



CASE Statements

- Simple CASE Expression
- Searched CASE Expression
- Nesting CASE Statements



CASE Definition

- A CASE statement evaluates a list of conditions and returns the first condition that resolves to true
- The statement can contain one or more WHEN conditions. WHEN...THEN condition is similar to an IF...THEN condition
- If no condition resolves to true then the ELSE condition resolves. If there is no ELSE condition then the statement returns NULL
- The CASE statement has two syntax modes
 - Simple CASE expression
 - Searched CASE expression



Simple CASE Statement

- Syntax is the CASE keyword immediately followed by the column or expression name
- Allows only an equality check
- Checks each WHEN clause against the input expression value
- Returns the result of the first expression to resolve to true
- If no expression returns true then the else result returns true

```
Simple CASE expression:  
CASE input_expression  
    WHEN when_expression THEN result_expression [ ...n ]  
    [ ELSE else_result_expression ]  
END
```

Simple CASE Example

- CASE keyword is immediately followed by the Country column
- Each WHEN keyword is followed by the value to search for. No operators (e.g. = <>) are allowed
- All CASE statements must be terminated with the END keyword

```
SELECT
    FirstName
    , LastName
    , Country
    , CASE Country
        WHEN 'Brazil' THEN 'South America'
        WHEN 'Argentina' THEN 'South America'
        WHEN 'Chile' THEN 'South America'
        WHEN 'USA' THEN 'North America'
        WHEN 'Canada' THEN 'North America'
    END AS Continent
FROM Customer
```

	FirstName	LastName	Country	Continent
1	Luis	Gonçalves	Brazil	South America
2	Leonie	Köhler	Germany	NULL
3	François	Tremblay	Canada	North America
4	Bjørn	Hansen	Norway	NULL
5	František	Wichterlová	Czech Republic	NULL
6	Helena	Holý	Czech Republic	NULL
7	Astrid	Gruber	Austria	NULL
8	Daan	Peeters	Belgium	NULL
9	Kara	Nielsen	Denmark	NULL
10	Eduardo	Martins	Brazil	South America
11	Alexandre	Rocha	Brazil	South America
12	Roberto	Almeida	Brazil	South America
13	Fernanda	Ramos	Brazil	South America
14	Mark	Philips	Canada	North America
15	Jennifer	Peterson	Canada	North America
16	Frank	Hamis	USA	North America
17	Jack	Smith	USA	North America

Simple CASE with ELSE

- The ELSE keyword resolves when none of the WHEN THEN clauses resolve to true
- ELSE is inserted after all the WHEN THEN clauses

```
SELECT
  FirstName
, LastName
, Country
, CASE Country
  WHEN 'Brazil' THEN 'South America'
  WHEN 'Argentina' THEN 'South America'
  WHEN 'Chile' THEN 'South America'
  WHEN 'USA' THEN 'North America'
  WHEN 'Canada' THEN 'North America'
  ELSE 'Unknown'
END AS Continent
FROM Customer
```

	FirstName	LastName	Country	Continent
1	Luis	Gonçalves	Brazil	South America
2	Leonie	Köhler	Germany	Unknown
3	François	Tremblay	Canada	North America
4	Bjorn	Hansen	Norway	Unknown
5	František	Wichterlová	Czech Republic	Unknown
6	Helena	Holý	Czech Republic	Unknown
7	Astrid	Gruber	Austria	Unknown
8	Daan	Peeters	Belgium	Unknown
9	Kara	Nielsen	Denmark	Unknown
10	Eduardo	Martins	Brazil	South America
11	Alexandre	Rocha	Brazil	South America
12	Roberto	Almeida	Brazil	South America
13	Fernanda	Ramos	Brazil	South America
14	Mark	Philips	Canada	North America
15	Jennifer	Peterson	Canada	North America
16	Frank	Harris	USA	North America
17	Jack	Smith	USA	North America



Searched CASE Statement

- Evaluates, in the order specified, *Boolean_expression* for each WHEN clause.
- Returns *result_expression* of the first *Boolean_expression* that evaluates to TRUE.
- If no *Boolean_expression* evaluates to TRUE, the Database Engine returns the *else_result_expression* if an ELSE clause is specified, or a NULL value if no ELSE clause is specified.

Searched CASE expression:

CASE

 WHEN *Boolean_expression* THEN *result_expression* [...n]
 [ELSE *else_result_expression*]

END

Searched CASE Example

- Searched CASE statements have no input expression. The CASE keyword is followed immediately by a WHEN keyword
- You can use WHERE clause style logic within a WHEN clause

```
SELECT DISTINCT
  Country
, CASE
  WHEN Country IN('Brazil','Argentina','Chile') THEN 'South America'
  WHEN Country IN('USA','Canada') THEN 'North America'
  WHEN Country = 'India' THEN 'Asia'
  WHEN Country = 'Australia' THEN Country
  END Region
FROM Customer
ORDER BY
  Country
```

	Country	Region
1	Argentina	South America
2	Australia	Australia
3	Austria	NULL
4	Belgium	NULL
5	Brazil	South America
6	Canada	North America
7	Chile	South America
8	Czech Republic	NULL
9	Denmark	NULL
10	Finland	NULL
11	France	NULL
12	Germany	NULL

	Country	Region
13	Hungary	NULL
14	India	Asia
15	Ireland	NULL
16	Italy	NULL
17	Netherlands	NULL
18	Norway	NULL
19	Poland	NULL
20	Portugal	NULL
21	Spain	NULL
22	Sweden	NULL
23	United Kingdom	NULL
24	USA	North America

Searched CASE with ELSE

- The ELSE keyword resolves when none of the WHEN THEN clauses resolve to true
- ELSE is inserted after all the WHEN THEN clauses

```
SELECT DISTINCT
  Country
, CASE
  WHEN Country IN('Brazil', 'Argentina', 'Chile') THEN 'South America'
  WHEN Country IN('USA', 'Canada') THEN 'North America'
  WHEN Country = 'India' THEN 'Asia'
  WHEN Country = 'Australia' THEN Country
  ELSE 'Europe'
END Region
FROM Customer
ORDER BY
  Country
```

	Country	Region
1	Argentina	South America
2	Australia	Australia
3	Austria	Europe
4	Belgium	Europe
5	Brazil	South America
6	Canada	North America
7	Chile	South America
8	Czech Republic	Europe
9	Denmark	Europe
10	Finland	Europe
11	France	Europe
12	Germany	Europe

	Country	Region
13	Hungary	Europe
14	India	Asia
15	Ireland	Europe
16	Italy	Europe
17	Netherlands	Europe
18	Norway	Europe
19	Poland	Europe
20	Portugal	Europe
21	Spain	Europe
22	Sweden	Europe
23	United Kingdom	Europe
24	USA	North America

Nesting CASE Statements

- CASE statements can be nested within one another
- You can nest up to 10 levels deep with a CASE statement
- Only Searched CASE statements can be nested

```
SELECT DISTINCT
  Country, State
, CASE
  WHEN Country IN ('Brazil', 'Argentina', 'Chile') THEN 'South America'
  WHEN Country = 'USA' THEN
    CASE
      WHEN State IN ('CA', 'NV', 'WA') THEN 'USA-West'
      WHEN State IN ('MA', 'NY') THEN 'USA-Northeast'
      WHEN State IN ('TX', 'AZ') THEN 'USA-Southwest'
      ELSE 'USA-Other'
    END
  WHEN Country IN ('Canada') THEN 'North America'
  WHEN Country = 'India' THEN 'Asia'
  WHEN Country = 'Australia' THEN Country
  ELSE 'Europe'
END Region
FROM Customer
ORDER BY
  Country DESC, Region, State
```

	Country	State	Region
1	USA	MA	USA-Northeast
2	USA	NY	USA-Northeast
3	USA	FL	USA-Other
4	USA	IL	USA-Other
5	USA	UT	USA-Other
6	USA	WI	USA-Other
7	USA	AZ	USA-Southwest
8	USA	TX	USA-Southwest
9	USA	CA	USA-West
10	USA	NV	USA-West
11	USA	WA	USA-West
12	United Kingdom	NULL	Europe

	Country	State	Region
13	Sweden	NULL	Europe
14	Spain	NULL	Europe
15	Portugal	NULL	Europe
16	Poland	NULL	Europe
17	Norway	NULL	Europe
18	Netherlands	VV	Europe
19	Italy	RM	Europe
20	Ireland	Dublin	Europe
21	India	NULL	Asia
22	Hungary	NULL	Europe
23	Germany	NULL	Europe
24	France	NULL	Europe

	Country	State	Region
25	Finland	NULL	Europe
26	Denmark	NULL	Europe
27	Czech Republic	NULL	Europe
28	Chile	NULL	South America
29	Canada	AB	North America
30	Canada	BC	North America
31	Canada	MB	North America
32	Canada	NS	North America
33	Canada	NT	North America
34	Canada	ON	North America
35	Canada	QC	North America
36	Brazil	DF	South America



Summary

- Simple CASE Expression
- Searched CASE Expression
- Nesting CASE Statements