

## 2. Give the difference between Char and Varchar data type.

### 1. CHAR (Character):

- CHAR is a fixed-length character data type.
- When we define a CHAR column, we must specify a fixed length, such as CHAR(10).
- CHAR is fixed-length and always reserves the specified space
- Use CHAR when we have fixed-length data or need consistent column sizes.

**The main difference between CHAR and VARCHAR depends on your data and storage requirements:**

### 2. VARCHAR (Variable Character):

- VARCHAR is a variable-length character data type.
- When we define a VARCHAR column, we specify a maximum length, such as VARCHAR(255), but it only uses as much storage as needed to store the actual data.
- while VARCHAR is variable-length and only uses the space needed for the actual data.
- Use VARCHAR when we have variable-length data or want to save storage space.

### 3. Explain the types of SQL Commands.

SQL (Structured Query Language) commands can be categorized into several types based on their functionality. Here are the main types of SQL commands:

#### 1. Data Query Language (DQL) Commands:

**SELECT:** Used to retrieve data from one or more tables. It allows you to specify the columns you want to retrieve and apply filtering and sorting conditions.

#### 2. Data Definition Language (DDL) Commands:

**CREATE:** Used to create database objects like tables, indexes, or views.

**ALTER:** Used to modify the structure of existing database objects, such as adding or dropping columns in a table.

**DROP:** Used to delete database objects like tables, indexes, or views.

**TRUNCATE:** Used to remove all rows from a table but keeps the table structure intact.

#### 3. Data Manipulation Language (DML) Commands

**INSERT:** Used to add new rows of data into a table.

**UPDATE:** Used to modify existing data in a table.

**-DELETE:** Used to remove rows from a table.

#### 4. Data Control Language (DCL) Commands:

**GRANT:** Used to grant specific privileges or permissions to users or roles.

**REVOKE:** Used to revoke previously granted privileges or permissions.

#### 5. Transaction Control Commands:

**BEGIN TRANSACTION (or BEGIN):** Starts a new transaction.

**COMMIT:** Saves all changes made during the current transaction to the database.

**ROLLBACK:** Undoes all changes made during the current transaction and restores the database to its previous state.

#### 6. Session Control Commands

**- SET:** Used to configure various session settings, such as date format or isolation level.

**- USE:** Selects a specific database to work with.

#### 4. Explain NVarchar and Nchar.

Both NVARCHAR and NCHAR are used to store character data, particularly for storing text in Unicode format, which allows for the representation of a wide range of characters from various languages and character sets.

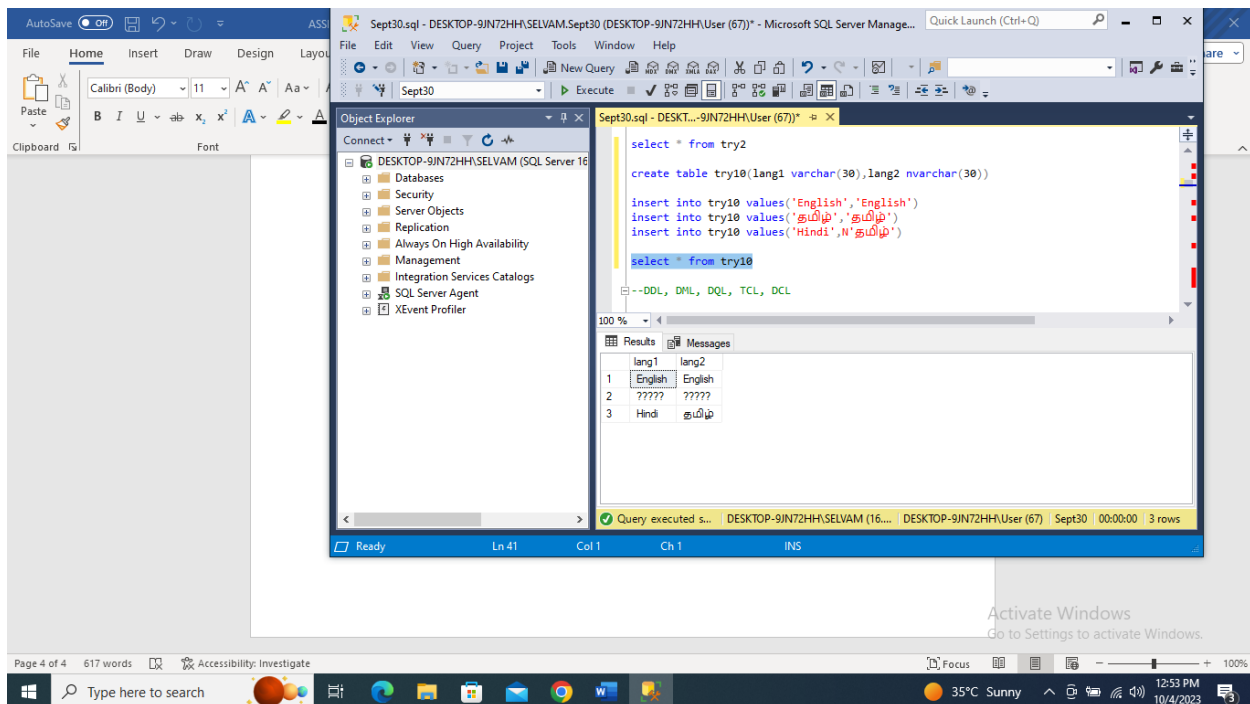
##### 1. NCHAR (National Character):

- NCHAR is a fixed-length Unicode character data type.
- When we define an NCHAR column, we specify a fixed length, such as NCHAR(10).
- It always reserves the specified number of characters, even if the actual data is shorter.
- NCHAR is suitable when you need a fixed-length field for storing Unicode characters. For example, when dealing with languages that require a consistent character length.

##### 2. NVARCHAR (National Variable Character):

- NVARCHAR is a variable-length Unicode character data type.
- When we define an NVARCHAR column, we specify a maximum length, such as NVARCHAR(255), but it only uses as much storage as needed for the actual data.
- NVARCHAR does not pad with spaces, making it efficient for storing variable-length Unicode text.

Example:



The screenshot displays the Microsoft SQL Server Enterprise Manager interface. The 'Object Explorer' on the left shows the server structure. The 'Query Editor' on the right contains the following SQL script:

```
select * from try2  
  
create table try10(lang1 varchar(30),lang2 nvarchar(30))  
  
insert into try10 values('English','English')  
insert into try10 values('தமிழ்','தமிழ்')  
insert into try10 values('Hindi','தமிழ்')  
  
select * from try10
```

The 'Results' pane shows the output of the query, displaying three rows of data:

lang1	lang2
English	English
??????	??????
Hindi	தமிழ்

The status bar at the bottom indicates that the query was executed successfully, returning 3 rows.