**Objective**

To apply SQL integrity constraints as per the DDL statements given below for COMPANY database.

**Problem Statement**

Table

Description automatically generated

Table

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A picture containing table

Description automatically generated

Implement the following types of integrity constraints:

1. Primary Key
2. Foreign Key
3. Unique
4. Default
5. Auto-increment
6. Check
7. Not Null

1. CREATE TABLE employee (

Fname VARCHAR(15) NOT NULL,

Minit CHAR(1),

Lname VARCHAR(15) NOT NULL,

Ssn CHAR(9) NOT NULL PRIMARY KEY,

Bdate DATE,

Address VARCHAR(30),

Sex CHAR(1),

Salary DECIMAL(10,2),

Super\_ssn CHAR(9),

Dno INT NOT NULL

);

2. CREATE TABLE department (

Dname VARCHAR(15) NOT NULL UNIQUE,

Dnumber INT NOT NULL PRIMARY KEY,

Mgr\_ssn CHAR(9) NOT NULL,

Mgr\_start\_date DATE

);

3. CREATE TABLE dept\_locations (

Dnumber INT NOT NULL,

Dlocation VARCHAR(15) NOT NULL,

PRIMARY KEY (Dnumber, Dlocation)

);

4. CREATE TABLE project (

Pname VARCHAR(15) NOT NULL UNIQUE,

Pnumber INT NOT NULL PRIMARY KEY,

Plocation VARCHAR(15),

Dnum INT NOT NULL

);

5. CREATE TABLE works\_on (

Essn CHAR(9) NOT NULL,

Pno INT NOT NULL,

Hours DECIMAL(3,1) NOT NULL,

PRIMARY KEY (Essn, Pno)

);

6. CREATE TABLE dependent (

Essn CHAR(9) NOT NULL,

Dependent\_name VARCHAR(30) NOT NULL,

Sex CHAR(1),

Bdate DATE,

Relationship VARCHAR(8),

PRIMARY KEY (Essn, Dependent\_name)

);

Insertion –

INSERT INTO department (Dname, Dnumber, Mgr\_ssn, Mgr\_start\_date)

VALUES ('Finance', 1, '123456789', '2023-01-01'),

('HR', 2, '987654321', '2022-06-15'),

('IT', 3, '555444333', '2023-03-20');

INSERT INTO employee (Fname, Minit, Lname, Ssn, Bdate, Address, Sex, Salary, Super\_ssn, Dno)

VALUES ('John', 'D', 'Doe', '123456789', '1990-05-10', '123 Main St', 'M', 50000.00, NULL, 1),

('Alice', 'M', 'Smith', '987654321', '1995-12-20', '456 Elm St', 'F', 60000.00, '123456789', 2),

('Bob', 'J', 'Johnson', '555444333', '1988-07-15', '789 Oak St', 'M', 55000.00, '123456789', 3);

INSERT INTO dept\_locations (Dnumber, Dlocation)

VALUES (1, 'New York'),

(2, 'Los Angeles'),

(3, 'Chicago');

INSERT INTO project (Pname, Pnumber, Plocation, Dnum)

VALUES ('Project A', 1, 'New York', 1),

('Project B', 2, 'Los Angeles', 2),

('Project C', 3, 'Chicago', 3);

INSERT INTO works\_on (Essn, Pno, Hours)

VALUES ('123456789', 1, 40.0),

('987654321', 2, 35.5),

('555444333', 3, 42.0);

INSERT INTO dependent (Essn, Dependent\_name, Sex, Bdate, Relationship)

VALUES ('123456789', 'Mary Doe', 'F', '1992-03-05', 'Child'),

('987654321', 'Tom Smith', 'M', '2000-07-12', 'Child'),

('555444333', 'Emma Johnson', 'F', '1998-09-20', 'Child');