DBMS 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)

```sql
-- Create the Departments table
CREATE TABLE Departments (
    Dept_num INT PRIMARY KEY,
    Dept_name VARCHAR(20) UNIQUE NOT NULL,
    Mgr_Ssn CHAR(9),
    Mgr_startdate DATE
);


-- Create the Employee table
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),
    FOREIGN KEY (Dept_num) REFERENCES Departments(Dept_num) on delete set NULL,
    FOREIGN KEY (Super_Ssn) REFERENCES Employee(Ssn) on delete set NULL
);

ALTER TABLE Departments
ADD CONSTRAINT FK_Mgr_Ssn
FOREIGN KEY(Mgr_Ssn)
REFERENCES Employee(Ssn) on delete set NULL;

-- Create the Department_locations table
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
);

-- Create the Project table
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
);
```

```sql
-- Create the Employee_Project table
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
);

-- Create the Dependent table
CREATE TABLE Dependent (
    Ssn CHAR(9),
    Dept_name VARCHAR(20),
    Gender CHAR(1),
    Bdate DATE,
    Relationship VARCHAR(20),
    PRIMARY KEY (Ssn, Dept_name),
    FOREIGN KEY (Ssn) REFERENCES Employee(Ssn) on delete cascade,
    FOREIGN KEY (Dept_name) REFERENCES Departments(Dept_name) on delete set NULL
);
```

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

```
SQL> alter table employee
  2  add blood_group varchar(3);

Table altered.

SQL> alter table employee
  2  add hobbies varchar(30);

Table altered.
```

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

```
SQL> ALTER TABLE employee MODIFY (blood_group varchar(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 INTO Departments VALUES (1, 'Marketing', NULL, '01-MAY-2010');
INSERT INTO Departments VALUES (2, 'Sales', NULL, '14-AUG-2015');
INSERT INTO Departments VALUES (3, 'Engineering', NULL, '21-SEP-2019');
INSERT INTO Departments VALUES (4, 'HR', NULL, '21-SEP-2019');
INSERT INTO Departments VALUES (5, 'Finance', NULL, '21-SEP-2019');

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+');


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');



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);
INSERT INTO Project VALUES (5, 'Manhattan', 'Nevada', 3);



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);



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.
```

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.
```

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.
```

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.
```

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-
AN-1990';

0 rows updated.
```

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> alter table employee_details add phone_no varchar(12);

Table altered.

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

5 rows updated.
```

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
  2  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.

```
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, Round((SYSDATE - BDATE)/365.25,1) as AGE from employee_details;

FNAME      MNAME      LNAME             AGE
---------- ---------- ---------- ----------
John       A          Doe              20.9
Jane       B          Smith            25.6
Alice      C          Johnson          33.7
Bob        D          Williams         40.5
Charlie    E          Brown              24
```

18. Display the salaries offered to the employees.

```
mysql> SELECT salary FROM employee_details;
+---------+
| salary  |
+---------+
| 3500.00 |
| 4500.00 |
| 6000.00 |
| 5500.00 |
| 3000.00 |
+---------+
5 rows in set (0.00 sec)
```

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

```
mysql> SELECT bdate, salary FROM employee_details WHERE lname LIKE 'Smith';
+------------+---------+
| bdate      | salary  |
+------------+---------+
| 1990-06-15 | 4500.00 |
+------------+---------+
1 row in set (0.00 sec)
```

20. Find the location of Project ‘SUPER’.

```
mysql> SELECT proj_location FROM project WHERE proj_name='Super';
+---------------+
| proj_location |
+---------------+
| New York      |
+---------------+
1 row in set (0.00 sec)
```

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

```
mysql> SELECT * FROM dependent WHERE ssn='482928';
Empty set (0.01 sec)
```

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

```
mysql> SELECT Fname, Mname, Lname, Ssn, Bdate, Salary FROM employee_details WHERE salary > 2000 AND bdate < '1990-01-01';
+-------+-------+----------+-----------+------------+---------+
| Fname | Mname | Lname    | Ssn       | Bdate      | Salary  |
+-------+-------+----------+-----------+------------+---------+
| Alice | C     | Johnson  | 333445666 | 1982-06-15 | 6000.00 |
| Bob   | D     | Williams | 444556777 | 1975-06-15 | 5500.00 |
+-------+-------+----------+-----------+------------+---------+
```

23. List the employees belonging to dept_num 1.

```
mysql> SELECT SSN, Fname, Lname FROM employee_details WHERE dept_num = 1;
+-----------+-------+----------+
| SSN       | Fname | Lname    |
+-----------+-------+----------+
| 111223333 | John  | Doe      |
| 444556777 | Bob   | Williams |
+-----------+-------+----------+
2 rows in set (0.00 sec)
```

24. List the project details of dept_num 5.

```
mysql> SELECT * FROM project WHERE dept_num = 5;
Empty set (0.00 sec)
```

25. List the employee details with their department name.

```
mysql> SELECT SSN, Fname, Lname, Dept_name FROM employee_details JOIN depart
ments ON employee_details.dept_num = departments.dept_num;
+-----------+---------+----------+-------------+
| SSN       | Fname   | Lname    | Dept_name   |
+-----------+---------+----------+-------------+
| 111223333 | John    | Doe      | Marketing   |
| 222334555 | Jane    | Smith    | Sales       |
| 333445666 | Alice   | Johnson  | Engineering |
| 444556777 | Bob     | Williams | Marketing   |
| 555667888 | Charlie | Brown    | Sales       |
+-----------+---------+----------+-------------+
5 rows in set (0.00 sec)
```

26. List the employee details with their project names.

```
mysql> SELECT SSN, fname, lname, proj_num, proj_name FROM employee_details J
OIN project ON employee_
+-----------+---------+----------+----------+-------------+
| SSN       | fname   | lname    | proj_num | proj_name   |
+-----------+---------+----------+----------+-------------+
| 111223333 | John    | Doe      |        3 | AdCampaign  |
| 111223333 | John    | Doe      |        1 | Super       |
| 222334555 | Jane    | Smith    |        4 | SalesBoost  |
| 333445666 | Alice   | Johnson  |        2 | TechUpgrade |
| 444556777 | Bob     | Williams |        3 | AdCampaign  |
| 444556777 | Bob     | Williams |        1 | Super       |
| 555667888 | Charlie | Brown    |        4 | SalesBoost  |
+-----------+---------+----------+----------+-------------+
7 rows in set (0.00 sec)
```

27. List the employees belonging to Marketing department.

```
mysql> SELECT SSN, fname, lname, dept_name FROM employee_details JOIN depart
ments ON employee_
dept_name='Marketing';
+-----------+-------+----------+-----------+
| SSN       | fname | lname    | dept_name |
+-----------+-------+----------+-----------+
| 111223333 | John  | Doe      | Marketing |
| 444556777 | Bob   | Williams | Marketing |
+-----------+-------+----------+-----------+
2 rows in set (0.00 sec)
```

28. List the project details belonging of Sales department.

```
mysql> SELECT proj_num, proj_name, dept_name FROM project JOIN departments O
N project.dept_num = departments.dept_num WHERE departments.dept_name='Sales
';
+----------+------------+-----------+
| proj_num | proj_name  | dept_name |
+----------+------------+-----------+
|        4 | SalesBoost | Sales     |
+----------+------------+-----------+
1 row in set (0.00 sec)
```

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

```
mysql> SELECT dependent.* FROM employee_details JOIN dependent ON employee_details.ssn=de
pendent.ssn AND employee_details.lname='Smith';
+-----------+-----------+--------+------------+--------------+
| Ssn       | Dept_name | Gender | Bdate      | Relationship |
+-----------+-----------+--------+------------+--------------+
| 222334555 | Sales     | M      | 1993-06-15 | Son          |
+-----------+-----------+--------+------------+--------------+
1 row in set (0.00 sec)
```

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

```
mysql> select dl.* from department_locations dl join
    -> departments d on dl.dept_num = d.dept_num
    -> where dept_name = 'Marketing';
+----------+---------------+
| Dept_num | Location      |
+----------+---------------+
|        1 | New York      |
|        1 | San Francisco |
+----------+---------------+
2 rows in set (0.01 sec)
```

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

```
mysql> SELECT SSN, fname, lname FROM employee_details JOIN department_locations ON employ
ee_details.dept_num=department_locations.dept_num AND department_locations.location='Sura
thkal';
Empty set (0.00 sec)
```

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

```
mysql> SELECT fname, lname, salary FROM employee_details ORDER BY salary DESC;
+---------+----------+---------+
| fname   | lname    | salary  |
+---------+----------+---------+
| Alice   | Johnson  | 6000.00 |
| Bob     | Williams | 5500.00 |
| Jane    | Smith    | 4500.00 |
| John    | Doe      | 3500.00 |
| Charlie | Brown    | 3000.00 |
+---------+----------+---------+
5 rows in set (0.01 sec)
```

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

```
mysql> SELECT dependent.* FROM dependent JOIN employee_details ON dependent.ssn=employee_
details.ssn ORDER BY employee_details.fname DESC;
+-----------+-------------+--------+-----------+--------------+
| Ssn       | Dept_name   | Gender | Bdate     | Relationship |
+-----------+-------------+--------+-----------+--------------+
| 111223333 | Marketing   | F      | 2010-06-15 | Wife         |
| 222334555 | Sales       | M      | 1993-06-15 | Son          |
| 555667888 | Sales       | M      | 2002-06-15 | Son          |
| 444556777 | Marketing   | F      | 1992-06-15 | Daughter     |
| 333445666 | Engineering | F      | 2017-06-15 | Daughter     |
+-----------+-------------+--------+-----------+--------------+
5 rows in set (0.00 sec)
```