

CIS530– Lab Assignment 2_2

Name: Reza Shisheie

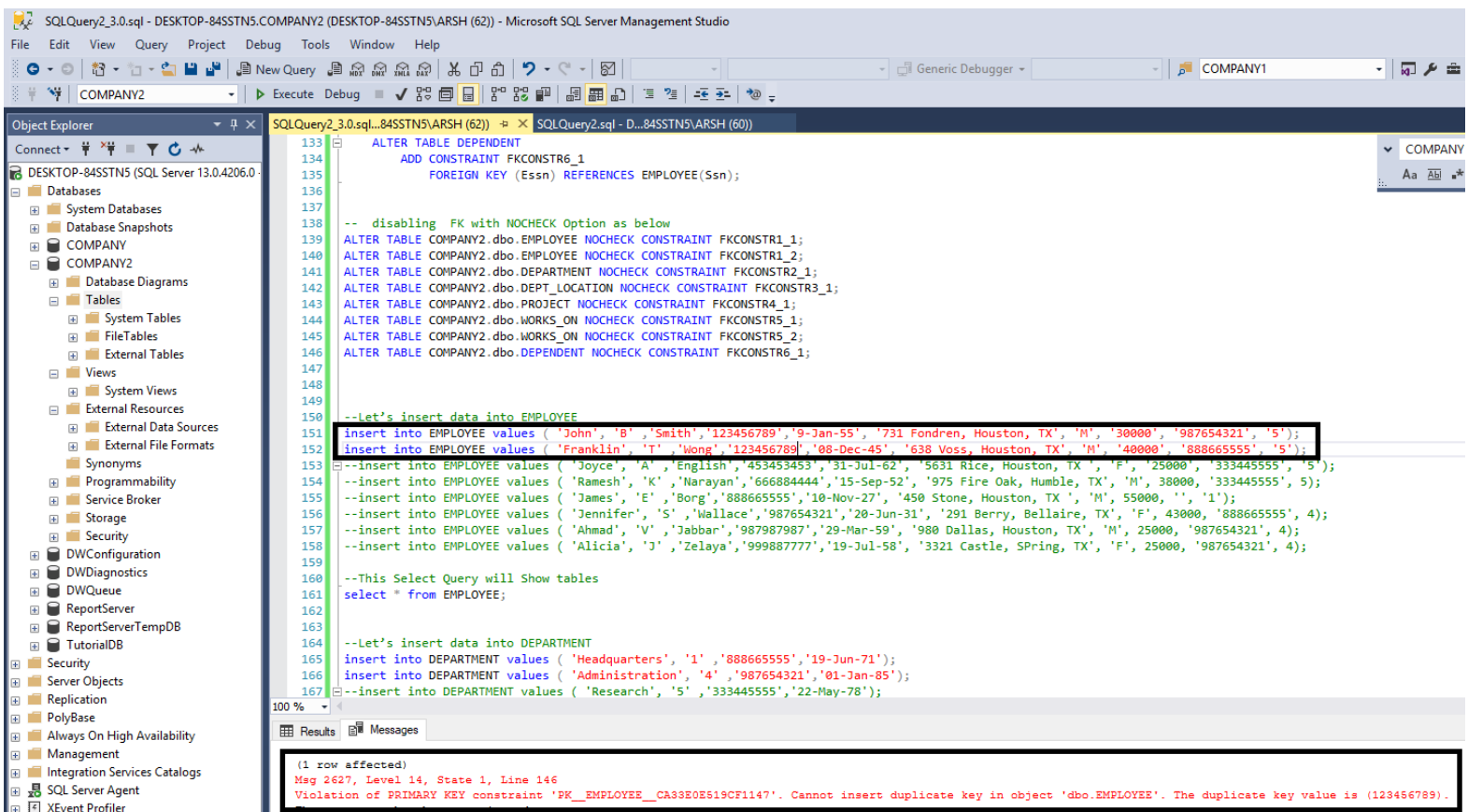
ID: 2708062

Object: Creating a Relational Database Schema from ER Diagram and Populating the Database

Question 1:

The first two inserts have the same SSN and there is an error:

Msg 2627, Level 14, State 1, Line 146
Violation of PRIMARY KEY constraint 'PK__EMPLOYEE__CA33E0E519CF1147'. Cannot insert duplicate key in object 'dbo.EMPLOYEE'. The duplicate key value is (123456789).



```
SQLQuery2_3.0.sql - DESKTOP-84SSTN5.COMPANY2 (DESKTOP-84SSTN5\ARSH (62)) - Microsoft SQL Server Management Studio
File Edit View Query Project Debug Tools Window Help
Connect New Query Execute Debug
COMPANY2
Object Explorer
DESKTOP-84SSTN5 (SQL Server 13.0.4206.0)
Databases
System Databases
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COMPANY
COMPANY2
Database Diagrams
Tables
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Replication
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Always On High Availability
Management
Integration Services Catalogs
SQL Server Agent
XEvent Profiler
SQLQuery2_3.0.sql - D:\84SSTN5\ARSH (60)
133 ALTER TABLE DEPENDENT
134 ADD CONSTRAINT FKCONSTR6_1
135 FOREIGN KEY (Essn) REFERENCES EMPLOYEE (Ssn);
136
137
138 -- disabling FK with NOCHECK Option as below
139 ALTER TABLE COMPANY2.dbo.EMPLOYEE NOCHECK CONSTRAINT FKCONSTR1_1;
140 ALTER TABLE COMPANY2.dbo.EMPLOYEE NOCHECK CONSTRAINT FKCONSTR1_2;
141 ALTER TABLE COMPANY2.dbo.DEPARTMENT NOCHECK CONSTRAINT FKCONSTR2_1;
142 ALTER TABLE COMPANY2.dbo.DEPT_LOCATION NOCHECK CONSTRAINT FKCONSTR3_1;
143 ALTER TABLE COMPANY2.dbo.PROJECT NOCHECK CONSTRAINT FKCONSTR4_1;
144 ALTER TABLE COMPANY2.dbo.WORKS_ON NOCHECK CONSTRAINT FKCONSTR5_1;
145 ALTER TABLE COMPANY2.dbo.WORKS_ON NOCHECK CONSTRAINT FKCONSTR5_2;
146 ALTER TABLE COMPANY2.dbo.DEPENDENT NOCHECK CONSTRAINT FKCONSTR6_1;
147
148
149
150 --Let's insert data into EMPLOYEE
151 insert into EMPLOYEE values ( 'John', 'B', 'Smith', '123456789', '9-Jan-55', '731 Fondren, Houston, TX', 'M', '30000', '987654321', '5');
152 insert into EMPLOYEE values ( 'Franklin', 'T', 'Wong', '123456789', '08-Dec-45', '638 Voss, Houston, TX', 'M', '40000', '888665555', '5');
153 --insert into EMPLOYEE values ( 'Joyce', 'A', 'English', '453453453', '31-Jul-62', '5631 Rice, Houston, TX', 'F', '25000', '333445555', '5');
154 --insert into EMPLOYEE values ( 'Ramesh', 'K', 'Narayan', '666884444', '15-Sep-52', '975 Fire Oak, Humble, TX', 'M', '38000', '333445555', '5');
155 --insert into EMPLOYEE values ( 'James', 'E', 'Borg', '888665555', '10-Nov-27', '450 Stone, Houston, TX', 'M', '55000', '1', '1');
156 --insert into EMPLOYEE values ( 'Jennifer', 'S', 'Wallace', '987654321', '20-Jun-31', '291 Berry, Bellaire, TX', 'F', '43000', '888665555', '4');
157 --insert into EMPLOYEE values ( 'Ahmad', 'V', 'Jabbar', '987987987', '29-Mar-59', '980 Dallas, Houston, TX', 'M', '25000', '987654321', '4');
158 --insert into EMPLOYEE values ( 'Alicia', 'J', 'Zelaya', '999887777', '19-Jul-58', '3321 Castle, Spring, TX', 'F', '25000', '987654321', '4');
159
160 --This Select Query will Show tables
161 select * from EMPLOYEE;
162
163
164 --Let's insert data into DEPARTMENT
165 insert into DEPARTMENT values ( 'Headquarters', '1', '888665555', '19-Jun-71');
166 insert into DEPARTMENT values ( 'Administration', '4', '987654321', '01-Jan-85');
167 --insert into DEPARTMENT values ( 'Research', '5', '333445555', '22-May-78');
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Object: Creating a Relational Database Schema from ER Diagram and Populating the Database

Putting a null in department Dnum gives the following error since it is primary key:

```
Cannot insert the value NULL into column 'Dname', table 'COMPANY2.dbo.DEPARTMENT';
column does not allow nulls. INSERT fails.
```

DESKTOP-84SSTN5 (SQL Server 13.0.4206.0)

- Databases
 - System Databases
 - Database Snapshots
 - COMPANY
 - COMPANY2
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 - FileTables
 - External Tables
 - Views
 - System Views
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 - External Data Sources
 - External File Formats
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 - Storage
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 - DWConfiguration
 - DWDiagnostics
 - DWQueue
 - ReportServer
 - ReportServerTempDB
 - TutorialIDB
 - Security
 - Server Objects
 - Replication
 - PolyBase
 - Always On High Availability
 - Management
 - Integration Services Catalogs
 - SQL Server Agent
 - XEvent Profiler

```

156 --insert into EMPLOYEE values ( 'Franklin', 'M', 'English', '55445555', '00-Dec-75', '550 Ross, Houston, TX', 'M', '25000', '00000000');
157 --insert into EMPLOYEE values ( 'Joyce', 'A', 'English', '453453453', '31-Jul-62', '5631 Rice, Houston, TX', 'F', '25000', '33334');
158 --insert into EMPLOYEE values ( 'Ramesh', 'K', 'Narayan', '666884444', '15-Sep-52', '975 Fire Oak, Humble, TX', 'M', '38000', '33334');
159 --insert into EMPLOYEE values ( 'James', 'E', 'Borg', '888665555', '10-Nov-27', '450 Stone, Houston, TX', 'M', '55000', '1');
160 --insert into EMPLOYEE values ( 'Jennifer', 'S', 'Wallace', '987654321', '20-Jun-31', '291 Berry, Bellaire, TX', 'F', '43000', '888665555');
161 --insert into EMPLOYEE values ( 'Ahmad', 'V', 'Jabbar', '987987987', '29-Mar-59', '980 Dallas, Houston, TX', 'M', '25000', '987654321');
162 --insert into EMPLOYEE values ( 'Alicia', 'J', 'Zelaya', '999887777', '19-Jul-58', '3321 Castle, Spring, TX', 'F', '25000', '987654321');
163
164 --This Select Query will Show tables
165 select * from EMPLOYEE;
166
167 --Let's insert data into DEPARTMENT
168 insert into DEPARTMENT values ( 'Headquarters', '1', '888665555', '19-Jun-71');
169 insert into DEPARTMENT values ( null, '4', '987654321', '01-Jan-85');
170 --insert into DEPARTMENT values ( 'Research', '3', '555443333', '22-May-78');
171 --insert into DEPARTMENT values ( 'Automation', '7', '123456789', '06-Oct-05');
172
173 --This Select Query will Show tables
174 select * from DEPARTMENT;
175
176 --Let's insert data into DEPENDENT
177 insert into DEPENDENT values ( '123456789', 'Alice', 'F', '31-Dec-78', 'Daughter');
178 insert into DEPENDENT values ( '123456789', 'Elizabeth', 'F', '05-May-57', 'Spouse');
179
180 --This Select Query will Show tables
181 select * from DEPENDENT;
182
183 --Let's insert data into DEPT_LOCATION
184 insert into DEPT_LOCATION values ( '1', 'Houston');
185 insert into DEPT_LOCATION values ( '4', 'Stafford');
186
187 --This Select Query will Show tables
188 select * from DEPT_LOCATION;

```

100 %

Results Messages

(1 row affected)

(1 row affected)

(2 rows affected)

(1 row affected)

Msg 816, Level 16, State 2, Line 163
Cannot insert the value NULL into column 'Dname', table 'COMPANY2.dbo.DEPARTMENT'; column does not allow nulls. INSERT fails.
The statement has been terminated.

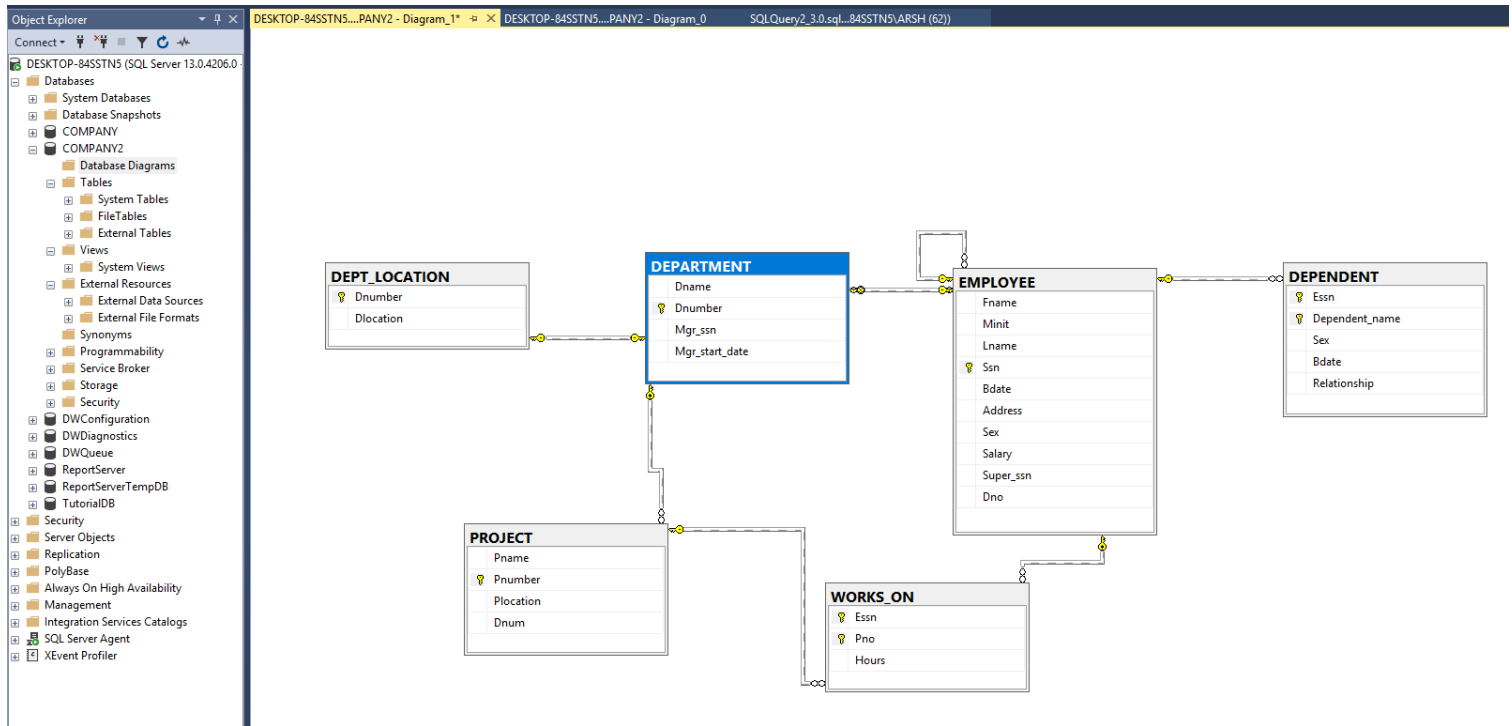
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Object: Creating a Relational Database Schema from ER Diagram and Populating the Database

Question 3: Diagram



SQL Code

```
USE master;

-- define a data base called "COMPANY"
IF DB_ID('COMPANY2') IS NULL
    CREATE DATABASE COMPANY2;
GO

use COMPANY2;
go

-- dropping all dependencies and constraints
ALTER TABLE EMPLOYEE DROP CONSTRAINT FKCONSTR1_1;
ALTER TABLE EMPLOYEE DROP CONSTRAINT FKCONSTR1_2;
ALTER TABLE DEPARTMENT DROP CONSTRAINT FKCONSTR2_1;
ALTER TABLE DEPT_LOCATION DROP CONSTRAINT FKCONSTR3_1;
ALTER TABLE PROJECT DROP CONSTRAINT FKCONSTR4_1;
ALTER TABLE WORKS_ON DROP CONSTRAINT FKCONSTR5_1;
ALTER TABLE WORKS_ON DROP CONSTRAINT FKCONSTR5_2;
ALTER TABLE DEPENDENT DROP CONSTRAINT FKCONSTR6_1;

-- dropping and removing all tables
drop table DEPARTMENT;
drop table EMPLOYEE;
drop table DEPT_LOCATION;
drop table PROJECT;
drop table WORKS_ON;
drop table DEPENDENT;

IF OBJECT_ID('dbo.EMPLOYEE') IS NULL

    create table EMPLOYEE (
        Fname VARCHAR(15) NOT NULL,
        Minit CHAR,
        Lname VARCHAR(15) NOT NULL,
        Ssn CHAR(9) NOT NULL,
        Bdate DATE,
        Address VARCHAR(30),
        Sex CHAR,
        Salary DECIMAL(10,2),
        Super_ssn CHAR(9),
        Dno INT NOT NULL,

        PRIMARY KEY (Ssn),
    );

-- Create a Table DEPARTMENT in COMPANY database
IF OBJECT_ID('dbo.DEPARTMENT') IS NULL
    CREATE TABLE dbo.DEPARTMENT(
```

CIS530– Lab Assignment 2_2

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Object: Creating a Relational Database Schema from ER Diagram and Populating the Database

```
Dname VARCHAR(15) NOT NULL,
Dnumber INT NOT NULL,
Mgr_ssn CHAR(9) NOT NULL,
Mgr_start_date DATE

PRIMARY KEY (Dnumber),
UNIQUE (Dname),
);

ALTER TABLE EMPLOYEE
    ADD CONSTRAINT FKCONSTR1_1
        FOREIGN KEY (Super_ssn) REFERENCES EMPLOYEE(Ssn);

ALTER TABLE EMPLOYEE
    ADD CONSTRAINT FKCONSTR1_2
        FOREIGN KEY (Dno) REFERENCES DEPARTMENT(Dnumber);

ALTER TABLE DEPARTMENT
    ADD CONSTRAINT FKCONSTR2_1
        FOREIGN KEY (Mgr_ssn) REFERENCES EMPLOYEE(Ssn);

IF OBJECT_ID('dbo.DEPT_LOCATION') IS NULL
    CREATE TABLE dbo.DEPT_LOCATION(
        Dnumber INT NOT NULL,
        Dlocation VARCHAR(30),

        PRIMARY KEY (Dnumber),
        --FOREIGN KEY (Dnumber) REFERENCES DEPARTMENT(Dnumber),
    );
    ALTER TABLE DEPT_LOCATION
        ADD CONSTRAINT FKCONSTR3_1
            FOREIGN KEY (Dnumber) REFERENCES DEPARTMENT(Dnumber);

IF OBJECT_ID('dbo.PROJECT') IS NULL
    CREATE TABLE dbo.PROJECT(
        Pname VARCHAR(15) NOT NULL,
        Pnumber INT NOT NULL,
        Plocation VARCHAR(30),
        Dnum INT NOT NULL,

        PRIMARY KEY (Pnumber),
        --FOREIGN KEY (Dnum) REFERENCES DEPARTMENT(Dnumber),
    );
    ALTER TABLE PROJECT
        ADD CONSTRAINT FKCONSTR4_1
            FOREIGN KEY (Dnum) REFERENCES DEPARTMENT(Dnumber);
```

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Object: Creating a Relational Database Schema from ER Diagram and Populating the Database

```
IF OBJECT_ID('dbo.WORKS_ON') IS NULL
    CREATE TABLE dbo.WORKS_ON(
        Essn CHAR(9) NOT NULL,
        Pno INT NOT NULL,
        Hours VARCHAR(5) NOT NULL,

        PRIMARY KEY (Essn, Pno),
        --FOREIGN KEY (Essn) REFERENCES EMPLOYEE(Ssn),
        --FOREIGN KEY (Pno) REFERENCES PROJECT(Pnumber),
    );
ALTER TABLE WORKS_ON
    ADD CONSTRAINT FKCONSTR5_1
        FOREIGN KEY (Essn) REFERENCES EMPLOYEE(Ssn);
ALTER TABLE WORKS_ON
    ADD CONSTRAINT FKCONSTR5_2
        FOREIGN KEY (Pno) REFERENCES PROJECT(Pnumber);

IF OBJECT_ID('dbo.DEPENDENT') IS NULL
    CREATE TABLE dbo.DEPENDENT(
        Essn CHAR(9) NOT NULL,
        Dependent_name VARCHAR(15) NOT NULL,
        Sex VARCHAR(5) NOT NULL,
        Bdate DATE,
        Relationship VARCHAR(15) NOT NULL,

        PRIMARY KEY (Essn, Dependent_name),
        --FOREIGN KEY (Essn) REFERENCES EMPLOYEE(Ssn),
    );
ALTER TABLE DEPENDENT
    ADD CONSTRAINT FKCONSTR6_1
        FOREIGN KEY (Essn) REFERENCES EMPLOYEE(Ssn);

-- disabling FK with NOCHECK Option as below
ALTER TABLE COMPANY2.dbo.EMPLOYEE NOCHECK CONSTRAINT FKCONSTR1_1;
ALTER TABLE COMPANY2.dbo.EMPLOYEE NOCHECK CONSTRAINT FKCONSTR1_2;
ALTER TABLE COMPANY2.dbo.DEPARTMENT NOCHECK CONSTRAINT FKCONSTR2_1;
ALTER TABLE COMPANY2.dbo.DEPT_LOCATION NOCHECK CONSTRAINT FKCONSTR3_1;
ALTER TABLE COMPANY2.dbo.PROJECT NOCHECK CONSTRAINT FKCONSTR4_1;
ALTER TABLE COMPANY2.dbo.WORKS_ON NOCHECK CONSTRAINT FKCONSTR5_1;
ALTER TABLE COMPANY2.dbo.WORKS_ON NOCHECK CONSTRAINT FKCONSTR5_2;
ALTER TABLE COMPANY2.dbo.DEPENDENT NOCHECK CONSTRAINT FKCONSTR6_1;

--Let's insert data into EMPLOYEE
insert into EMPLOYEE values ( 'John', 'B' , 'Smith', '123456789', '9-Jan-55', '731 Fondren, Houston, TX', 'M', '30000', '987654321', '5');
insert into EMPLOYEE values ( 'Franklin', 'T' , 'Wong', '333445555', '08-Dec-45', '638 Voss, Houston, TX', 'M', '40000', '888665555', '5');
--insert into EMPLOYEE values ( 'Joyce', 'A' , 'English', '453453453', '31-Jul-62', '5631 Rice, Houston, TX', 'F', '25000', '333445555', '5');
--insert into EMPLOYEE values ( 'Ramesh', 'K' , 'Narayan', '666884444', '15-Sep-52', '975 Fire Oak, Humble, TX', 'M', '38000', '333445555', '5');
```

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Object: Creating a Relational Database Schema from ER Diagram and Populating the Database

```
--insert into EMPLOYEE values ( 'James', 'E' , 'Borg', '888665555', '10-Nov-27', '450 Stone, Houston, TX ', 'M', 55000, '', '1');
--insert into EMPLOYEE values ( 'Jennifer', 'S' , 'Wallace', '987654321', '20-Jun-31', '291 Berry, Bellaire, TX', 'F', 43000, '888665555', 4);
--insert into EMPLOYEE values ( 'Ahmad', 'V' , 'Jabbar', '987987987', '29-Mar-59', '980 Dallas, Houston, TX', 'M', 25000, '987654321', 4);
--insert into EMPLOYEE values ( 'Alicia', 'J' , 'Zelaya', '999887777', '19-Jul-58', '3321 Castle, Spring, TX', 'F', 25000, '987654321', 4);
```

--This Select Query will Show tables

```
select * from EMPLOYEE;
```

--Let's insert data into DEPARTMENT

```
insert into DEPARTMENT values ( 'Headquarters', '1' , '888665555', '19-Jun-71');
insert into DEPARTMENT values ( null, '4' , '987654321', '01-Jan-85');
--insert into DEPARTMENT values ( 'Research', '5' , '333445555', '22-May-78');
--insert into DEPARTMENT values ( 'Automation', '7' , '123456789', '06-Oct-05');
```

--This Select Query will Show tables

```
select * from DEPARTMENT;
```

--Let's insert data into DEPENDENT

```
insert into DEPENDENT values ( '123456789', 'Alice' , 'F', '31-Dec-78', 'Daughter');
insert into DEPENDENT values ( '123456789', 'Elizabeth' , 'F', '05-May-57', 'Spouse');
```

--This Select Query will Show tables

```
select * from DEPENDENT;
```

--Let's insert data into DEPT_LOCATION

```
insert into DEPT_LOCATION values ( '1', 'Houston');
insert into DEPT_LOCATION values ( '4', 'Stafford');
```

--This Select Query will Show tables

```
select * from DEPT_LOCATION;
```

--Let's insert data into PROJECT

```
insert into PROJECT values ( 'ProductX', '1', 'Bellaire', '5');
insert into PROJECT values ( 'ProductY', '2', 'Sugarland', '5');
```

--This Select Query will Show tables

```
select * from PROJECT;
```

--Let's insert data into WORKS_ON

```
insert into WORKS_ON values ( '123456789', '1', '32.5');
insert into WORKS_ON values ( '123456789', '2', '7.5');
```

--This Select Query will Show tables

```
select * from WORKS_ON;
```