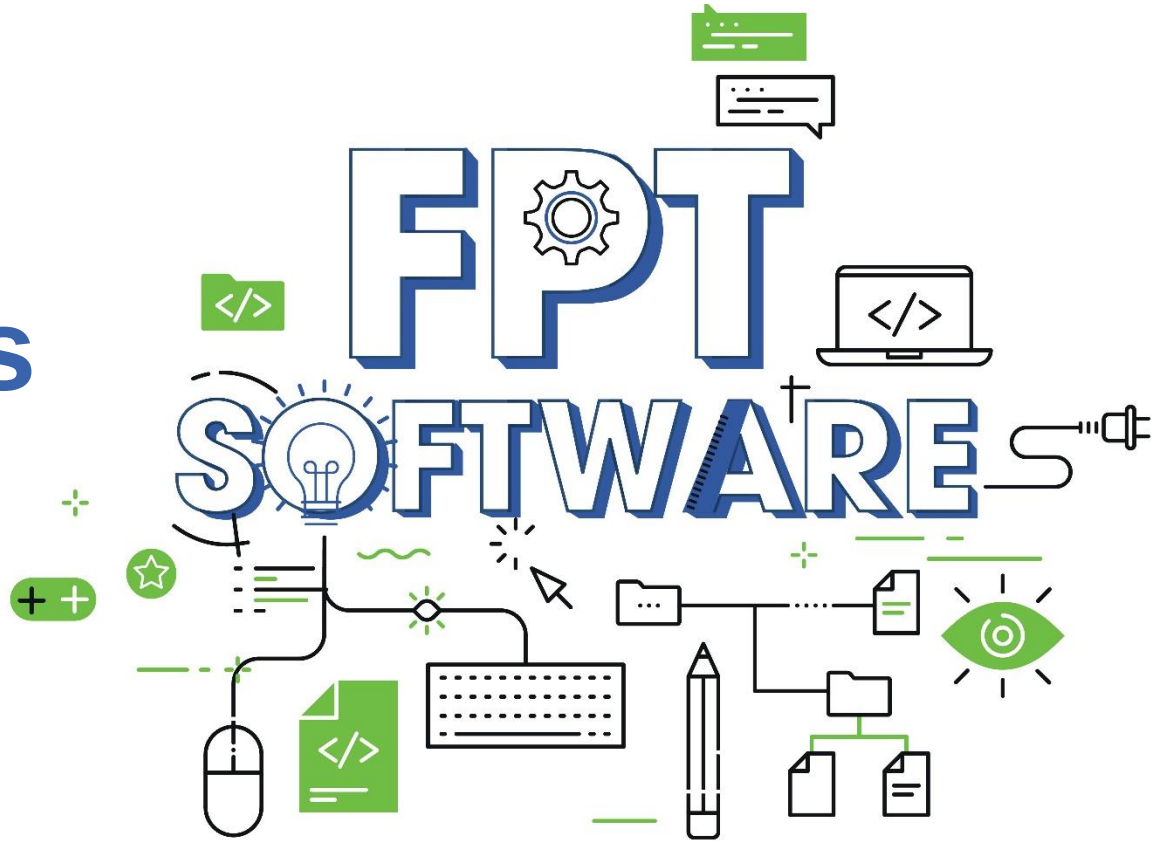
SQL Built-in Functions

Fsoft Academy



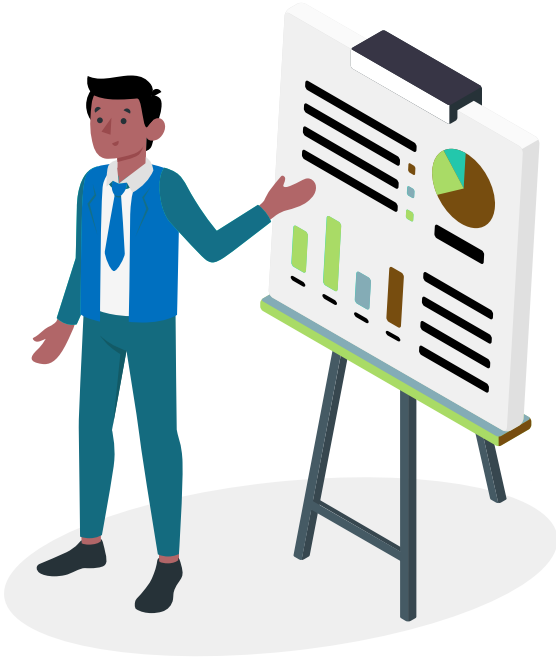
Lesson Objectives

01 Understand about the built-in functions in SQL Server

02 Recognize how to use built-in functions to perform operations on data

Agenda

1. Conversion Functions
2. Date and Time Functions
3. String Functions



Section1

Conversion Functions

CAST Function

converts a value (of any type) into a specified datatype.

- Converts an expression of one data type to another in SQL Server 2008 R2.

Syntax for CAST:

```
CAST ( expression AS data_type [ ( length ) ] )
```

- The **Cast**() function is used to convert a data type variable or data from one data type to another data type.
- The **Cast**() function provides a data type to a dynamic parameter (?) or a NULL value.

CONVERT Function

converts a value (of any type) into a specified datatype.

- When you convert expressions from one type to another, in many cases there will be a need within a stored procedure or other routine to convert data from a **datetime type** to a **varchar** type.
- The Convert function is used for such things. The CONVERT() function can be used to **display date/time data in various formats**

Syntax for CONVERT:

```
CONVERT ( data_type [ ( length ) ] , expression [ , style ] )
```

✓ Style (0 or 100): **mon dd yyyy hh:miAM (or PM)**

CONVERT Function

Without century (yy)	With century (yyyy)	Standard	Input/Output
-	0 or 100	Default	mon dd yyyy hh:miAM (or PM)
1	101	U.S.	mm/dd/yyyy
2	102	ANSI	yy.mm.dd
3	103	British/French	dd/mm/yyyy
4	104	German	dd.mm.yy
5	105	Italian	dd-mm-yy
6	106	-	dd mon yy
7	107	-	Mon dd, yy
8	108	-	hh:mi:ss
-	9 or 109	Default + milliseconds	mon dd yyyy hh:mi:ss:mmmAM (or PM)
10	110	USA	mm-dd-yy
11	111	JAPAN	yy/mm/dd

CONVERT Function (3/3)

Without century (yy)	With century (yyyy)	Standard	Input/Output
12	112	ISO	yymmdd Yyyymmdd
-	13 or 113	Europe default + milliseconds	dd mon yyyy hh:mi:ss:mmm(24h)
14	114	-	hh:mi:ss:mmm(24h)
-	20 or 120	ODBC canonical	yyyy-mm-dd hh:mi:ss(24h)
-	21 or 121	ODBC canonical (with milliseconds)	yyyy-mm-dd hh:mi:ss.mmm(24h)
-	126	ISO8601	yyyy-mm-ddThh:mi:ss.mmm (no spaces)
-	127	ISO8601 with time zone Z	yyyy-mm-ddThh:mi:ss.mmmZ (no spaces)
-	130	Hijri	dd mon yyyy hh:mi:ss:mmmAM
-	131	Hijri	dd/mm/yy hh:mi:ss:mmmAM

Section2

Date and Time Functions

GETDATE() & DATEPART() Function

- The **GETDATE**() function returns the current date and time from the SQL Server.
- The **DATEPART**() function is used to return a single part of a date/time, such as year, month, day, hour, minute, etc.

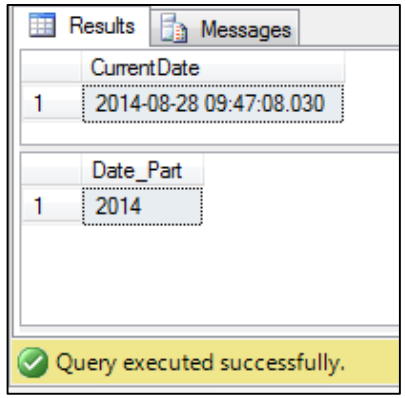
Syntax:

```
GETDATE()
DATEPART(datepart, date)
```

- **Ex**:

```
SELECT GETDATE() SELECT DATEPART(YYYY, GETDATE())
```

- **Result**:



GETDATE() & DATEPART Function

datepart	Abbreviation
year	yy, yyyy
quarter	qq, q
month	mm, m
dayofyear	dy, y
day	dd, d
week	wk, ww
weekday	dw, w
hour	hh
minute	mi, n
second	ss, s
millisecond	ms
microsecond	mcs
nanosecond	ns

DAY, MONTH,YEAR Function

- Returns an integer representing the day/month/year (day of the month) of the specified *date*.

Syntax:

```
DAY(date)
MONTH(date)
YEAR(date)
```

- **Ex**:

```
SELECT  DAY(GETDATE()) AS [Day],
        MONTH(GETDATE()) AS [Month],
        YEAR(GETDATE()) AS [Year]
```

- **Result**:

Results | Messages

	Day	Month	Year
1	28	8	2014

DATEADD Function

- The **DATEADD**() function adds or subtracts a specified time interval from a date.

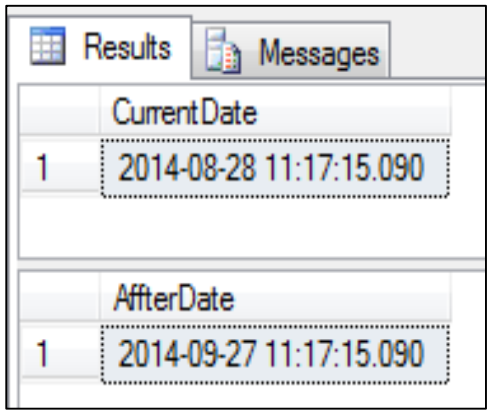
Syntax:

```
DATEADD(datepart,number,date)
```

- **Ex**:

```
DECLARE @dt datetime;
SET @dt = GETDATE();
SELECT @dt AS CurrentDate;
SELECT DATEADD(day, 30, @dt) AS AffterDate;
```

- **Result:**



DATEDIFF Function

- The **DATEDIFF**() function returns the time between two dates.

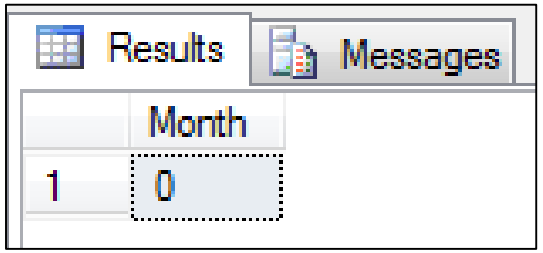
Syntax:

```
DATEDIFF (datepart,startdate,enddate)
```

- **Ex:**

```
DECLARE @date1 DATETIME;
DECLARE @date2 DATETIME;
SET @date1= '2012-04-07 20:12:22.013‘;
SET @date2= '2014-02-27 22:14:10.013‘;
SELECT DATEDIFF(month, @date1, @date2) AS 'Month'
```

- **Result**:



Section3

String Functions

RTRIM, LTRIM Function

- LTRIM Removes all white spaces from the beginning of the string.

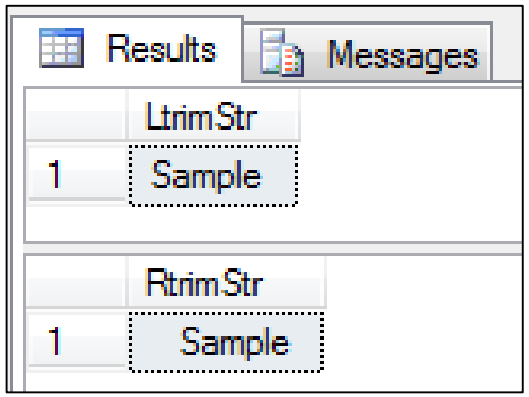
Syntax:

```
LTRIM (str)
RTRIM (str)
```

- **Ex** :

```
SELECT LTRIM('   Sample   ');
SELECT RTRIM('   Sample   ');
```

Result :



SUBSTRING Function

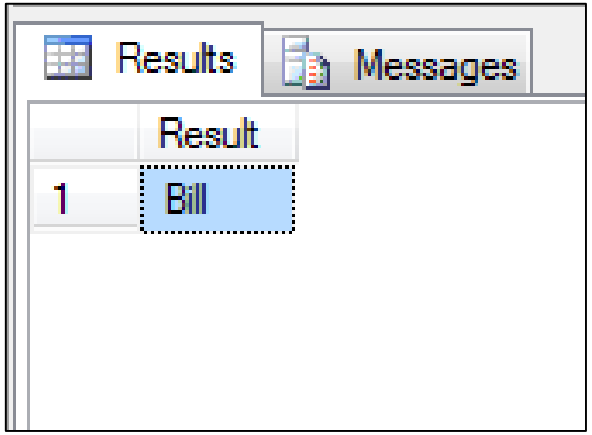
- The **Substring** function in SQL is used to return a portion of string. This function is called differently in different databases:

Syntax:

```
SUBSTRING(str, position, length)
```

- **Ex** : SELECT SUBSTRING('Bill Gates', 0 ,5) As Result

Result :



LEN, CHARINDEX, PATINDEX Function

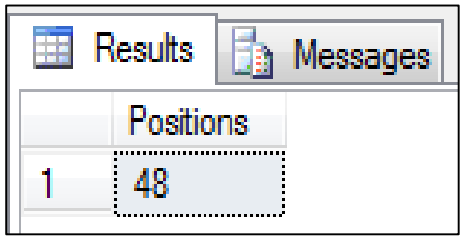
- The **CHARINDEX** and **PATINDEX** functions return the starting position of a pattern you specify. returns the position of a pattern in a string.
- PATINDEX can use **wildcard characters**, but CHARINDEX cannot
- **Ex**:

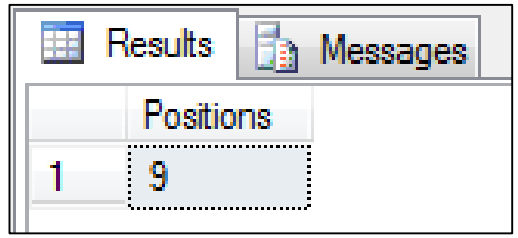
```
Syntax: LEN(str)
        CHARINDEX ( expression1 ,expression2 [ , start_location ] )
        PATINDEX ( '%pattern%' , expression )
```

```
SELECT CHARINDEX('bicycle', 'Reflectors are vital safety components of your bicycle.')
                AS Positions
SELECT PATINDEX ( '%ein%', 'Das ist ein Test') AS Positions
```

ko tìm thấy trả về 0 The search is case-insensitive and the first position in string is 1.

- **Result**:





Summary

- Conversion Functions
  - ✓CAST, CONVERT Function
- Date and Time Functions
  - ✓GETDATE, DATEPART, DAY, MONTH,YEAR, DATEDD, DATEIFF Function
- String Functions
  - ✓RTRIM, LTRIM, SUBSTRING, LEN, CHARINDEX, PATINDEX
- Demo

THANK YOU!