📘 Module 28: DATE & TIME Functions

🔍 Why Use Date/Time Functions?

Date and time functions help you work with **timestamps, durations, and date parts**, which are essential in **reporting**, **logging**, **scheduling**, and **calculating age or duration**.

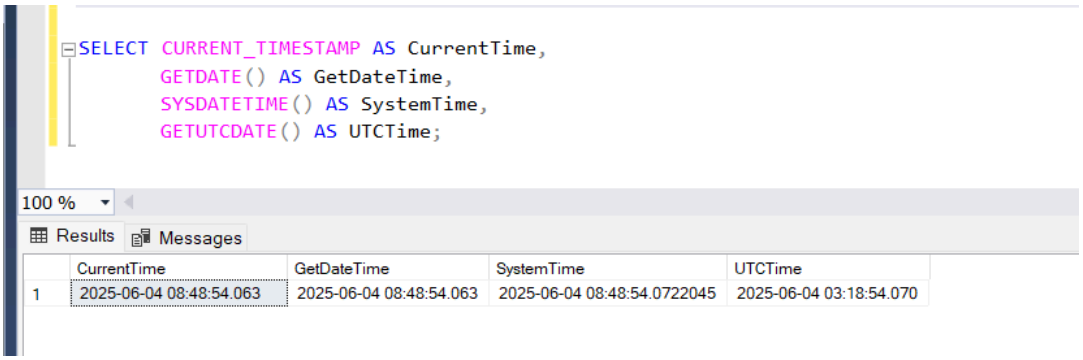
🕒 1. Getting the Current Date and Time

✅ Functions:

Function	Description
`CURRENT_TIMESTAMP`	Returns the current date and time
`GETDATE()`	Returns current date and time (datetime)
`SYSDATETIME()`	Returns higher-precision datetime2
`GETUTCDATE()`	Returns current UTC date and time

✅ Syntax & Example:

```
SELECT CURRENT_TIMESTAMP AS CurrentTime,
    GETDATE() AS GetDateTime,
    SYSDATETIME() AS SystemTime,
    GETUTCDATE() AS UTCTime;
```



📅 2. Calculating Age or Duration – `DATEDIFF()`

✅ Definition:

Returns the **difference between two dates** in specified units like **years, months, days**, etc.

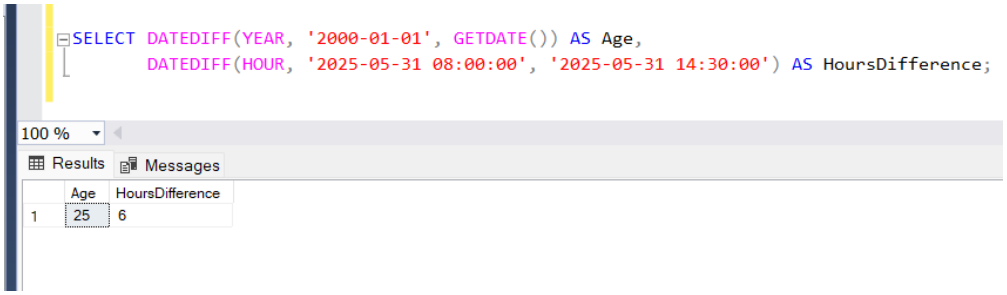
✅ Syntax:

DATEDIFF(unit, start_date, end_date)

Unit	Description
year	`yy` or `yyyy`
month	`mm`
day	`dd`
hour	`hh`
minute	`mi`

📌 Example:

SELECT DATEDIFF(YEAR, '2000-01-01', GETDATE()) AS Age, DATEDIFF(HOUR, '2025-05-31 08:00:00', '2025-05-31 14:30:00') AS HoursDifference;



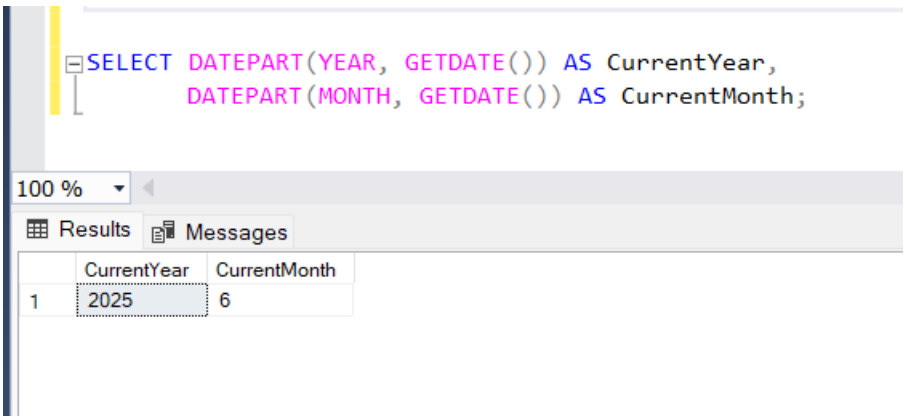
✔️ You can also calculate days, hours, etc., between any two timestamps.

🔎 3. Extracting Date and Time Parts

You can extract parts of a date like **year, month, day, weekday, hour, etc.**

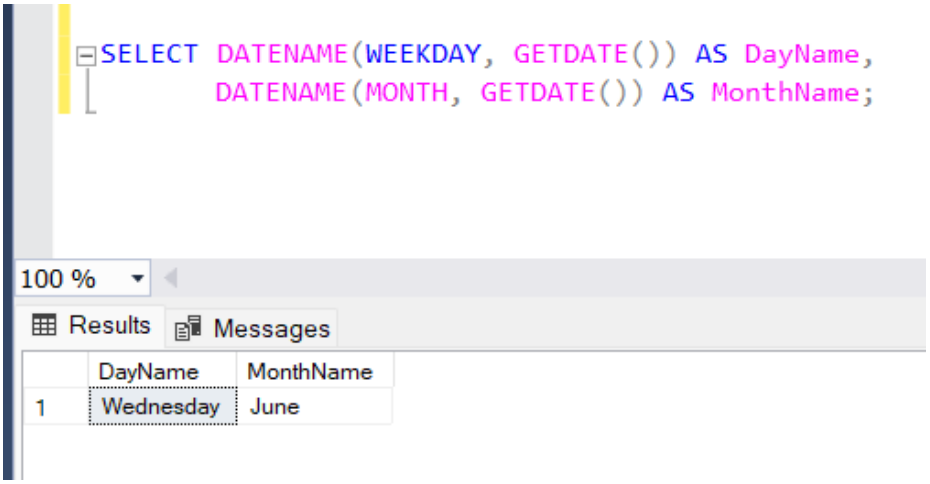
✅ `DATEPART()` – Returns numeric part

SELECT DATEPART(YEAR, GETDATE()) AS CurrentYear,
DATEPART(MONTH, GETDATE()) AS CurrentMonth;



✅ `DATENAME()` – Returns text part

```
SELECT DATENAME(WEEKDAY, GETDATE()) AS DayName,
    DATENAME(MONTH, GETDATE()) AS MonthName;
```

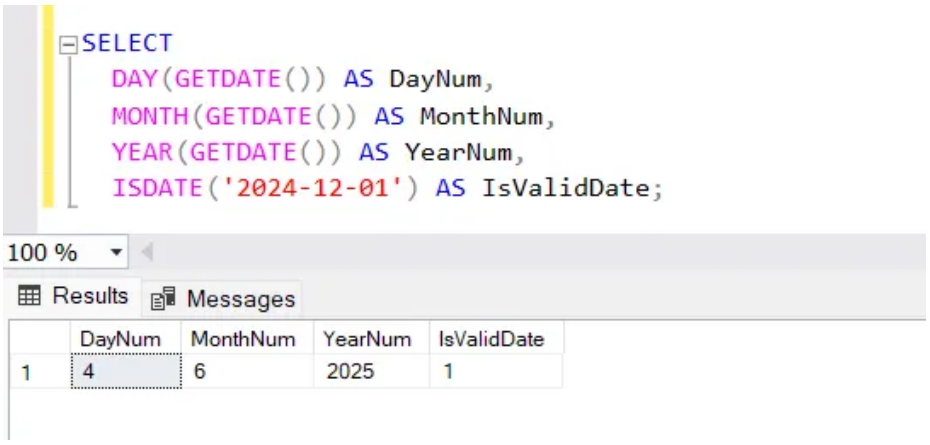


✅ Other useful functions:

- `DAY(date)` – Returns day of the month
- `MONTH(date)` – Returns month number
- `YEAR(date)` – Returns year number
- `ISDATE(string)` – Returns 1 if input is a valid date

📌 Example:

```
SELECT
  DAY(GETDATE()) AS DayNum,
  MONTH(GETDATE()) AS MonthNum,
  YEAR(GETDATE()) AS YearNum,
  ISDATE('2024-12-01') AS IsValidDate;
```



📝 Key Points to Remember

Topic	Notes
`GETDATE()`	Returns current local system date & time
`SYSDATETIME()`	Higher precision, useful in logs
`DATEDIFF()`	Use to calculate **age**, **tenure**, **duration**
`DATEPART()`	Returns numeric values (e.g., 1 for January)
`DATENAME()`	Returns string values (e.g., 'January')
`ISDATE()`	Helps validate dynamic string inputs as valid dates
Date formats	SQL Server default is `yyyy-mm-dd` for compatibility
Always test with `GETDATE()`	Useful for reports, timestamps, filtering