

Practical Number: 4

Sim:	Apply DML commands for the specified system.
Course Outcome:	Apply DDL, DML, DCL and TCL commands.
Tools Used:	POSTGRES SQL
Theory:	DML stands for Data Manipulation Language
	(1) DML commands are used for manipulating the data stored in the table and not the table itself.
	(2) DML commands are not auto-committed. It means changes are not permanent to database, they can be rolled back.

Command	Description
insert	to insert a new row
update	to update an existing row
delete	to delete a row
merge	merging two rows or two tables.

Here are some of the commands which come under DML:

1. Insert
2. Update
3. Delete

1. Insert:

The insert statement is a SQL query. It is used to insert data into the row of a table.

Syntax:

- INSERT INTO TABLE-NAME (col1, col2, ... col(N))
VALUES (val1, val2, ... val(N))
- INSERT INTO 'employee' ('Name', 'Email', 'DOB')
VALUES ('RAM', 'ram@gmail.com', '1988-12-23');

2. Update:

This command is used to modify or update the value of the columns in a table.

Syntax:

- UPDATE (table-name)
SET (col-name1 = val1, col-name2 = val2, ...)
WHERE condition.
- update EMPLOYEE
set Email = 'ram23@gmail.com'
where name = 'Ram'.

3. Delete:

It is used to remove one or more row from a table.

Syntax:

- Delete from table-name where condition.
- Delete from employee where name = 'Ram'.

Conclusion: Implementation of all the DML commands is done using postgres SQL server.



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Course Code and Name: -	CSL402- Database Management System Lab	Academic Year-FH-2021
Name of the Faculty: -	Mrs.Dakshayani.G	Branch/SEM: -COMP-IV
Title: -	Apply DML Commands for the specified system	
CO-2	Apply DDL, DML, DCL and TCL commands	
Tool used	POSTGRES SQL	

The COMPANY database

This database contains information about employees, departments and projects. Important points to note include:

- There are several departments in the company. Each department has a unique identification, a name, location of the office and a particular employee who manages the department.
- A department controls a number of projects, each of which has a unique name, a unique number and a budget.
- Each employee has a name, identification number, address, salary and birthdate. An employee is assigned to one department but can join in several projects. We need to record the start date of the employee in each project. We also need to know the direct supervisor of each employee.
- We want to keep track of the dependents for each employee. Each dependent has a name, birthdate and relationship with the employee.

DML-Data Manipulation Language

Insert Command: - 1. Insert values into table Employee—with explicit column names mentioned

The screenshot shows the Microsoft SQL Server Management Studio interface. The SQL Query window displays the following queries:

```
CREATE TABLE EMPLOYEE_DML_one  
(  
    empId int identity,  
    Name VARCHAR(20),  
    Email VARCHAR(100),  
    DOB DATE);  
  
INSERT INTO EMPLOYEE_DML_one (Name,email,DOB) VALUES ('KAVYA','kavya21@gmail.com','1994-06-04')  
  
INSERT INTO EMPLOYEE_DML (Email) VALUES ('ravi@yahoo.co.in')  
select * from EMPLOYEE_DML_one
```

The Results window shows the output of the first INSERT statement:

empId	Name	Email	DOB
1	KAVYA	kavya21@gmail.com	1994-06-04
2	KAVYA	kavya21@gmail.com	1994-06-04
3	KAVYA	kavya21@gmail.com	1994-06-04



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The screenshot shows the pgAdmin 4 interface. In the left sidebar, the 'Company_153' database is selected. The 'Query Editor' tab is active, displaying the following SQL script:

```
1 CREATE TABLE EMPLOYEE_DML
2 (Fname VARCHAR(15) NOT NULL,
3 Bdate DATE,
4 Email VARCHAR(30),
5 Sex CHAR);
6 INSERT INTO EMPLOYEE_DML(Fname,Bdate,Email,Sex) VALUES ('RAJU','1992-12-23','raju@gmail.com','M')
7 SELECT * FROM EMPLOYEE_DML
```

The 'Data Output' tab shows the result of the query:

fname	bdate	email	sex
character varying (15)	date	character varying (30)	character (1)
1 RAJU	1992-12-23	raju@gmail.com	M

A notification box in the top right corner states: "You are currently running version 4.28 of pgAdmin 4, however the current version is 4.30. Please click [here](#) for more information."

Insert Command: - 2 Insert values into table Employee—full table insert without skipping

The screenshot shows the pgAdmin 4 interface. In the left sidebar, the 'Company_153' database is selected. The 'Query Editor' tab is active, displaying the following SQL script:

```
1 CREATE TABLE EMPLOYEE_DML
2 (Fname VARCHAR(15) NOT NULL,
3 Bdate DATE,
4 Email VARCHAR(30),
5 Sex CHAR);
6 INSERT INTO EMPLOYEE_DML(Fname,Bdate,Email,Sex) VALUES ('RAJU','1992-12-23','raju@gmail.com','M')
7 INSERT INTO EMPLOYEE_DML VALUES ('SHREYAS','1990-07-05','shreyas@gmail.com','M')
8 SELECT * FROM EMPLOYEE_DML
```

The 'Data Output' tab shows the result of the query:

fname	bdate	email	sex
character varying (15)	date	character varying (30)	character (1)
1 RAJU	1992-12-23	raju@gmail.com	M
2 SHREYAS	1990-07-05	shreyas@gmail.com	M

A green status bar at the bottom indicates: "Successfully run. Total query runtime: 172 msec. 2 rows affected."

Insert Command: - 3. Insert values into table New table values in using **select** statement



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Company_153/postgres@PostgreSQL 12

Query Editor Query History

```
2 (Fname VARCHAR(15) NOT NULL,
3 Bdate DATE,
4 Email VARCHAR(30),
5 Sex CHAR);
6 INSERT INTO EMPLOYEE_DML (Fname,Bdate,Email,Sex) VALUES ('RAJU','1992-12-23','raju@gmail.com','M')
7 INSERT INTO EMPLOYEE_DML VALUES ('SHREYAS','1990-07-05','shreyas@gmail.com','M')
8 SELECT * FROM EMPLOYEE_DML
9 CREATE TABLE EMPLOYEE_DML2
10 (Fname VARCHAR(15) NOT NULL,
11 Bdate DATE,
12 Email VARCHAR(30),
13 Sex CHAR);
14 INSERT INTO EMPLOYEE_DML2 SELECT * FROM EMPLOYEE_DML WHERE Fname='RAJU';
15 SELECT * FROM EMPLOYEE_DML2
```

Data Output Explain Messages Notifications

INSERT 0 1

Query returned successfully in 58 msec.

Query returned successfully in 58 msec.

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Company_153/postgres@PostgreSQL 12

Query Editor Query History

```
2 (Fname VARCHAR(15) NOT NULL,
3 Bdate DATE,
4 Email VARCHAR(30),
5 Sex CHAR);
6 INSERT INTO EMPLOYEE_DML (Fname,Bdate,Email,Sex) VALUES ('RAJU','1992-12-23','raju@gmail.com','M')
7 INSERT INTO EMPLOYEE_DML VALUES ('SHREYAS','1990-07-05','shreyas@gmail.com','M')
8 SELECT * FROM EMPLOYEE_DML
9 CREATE TABLE EMPLOYEE_DML2
10 (Fname VARCHAR(15) NOT NULL,
11 Bdate DATE,
12 Email VARCHAR(30),
13 Sex CHAR);
14 INSERT INTO EMPLOYEE_DML2 SELECT * FROM EMPLOYEE_DML WHERE Fname='RAJU';
15 SELECT * FROM EMPLOYEE_DML2
```

Data Output Explain Messages Notifications

ename	bdate	email	sex
character varying (15)	date	character varying (30)	character (1)
1 RAJU	1992-12-23	raju@gmail.com	M

Successfully run. Total query runtime: 78 msec. 1 rows affected.

Update command: -- 4. update salary of John Smith to 40000



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Query Editor Query History

```
1 CREATE TABLE EMPLOYEE_DML
2 (Fname VARCHAR(15) NOT NULL,
3 Bdate DATE,
4 Email VARCHAR(30),
5 Sex CHAR);
6 INSERT INTO EMPLOYEE_DML (Fname,Bdate,Email,Sex) VALUES ('RAJU','1992-12-23','raju@gmail.com','M')
7 INSERT INTO EMPLOYEE_DML VALUES ('SHREYAS','1990-07-05','shreyas@gmail.com','M')
8 SELECT * FROM EMPLOYEE_DML
9 CREATE TABLE EMPLOYEE_DML2
10 (Ename VARCHAR(15) NOT NULL,
11 Bdate DATE,
12 Email VARCHAR(30),
13 Sex CHAR);
```

Data Output Explain Messages Notifications

	fname character varying (15)	minit character (1)	lname character varying (15)	ssn [PK] character (9)	bdate date	address character varying (30)	sex character (1)	salary numeric (10,2)	super_ssn character (9)	dno integer
1	John	B	Smith	123456789	1965-01-...	731 Fondren, Houston, TX	M	30000.00	333445555	5
2	Franklin	T	Wong	333445555	1955-12-...	638 Voss, Houston, TX	M	40000.00	888665555	5
3	Alicia	J	Zelaya	999887777	1968-01-...	3321 Castle, Spring, TX	F	25000.00	987654321	4
4	Jennifer	S	Wallace	987654321	1941-06-...	291 Berry, Bellaire, TX	F	43000.00	888665555	4
5	Ramesh	K	Narayan	666884444	1962-09-...	975 Fire Oak, Humble, TX	M	38000.00	333445555	5
6	Joyce	A	English	453453453	1972-07-...	5631 Rice, Houston, TX	F	25000.00	333445555	5
7	Ahmad	V	Jabbar	987987987	1969-03-...	980 Dallas, Houston, TX	M	25000.00	987654321	4
8	James	E	Borg	888665555	1937-11-...	450 Stone, Houston, TX	M	55000.00	[null]	1

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Company_153/postgres@PostgreSQL 12 *

Query Editor Query History

```
6 INSERT INTO EMPLOYEE_DML (Fname,Bdate,Email,Sex) VALUES ('RAJU','1992-12-23','raju@gmail.com','M')
7 INSERT INTO EMPLOYEE_DML VALUES ('SHREYAS','1990-07-05','shreyas@gmail.com','M')
8 SELECT * FROM EMPLOYEE_DML
9 CREATE TABLE EMPLOYEE_DML2
10 (Ename VARCHAR(15) NOT NULL,
11 Bdate DATE,
12 Email VARCHAR(30),
13 Sex CHAR);
14 INSERT INTO EMPLOYEE_DML2 SELECT * FROM EMPLOYEE_DML WHERE Fname='RAJU';
15 SELECT * FROM EMPLOYEE_DML2
16 SELECT * FROM EMPLOYEE
17 UPDATE EMPLOYEE SET SALARY='40000' WHERE fname='John' AND minit='B' AND lname='Smith'
```

Data Output Explain Messages Notifications

	fname character varying (15)	minit character (1)	lname character varying (15)	ssn [PK] character (9)	bdate date	address character varying (30)	sex character (1)	salary numeric (10,2)	super_ssn character (9)	dno integer
1	Franklin	T	Wong	333445555	1955-12-...	638 Voss, Houston, TX	M	40000.00	888665555	5
2	Alicia	J	Zelaya	999887777	1968-01-...	3321 Castle, Spring, TX	F	25000.00	987654321	4
3	Jennifer	S	Wallace	987654321	1941-06-...	291 Berry, Bellaire, TX	F	43000.00	888665555	4
4	Ramesh	K	Narayan	666884444	1962-09-...	975 Fire Oak, Humble, TX	M	38000.00	333445555	5
5	Joyce	A	English	453453453	1972-07-...	5631 Rice, Houston, TX	F	25000.00	333445555	5
6	Ahmad	V	Jabbar	987987987	1969-03-...	980 Dallas, Houston, TX	M	25000.00	987654321	4
7	James	E	Borg	888665555	1937-11-...	450 Stone, Houston, TX	M	55000.00	[null]	1
8	John	B	Smith	123456789	1965-01-...	731 Fondren, Houston, TX	M	40000.00	333445555	5

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Delete Command: - 5. Delete employee supervised by 333445555



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Company_153/postgres@PostgreSQL 12 *

Query Editor Query History

```
28 Salary DECIMAL(10,2),
29 Super_ssn CHAR(9),
30 Dno INT NOT NULL);
31 INSERT INTO EMPLOYEE_NEW VALUES('John', 'B', 'Smith', '123456789', '1965-01-09', '731 Fondren, Houston, TX', 'M', 30000, '333445555', 5);
32 INSERT INTO EMPLOYEE_NEW VALUES('Franklin', 'T', 'Wong', '333445555', '1955-12-08', '638 Voss, Houston, TX', 'M', 40000, '888665555', 5);
33 INSERT INTO EMPLOYEE_NEW VALUES('Alicia', 'J', 'Zelaya', '999887777', '1968-01-19', '3321 Castle, Spring, TX', 'F', 25000, '987654321', 4);
34 INSERT INTO EMPLOYEE_NEW VALUES('Jennifer', 'S', 'Wallace', '987654321', '1941-06-20', '291 Berry, Bellaire, TX', 'F', 43000, '888665555', 4);
35 INSERT INTO EMPLOYEE_NEW VALUES('Ramesh', 'K', 'Narayan', '666884444', '1962-09-15', '975 Fire Oak, Humble, TX', 'M', 38000, '333445555', 5);
36 INSERT INTO EMPLOYEE_NEW VALUES('Joyce', 'A', 'English', '453453453', '1972-07-31', '5631 Rice, Houston, TX', 'F', 25000, '333445555', 5);
37 INSERT INTO EMPLOYEE_NEW VALUES('Ahmad', 'V', 'Jabbar', '987987987', '1969-03-29', '980 Dallas, Houston, TX', 'M', 25000, '987654321', 4);
38 INSERT INTO EMPLOYEE_NEW VALUES('James', 'E', 'Borg', '888665555', '1937-11-10', '450 Stone, Houston, TX', 'M', 55000, NULL, 1);
39 SELECT * FROM EMPLOYEE_NEW
```

Data Output Explain Messages Notifications

fname	minit	lname	ssn	bdate	address	sex	salary	super_ssn	dno
character varying (15)	character (1)	character varying (15)	[PK] character (9)	date	character varying (30)	character (1)	numeric (10,2)	character (9)	integer
John	B	Smith	123456789	1965-01-09	731 Fondren, Houston, TX	M	30000.00	333445555	5
Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	40000.00	888665555	5
Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring, TX	F	25000.00	987654321	4
Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire, TX	F	43000.00	888665555	4
Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	38000.00	333445555	5
Joyce	A	English	453453453	1972-07-31	5631 Rice, Houston, TX	F	25000.00	333445555	5
Ahmad	V	Jabbar	987987987	1969-03-29	980 Dallas, Houston, TX	M	25000.00	987654321	4
James	E	Borg	888665555	1937-11-10	450 Stone, Houston, TX	M	55000.00	[null]	1

Successfully run. Total query runtime: 149 msec. 8 rows affected.

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Company_153/postgres@PostgreSQL 12 *

Query Editor Query History

```
29 Super_ssn CHAR(9),
30 Dno INT NOT NULL);
31 INSERT INTO EMPLOYEE_NEW VALUES('John', 'B', 'Smith', '123456789', '1965-01-09', '731 Fondren, Houston, TX', 'M', 30000, '333445555', 5);
32 INSERT INTO EMPLOYEE_NEW VALUES('Franklin', 'T', 'Wong', '333445555', '1955-12-08', '638 Voss, Houston, TX', 'M', 40000, '888665555', 5);
33 INSERT INTO EMPLOYEE_NEW VALUES('Alicia', 'J', 'Zelaya', '999887777', '1968-01-19', '3321 Castle, Spring, TX', 'F', 25000, '987654321', 4);
34 INSERT INTO EMPLOYEE_NEW VALUES('Jennifer', 'S', 'Wallace', '987654321', '1941-06-20', '291 Berry, Bellaire, TX', 'F', 43000, '888665555', 4);
35 INSERT INTO EMPLOYEE_NEW VALUES('Ramesh', 'K', 'Narayan', '666884444', '1962-09-15', '975 Fire Oak, Humble, TX', 'M', 38000, '333445555', 5);
36 INSERT INTO EMPLOYEE_NEW VALUES('Joyce', 'A', 'English', '453453453', '1972-07-31', '5631 Rice, Houston, TX', 'F', 25000, '333445555', 5);
37 INSERT INTO EMPLOYEE_NEW VALUES('Ahmad', 'V', 'Jabbar', '987987987', '1969-03-29', '980 Dallas, Houston, TX', 'M', 25000, '987654321', 4);
38 INSERT INTO EMPLOYEE_NEW VALUES('James', 'E', 'Borg', '888665555', '1937-11-10', '450 Stone, Houston, TX', 'M', 55000, NULL, 1);
39 SELECT * FROM EMPLOYEE_NEW
40 DELETE FROM EMPLOYEE_NEW WHERE Super_ssn='333445555'
```

Data Output Explain Messages Notifications

fname	minit	lname	ssn	bdate	address	sex	salary	super_ssn	dno
character varying (15)	character (1)	character varying (15)	[PK] character (9)	date	character varying (30)	character (1)	numeric (10,2)	character (9)	integer
Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	40000.00	888665555	5
Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring, TX	F	25000.00	987654321	4
Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire, TX	F	43000.00	888665555	4
Ahmad	V	Jabbar	987987987	1969-03-29	980 Dallas, Houston, TX	M	25000.00	987654321	4
James	E	Borg	888665555	1937-11-10	450 Stone, Houston, TX	M	55000.00	[null]	1

Successfully run. Total query runtime: 112 msec. 5 rows affected.

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Query Editor Query History

```
29 Super_ssn CHAR(9),
30 Dno INT NOT NULL);
31 INSERT INTO EMPLOYEE_NEW VALUES('John', 'B', 'Smith', '123456789', '1965-01-09', '731 Fondren, Houston, TX', 'M', 30000, '333445555', 5);
32 INSERT INTO EMPLOYEE_NEW VALUES('Franklin', 'T', 'Wong', '333445555', '1955-12-08', '638 Voss, Houston, TX', 'M', 40000, '888665555', 5);
33 INSERT INTO EMPLOYEE_NEW VALUES('Alicia', 'J', 'Zelaya', '999887777', '1968-01-19', '3321 Castle, Spring, TX', 'F', 25000, '987654321', 4);
34 INSERT INTO EMPLOYEE_NEW VALUES('Jennifer', 'S', 'Wallace', '987654321', '1941-06-20', '291 Berry, Bellaire, TX', 'F', 43000, '888665555', 4);
35 INSERT INTO EMPLOYEE_NEW VALUES('Ramesh', 'K', 'Narayan', '666884444', '1962-09-15', '975 Fire Oak, Humble, TX', 'M', 38000, '333445555', 5);
36 INSERT INTO EMPLOYEE_NEW VALUES('Joyce', 'A', 'English', '453453453', '1972-07-31', '5631 Rice, Houston, TX', 'F', 25000, '333445555', 5);
37 INSERT INTO EMPLOYEE_NEW VALUES('Ahmad', 'V', 'Jabbar', '987987987', '1969-03-29', '980 Dallas, Houston, TX', 'M', 25000, '987654321', 4);
38 INSERT INTO EMPLOYEE_NEW VALUES('James', 'E', 'Borg', '888665555', '1937-11-10', '450 Stone, Houston, TX', 'M', 55000, NULL, 1);
39 SELECT * FROM EMPLOYEE_NEW
40 DELETE FROM EMPLOYEE_NEW WHERE Super_ssn='333445555'
```

Data Output Explain Messages Notifications

fname	minit	lname	ssn	bdate	address	sex	salary	super_ssn	dno
character varying (15)	character (1)	character varying (15)	[PK] character (9)	date	character varying (30)	character (1)	numeric (10,2)	character (9)	integer
Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	40000.00	888665555	5
Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring, TX	F	25000.00	987654321	4
Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire, TX	F	43000.00	888665555	4
Ahmad	V	Jabbar	987987987	1969-03-29	980 Dallas, Houston, TX	M	25000.00	987654321	4
James	E	Borg	888665555	1937-11-10	450 Stone, Houston, TX	M	55000.00	[null]	1

Successfully run. Total query runtime: 112 msec. 5 rows affected.

6.Delete all the tuples

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The image displays two screenshots of the pgAdmin 4 web interface, showing SQL queries and their results in a PostgreSQL database.

Top Screenshot:

- Query Editor:** The query editor shows a series of SQL statements. The first five are `INSERT INTO EMPLOYEE_NEW` statements for employees: Franklin, Alicia, Jennifer, Ahmad, and James. The sixth is a `SELECT * FROM EMPLOYEE_NEW` statement. The seventh is a `DELETE FROM EMPLOYEE_NEW WHERE Super_ssn='333445555'` statement. The eighth is another `SELECT * FROM EMPLOYEE_NEW` statement.
- Data Output:** The data output table shows the results of the first `SELECT` query. It has 8 columns: `fname`, `minit`, `lname`, `ssn`, `bdate`, `address`, `sex`, `salary`, `super_ssn`, and `dno`. The results are as follows:

fname	minit	lname	ssn	bdate	address	sex	salary	super_ssn	dno
Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	40000.00	888665555	5
Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring, TX	F	25000.00	987654321	4
Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire, TX	F	43000.00	888665555	4
Ahmad	V	Jabbar	987987987	1969-03-29	980 Dallas, Houston, TX	M	25000.00	987654321	4
James	E	Borg	888665555	1937-11-10	450 Stone, Houston, TX	M	55000.00	[null]	1

Bottom Screenshot:

- Query Editor:** The query editor shows the same SQL statements as the top screenshot, but the last two are `SELECT * FROM EMPLOYEE_NEW` and `TRUNCATE TABLE EMPLOYEE_NEW`.
- Data Output:** The data output table is empty, indicating that the `TRUNCATE` statement was successful.