

# Database Design and programming

Tahaluf Training Center 2021



## Day 7

- 1 SQL - Data Types
- 2 SQL Like – SQL Not Like
- 3 SQL Default Constraint
- 4 SQL Hosting



SQL Data Type is an attribute that specifies the type of data of any object. Each column, variable, and expression has a related data type in SQL.

You can use these data types while creating your tables. You can choose a data type for a table column based on your requirement.



SQL data types can be broadly divided into the following categories:

1. **Numeric data** types such as int, tinyint, bigint, float, real etc.
2. **Date and Time** data types such as Date, Time, Datetime etc.
3. **Character and String** data types such as char, varchar, text etc.
4. **Unicode character** string data types, for example nchar, nvarchar, ntext etc.
5. **Binary data** types such as binary, varbinary etc.



Not all data types are supported by every relational database vendor.

**For example**, the Oracle database doesn't support DATETIME and MySQL doesn't support CLOB data type. So while designing database schema and writing SQL queries, make sure to check if the data types are supported or not.



# SQL - Data Types

DATA TYPE	FROM	TO
bigint	-9,223,372,036,854,775,808	9,223,372,036,854,775,807
int	-2,147,483,648	2,147,483,647
smallint	-32,768	32,767
tinyint	0	255
bit	0	1
decimal	$-10^{38} + 1$	$10^{38} - 1$
numeric	$-10^{38} + 1$	$10^{38} - 1$
money	-922,337,203,685,477.5808	+922,337,203,685,477.5807
smallmoney	-214,748.3648	+214,748.3647



Example:

```
CREATE TABLE Distance  
(  
    EarthToSun BIGINT  
    ,JordanToUSA INT  
    ,IrbidToAqapa SMALLINT  
    ,IrbidToJustUniversity TINYINT  
);
```



## SQL - Data Types

```
CREATE TABLE Bank (  
  accountNo integer,  
  balance numeric(8,2) );
```

```
INSERT INTO Bank VALUES (1,173226.62);
```





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1 SQL - Data Types

2 **SQL Like – SQL Not Like**

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SQL LIKE is used with the WHERE clause to search for a pattern for a column.

Wildcards are the one which is used for specifying the pattern:

1. %: The percentage is used for the representation of single, multiple, or no occurrence.
2. \_: The underscore is used for the representation of a single character.



SQL Like operator can be used with any query with where clause. So we can use it with Select, Delete, Update, etc.

```
SELECT column FROM table_name WHERE column LIKE pattern;
```

```
UPDATE table_name SET column=value WHERE column LIKE pattern;
```

```
DELETE FROM table_name WHERE column LIKE pattern;
```



## SQL Like – SQL Not Like

```
SELECT FirstName FROM [Person].[Person] WHERE  
FirstName LIKE 'A%';
```

```
SELECT FirstName FROM [Person].[Person] WHERE  
FirstName LIKE '%e'
```

```
SELECT LastName FROM [Person].[Person] WHERE  
FirstName LIKE 'A%t'
```



## SQL Like – SQL Not Like

```
SELECT FirstName FROM [Person].[Person] WHERE  
FirstName LIKE '_n%'
```

```
SELECT FirstName, LastName FROM  
[Person].[Person] WHERE FirstName LIKE '__i%t'
```



SQL Not Like: Sometimes we want to get records that don't match the like pattern.

SQL not like statement syntax will be like below.

```
SELECT column FROM table_name WHERE column NOT  
LIKE pattern;
```

```
UPDATE table_name SET column=value WHERE column  
NOT LIKE pattern;
```

```
DELETE FROM table_name WHERE column NOT LIKE  
pattern;
```



## SQL Like – SQL Not Like

```
SELECT FirstName FROM [Person].[Person] WHERE  
FirstName NOT LIKE 'A%'
```

## SQL Multiple Like

```
SELECT FirstName FROM [Person].[Person] WHERE  
FirstName LIKE 'S%' OR FirstName LIKE 'J%';
```



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The DEFAULT constraint is used to set a default value for a column.

The default value will be added to all new records, if no other value is specified.

```
CREATE TABLE TahalufT (  
    ID int NOT NULL,  
    LastName varchar(255) NOT NULL,  
    FirstName varchar(255),  
    Age int,  
    City varchar(255) DEFAULT 'Irbid'  
);
```



The DEFAULT constraint can also be used to insert system values, by using functions like **GETDATE()**:

```
CREATE TABLE ShawarmaOrder(  
    ID int NOT NULL,  
    OrderNumber int NOT NULL,  
    OrderDate date DEFAULT GETDATE()  
);
```

```
insert into Orders (ID,OrderNumber) values (1,120);
```



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The concept of SQL server hosting is simple - for your database to be accessible online, you have to host it on a server.

SQL is now considered to be the standard language for database hosting. Therefore you'll need an SQL-based database system to work with databases online.

Oracle, MySQL, Microsoft Access or Microsoft SQL Server are the most common choices for database server hosting.



### Advantages of SQL hosting:

Having an SQL Hosting backend allows for developing robust and scalable web applications, which can handle thousands of visitors daily.

When the website content is in a SQL database, it's very easy to search the content for a particular keyword or phrase. Having your data in an RDBMS allows for easy management of the content.



## Day Seven Task

On the E-Learning Portal

