Aggregating Data in a Query

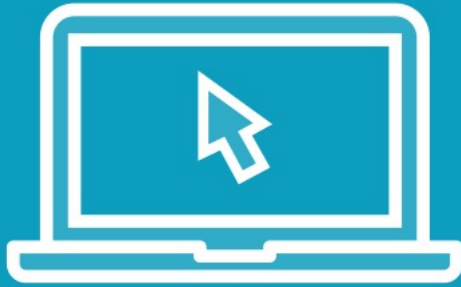**Tamara Pattinson**

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Demo

Analyzing Data

- How many? COUNT
- How much? SUM
- The average? AVG
- The largest or highest? MAX
- The smallest or lowest? MIN

Filter with HAVING

Organize with GROUP BY

Applying variables

```
SELECT COUNT(*) FROM table

GROUP BY fields [required for non-aggregated fields]

HAVING conditions [optional]

ORDER BY fields (DESC or ASC) [optional]
```

Using COUNT in a T-SQL Query

Counts the records in a table

GROUP BY required when non-aggregated fields are in SELECT statement

Includes NULL fields

HAVING replaces WHERE in aggregation

```
SELECT SUM(field) FROM table

GROUP BY fields [required for non-aggregated fields]

HAVING conditions [optional]

ORDER BY fields (DESC or ASC) [optional]
```

Using SUM in a T-SQL Query

Requires a numeric parameter

GROUP BY required when non-aggregated fields are in SELECT statement

Returns NULL instead of 0 if the field is null

HAVING replaces WHERE in aggregation

```
SELECT AVG(DISTINCT[optional]  field) FROM table

GROUP BY fields [required for non-aggregated fields]

HAVING conditions [optional]

ORDER BY fields (DESC or ASC) [optional]
```

Using AVG in a T-SQL Query

Requires a numeric parameter

GROUP BY required when non-aggregated fields are in SELECT statement

Optional DISTINCT for parameter

HAVING replaces WHERE in aggregation

```
SELECT MIN or MAX(DISTINCT numeric, char, varchar, uniqueidentifier, or datetime)

    FROM table

GROUP BY fields [required for non-aggregated fields]

HAVING conditions [optional]

ORDER BY fields (DESC or ASC) [optional]
```

Using MIN & MAX in a T-SQL Query

Returns a single value with the same data type as the parameter

GROUP BY required when non-aggregated fields are in SELECT statement

Ignores NULL values

HAVING replaces WHERE in aggregation

Aggregation

- **Aggregation Functions**
  - COUNT( )
  - SUM( )
  - AVG( )
  - MIN( )
  - MAX( )

- **GROUP BY and HAVING clause syntax**

- **Validation using COUNT( )**

Exercise Files

M7 – Products COUNT query
M7 – Products COUNT query 2
M7 – Using AVG in T-SQL 1
M7 – Using AVG in T-SQL 2
M7 – Using COUNT in T-SQL
M7 – Using MIN MAX in T-SQL
M7 – Using SUM in T-SQL
M7 – Average Sold Products with Variables
M7 – Filtering using IN and NOT IN
M7 – Company Sales with Min Max and Avg
M7 – Products and the number of times orders
M7 – Products and the number of times ordered and number of products sold

Up Next:
Using T-SQL Set Operators