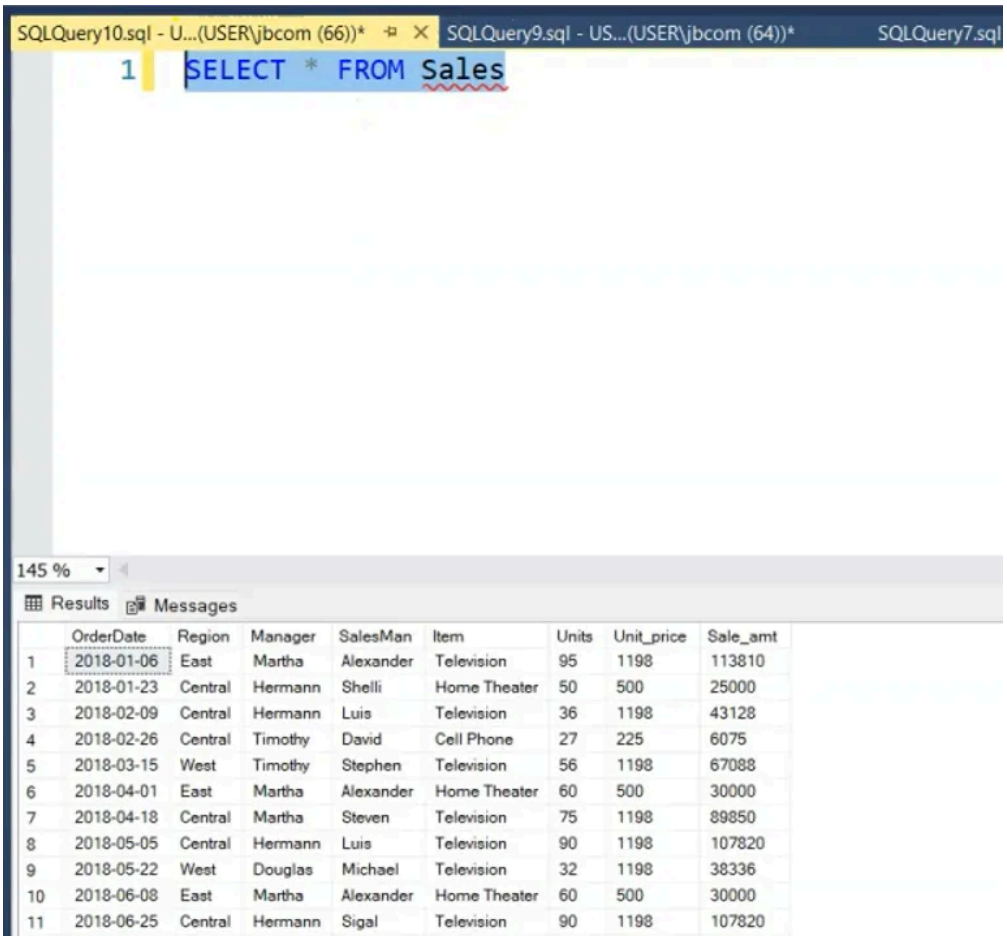
📘 Module 17: Selection Commands – Filtering

This module focuses on using **SQL filtering techniques** to retrieve specific records using `IN`, `BETWEEN`, and `LIKE` with real examples from the **Sales** table.

🧾 Reference Table Used in This Module



	OrderDate	Region	Manager	SalesMan	Item	Units	Unit_price	Sale_amt
1	2018-01-06	East	Martha	Alexander	Television	95	1198	113810
2	2018-01-23	Central	Hermann	Shelli	Home Theater	50	500	25000
3	2018-02-09	Central	Hermann	Luis	Television	36	1198	43128
4	2018-02-26	Central	Timothy	David	Cell Phone	27	225	6075
5	2018-03-15	West	Timothy	Stephen	Television	56	1198	67088
6	2018-04-01	East	Martha	Alexander	Home Theater	60	500	30000
7	2018-04-18	Central	Martha	Steven	Television	75	1198	89850
8	2018-05-05	Central	Hermann	Luis	Television	90	1198	107820
9	2018-05-22	West	Douglas	Michael	Television	32	1198	38336
10	2018-06-08	East	Martha	Alexander	Home Theater	60	500	30000
11	2018-06-25	Central	Hermann	Sigal	Television	90	1198	107820

🔷 1. IN Operator

✅ Definition:

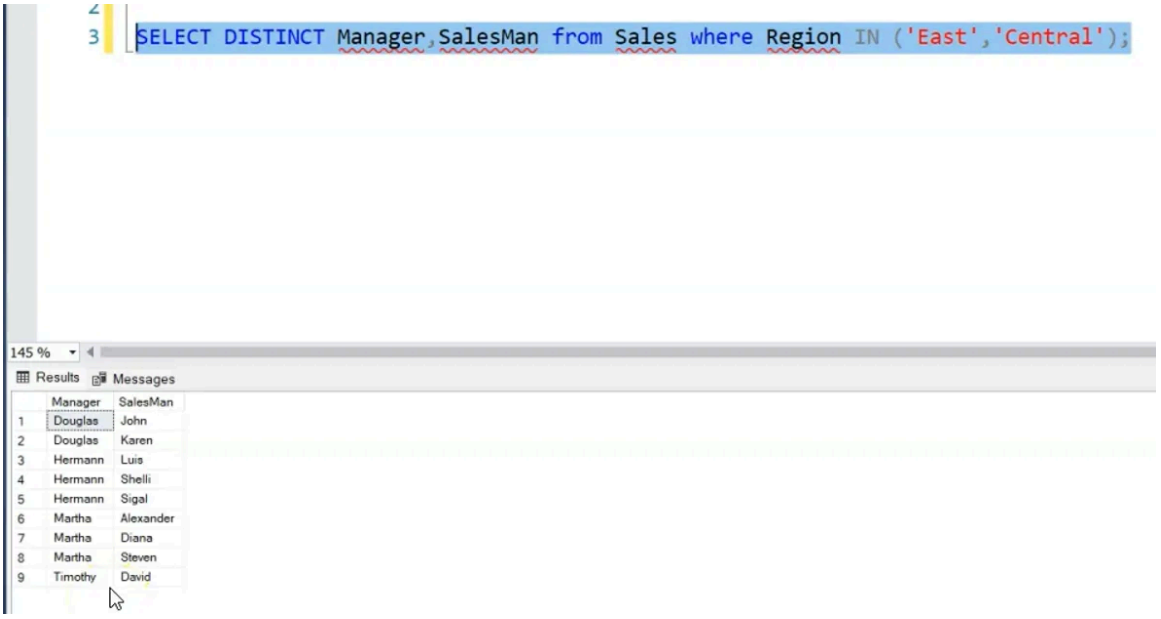
The `IN` operator allows you to filter rows where a column matches **any value in a specified list**.

✅ Syntax:

```
SELECT column1, column2
FROM table_name
WHERE column_name IN (value1, value2, ...) ;
```

📌 Example:

```
SELECT DISTINCT Manager, Salesman
FROM Sales
WHERE Region IN ('East', 'Central');
```



✔️ Returns unique combinations of Manager and SalesMan where the Region is either East or Central.

🔷 2. BETWEEN Operator

✅ Definition:

`BETWEEN` filters rows where a value is within a **range (inclusive)**. You can use it on **numbers, dates, or text**.

✅ Syntax:

```
SELECT * FROM table_name
WHERE column_name BETWEEN value1 AND value2;
```

📌 Examples:

a) Filter by Units:

```
SELECT * FROM Sales
WHERE Units BETWEEN 50 AND 70;
```

```
SELECT * FROM SALES WHERE UNITS BETWEEN 50 AND 70;
```

145 %

Results | Messages

	OrderDate	Region	Manager	SalesMan	Item	Units	Unit_price	Sale_amt
1	2018-01-23	Central	Hermann	Shelli	Home Theater	50	500	25000
2	2018-03-15	West	Timothy	Stephen	Television	56	1198	67088
3	2018-04-01	East	Martha	Alexander	Home Theater	60	500	30000
4	2018-06-08	East	Martha	Alexander	Home Theater	60	500	30000
5	2018-10-22	East	Martha	Alexander	Cell Phone	64	225	14400
6	2018-12-12	Central	Douglas	John	Television	67	1198	80266

✔ Gets rows with unit values between 50 and 70.

b) Not Between:

SELECT * FROM Sales
WHERE Units NOT BETWEEN 50 AND 100;

```
SELECT * FROM SALES WHERE UNITS NOT BETWEEN 50 AND 100;
```

145 %

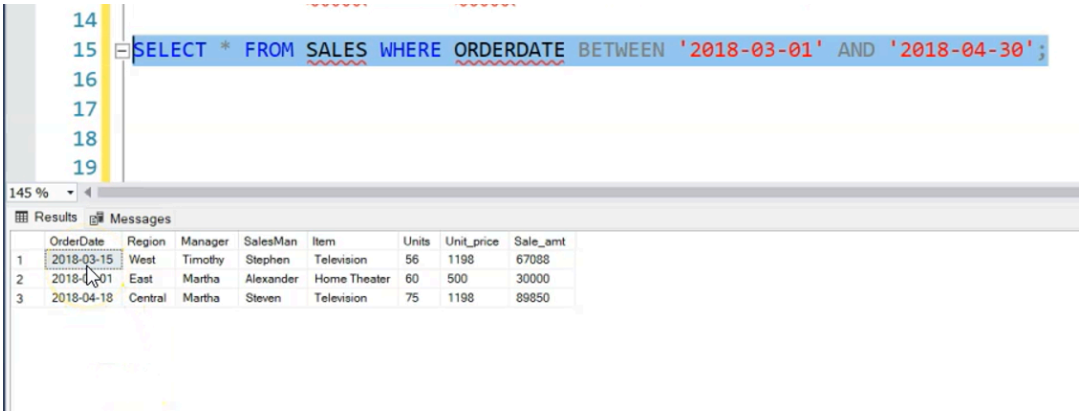
Results | Messages

	OrderDate	Region	Manager	SalesMan	Item	Units	Unit_price	Sale_amt
1	2018-02-09	Central	Hermann	Luis	Television	36	1198	43128
2	2018-02-26	Central	Timothy	David	Cell Phone	27	225	6075
3	2018-05-22	West	Douglas	Michael	Television	32	1198	38336
4	2018-07-12	East	Martha	Diana	Home Theater	29	500	14500
5	2018-08-15	East	Martha	Alexander	Television	35	1198	41930
6	2018-09-01	Central	Douglas	John	Desk	2	125	250

✔ Gets rows where units are either **< 50 or > 100**.

c) Filter by Order Date:

SELECT * FROM Sales
WHERE OrderDate BETWEEN '2018-03-01' AND '2018-04-30';



✔️ Returns sales made between March and April 2018.

🔷 3. LIKE Operator (Pattern Matching)

✅ Definition:

`LIKE` is used to search for a **pattern** in a column (usually `VARCHAR` or `TEXT`).

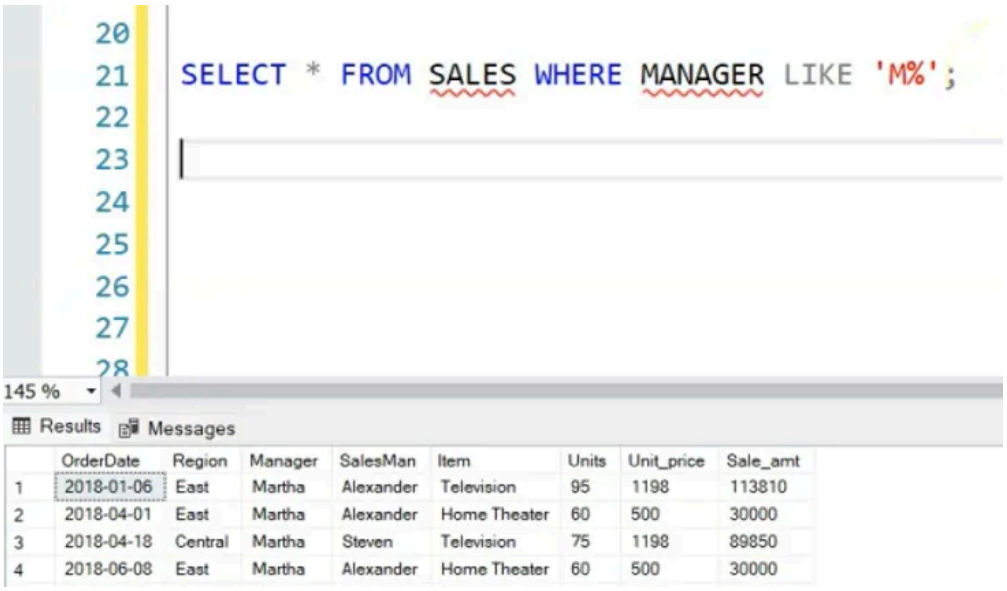
✅ Syntax:

```
SELECT * FROM table_name
WHERE column_name LIKE 'pattern';
```

📌 Examples:

a) Starts with 'M':

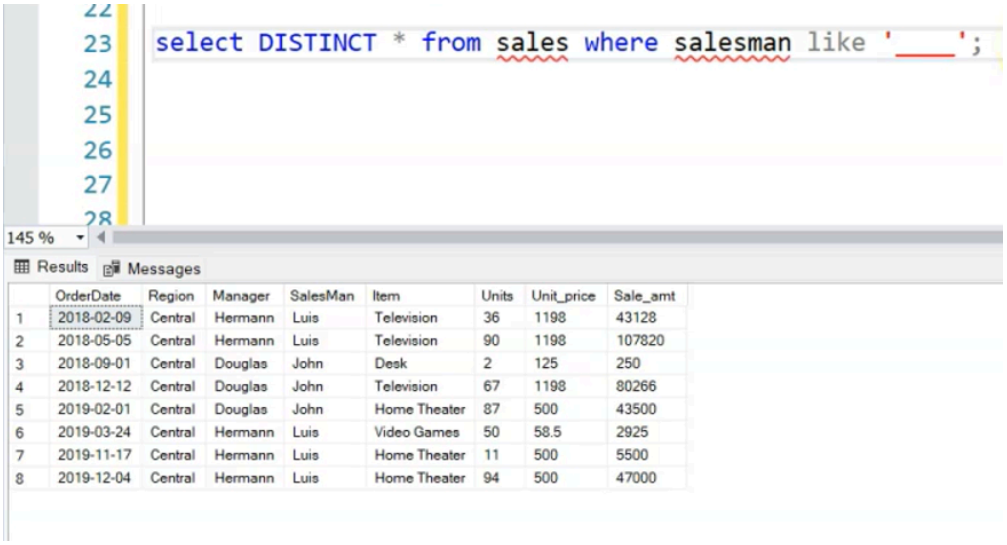
```
SELECT DISTINCT * FROM Sales
WHERE SalesMan LIKE 'M%';
```



✔️ Matches names like **Michael, Martha, etc.**

b) Exactly 7-character names:

SELECT DISTINCT * FROM Sales
WHERE SalesMan LIKE '_____';

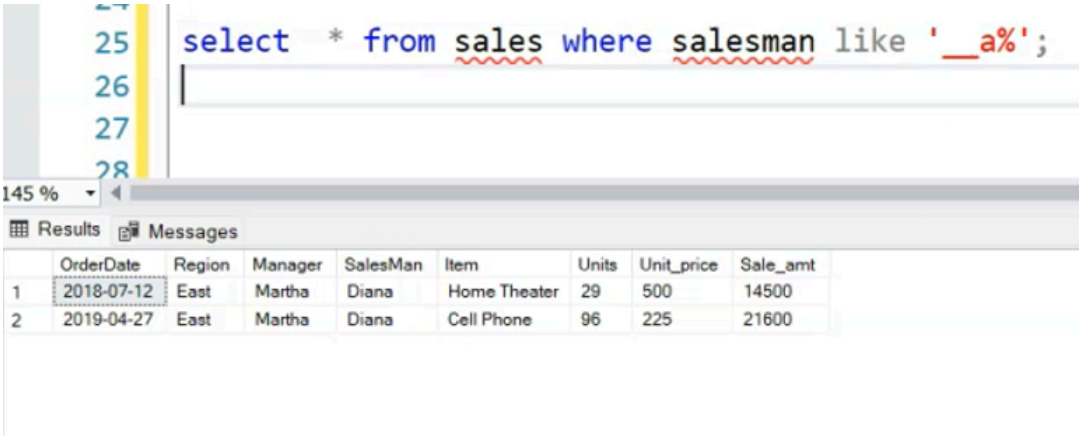


	OrderDate	Region	Manager	SalesMan	Item	Units	Unit_price	Sale_amt
1	2018-02-09	Central	Hermann	Luis	Television	36	1198	43128
2	2018-05-05	Central	Hermann	Luis	Television	90	1198	107820
3	2018-09-01	Central	Douglas	John	Desk	2	125	250
4	2018-12-12	Central	Douglas	John	Television	67	1198	80266
5	2019-02-01	Central	Douglas	John	Home Theater	87	500	43500
6	2019-03-24	Central	Hermann	Luis	Video Games	50	58.5	2925
7	2019-11-17	Central	Hermann	Luis	Home Theater	11	500	5500
8	2019-12-04	Central	Hermann	Luis	Home Theater	94	500	47000

✔️ Matches names that are **exactly 7 characters** long.

c) Third character is 'a':

SELECT DISTINCT * FROM Sales
WHERE SalesMan LIKE '__a%';



	OrderDate	Region	Manager	SalesMan	Item	Units	Unit_price	Sale_amt
1	2018-07-12	East	Martha	Diana	Home Theater	29	500	14500
2	2019-04-27	East	Martha	Diana	Cell Phone	96	225	21600

✔️ Matches names where **3rd character is 'a'**, like **Diana**.

🎯 Wildcards in LIKE

Wildcard	Meaning	Example Pattern	Matches Examples
`%`	Any number of characters	`'M%'`	Martha, Michael
`_`	Exactly one character	`'__a%'`	Diana, Alexander
`[a-c]`	Any single char in the range	`'[A-C]%'`	Alice, Bob, Carl
`[^a-c]`	Any char **not** in range	`'[^A-C]%'`	Names not starting with A, B, or C

> 🔔 Note: The last two patterns ([ ]) work in SQL Server but not in all database engines.

✅ Summary – Key Learnings

Operator	Use	Example
`IN`	Match values from a list	`WHERE Region IN ('East', 'West')`
`BETWEEN`	Match values within a range	`WHERE Units BETWEEN 50 AND 100`
`LIKE`	Match text patterns with wildcards	`WHERE SalesMan LIKE 'M%'`