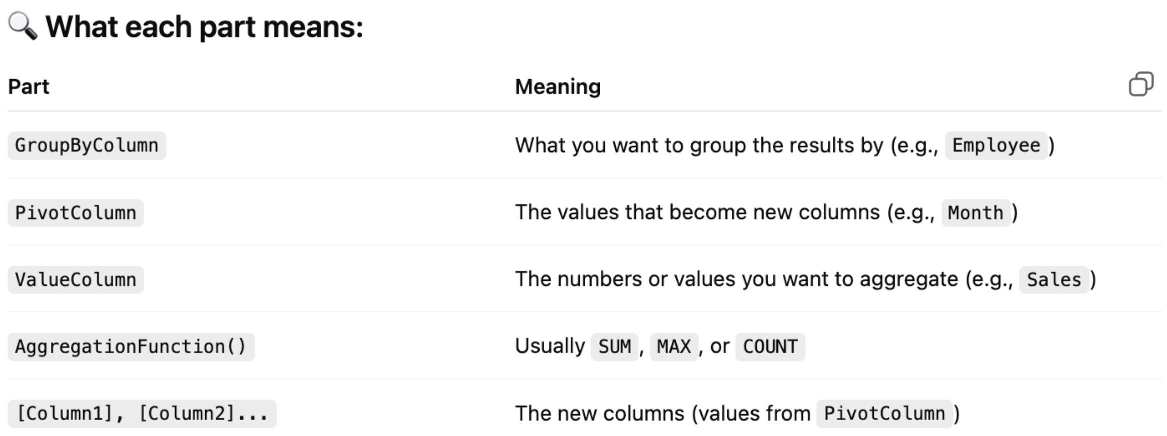
In SQL Server PIVOT is used to transform row values into Columns, typically for reporting or Summarizing data.

Basic way of building Syntax

```
SELECT  GROUP BYColumn, [Column1], [Column2], . . .
FROM (
        SELECT  GROUP BY Column, PIVOT Column, Value Column
        FROM  YouR_Table
    ) As  Source
PIVOT (Aggregate_Function (Value Column)
        FoR  Pivot Column  IN  ([Column1], [Column2], ...)
    ) As PIVOT_RESULT
```

```
SELECT  Employee, [Jan], [Feb], . .
FROM (
        SELECT  Employee, Month, Amount
        FROM  Sales
       ) As  Src
PIVOT (
        SUM(Amount)
        FOR  Month  IN ([Jan], [Feb])
      ) As  Pvt
```



🔍 What each part means:

Part	Meaning
`GroupByColumn`	What you want to group the results by (e.g., `Employee`)
`PivotColumn`	The values that become new columns (e.g., `Month`)
`ValueColumn`	The numbers or values you want to aggregate (e.g., `Sales`)
`AggregationFunction()`	Usually `SUM`, `MAX`, or `COUNT`
`[Column1], [Column2]...`	The new columns (values from `PivotColumn`)

🔑 MUST-KNOW CONCEPTS

Concept	Must-Know Details
3 required columns	Your source data must have: 1️⃣ Grouping column 2️⃣ Pivot column 3️⃣ Value column
`FOR ... IN (...)` **clause**	Specifies **which values from the pivot column** become new columns
Aggregation function	You must use an aggregate (e.g., `SUM`, `MAX`, `COUNT`)
Subquery is required	`PIVOT` only works on a derived table (i.e., subquery or CTE), not directly on raw tables
Column names must be static	You must **list column names** inside `IN ([...])` unless using dynamic SQL
`QUOTENAME()` **and brackets**	Use `[ColumnName]` or `QUOTENAME()` to safely handle special characters or reserved words
PIVOT is for fixed structure	For dynamic column sets, you need **dynamic SQL with** `sp_executesql`
Cannot use `ORDER BY` **inside pivot source**	You can only `ORDER BY` the final result, not inside the subquery

⚠️ COMMON PITFALLS

Pitfall	Fix / Explanation
Using `PIVOT` on base table	Must use a subquery or CTE as input
Forgetting to alias source table	The inner subquery must have an alias (`AS src`)
Getting duplicate rows	Add filters or groupings before pivoting
Can't pivot without aggregation	Use `MAX`, `SUM`, `COUNT` to aggregate
Dynamic column names not supported	Use dynamic SQL (`STRING_AGG`, `sp_executesql`)

📝 Final Tips

- Think of `PIVOT` as a **shortcut for** `GROUP BY` **+** `CASE` logic.
- It works best when:
  - You know the column values ahead of time, or
  - You’re comfortable writing dynamic SQL.
- **UNPIVOT** exists too — it turns columns back into rows.
- Use `ORDER BY` **after** the pivot, never inside the source.