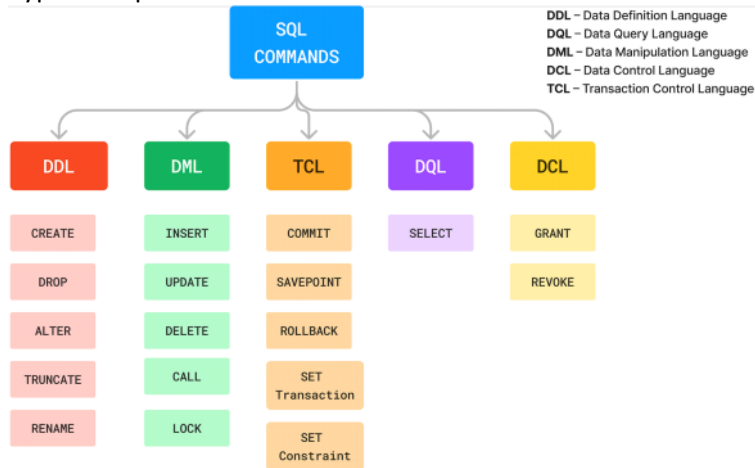# SQL

Saturday, January 4, 2025   11:36 AM
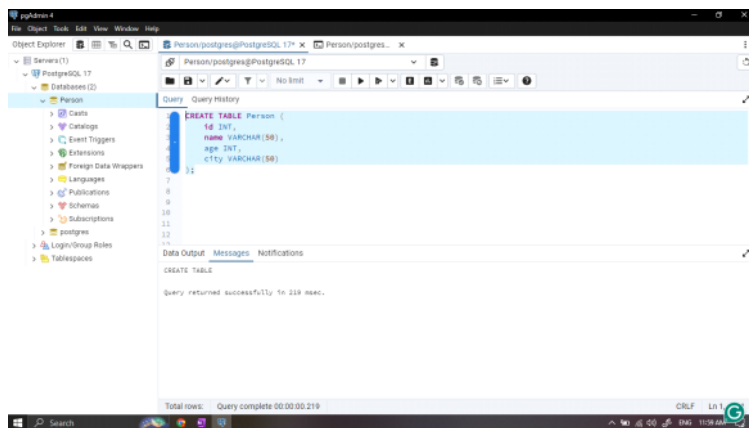
What is SQL?
- SQL stands for structured query language.
- Sql Is declarative language.
- SQL stands for Structured Query Language, a computer language that allows users to access and manipulate databases.
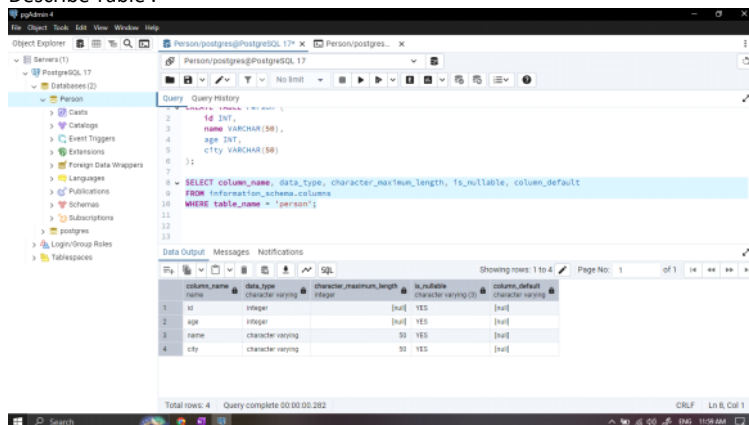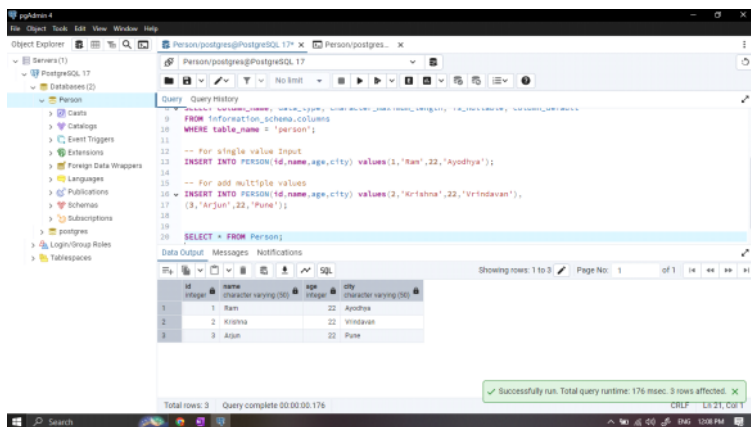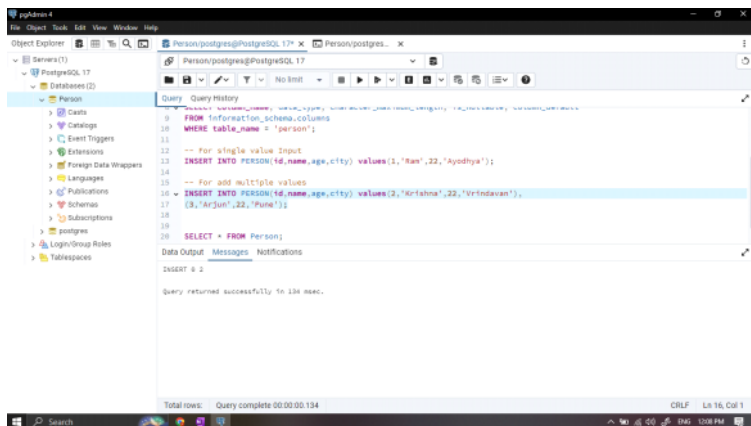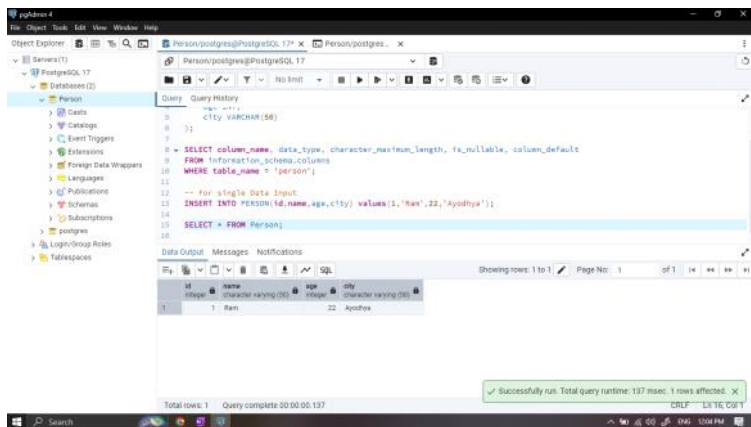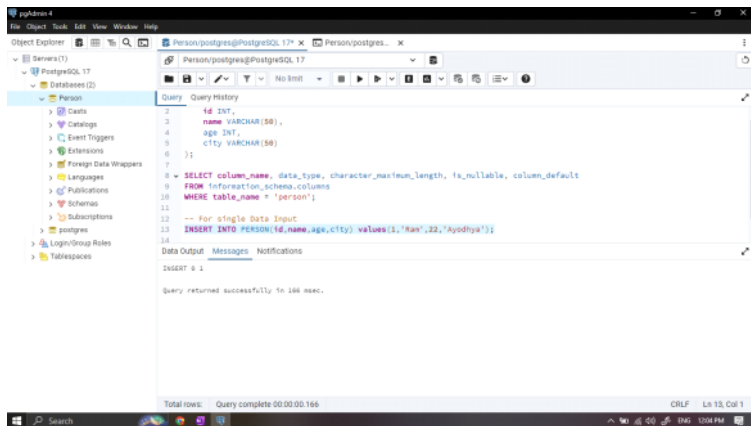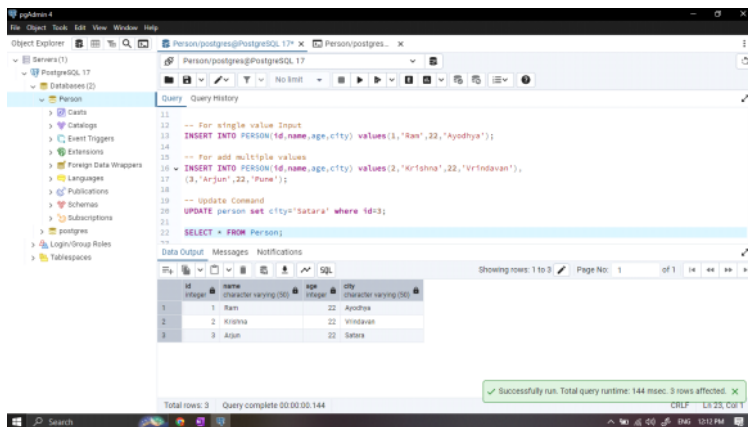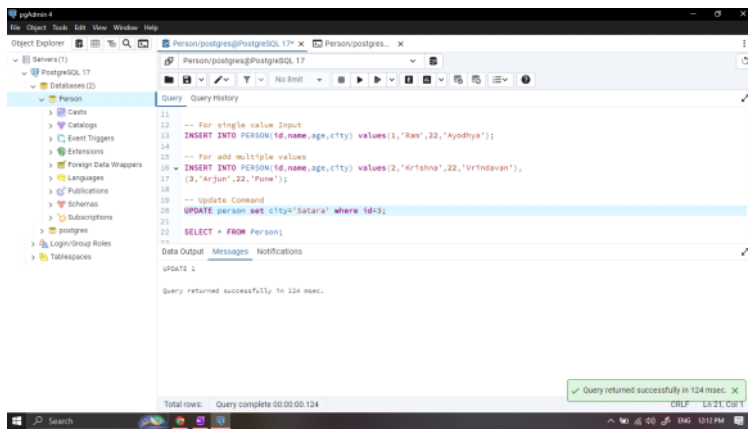
Types of sql command

1] Create :

Describe Table :
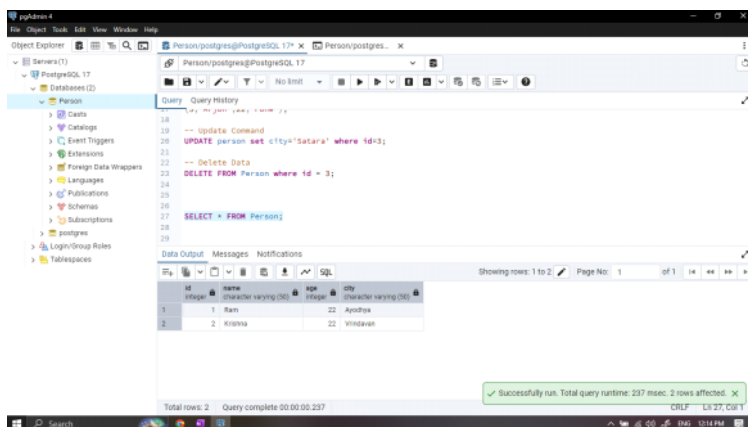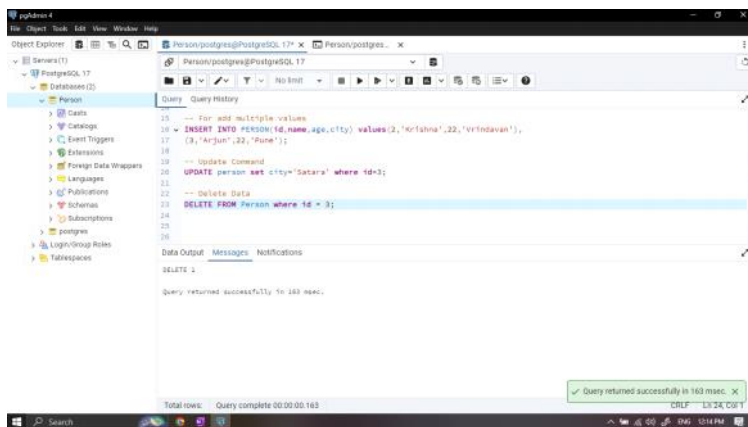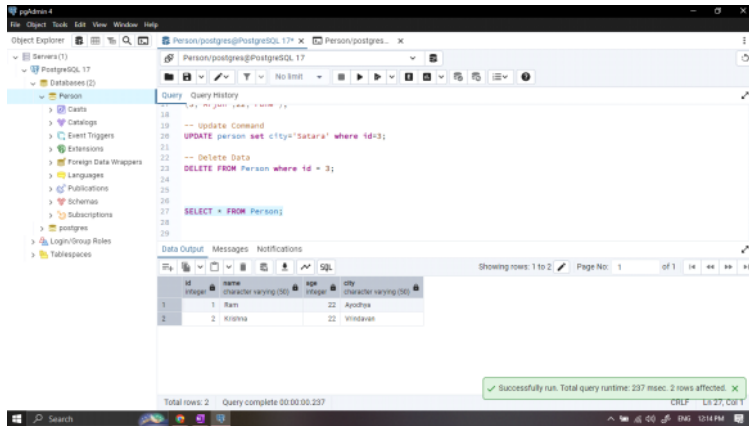

2] Insert : To add data in table

3] Update : Used to changes in available data

4] Delete command

5] Read :(select)

6] Alter : Alter is used to changes in schema
For e.g delete table,add column,remove column,add constraints,modify datatype/column_name,remove constraints,..

-- Add column
ALTER TABLE Person add column gender varchar(10);
-- Remove column
ALTER TABLE Person drop column gender;
-- Modify data type
ALTER TABLE Person Alter column age::INT;
-- Modify column name
Alter Table Person rename column id to pid;
-- rename table name
Alter Table Person rename to p;
-- Add constraints
Alter Table p add primary key(pid);

7] Drop : Used to delete table
Drop table table_name

- Difference between Alter and Update:

SR.NO	ALTER Command	UPDATE Command
1	ALTER command is Data Definition Language (DDL).	UPDATE Command is a Data Manipulation Language (DML).
2	Alter command will perform the action on structure level and not on the data level.	Update command will perform on the data level.
3	ALTER Command is used to add, delete, modify the attributes of the relations (tables) in the database.	UPDATE Command is used to update existing records in a database.
4	ALTER Command by default initializes values of all the tuple as NULL.	UPDATE Command sets specified values in the command to the tuples.
5	This command make changes with table structure.	This command makes changes with data inside the table.
6	It works on the attributes of a relation.	It works on the attribute of a particular tuple in a table.
7	Example : Table structure, Table Name, SP, functions etc.	Example : Change data in the table in rows or in column etc.

- Difference between Drop, Delete, Truncate

Delete	Truncate
The DELETE command is used to delete specified rows(one or more).	While this command is used to delete all the rows from a table.
It is a DML(Data Manipulation Language) command.	While it is a DDL(Data Definition Language) command.
There may be a WHERE clause in the DELETE command in order to filter the records.	While there may not be WHERE clause in the TRUNCATE command.
In the DELETE command, a tuple is locked before removing it.	While in this command, the data page is locked before removing the table data.
The DELETE statement removes rows one at a time and records an entry in the transaction log for each deleted row.	TRUNCATE TABLE removes the data by deallocating the data pages used to store the table data and records only the page deallocations in the transaction log.
DELETE command is slower than TRUNCATE command.	While the TRUNCATE command is faster than the DELETE command.
To use Delete you need DELETE permission on the table.	To use Truncate on a table we need at least ALTER permission on the table.
The identity of the fewer column retains the identity after using DELETE Statement on the table.	Identity the column is reset to its seed value if the table contains an identity column.
The delete can be used with indexed views.	Truncate cannot be used with indexed views.
This command can also active trigger.	This command does not active trigger.
DELETE statement occupies more transaction spaces than Truncate.	Truncate statement occupies less transaction spaces than DELETE.
Delete operations can be ROLLED back.	TRUNCATE cannot be Rolled back as it causes an implicit commit.
Delete doesn't DROP the whole table. It acquires a lock on table and starts deleting the rows.	TRUNCATE first drops the table & then re-create it, which is faster than deleting individual rows.

Constraint	Purpose
NOT NULL	Prevents NULL values in a column.
UNIQUE	Ensures unique values in a column.
PRIMARY KEY	Unique identifier for each row.
FOREIGN KEY	Ensures referential integrity between tables.
CHECK	Validates data based on a condition.
DEFAULT	Sets a default value for a column.
INDEX	Optimizes query performance.
AUTO_INCREMENT	Automatically generates sequential values.
COMPOSITE KEY	Combines multiple columns as a primary key.
EXCLUSION (PGSQL)	Prevents overlapping values based on conditions.