> ALTER TABLE EMPLOYEE RENAME TO EMPLOYEE_DETAILS;

Table altered.
```

6.Insert atleast five records in each table.

insert.sql

```
-->  Employee Detials
INSERT INTO Employee_Details VALUES ('John', 'A', 'Doe', '111223333', '15-MAR-1995', '123 Main St', 'M', 3500.00, NULL, 1, 'A+');
INSERT INTO Employee_Details VALUES ('Jane', 'B', 'Smith', '222334555', '20-JUL-1990', '456 Oak Ave', 'F', 4500.00, NULL, 2, 'B-');
INSERT INTO Employee_Details VALUES ('Alice', 'C', 'Johnson', '333445666', '11-JUN-1982', '789 Pine Blvd', 'F', 6000.00, NULL, 3, 'O+');
INSERT INTO Employee_Details VALUES ('Bob', 'D', 'Williams', '444556777', '29-AUG-1975', '101 Maple Rd', 'M', 5500.00, NULL, 1, 'B+');
INSERT INTO Employee_Details VALUES ('Charlie', 'E', 'Brown', '555667888', '17-FEB-1992', '202 Cedar St', 'M', 3000.00, NULL, 2, 'A+');

-->> Departments
INSERT INTO Departments VALUES (1, 'Marketing', '111223333', '01-MAY-2010');
INSERT INTO Departments VALUES (2, 'Sales', '222334555', '14-AUG-2015');
INSERT INTO Departments VALUES (3, 'Engineering', '333445666', '21-SEP-2019');
INSERT INTO Departments VALUES (4, 'Legal Advisors', '444555666', '21-SEP-2009');
INSERT INTO Departments VALUES (5, 'Productions', '666666777', '21-SEP-2009');


-->>Department_locations
INSERT INTO Department_locations VALUES (1, 'New York');
INSERT INTO Department_locations VALUES (1, 'San Francisco');
INSERT INTO Department_locations VALUES (2, 'Chicago');
INSERT INTO Department_locations VALUES (2, 'Los Angeles');
INSERT INTO Department_locations VALUES (3, 'Seattle');


-->>Project Table
INSERT INTO Project VALUES (1, 'Super', 'New York', 1);
INSERT INTO Project VALUES (2, 'TechUpgrade', 'Seattle', 3);
INSERT INTO Project VALUES (3, 'AdCampaign', 'San Francisco', 1);
INSERT INTO Project VALUES (4, 'SalesBoost', 'Los Angeles', 2);


-->> Employee_Project
INSERT INTO Employee_Project VALUES ('111223333', 1, 40);
INSERT INTO Employee_Project VALUES ('222334555', 3, 35);
INSERT INTO Employee_Project VALUES ('333445666', 2, 50);
INSERT INTO Employee_Project VALUES ('444556777', 4, 45);
INSERT INTO Employee_Project VALUES ('555667888', 2, 30);


-->>Dependent Values;
INSERT INTO Dependent VALUES ('111223333', 'Marketing', 'F', '10-MAR-2010', 'Wife');
INSERT INTO Dependent VALUES ('222334555', 'Sales', 'M', '19-AUG-1993', 'Son');
INSERT INTO Dependent VALUES ('333445666', 'Engineering', 'F', '22-APR-2017', 'Daughter');
INSERT INTO Dependent VALUES ('444556777', 'Marketing', 'F', '02-JAN-2005', 'Daughter');
INSERT INTO Dependent VALUES ('555667888', 'Sales', 'M', '15-JUL-2002', 'Son');


```

7.Give 1000 rupees bonus to each employee.

```
SQL> UPDATE EMPLOYEE_DETAILS SET SALARY=SALARY+1000;

5 rows updated.

Commit complete.
```

8.Increase the salary of the employees having salary <5000 by 500 rupees.

```
SQL> UPDATE EMPLOYEE_DETAILS SET SALARY=SALARY+500 WHERE SALARY<5000;

2 rows updated.

Commit complete.
```

9.Give 100 rupees bonus to employees having salary less than 10000 rupees and birth date before 1990.

```
SQL> UPDATE EMPLOYEE_DETAILS SET salary=salary+100 WHERE salary<10000 and bdate<'01-JAN-1990';

2 rows updated.

Commit complete.
```

10. Give 100 rupees bonus to employees having salary less than 10000 rupees or birth date before 1990.

```
SQL> UPDATE EMPLOYEE_DETAILS SET salary=salary+100 WHERE salary<10000 or bdate<'01-JAN-1990';

5 rows updated.

Commit complete.
```

11. Give 100 rupees bonus to employees having salary between 1000 to 5000 rupees and birth date before 1990.

```
SQL> UPDATE EMPLOYEE_DETAILS SET salary=salary+100 WHERE salary BETWEEN 1000 AND 5000 AND bdate<'01-JAN-1990';

0 rows updated.

Commit complete.
```

12. Give 100 rupees bonus to employees having salary between 1000, 3000 and 5000 rupees.

```
SQL> UPDATE employee_details SET salary=salary+100 WHERE salary in (1000, 3000, 5000);

0 rows updated.
```

13. Update phone number with 0000 where NULL.

```
SQL> UPDATE employee_details SET phone_no='0000' WHERE phone_no IS NULL;
```

14. Give 100 rupees bonus to employees having salary not between 1000 to 5000 rupees and birth date before 1990.

```
SQL> UPDATE employee_details SET salary=salary+100 WHERE salary NOT BETWEEN 1000 AND 5000 AND bdate < TO_DATE(
'01-JAN-1990', 'DD-MON-YYYY');

2 rows updated.
```

15. Give 100 rupees bonus to employees having salary between 1000, 3000 and 5000 rupees.

```
SQL> UPDATE employee_details SET salary=salary+100 WHERE salary in (1000, 3000, 5000);

0 rows updated.
```

16. Delete from employee the rows having bdate less than 1970.17. List the name and age of all employees.

```
SQL> DELETE FROM employee_details WHERE bdate < '01-JAN-1970';

0 rows deleted.
```

17. List the name and age of all employees.

```
SQL> SELECT fname, mname, lname,(SYSDATE - BDATE)/365.25 as AGE from employee_details;

FNAME      MNAME      LNAME              AGE
---------- ---------- ---------- ----------
John       A          Doe        20.9144151
Jane       B          Smith      25.5660236
Alice      C          Johnson    33.6727997
Bob        D          Williams    40.457194
Charlie    E          Brown      23.9862837
```

18. Display the salaries offered to the employees.

```
SQL> SELECT salary FROM employee_details;

    SALARY
----------
      5100
      5600
      7300
      6800
      4600
```

19. List the Bdate and Salary of Employee ‘Smith’.

```
SQL> SELECT bdate, salary FROM employee_details WHERE fname LIKE 'Smith';

no rows selected
```

20. Find the location of Project ‘SUPER’.

```
SQL> SELECT proj_location FROM project WHERE proj_name='Super';

PROJ_LOCATION
------------------------------
New York
```

21. Find the dependent details of Employee with Ssn number 482928.

```
SQL> SELECT * FROM dependent WHERE ssn='482928';

no rows selected
```

22. List the employees having salary > 2000 and bdate before 1/1/1990.

```
SQL> SELECT * FROM employee_details WHERE salary > 2000 AND bdate < TO_DATE('01-JAN-1990', 'DD-MON-YYYY');

FNAME      MNAME      LNAME      SSN       BDATE              ADDRESS                        G     SALARY SUPER_SSN   DEPT_NUM B_GROUP
---------- ---------- ---------- --------- ------------------ ------------------------------ - ---------- --------- ---------- ----------
Alice      C          Johnson    333445666 11-JUN-82          789 Pine Blvd                  F       7300         3 O+
Bob        D          Williams   444556777 29-AUG-75          101 Maple Rd                   M       6800         1 B+
```

23. List the employees belonging to dept_num 1.

```
SQL> SELECT * FROM employee_details WHERE dept_num = 1;

FNAME      MNAME      LNAME      SSN       BDATE              ADDRESS                        G     SALARY SUPER_SSN   DEPT_NUM B_GROUP
---------- ---------- ---------- --------- ------------------ ------------------------------ - ---------- --------- ---------- ----------
John       A          Doe        111223333 15-MAR-95          123 Main St                    M       5100         1 A+
Bob        D          Williams   444556777 29-AUG-75          101 Maple Rd                   M       6800         1 B+
```

24. List the project details of dept_num 5.

```
SQL> SELECT * FROM project WHERE dept_num = 5;

no rows selected
```

25. List the employee details with their department name.

```
SQL> SELECT * FROM employee_details JOIN departments ON employee_details.dept_num = departments.dept_num;

FNAME      MNAME      LNAME      SSN       BDATE              ADDRESS                        G     SALARY SUPER_SSN   DEPT_NUM B_GROUP               DEPT_NUM DEPT_NAME           MGR_SSN   MGR_STARTDATE
---------- ---------- ---------- --------- ------------------ ------------------------------ - ---------- --------- ---------- ---------- ---------- -------------------- --------- -----------------
Bob        D          Williams   444556777 29-AUG-75          101 Maple Rd                   M       6800         1 B+                      1 Marketing            111223333 01-MAY-10
John       A          Doe        111223333 15-MAR-95          123 Main St                    M       5100         1 A+                      1 Marketing            111223333 01-MAY-10
Charlie    E          Brown      555667888 17-FEB-92          202 Cedar St                   M       4600         2 A+                      2 Sales                222334555 14-AUG-15
Jane       B          Smith      222334555 20-JUL-90          456 Oak Ave                    F       5600         2 B-                      2 Sales                222334555 14-AUG-15
Alice      C          Johnson    333445666 11-JUN-82          789 Pine Blvd                  F       7300         3 O+                      3 Engineering          333445666 21-SEP-19
```

26. List the employee details with their project names.

```
SQL> SELECT * FROM employee_details JOIN project ON employee_details.dept_num = project.dept_num;

FNAME      MNAME      LNAME      SSN        BDATE              ADDRESS                        G     SALARY SUPER_SSN   DEPT_NUM B_GROUP               PROJ_NUM PROJ_NAME           PROJ_LOCATION
         DEPT_NUM
---------- ---------- ---------- --------- ------------------ ------------------------------ - ---------- --------- ---------- --------------- ---------- -------------------- ------------------------------
- ----------
John       A          Doe        111223333 15-MAR-95          123 Main St                    M       5100         1 A+                        3 AdCampaign         San Francisco
 1
John       A          Doe        111223333 15-MAR-95          123 Main St                    M       5100         1 A+                        1 Super              New York
 1
Jane       B          Smith      222334555 20-JUL-90          456 Oak Ave                    F       5600         2 B-                        4 SalesBoost         Los Angeles
 2
Alice      C          Johnson    333445666 11-JUN-82          789 Pine Blvd                  F       7300         3 O+                        2 TechUpgrade        Seattle
 3
Bob        D          Williams   444556777 29-AUG-75          101 Maple Rd                   M       6800         1 B+                        3 AdCampaign         San Francisco
 1
Bob        D          Williams   444556777 29-AUG-75          101 Maple Rd                   M       6800         1 B+                        1 Super              New York
 1
Charlie    E          Brown      555667888 17-FEB-92          202 Cedar St                   M       4600         2 A+                        4 SalesBoost         Los Angeles
 2

7 rows selected.
```

27. List the employees belonging to Marketing department.

```
SQL> SELECT employee_details.* FROM employee_details JOIN departments ON employee_details.dept_num = departments.dept_num WHERE departments.dept_name='Marketing';

FNAME      MNAME      LNAME      SSN        BDATE              ADDRESS                        G     SALARY SUPER_SSN   DEPT_NUM B_GROUP
---------- ---------- ---------- --------- ------------------ ------------------------------ - ---------- --------- ---------- ---------------
John       A          Doe        111223333 15-MAR-95          123 Main St                    M       5100         1 A+
Bob        D          Williams   444556777 29-AUG-75          101 Maple Rd                   M       6800         1 B+
```

28. List project details belonging of Sales department.

```
SQL> select project .* from project join departments d on d.dept_num=project.dept_num where d.dept_name='Sales';

  PROJ_NUM PROJ_NAME            PROJ_LOCATION                  DEPT_NUM
---------- -------------------- ------------------------------ ----------
         4 SalesBoost           Los Angeles                             2
```

29. List the dependent details of employee ‘Smith’.

```
SELECT dependent.* FROM employee_details JOIN dependent ON
  2  employee_details.ssn=dependent.ssn AND employee_details.fname='Smith';

no rows selected
```

30. List the various locations of ‘Marketing’ department.

```
SQL> SELECT location FROM departments join department_locations on departments.dept_num=department_locations.dept_num WHERE Departments.dept_name='Marketing';

LOCATION
------------------------------
New York
San Francisco
```

31. List the employees going to ‘Surathkal’ branch.

```
SQL> SELECT employee_details.* FROM employee_details JOIN department_locations ON employee_details.dept_num=department_locations.dept_num AND department_locations.location='Surathkal';

no rows selected
```

32. List the employees in the descending order of their salary.

```
SQL> SELECT * FROM employee_details ORDER BY salary DESC;

FNAME      MNAME      LNAME      SSN        BDATE              ADDRESS                        G     SALARY SUPER_SSN   DEPT_NUM B_GROUP
---------- ---------- ---------- --------- ------------------ ------------------------------ - ---------- --------- ---------- ---------------
Alice      C          Johnson    333445666 11-JUN-82          789 Pine Blvd                  F       7300         3 O+
Bob        D          Williams   444556777 29-AUG-75          101 Maple Rd                   M       6800         1 B+
Jane       B          Smith      222334555 20-JUL-90          456 Oak Ave                    F       5600         2 B-
John       A          Doe        111223333 15-MAR-95          123 Main St                    M       5100         1 A+
Charlie    E          Brown      555667888 17-FEB-92          202 Cedar St                   M       4600         2 A+
```

33. List the dependents in the descending order of their names.

```
SQL> SELECT dependent.* FROM dependent JOIN employee_details ON dependent.ssn=employee_details.ssn ORDER BY employee_details.fname DESC;

SSN       DEPT_NAME            G BDATE              RELATIONSHIP
--------- -------------------- - ------------------ --------------------
111223333 Marketing            F 10-MAR-10          Wife
222334555 Sales                M 19-AUG-93          Son
555667888 Sales                M 15-JUL-02          Son
444556777 Marketing            F 02-JAN-05          Daughter
333445666 Engineering          F 22-APR-17          Daughter
```