

B.TECH. COMPUTER SCIENCE AND ENGINEERING – July - Dec,
2024 CSLR51 – Database Management Systems Laboratory
#Session: 03 || Date: 01/08/2024 || ROLL NO-106122112

Relational Database Design – Company Schema

1. Design the Company Schema given in the text book named “Fundamentals of Database Systems” authored by Ramez Elmasri and Shamkant B. Navathe. The e-copy of the text book is uploaded in the moodle.

```
mysql> use shalu;  
Database changed
```

```
mysql> create table employee( Fname char(50),Minit char(50),Lname char(50),Ssn INT  
primary key, Bdate date, Address varchar(50),Sex char(10),Salary INT,Super_ssn INT,Dno  
INT); Query OK, 0 rows affected (0.06 sec)
```

```
mysql> show tables;  
+-----+  
| Tables_in_shalu|  
+-----+  
| employee |  
+-----+  
1 row in set (0.00 sec)
```

```
mysql> create table Department(Dname char(50),Dnumber INT primary  
key,Mgr_ssn INT,Mgr_start_date date);  
Query OK, 0 rows affected (0.05 sec)  
mysql> show tables;
```

```
+-----+  
| Tables_in_dev |  
+-----+  
| Department |  
| employee |  
+-----+  
2 rows in set (0.00 sec)
```

```
mysql> create table DEPT_LOCATIONS(Dnumber INT,Dlocation  
char(50),primary key(Dnumber,Dlocation));  
Query OK, 0 rows affected (0.03 sec)
```

```
mysql> create table WORKS_ON(Essn INT,Pno INT,Hours decimal(3,1),primary  
key(Essn,Pno)); 'Query OK, 0 rows affected (0.05 sec)
```

```
mysql> show tables;
```

```
+-----+  
| Tables_in_shalu |  
+-----+  
| DEPT_LOCATIONS |  
| Department |  
| WORKS_ON |  
| employee |  
+-----+
```

```
4 rows in set (0.00 sec)
```

```
mysql> create table project(Pname char(50),Pnumber int primary key,Plocation  
char(50),Dnum int); Query OK, 0 rows affected (0.02 sec)
```

```
mysql> create table DEPENDENT(Essn INT,Dependent_name char(50),Sex  
char,Bdate date,Relationship char(50),primary key(Essn,Dependent_name));  
Query OK, 0 rows affected (0.05 sec)
```

```
mysql> show tables;
```

```
+-----+  
| Tables_in_shalu |  
+-----+  
| DEPENDENT |  
| DEPT_LOCATIONS |  
| Department |  
| WORKS_ON |  
| employee |  
| project |  
+-----+
```

```
6 rows in set (0.01 sec)
```

```
mysql> select*from employee;
```

```
Empty set (0.00 sec)
```

```
mysql> describe employee;
```

```
+-----+-----+-----+-----+-----+  
| Field | Type | Null | Key | Default | Extra |  
+-----+-----+-----+-----+-----+  
| Fname | char(50) | YES | | NULL | |  
| Minit | char(50) | YES | | NULL | |  
| Lname | char(50) | YES | | NULL | |  
| Ssn | int | NO | PRI | NULL | |  
| Bdate | date | YES | | NULL | |  
| Address | varchar(50) | YES | | NULL | |  
| Sex | char(10) | YES | | NULL | |  
| Salary | int | YES | | NULL | |
```

```
| Super_ssn | int | YES | | NULL | |
| Dno | int | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
10 rows in set (0.00 sec)
```

2. Execute basic queries (Chapter 5) in Company Schema involving only two tables: Employee And Department to simulate the following keywords: CREATE, DELETE, UPDATE (or MODIFY), INSERT, ALTER, Entity Integrity Constraints and Referential Integrity Constraints.

```
mysql> insert into
employee(Fname,Minit,Lname,Ssn,Bdate,Address,Sex,Salary,Super_ssn,Dno)
values('John','B','Smith',123456789,'1965-01-09','731 Fondren','M',30000,333445555,5);
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select* from employee
-> ;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
Fname | Minit | Lname | Ssn | Bdate | Address | Sex | Salary | Super_ssn | Dno |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
John | B | Smith | 123456789 | 1965-01-09 | 731 Fondren | M | 30000 | 333445555 | 5 |
| +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+ 1
row in set (0.00 sec)
```

```
mysql> insert into
employee(Fname,Minit,Lname,Ssn,Bdate,Address,Sex,Salary,Super_ssn,Dno)
values('Franklin','T','Wong',333445555,'1955-12-08','638 Voss Houston
TX','M',40000,888665555,5); Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into
employee(Fname,Minit,Lname,Ssn,Bdate,Address,Sex,Salary,Super_ssn,Dno)
values('Alicia','J','Zelaya',999887777,'1968-01-19','3321 Castle Spring
TX','F',25000,987654321,4); Query OK, 1 row affected (0.03 sec)
```

```
mysql> insert into
employee(Fname,Minit,Lname,Ssn,Bdate,Address,Sex,Salary,Super_ssn,Dno)
values('Jennifer','S','Wallace',987654321,'1941-06-20','291 Berry Bellaire
TX','F',43000,888665555,4); Query OK, 1 row affected (0.03 sec)
```

```
mysql> select * from employee;
```

```
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Fname | Minit | Lname | Ssn | Bdate | Address | Sex | Salary | Super_ssn | Dno |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| John  | B     | Smith | 123456789 | 1965-01-09 | 731 Fondren | M | 30000 | 333445555 | 5 |
| Franklin | T   | Wong  | 333445555 | 1955-12-08 | 638 Voss Houston TX | M | 40000 | 888665555 | 5 |
| Jennifer | S | Wallace | 987654321 | 1941-06-20 | 291 Berry Bellaire TX | F | 43000 | 888665555 | 4 |
| Alicia | J   | Zelaya | 999887777 | 1968-01-19 | 3321 Castle Spring TX | F | 25000 | 987654321 | 4 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+ 4 rows in set (0.00 sec)
```

```
mysql> show tables;
```

```
+-----+
| Tables_in_shalu |
+-----+
| DEPENDENT |
| DEPT_LOCATIONS |
| Department |
| WORKS_ON |
| employee |
| project |
+-----+
6 rows in set (0.00 sec)
```

```
mysql> describe Department;
```

```
+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| Dname | char(50) | YES | | NULL | |
| Dnumber | int | NO | PRI | NULL | |
| Mgr_ssn | int | YES | | NULL | |
| Mgr_start_date | date | YES | | NULL | |
+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

```
mysql> insert into Department(Dname,Dnumber,Mgr_ssn,Mgr_start_date)
values('Research',5,333445555,'1988-05-22');
Query OK, 1 row affected (0.01 sec)
```



```
mysql> describe employee;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Fname | char(50) | YES | | NULL | |
| Minit | char(50) | YES | | NULL | |
| Lname | char(50) | YES | | NULL | |
| Ssn | int | NO | PRI | NULL | |
| Bdate | date | YES | | NULL | |
| Address | varchar(50) | YES | | NULL | |
| Sex | char(10) | YES | | NULL | |
| Salary | int | YES | | NULL | |
| Super_ssn | int | YES | | NULL | |
| Dno | int | YES | | NULL | |
+-----+-----+-----+-----+-----+
10 rows in set (0.00 sec)
```

3. Execute all the example queries in Chapter 6 pertaining to the Company Schema you have created in Q. No. 1.

```
mysql> insert into Department(Dname,Dnumber,Mgr_ssn,Mgr_start_date)
values('Headquarter2',7,123456789,'1996-05-21');
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select *from Department;
+-----+-----+-----+-----+
| Dname | Dnumber | Mgr_ssn | Mgr_start_date |
+-----+-----+-----+-----+
| Headquarters | 1 | 888665555 | 1981-06-19 |
| Administration | 4 | 987654321 | 1995-01-01 |
| Research | 5 | 333445555 | 1988-05-22 |
| Headquarter2 | 7 | 123456789 | 1996-05-21 |
+-----+-----+-----+-----+
4 rows in set (0.01 sec)
```

```
mysql> delete from employee where LName='Wong';
Query OK, 1 row affected (0.04 sec)
```

```
mysql> select *from employee;
```

```
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Fname | Minit | Lname | Ssn | Bdate | Address | Sex | Salary | Super_ssn | Dno |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| John | B | Smith | 123456789 | 1965-01-09 | 731 Fondren | M | 30000 | 333445555 | 5 |
| Jennifer | S | Wallace | 987654321 | 1941-06-20 | 291 Berry Bellaire TX | F | 43000 | 888665555 | 4 |
| Alicia | J | Zelaya | 999887777 | 1968-01-19 | 3321 Castle Spring TX | F | 25000 | 987654321 | 4 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+ 3 rows in set (0.00 sec)
```

```
mysql> alter table employee add email varchar(50);
```

```
Query OK, 0 rows affected (0.05 sec)
```

```
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> describe employee;
```

```
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Fname | char(50) | YES | | NULL | |
| Minit | char(50) | YES | | NULL | |
| Lname | char(50) | YES | | NULL | |
| Ssn | int | NO | PRI | NULL | |
| Bdate | date | YES | | NULL | |
| Address | varchar(50) | YES | | NULL | |
| Sex | char(10) | YES | | NULL | |
| Salary | int | YES | | NULL | |
| Super_ssn | int | YES | | NULL | |
| Dno | int | YES | | NULL | |
| email | varchar(50) | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
11 rows in set (0.01 sec)
```

```
mysql> update employee set salary=70000 where Dno=4;
```

```
Query OK, 2 rows affected (0.03 sec)
```

```
Rows matched: 2 Changed: 2 Warnings: 0
```

```
mysql> select *from employee;
```

```
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
- +-----+
| Fname | Minit | Lname | Ssn | Bdate | Address | Sex | Salary | Super_ssn | Dno | email |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
- +-----+
| John | B | Smith | 123456789 | 1965-01-09 | 731 Fondren | M | 30000 | 333445555 | 5 |
NULL |
```

```

| Jennifer | S | Wallace | 987654321 | 1941-06-20 | 291 Berry Bellaire TX | F | 70000 |
888665555 | 4 | NULL |
| Alicia | J | Zelaya | 999887777 | 1968-01-19 | 3321 Castle Spring TX | F | 70000 |
987654321 | 4 | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
- +-----+
3 rows in set (0.01 sec)

```

```

mysql> SELECT Fname,LName,Address FROM employee;
+-----+-----+-----+
| Fname | LName | Address |
+-----+-----+-----+
| John | Smith | 731 Fondren |
| Jennifer | Wallace | 291 Berry Bellaire TX |
| Alicia | Zelaya | 3321 Castle Spring TX |
+-----+-----+-----+
3 rows in set (0.01 sec)

```

```

mysql> show tables;
+-----+
| Tables_in_ |
+-----+ shalu
| DEPENDENT |
| DEPT_LOCATIONS |
| Department |
| WORKS_ON |
| employee |
| project |
+-----+
6 rows in set (0.00 sec)

```