

DBMS LAB

# TO UNDERSTAND DDL AND DML COMMANDS

LAB-3

Presented To  
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Presented By  
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**B-2**

# EXPERIMENT 3

## Title: To understand DDL and DML Command

**Objective:** To understand the concept of designing issue related to the database with creating, populating the tables. To understand the concept of data constraints that is enforced on data being stored in the table. Focus on Primary Key and the Foreign Key

- (A) Create the tables for Company database as per ER diagram of Exp 2
- (B) Insert the following data into their respective tables of Company database

Query 1 x

Limit to 1000 rows

```

1  -- Abhinav Patel
2  -- 500119461
3
4  • CREATE DATABASE company;

```

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Output :

Action Output

#	Time	Action
✓ 1	10:09:50	show databases
✓ 2	10:23:55	CREATE DATABASE company

Query 1 x

Limit to 1000 rows

```

4  • CREATE DATABASE company;
5  • USE company;
6
7  • CREATE TABLE EMPLOYEE (

```

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Output :

Action Output

#	Time	Action
✓ 1	10:09:50	show databases
✓ 2	10:23:55	CREATE DATABASE company
✓ 3	10:28:04	USE company

```

6
7 • CREATE TABLE EMPLOYEE (
8     Fname VARCHAR(15) NOT NULL,
9     Minit CHAR,
10    Lname VARCHAR(15) NOT NULL,
11    Ssn CHAR(9) NOT NULL,
12    Bdate DATE,
13    Address VARCHAR(30),
14    Sex CHAR,
15    Salary DECIMAL(10,2),
16    Super_ssn CHAR(9),
17    Dno INT NOT NULL
18 );
19
20 • INSERT INTO EMPLOYEE (Fname, Minit, Lname, Ssn, Bdate, Address, Sex, Salary, Super_ssn, Dno) VALUES
21 ('John', 'B', 'Smith', '123456789', '1965-01-09', '731 Fondren, Houston TX', 'M', 30000, '333445555', 5),
22 ('Franklin', 'T', 'Wong', '333445555', '1965-12-08', '638 Voss, Houston TX', 'M', 40000, '888665555', 5),
23 ('Alicia', 'J', 'Zelaya', '999887777', '1968-01-19', '3321 Castle, Spring TX', 'F', 25000, '987654321', 4),
24 ('Jennifer', 'S', 'Wallace', '987654321', '1941-06-20', '291 Berry, Bellaire TX', 'F', 43000, '888665555', 4),
25 ('Ramesh', 'K', 'Narayan', '666884444', '1962-09-15', '975 Fire Oak, Humble TX', 'M', 38000, '333445555', 5),
26 ('Joyce', 'A', 'English', '453453453', '1972-07-31', '5631 Rice, Houston TX', 'F', 25000, '333445555', 5),
27 ('Ahmad', 'V', 'Jabbar', '987987987', '1969-03-29', '980 Dallas, Houston TX', 'M', 25000, '987654321', 4),
28 ('James', 'E', 'Borg', '888665555', '1937-11-10', '450 Stone, Houston TX', 'M', 55000, NULL, 1);
29

```

Output

#	Time	Action	Message
1	10:09:50	show databases	6 row(s) returned
2	10:23:55	CREATE DATABASE company	1 row(s) affected
3	10:28:04	USE company	0 row(s) affected
4	10:28:56	CREATE TABLE EMPLOYEE ( Fname VARCHAR(15) NOT NULL, Minit CHAR, Lname VARCHAR(15) NOT NULL, Ssn CHAR(9) NOT NULL, ...	0 row(s) affected

32

```

33 • CREATE TABLE DEPARTMENT (
34     Dname VARCHAR(15) NOT NULL,
35     Dnumber INT NOT NULL,
36     Mgr_ssn CHAR(9) NOT NULL,
37     Mgr_start_date DATE,
38     PRIMARY KEY (Dnumber),
39     UNIQUE (Dname),
40     FOREIGN KEY (Mgr_ssn) REFERENCES EMPLOYEE(Ssn)
41 );
42
43 • INSERT INTO DEPARTMENT (Dname, Dnumber, Mgr_ssn, Mgr_start_date) VALUES

```

Output

#	Time	Action	Message
1	10:37:54	CREATE TABLE DEPARTMENT ( Dname VARCHAR(15) NOT NULL, Dnumber INT NOT NULL, Mgr_ssn CHAR(9) NOT NULL, Mgr_start_date...	0 row(s) affected

```

42
43 • INSERT INTO DEPARTMENT (Dname, Dnumber, Mgr_ssn, Mgr_start_date) VALUES
44 ('Research', 5, '333445555', '1988-05-22'),
45 ('Administration', 4, '987654321', '1995-01-01'),
46 ('Headquarters', 1, '888665555', '1981-06-19');
47
48 • CREATE TABLE DEPT_LOCATIONS (
49     Dnumber INT NOT NULL,

```

Output

Action Output

#	Time	Action	Message
1	10:37:54	CREATE TABLE DEPARTMENT ( Dname VARCHAR(15) NOT NULL, Dnumber INT NOT NULL, Mgr_ssn CHAR(9) NOT NULL, Mgr_start_date...	0 row(s) affected
2	10:38:21	INSERT INTO DEPARTMENT (Dname, Dnumber, Mgr_ssn, Mgr_start_date) VALUES ('Research', 5, '333445555', '1988-05-22'), ('Administration', 4, '9876...	3 row(s) affected Rec

```

47
48 • CREATE TABLE DEPT_LOCATIONS (
49     Dnumber INT NOT NULL,
50     Dlocation VARCHAR(15) NOT NULL,
51     PRIMARY KEY (Dnumber, Dlocation),
52     FOREIGN KEY (Dnumber) REFERENCES DEPARTMENT(Dnumber)
53 );
54
55 • INSERT INTO DEPT_LOCATIONS (DNUMBER, DLOCATION) VALUES

```

Output

Action Output

#	Time	Action	Message
1	10:37:54	CREATE TABLE DEPARTMENT ( Dname VARCHAR(15) NOT NULL, Dnumber INT NOT NULL, Mgr_ssn CHAR(9) NOT NULL, Mgr_start_date...	0 row(s) affected
2	10:38:21	INSERT INTO DEPARTMENT (Dname, Dnumber, Mgr_ssn, Mgr_start_date) VALUES ('Research', 5, '333445555', '1988-05-22'), ('Administration', 4, '9876...	3 row(s) affected Rec
3	10:38:23	INSERT INTO DEPARTMENT (Dname, Dnumber, Mgr_ssn, Mgr_start_date) VALUES ('Research', 5, '333445555', '1988-05-22'), ('Administration', 4, '9876...	Error C
4	10:38:42	CREATE TABLE DEPT_LOCATIONS ( Dnumber INT NOT NULL, Dlocation VARCHAR(15) NOT NULL, PRIMARY KEY (Dnumber, Dlocation), ...	0 row(s) affected

```

53 );
54
55 • INSERT INTO DEPT_LOCATIONS (DNUMBER, DLOCATION) VALUES
56 (1, 'Houston'),
57 (4, 'Stafford'),
58 (5, 'Bellaire'),
59 (5, 'Houston'),
60 (5, 'Sugarland');
61

```

Output

Action Output

#	Time	Action	Message
1	10:37:54	CREATE TABLE DEPARTMENT ( Dname VARCHAR(15) NOT NULL, Dnumber INT NOT NULL, Mgr_ssn CHAR(9) NOT NULL, Mgr_start_date...	0 row(s) affected
2	10:38:21	INSERT INTO DEPARTMENT (Dname, Dnumber, Mgr_ssn, Mgr_start_date) VALUES ('Research', 5, '333445555', '1988-05-22'), ('Administration', 4, '9876...	3 row(s) affected Rec
3	10:38:23	INSERT INTO DEPARTMENT (Dname, Dnumber, Mgr_ssn, Mgr_start_date) VALUES ('Research', 5, '333445555', '1988-05-22'), ('Administration', 4, '9876...	Error C
4	10:38:42	CREATE TABLE DEPT_LOCATIONS ( Dnumber INT NOT NULL, Dlocation VARCHAR(15) NOT NULL, PRIMARY KEY (Dnumber, Dlocation), ...	0 row(s) affected
5	10:39:04	INSERT INTO DEPT_LOCATIONS (DNUMBER, DLOCATION) VALUES (1, 'Houston'), (4, 'Stafford'), (5, 'Bellaire'), (5, 'Houston'), (5, 'Sugarland')	5 row(s) affected

62 • **CREATE TABLE PROJECT (**  
 63 **Execute the selected portion of the script or everything, if there is no selection**  
 64 **Pnumber INT NOT NULL,**  
 65 **Plocation VARCHAR(15),**  
 66 **Dnum INT NOT NULL**  
 67 **);**

Output

#	Time	Action	Message
1	10:39:25	CREATE TABLE PROJECT ( Pname VARCHAR(15) NOT NULL, Pnumber INT NOT NULL, Plocation VARCHAR(15), Dnum INT NOT NULL)	0 row(s) affected

8

9 • **INSERT INTO PROJECT (Pname, Pnumber, Plocation, Dnum) VALUES**  
 10 **('ProductX', 1, 'Bellaire', 5),**  
 11 **('ProductY', 2, 'Sugarland', 5),**  
 12 **('ProductZ', 3, 'Houston', 5),**  
 13 **('Computerization', 10, 'Stafford', 4),**  
 14 **('Reorganization', 20, 'Houston', 1),**  
 15 **('Newbenefits', 30, 'Stafford', 4);**

7 • **CREATE TABLE WORKS\_ON (**  
 8 **Essn CHAR(9) NOT NULL,**

Output

#	Time	Action	Message
1	10:39:25	CREATE TABLE PROJECT ( Pname VARCHAR(15) NOT NULL, Pnumber INT NOT NULL, Plocation VARCHAR(15), Dnum INT NOT NULL)	0 row(s) affected
2	10:39:47	INSERT INTO PROJECT (Pname, Pnumber, Plocation, Dnum) VALUES ('ProductX', 1, 'Bellaire', 5), ('ProductY', 2, 'Sugarland', 5), ('ProductZ', 3, 'Houston', 5), ('Computerization', 10, 'Stafford', 4), ('Reorganization', 20, 'Houston', 1), ('Newbenefits', 30, 'Stafford', 4);	6 row(s) affected Rec

77 • **CREATE TABLE WORKS\_ON (**  
 78 **Essn CHAR(9) NOT NULL,**  
 79 **Pno INT NOT NULL,**  
 80 **Hours DECIMAL(3,1) NOT NULL**  
 81 **);**

Output

#	Time	Action	Message
1	10:39:25	CREATE TABLE PROJECT ( Pname VARCHAR(15) NOT NULL, Pnumber INT NOT NULL, Plocation VARCHAR(15), Dnum INT NOT NULL)	0 row(s) affected
2	10:39:47	INSERT INTO PROJECT (Pname, Pnumber, Plocation, Dnum) VALUES ('ProductX', 1, 'Bellaire', 5), ('ProductY', 2, 'Sugarland', 5), ('ProductZ', 3, 'Houston', 5), ('Computerization', 10, 'Stafford', 4), ('Reorganization', 20, 'Houston', 1), ('Newbenefits', 30, 'Stafford', 4);	6 row(s) affected Rec
3	10:40:03	CREATE TABLE WORKS_ON ( Essn CHAR(9) NOT NULL, Pno INT NOT NULL, Hours DECIMAL(3,1) NOT NULL)	0 row(s) affected

Query 1

```

82
83 • INSERT INTO WORKS_ON (Essn, Pno, Hours) VALUES
84 ('123456789', 1, 32.5),
85 ('123456789', 2, 7.5),
86 ('666884444', 3, 40.0),
87 ('453453453', 1, 20.0),
88 ('453453453', 2, 20.0),
89 ('333445555', 2, 10.0),
90 ('333445555', 3, 10.0),
91 ('333445555', 10, 10.0),
92 ('333445555', 20, 10.0),
93 ('999887777', 30, 30.0),
94 ('999887777', 10, 10.0),
95 ('987987987', 10, 35.0),
96 ('987987987', 30, 5.0),
97 ('987654321', 30, 20.0),
98 ('987654321', 20, 15.0);

```

Output

Action Output

#	Time	Action	Message
1	10:41:42	INSERT INTO WORKS_ON (Essn, Pno, Hours) VALUES ('123456789', 1, 32.5), ('123456789', 2, 7.5), ('666884444', 3, 40.0), ('453453453', 1, 20.0), ('453...	15 row(s) affected Records: 15 Duplicates: 0 Warnings: 0

```

98 ('987654321', 20, 15.0);
99
100 • CREATE TABLE DEPENDENT (
101     Essn CHAR(9) NOT NULL,
102     Dependent_name VARCHAR(15) NOT NULL,
103     Sex CHAR,
104     Bdate DATE,
105     Relationship VARCHAR(8),
106     PRIMARY KEY (Essn, Dependent_name),
107     FOREIGN KEY (Essn) REFERENCES EMPLOYEE(Ssn)
108 );
109
110 • INSERT INTO DEPENDENT (ESSN, DEPENDENT_NAME, SEX, BDATE, RELATIONSHIP) VALUES
111 ('333445555', 'Alice', 'F', '1986-04-04', 'Daughter'),
112 ('333445555', 'Theodore', 'M', '1983-10-25', 'Son'),
113 ('333445555', 'Joy', 'F', '1958-05-03', 'Spouse'),

```

Output

Action Output

#	Time	Action	Message
1	10:41:42	INSERT INTO WORKS_ON (Essn, Pno, Hours) VALUES ('123456789', 1, 32.5), ('123456789', 2, 7.5), ('666884444', 3, 40.0), ('453453453', 1, 20.0), ('453...	15 row(s) affected Records: 15 Duplicates: 0 Warnings: 0
2	10:42:17	CREATE TABLE DEPENDENT ( Essn CHAR(9) NOT NULL, Dependent_name VARCHAR(15) NOT NULL, Sex CHAR, Bdate DATE, Relatio...	0 row(s) affected

```

108 );
109
110 • INSERT INTO DEPENDENT (ESSN, DEPENDENT_NAME, SEX, BDATE, RELATIONSHIP) VALUES
111 ('333445555', 'Alice', 'F', '1986-04-04', 'Daughter'),
112 ('333445555', 'Theodore', 'M', '1983-10-25', 'Son'),
113 ('333445555', 'Joy', 'F', '1958-05-03', 'Spouse'),
114 ('987654321', 'Abner', 'M', '1942-02-28', 'Spouse'),
115 ('123456789', 'Michael', 'M', '1988-01-04', 'Son'),
116 ('123456789', 'Alice', 'F', '1988-12-30', 'Daughter'),
117 ('123456789', 'Elizabeth', 'F', '1967-05-05', 'Spouse');
118
119

```

Output

Action Output

#	Time	Action	Message
1	10:41:42	INSERT INTO WORKS_ON (Essn, Pno, Hours) VALUES ('123456789', 1, 32.5), ('123456789', 2, 7.5), ('666884444', 3, 40.0), ('453453453', 1, 20.0), ('453...	15 row(s) affected Records: 15 Duplicates: 0 Warnings: 0
2	10:42:17	CREATE TABLE DEPENDENT ( Essn CHAR(9) NOT NULL, Dependent_name VARCHAR(15) NOT NULL, Sex CHAR, Bdate DATE, Relatio...	0 row(s) affected
3	10:42:36	INSERT INTO DEPENDENT (ESSN, DEPENDENT_NAME, SEX, BDATE, RELATIONSHIP) VALUES ('333445555', 'Alice', 'F', '1986-04-04', 'Daughter'), (...	7 row(s) affected Records: 7 Duplicates: 0 Warnings: 0

**Code Snippet**

```
-- Abhinav Patel
```

```
-- 500119461
```

```
1) CREATE DATABASE company;
USE company;
```

```
2) CREATE TABLE EMPLOYEE (
    Fname VARCHAR(15) NOT NULL,
    Minit CHAR,
    Lname VARCHAR(15) NOT NULL,
    Ssn CHAR(9) NOT NULL PRIMARY KEY,
    Bdate DATE,
    Address VARCHAR(30),
    Sex CHAR,
    Salary DECIMAL(10,2),
    Super_ssn CHAR(9),
    Dno INT NOT NULL
);
```

```
3) ALTER TABLE EMPLOYEE
ADD CONSTRAINT pk_ssn PRIMARY KEY (Ssn);
```

```
4) INSERT INTO EMPLOYEE (Fname, Minit, Lname, Ssn, Bdate, Address, Sex, Salary,
Super_ssn, Dno) VALUES
('John', 'B', 'Smith', '123456789', '1965-01-09', '731 Fondren, Houston TX', 'M', 30000,
'333445555', 5),
('Franklin', 'T', 'Wong', '333445555', '1965-12-08', '638 Voss, Houston TX', 'M', 40000,
'888665555', 5),
('Alicia', 'J', 'Zelaya', '999887777', '1968-01-19', '3321 Castle, Spring TX', 'F', 25000,
'987654321', 4),
('Jennifer', 'S', 'Wallace', '987654321', '1941-06-20', '291 Berry, Bellaire TX', 'F', 43000,
'888665555', 4),
('Ramesh', 'K', 'Narayan', '666884444', '1962-09-15', '975 Fire Oak, Humble TX', 'M', 38000,
'333445555', 5),
('Joyce', 'A', 'English', '453453453', '1972-07-31', '5631 Rice, Houston TX', 'F', 25000,
'333445555', 5),
('Ahmad', 'V', 'Jabbar', '987987987', '1969-03-29', '980 Dallas, Houston TX', 'M', 25000,
'987654321', 4),
('James', 'E', 'Borg', '888665555', '1937-11-10', '450 Stone, Houston TX', 'M', 55000, NULL, 1);
```

```

5) CREATE TABLE DEPARTMENT (
    Dname VARCHAR(15) NOT NULL,
    Dnumber INT NOT NULL,
    Mgr_ssn CHAR(9) NOT NULL,
    Mgr_start_date DATE,
    PRIMARY KEY (Dnumber),
    UNIQUE (Dname),
    FOREIGN KEY (Mgr_ssn) REFERENCES EMPLOYEE(Ssn)
);

6) INSERT INTO DEPARTMENT (Dname, Dnumber, Mgr_ssn, Mgr_start_date) VALUES
('Research', 5, '333445555', '1988-05-22'),
('Administration', 4, '987654321', '1995-01-01'),
('Headquarters', 1, '888665555', '1981-06-19');

7) CREATE TABLE DEPT_LOCATIONS (
    Dnumber INT NOT NULL,
    Dlocation VARCHAR(15) NOT NULL,
    PRIMARY KEY (Dnumber, Dlocation),
    FOREIGN KEY (Dnumber) REFERENCES DEPARTMENT(Dnumber)
);

8) INSERT INTO DEPT_LOCATIONS (DNUMBER, DLOCATION) VALUES
(1, 'Houston'),
(4, 'Stafford'),
(5, 'Bellaire'),
(5, 'Houston'),
(5, 'Sugarland');

9) CREATE TABLE PROJECT (
    Pname VARCHAR(15) NOT NULL,
    Pnumber INT NOT NULL,
    Plocation VARCHAR(15),
    Dnum INT NOT NULL
);

10) INSERT INTO PROJECT (Pname, Pnumber, Plocation, Dnum) VALUES
('ProductX', 1, 'Bellaire', 5),
('ProductY', 2, 'Sugarland', 5),
('ProductZ', 3, 'Houston', 5),
('Computerization', 10, 'Stafford', 4),
('Reorganization', 20, 'Houston', 1),
('Newbenefits', 30, 'Stafford', 4);

```



```
11) CREATE TABLE WORKS_ON (
    Essn CHAR(9) NOT NULL,
    Pno INT NOT NULL,
    Hours DECIMAL(3,1) NOT NULL
);
```

```
12) INSERT INTO WORKS_ON (Essn, Pno, Hours) VALUES
('123456789', 1, 32.5),
('123456789', 2, 7.5),
('666884444', 3, 40.0),
('453453453', 1, 20.0),
('453453453', 2, 20.0),
('333445555', 2, 10.0),
('333445555', 3, 10.0),
('333445555', 10, 10.0),
('333445555', 20, 10.0),
('999887777', 30, 30.0),
('999887777', 10, 10.0),
('987987987', 10, 35.0),
('987987987', 30, 5.0),
('987654321', 30, 20.0),
('987654321', 20, 15.0);
```

```
13) CREATE TABLE DEPENDENT (
    Essn CHAR(9) NOT NULL,
    Dependent_name VARCHAR(15) NOT NULL,
    Sex CHAR,
    Bdate DATE,
    Relationship VARCHAR(8),
    PRIMARY KEY (Essn, Dependent_name),
    FOREIGN KEY (Essn) REFERENCES EMPLOYEE(Ssn)
);
```

```
14) INSERT INTO DEPENDENT (ESSN, DEPENDENT_NAME, SEX, BDATE,
RELATIONSHIP) VALUES
('333445555', 'Alice', 'F', '1986-04-04', 'Daughter'),
('333445555', 'Theodore', 'M', '1983-10-25', 'Son'),
('333445555', 'Joy', 'F', '1958-05-03', 'Spouse'),
('987654321', 'Abner', 'M', '1942-02-28', 'Spouse'),
('123456789', 'Michael', 'M', '1988-01-04', 'Son'),
('123456789', 'Alice', 'F', '1988-12-30', 'Daughter'),
('123456789', 'Elizabeth', 'F', '1967-05-05', 'Spouse');
```

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