SQL Lesson 4

- operator CASE
- operations with time / datetime
- ORDER BY
- extract first N and last N rows

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Operator CASE
The order of operation

Pattern

```
SELECT
    CASE
        WHEN condition_1 THEN result_1
        WHEN condition_2 THEN result_2
        WHEN condition_N THEN result_N
        ELSE result
    END
FROM
    table_name
```

Source_table   **Target_table**   **Third_table**

Amount Currency1 Currency2   Amount Currency1 Currency2 Type_of_operation   Currency   Type (crypto, fiat)

Step 1. (tmp view) - a column of currencies   *Step 2. (tmp view)*
$cryptos = $fiats =

SELECT currency   SELECT currency   With cryptos as (define a query)
FROM Third_table   FROM Third_table
WHERE type == 'crypto'   WHERE type == 'fiat'

Step 3.

SELECT a.*,

CASE

    WHEN (currency1 in $cryptos) and (currency1 in $cryptos) THEN 'SWAP'

    WHEN … THEN 'SELL'

    WHEN … THEN 'BUY'

    ELSE 'ouliers'

END as operation_type

FROM source_table as a

Operator CASE

Example

```
SELECT
    is_super_host
    , CASE
        WHEN is_super_host = 't' THEN 1
        WHEN is_super_host = 'f' THEN 0
        ELSE NULL
    END AS is_super_host_cleaned
FROM
    hosts
```

Result

is_super_host	is_super_host_cleaned
f	0
t	1
yes	Null
...	...

Operator CASE

Example

```sql
SELECT minimum_nights
    , CASE
        WHEN minimum_nights < 3 THEN
        '1-2 minimum nights'
        WHEN minimum_nights BETWEEN
        3 AND 5 THEN '3-5 minimum nights'
        WHEN minimum_nights >= 6 THEN
        '6+ minimum nights'
        ELSE 'No information'
    END AS min_nights_group
FROM listings
```

Between 3 and 5 <-> 3 <= min_nigths <= 5

Result

minimum_nights	min_nights_group
10	6+ minimum nights
2	1-2 minimum nights
3	3-5 minimum nights
0	1-2 minimum nights
Null	No information
...	...

Operator CASE

Wrong example of CASE usage

Example

```sql
SELECT minimum_nights
    , CASE
        WHEN minimum_nights >= 3 THEN
        '3-5 minimum nights'
        WHEN minimum_nights >= 6 THEN
        '6+ minimum nights'
        ELSE 'No information'
    END AS min_nights_group
FROM listings
```

Result

minimum_nights	min_nights_group
10	3-5 minimum nights
6	3-5 minimum nights
3	3-5 minimum nights
...	...

Datetime operations
NOW

Example #1

```
SELECT
    DATE('now')
```

Example #2

```
SELECT
    TIME('now')
```

Example #3

```
SELECT
    DATETIME('now')
```

Datetime operations
NOW

Example #1

```
SELECT
    DATE('now') AS
    current_date
```

Example #2

```
SELECT
    TIME('now') AS
    current_time
```

Example #3

```
SELECT
    DATETIME('now') AS
    current_datetime
```

Datetime operations
NOW

Result #1   **Result #2**   **Result #3**

DATE('now')	DATETIME('now')	TIME('now')
2023-01-26	2023-01-26 15:38:35	15:38:35

1.01.1970 - now —> timestamp 215487345999

Datetime operations
NOW

Example #1

```
SELECT
    DATE ('now',
    'modifier_1', ...)
```

Example #2

```
SELECT
    TIME('now',
    'modifier_1', ...)
```

Example #3

```
SELECT
    DATETIME('now',
    'modifier_1', ...)
```

Datetime operations
NOW

Example #1

```
SELECT
    DATE('now', 'start of
    month') AS
    start_of_month
```

Example #2

```
SELECT
    TIME('now', '+7
    hours', '+5
    seconds') AS
    new_time
```

Example #3

```
SELECT
    DATETIME('now', 'start
    of day', 'weekday 1') AS
    monday_date
```

Datetime operations
NOW

Results

DATE('now')	start_of_month	DATETIME('now')	monday_date	TIME('now')	new_time
2023-01-26	2023-01-01	2023-01-26 15:47…	2023-01-30 00:00…	15:47:29	22:47:34

Switch to practice

Datetime operations
General datetime

Pattern

```
SELECT
    DATETIME('date',
    'modifier_1', ...)
```

Example

```
SELECT
    DATETIME('2019-12
    -13 03:30:29', 'start
    of month') AS
    start_of_month
```

Result

start_of_month
2019-12-01 00:00:00

Datetime operations
General datetime

| Pattern | Example | Result |

Pattern

```
SELECT
    DATETIME(date_col
umn, 'modifier_1', …)
FROM
    table_name
```

Example

```
SELECT
    host_since
    , DATE(host_since, 'start
of month') AS
start_of_month
FROM
    hosts
```

Result

host_since	start_of_month
2019-12-11	2019-12-01
…	…

Switch to practice

ORDER BY and LIMIT operators
ORDER BY one column

Pattern

```
SELECT *
FROM
    listings
ORDER BY
    price
```

Example

```
SELECT *
FROM
    listings
ORDER BY
    price ASC
```

ORDER BY and LIMIT operators
ORDER BY one column

Pattern

```
SELECT *
FROM
    table_name
ORDER BY
    column_name DESC
```

Example

```
SELECT *
FROM
    listings
ORDER BY
    price DESC
```

Result

id	...	price
34543	...	10000
23345	...	8500
34346	...	7600
34345	...	7600
...	...	...

ORDER BY and LIMIT operators
ORDER BY two columns

Pattern

```
SELECT *
FROM
    table_name
ORDER BY
    column_name(s)
```

Example

```
SELECT *
FROM
    listings
ORDER BY
    minimum_nights
    , price
```

Result

...	price	minimum_nights
...	0	1
...	9	1
...	9	1
...	10	1
...	...	...

ORDER BY and LIMIT operators
ORDER BY two columns

Pattern

```
SELECT *
FROM
    table_name
ORDER BY
    1, 2, ...
```

Example

```
SELECT
    price
    , minimum_nights
FROM
    listings
ORDER BY
    1, 2
```

Result

price	minimum_nights
0	1
9	1
9	1
10	1
...	...

ORDER BY and LIMIT operators

First N and last N rows

Pattern

```
SELECT *
FROM
    table_name
ORDER BY
    column_name DESC
LIMIT N
```

Example

```
SELECT *
FROM
    listings
ORDER BY
    price DESC
LIMIT 5
```

Result

id	...	price
34543	...	10000
23345	...	8500
34346	...	7600
34345	...	7600
78979	...	7547

ORDER BY and LIMIT operators

First N and last N rows

Pattern

```
SELECT *
FROM
    table_name
ORDER BY
    column_name ASC
LIMIT N
```

Example

```
SELECT *
FROM
    listings
ORDER BY
    price
LIMIT 3
```

Result

id	...	price
34823	...	0
23472	...	10
34504	...	20