DEPARTMENT OF MATHEMATICAL AND COMPUTATIONAL SCIENCES

NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL

MA611 – 2nd Semester MCA, 2024-2025

DATABASE MANAGEMENT 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)

--- Employee table

```
CREATE TABLE Employee (
    Fname VARCHAR(30),
    mname VARCHAR(30),
    lname VARCHAR(30) NOT NULL,
    Ssn VARCHAR(20) NOT NULL,
    Bdate DATE,
    address VARCHAR(100),
```

```
  gender CHAR(1),
  salary DECIMAL(10,2),
  Super_Ssn VARCHAR(20),
  Dept_num INT NOT NULL,
  PRIMARY KEY (Ssn)
);

-- b. Department table
CREATE TABLE Department (
  Dept_num INT PRIMARY KEY,
  Dept_name VARCHAR(30) UNIQUE,
  Mgr_Ssn VARCHAR(20),
  Mgr_startdate DATE,
  FOREIGN KEY (Mgr_Ssn) REFERENCES Employee(Ssn)
);

-- c. Department_locations table
CREATE TABLE Department_locations (
   Dept_num INT,
   location VARCHAR(50),
   PRIMARY KEY (Dept_num, location),
   FOREIGN KEY (Dept_num) REFERENCES Department(Dept_num)
);

-- d. Project table
CREATE TABLE Project (
   Proj_num INT PRIMARY KEY,
   Proj_name VARCHAR(30),
   Proj_location VARCHAR(50),
```

```
    Dept_num INT,
    FOREIGN KEY (Dept_num) REFERENCES Department(Dept_num)
);

-- e. Employee_Project table
CREATE TABLE Employee_Project (
    Ssn VARCHAR(20),
    Proj_num INT,
    Hours DECIMAL(5,2),
    PRIMARY KEY (Ssn, Proj_num),
    FOREIGN KEY (Ssn) REFERENCES Employee(Ssn),
    FOREIGN KEY (Proj_num) REFERENCES Project(Proj_num)
);

-- f. Dependent table
CREATE TABLE Dependent (
     Ssn VARCHAR(20),
    Dept_name VARCHAR(30),
    gender CHAR(1),
    bdate DATE,
    relationship VARCHAR(20),
    PRIMARY KEY (Ssn, Dept_name),
    FOREIGN KEY (Ssn) REFERENCES Employee(Ssn)
);


-- 2. Add two columns to Employee table
    ALTER TABLE Employee ADD blood_group VARCHAR(5);
    ALTER TABLE Employee ADD hobbies VARCHAR(100);
```

-- 3. Increase size of blood_group column

```
ALTER TABLE Employee MODIFY blood_group VARCHAR(15);
```

-- 4. Drop hobbies column

```
ALTER TABLE Employee DROP COLUMN hobbies;
```

-- 5. Rename Employee table to Employee_details

```
ALTER TABLE Employee RENAME TO Employee_details;
```

-- Insert into Employee_details table

```
INSERT INTO Employee_details VALUES ('John', 'B', 'Smith', '123456789', '1965-01-09', '731 Fondren, Houston, TX', 'M', 30000, '333445555', 5, 'O+');

INSERT INTO Employee_details VALUES ('Franklin', 'T', 'Wong', '333445555', '1955-12-08', '638 Voss, Houston, TX', 'M', 40000, '888665555', 5, 'B+');

INSERT INTO Employee_details VALUES ('Alicia', 'J', 'Zelaya', '999887777', '1968-01-19', '3321 Castle, Spring, TX', 'F', 25000, '987654321', 4, 'A-');

INSERT INTO Employee_details VALUES ('Jennifer', 'S', 'Wallace', '987654321', '1941-06-20', '291 Berry, Bellaire, TX', 'F', 43000, '888665555', 4, 'AB+');

INSERT INTO Employee_details VALUES ('Ramesh', 'K', 'Narayan', '666884444', '1962-09-15', '975 Fire Oak, Humble, TX', 'M', 38000, '333445555', 5, 'O-');
```

-- Insert into Department table

```
INSERT INTO Department VALUES (1, 'Research', '333445555', '1988-05-22');

INSERT INTO Department VALUES (4, 'Administration', '987654321', '1995-01-01');

INSERT INTO Department VALUES (5, 'Headquarters', '888665555', '1981-06-19');

INSERT INTO Department VALUES (6, 'Marketing', '999887777', '2006-11-15');

INSERT INTO Department VALUES (7, 'Sales', '123456789', '2001-02-10');
```

-- Insert into Department_locations table

```
INSERT INTO Department_locations VALUES (1, 'Houston');

INSERT INTO Department_locations VALUES (4, 'Stafford');

INSERT INTO Department_locations VALUES (5, 'Bellaire');

INSERT INTO Department_locations VALUES (6, 'Surathkal');
```

```
INSERT INTO Department_locations VALUES (7, 'Mangalore');

-- Insert into Project table
INSERT INTO Project VALUES (1, 'ProductX', 'Bellaire', 5);
INSERT INTO Project VALUES (2, 'ProductY', 'Sugarland', 5);
INSERT INTO Project VALUES (3, 'ProductZ', 'Houston', 5);
INSERT INTO Project VALUES (10, 'SUPER', 'Surathkal', 6);
INSERT INTO Project VALUES (20, 'Computerization', 'Stafford', 4);

-- Insert into Employee_Project table
INSERT INTO Employee_Project VALUES ('123456789', 1, 32.5);
INSERT INTO Employee_Project VALUES ('123456789', 2, 7.5);
INSERT INTO Employee_Project VALUES ('333445555', 2, 10.0);
INSERT INTO Employee_Project VALUES ('333445555', 3, 10.0);
INSERT INTO Employee_Project VALUES ('999887777', 10, 30.0);

-- Insert into Dependent table
INSERT INTO Dependent VALUES ('123456789', 'Alice', 'F', '1986-04-05', 'Daughter');
INSERT INTO Dependent VALUES ('333445555', 'Theodore', 'M', '1983-10-25', 'Son');
INSERT INTO Dependent VALUES ('333445555', 'Joy', 'F', '1958-05-03', 'Spouse');
INSERT INTO Dependent VALUES ('987654321', 'Abner', 'M', '1942-02-28', 'Spouse');
INSERT INTO Dependent VALUES ('482928', 'Michael', 'M', '1988-01-04', 'Son');


-- 7. Give 1000 rupees bonus to each employee
  UPDATE Employee_details SET salary = salary + 1000;

-- 8. Increase salary of employees having salary <5000 by 500 rupees
   UPDATE Employee_details SET salary = salary + 500 WHERE salary < 5000;
```

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

```
UPDATE Employee_details SET salary = salary + 100
WHERE salary < 10000 AND Bdate < '1990-01-01';
```

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

```
UPDATE Employee_details SET salary = salary + 100
WHERE salary < 10000 OR Bdate < '1990-01-01';
```

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

```
UPDATE Employee_details SET salary = salary + 100
WHERE salary BETWEEN 1000 AND 5000 AND Bdate < '1990-01-01';
```

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

```
UPDATE Employee_details SET salary = salary + 100
WHERE salary IN (1000, 3000, 5000);
```

-- 13. Update phone number with 0000 where NULL

```
ALTER TABLE Employee_details ADD phone VARCHAR(15);
UPDATE Employee_details SET phone = '0000' WHERE phone IS NULL;
```

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

```
UPDATE Employee_details SET salary = salary + 100
WHERE salary NOT BETWEEN 1000 AND 5000 AND Bdate < '1990-01-01';
```

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

```
UPDATE Employee_details SET salary = salary + 100
WHERE salary IN (1000, 3000, 5000);
```

```
-- 16. Delete from employee the rows having bdate less than 1970
    DELETE FROM Employee_details WHERE Bdate < '1970-01-01';


-- 17. List the name and age of all employees
    SELECT
     CONCAT(Fname, ' ', mname, ' ', Lname) AS Name,
     TIMESTAMPDIFF(YEAR, Bdate, CURDATE()) AS Age
     FROM Employee_details;

-- 18. Display the salaries offered to the employees
    SELECT Ssn, CONCAT(Fname, ' ', Lname) AS Name, salary
    FROM Employee_details;

-- 19. List the Bdate and Salary of Employee 'Smith'
    SELECT Bdate, salary
     FROM Employee_details
     WHERE Lname = 'Smith';

-- 20. Find the location of Project 'SUPER'
    SELECT Proj_location
    FROM Project
    WHERE Proj_name = 'SUPER';

-- 21. Find the dependent details of Employee with Ssn number 482928
    SELECT *
    FROM Dependent
    WHERE Ssn = '482928';

-- 22. List the employees having salary > 2000 and bdate before 1/1/1990
    SELECT *
```

```
FROM Employee_details
WHERE salary > 2000 AND Bdate < '1990-01-01';
```

-- 23. List the employees belonging to dept_num 1.

```
SELECT *
FROM Employee_details
WHERE Dept_num = 1;
```

-- 24. List the project details of dept_num 5

```
SELECT *
FROM Project
WHERE Dept_num = 5;
```

-- 25. List the employee details with their department name.

```
SELECT e.*, d.Dept_name
FROM Employee_details e
JOIN Department d ON e.Dept_num = d.Dept_num;
```

-- 26. List the employee details with their project names.

```
SELECT e.*, p.Proj_name
FROM Employee_details e
JOIN Employee_Project ep ON e.Ssn = ep.Ssn
JOIN Project p ON ep.Proj_num = p.Proj_num;
```

-- 27. List the employees belonging to Marketing department

```
SELECT e.*
FROM Employee_details e
JOIN Department d ON e.Dept_num = d.Dept_num
WHERE d.Dept_name = 'Marketing';
```

-- 28. List the project details belonging of Sales department

```
SELECT p.*
FROM Project p
JOIN Department d ON p.Dept_num = d.Dept_num
WHERE d.Dept_name = 'Sales';

-- 29. List the dependent details of employee 'Smith'
SELECT d.*
FROM Dependent d
JOIN Employee_details e ON d.Ssn = e.Ssn
WHERE e.Lname = 'Smith';

-- 30. List the various locations of 'Marketing' department
SELECT dl.location
FROM Department_locations dl
JOIN Department d ON dl.Dept_num = d.Dept_num
WHERE d.Dept_name = 'Marketing';

-- 31. List the employees going to 'Surathkal' branch
SELECT e.*
FROM Employee_details e
JOIN Department d ON e.Dept_num = d.Dept_num
JOIN Department_locations dl ON d.Dept_num = dl.Dept_num
WHERE dl.location = 'Surathkal';

-- 32. List the employees in the descending order of their salary
SELECT *
FROM Employee_details
ORDER BY salary DESC;

-- 33. List the dependents in the descending order of their names
SELECT *
FROM Dependent
```

```
ORDER BY Dept_name DESC;
```