

Раздел 11

CASE и другие темы

Видеокурс: <https://stepik.org/a/130488>

CASE

Другие языки программирования:

```
IF    условие_1 THEN действие_1  
ELIF условие_2 THEN действие_2  
ELIF условие_3 THEN действие_3  
ELSE                           действие_4
```

SQL:

```
CASE WHEN условие_1 THEN значение_1  
      WHEN условие_2 THEN значение_2  
      WHEN условие_3 THEN значение_3  
      ELSE                   значение_4  
END
```

album

CASE - пример

Результат

album_id	name	band_id	year
19318	The Black Album	93	1991
18725	Master of Puppets	93	1986
297418	A Kind of Magic	192	1986
54326	Queen II	192	1974
74821	Sheer Heart Attack	192	1974

album_id	name	band_id	b_93	b_192
19318	The Black Album	93	1	0
18725	Master of Puppets	93	1	0
297418	A Kind of Magic	192	0	1
54326	Queen II	192	0	1
74821	Sheer Heart Attack	192	0	1

```

SELECT album_id, name, band_id,
CASE WHEN band_id=93 THEN 1 ELSE 0 END as b_93,
CASE WHEN band_id=192 THEN 1 ELSE 0 END as b_192
FROM album as a
    
```

CASE - разные формы

```
CASE WHEN условие_1 THEN значение_1  
      WHEN условие_2 THEN значение_2  
      WHEN условие_3 THEN значение_3  
      ELSE               значение_4  
END
```

CASE колонка_или_выражение

```
WHEN тестируемое_значение_1 THEN возвращаемое_значение_1
WHEN тестируемое_значение_2 THEN возвращаемое_значение_2
WHEN тестируемое_значение_3 THEN возвращаемое_значение_3
ELSE возвращаемое_значение_4
END
```

album

CASE - пример

Результат

album_id	name	band_id	year
19318	The Black Album	93	1991
18725	Master of Puppets	93	1986
297418	A Kind of Magic	192	1986
54326	Queen II	192	1974
74821	Sheer Heart Attack	192	1974

album_id	name	band_id	b_93	b_192
19318	The Black Album	93	1	0
18725	Master of Puppets	93	1	0
297418	A Kind of Magic	192	0	1
54326	Queen II	192	0	1
74821	Sheer Heart Attack	192	0	1

```

SELECT album_id, name, band_id,
CASE band_id WHEN 93 THEN 1 ELSE 0 END as b_93,
CASE band_id WHEN 192 THEN 1 ELSE 0 END as b_192
FROM album as a
    
```

CTE - Common Table Expression (WITH...)

Можно ли упростить подзапросы?

```
SELECT SUM(album_count),
       COUNT(*)
  FROM (
    SELECT band_id,
           COUNT(*) as album_count
      FROM album as a
     GROUP BY 1
  ) as subquery
```

Результат

Количество альбомов	Количество музыкальных групп
121 918	36 882

Можно ли упростить подзапросы?

```
SELECT SUM(album_count),  
       COUNT(*)
```

```
FROM (
```

```
        SELECT band_id,           Запрос №1  
              COUNT(*) as album_count  
        FROM album as a  
    GROUP BY 1
```

```
) as subquery
```

Результат

Количество альбомов	Количество музыкальных групп
121 918	36 882

Можно ли упростить подзапросы?

```
SELECT SUM(album_count),  
       COUNT(*)  
  FROM (  
    SELECT band_id,  
          COUNT(*) as album_count  
     FROM album as a  
    GROUP BY 1  
) as subquery
```

Запрос №2

Запрос №1

Результат

Количество альбомов	Количество музыкальных групп
121 918	36 882

Промежуточные таблицы

```
SELECT SUM(album_count),  
       COUNT(*)  
  FROM (  
    SELECT band_id,  
          COUNT(*) as album_count  
     FROM album as a  
    GROUP BY 1  
) as subquery
```

```
CREATE TABLE table_1 as  
  SELECT band_id,  
         COUNT(*) as album_count  
    FROM album as a  
   GROUP BY 1  
;  
  
  SELECT SUM(album_count),  
         COUNT(*)  
    FROM table_1  
;  
DROP TABLE table_1 ;
```

Промежуточные таблицы

```
SELECT SUM(album_count),  
       COUNT(*)  
FROM (  
    SELECT band_id,           Запрос №1  
          COUNT(*) as album_count  
     FROM album as a  
   GROUP BY 1  
) as subquery
```

```
CREATE TABLE table_1 as  
SELECT band_id,           Запрос №1  
       COUNT(*) as album_count  
  FROM album as a  
 GROUP BY 1;  
  
SELECT SUM(album_count),  
       COUNT(*)  
  FROM table_1;  
;  
DROP TABLE table_1 ;
```

Промежуточные таблицы

```
SELECT SUM(album_count),  
       COUNT(*)  
  FROM (  
    SELECT band_id,  
          COUNT(*) as album_count  
     FROM album as a  
    GROUP BY 1  
) as subquery
```

Запрос №2

```
CREATE TABLE table_1 as  
  SELECT band_id,  
         COUNT(*) as album_count  
    FROM album as a  
   GROUP BY 1  
;  
  
Запрос №2  
SELECT SUM(album_count),  
       COUNT(*)  
  FROM table_1  
;  
DROP TABLE table_1 ;
```

Промежуточные таблицы

```
SELECT SUM(album_count),  
       COUNT(*)  
  FROM (  
    SELECT band_id,  
          COUNT(*) as album_count  
     FROM album as a  
    GROUP BY 1  
) as subquery
```

```
CREATE TABLE table_1 as  
  SELECT band_id,  
         COUNT(*) as album_count  
    FROM album as a  
   GROUP BY 1  
;  
  
  SELECT SUM(album_count),  
         COUNT(*)  
    FROM table_1  
;  
DROP TABLE table_1 ;
```

Важно
не забыть!

CTE - Common Table Expression

```
SELECT SUM(album_count),  
       COUNT(*)  
  FROM (  
    SELECT band_id,  
          COUNT(*) AS album_count  
     FROM album AS a  
    GROUP BY 1  
) AS subquery
```

```
WITH table_1 AS (  
  SELECT band_id,  
         COUNT(*) AS album_count  
    FROM album AS a  
   GROUP BY 1  
)  
SELECT SUM(album_count),  
       COUNT(*)  
  FROM table_1
```

CTE - Common Table Expression

```
SELECT SUM(album_count),  
       COUNT(*)  
  FROM (  
    SELECT band_id,           Запрос №1  
          COUNT(*) as album_count  
     FROM album as a  
    GROUP BY 1  
) as subquery
```

```
WITH table_1 as (  
  SELECT band_id,           Запрос №1  
        COUNT(*) as album_count  
   FROM album as a  
  GROUP BY 1  
)  
SELECT SUM(album_count),  
       COUNT(*)  
  FROM table_1
```

CTE - Common Table Expression

```
SELECT SUM(album_count),  
       COUNT(*)  
  FROM (  
    SELECT band_id,  
          COUNT(*) as album_count  
     FROM album as a  
    GROUP BY 1  
) as subquery
```

Запрос №2

```
WITH table_1 as (  
  SELECT band_id,  
         COUNT(*) as album_count  
    FROM album as a  
   GROUP BY 1  
)  
SELECT SUM(album_count),  
       COUNT(*)  
  FROM table_1
```

Запрос №2

Несколько СТЕ

```
WITH table_1 as (
    SELECT band_id,
           COUNT(*) as album_count
    FROM album as a
   GROUP BY 1
),
table_2 as (
    SELECT SUM(album_count) as a_c,
           COUNT(*) as counter
    FROM table_1
)
SELECT *
    FROM table_2
```

Несколько СТЕ

```
WITH table_1 as ( Запрос №1
    SELECT band_id,
           COUNT(*) as album_count
      FROM album as a
   GROUP BY 1
),
```

```
table_2 as (
    SELECT SUM(album_count) as a_c,
           COUNT(*) as counter
      FROM table_1
)
SELECT *
      FROM table_2
```

Несколько СТЕ

```
WITH table_1 as (
    SELECT band_id,
           COUNT(*) as album_count
    FROM album as a
   GROUP BY 1
),
table_2 as ( Запрос №2
    SELECT SUM(album_count) as a_c,
           COUNT(*) as counter
    FROM table_1
)
SELECT *
    FROM table_2
```

Несколько СТЕ

```
WITH table_1 as (
    SELECT band_id,
           COUNT(*) as album_count
    FROM album as a
   GROUP BY 1
),
table_2 as (
    SELECT SUM(album_count) as a_c,
           COUNT(*) as counter
    FROM table_1
)
```

```
SELECT *
      FROM table_2
```

Запрос №3

Несколько СТЕ

СТЕ №1

{

СТЕ №2

{

Основной
запрос

{

```
WITH table_1 as (
    SELECT band_id,
           COUNT(*) as album_count
    FROM album as a
   GROUP BY 1
),
table_2 as (
    SELECT SUM(album_count) as a_c,
           COUNT(*) as counter
    FROM table_1
)
SELECT *
    FROM table_2
```

Запрос №3

Несколько СТЕ

```
SELECT *  
FROM (  
    SELECT SUM(album_count) as a_c,  
          COUNT(*) as counter  
    FROM (  
        SELECT band_id,  
              COUNT(*) as album_count  
        FROM album as a  
        GROUP BY 1  
    ) as table_1  
) as table_2
```

Три SELECT-а

```
WITH table_1 as (  
    SELECT band_id,  
          COUNT(*) as album_count  
    FROM album as a  
    GROUP BY 1  
)  
,  
table_2 as (  
    SELECT SUM(album_count) as a_c,  
          COUNT(*) as counter  
    FROM table_1  
)  
SELECT *  
FROM table_2
```

Несколько СТЕ

```
SELECT *  
FROM (  
    SELECT SUM(album_count) as a_c,  
          COUNT(*) as counter  
    FROM (  
        SELECT band_id,           Запрос №1  
              COUNT(*) as album_count  
        FROM album as a  
      GROUP BY 1  
    ) as table_1  
) as table_2
```

```
WITH table_1 as (           Запрос №1  
    SELECT band_id,  
          COUNT(*) as album_count  
    FROM album as a  
  GROUP BY 1  
,  
  table_2 as (  
    SELECT SUM(album_count) as a_c,  
          COUNT(*) as counter  
    FROM table_1  
)  
SELECT *  
FROM table_2
```

Несколько СТЕ

```
SELECT *  
FROM (  
    SELECT SUM(album_count) as a_c,  
          COUNT(*) as counter  
    FROM (  
        SELECT band_id,  
              COUNT(*) as album_count  
        FROM album as a  
        GROUP BY 1  
    ) as table_1  
) as table_2
```

Запрос №2

```
WITH table_1 as (  
    SELECT band_id,  
          COUNT(*) as album_count  
    FROM album as a  
    GROUP BY 1  
),  
table_2 as (  
    SELECT SUM(album_count) as a_c,  
          COUNT(*) as counter  
    FROM table_1  
  
SELECT *  
FROM table_2
```

Запрос №2

Несколько СТЕ

```
SELECT *                                         Запрос №3
FROM (
    SELECT SUM(album_count) as a_c,
           COUNT(*) as counter
    FROM (
        SELECT band_id,
               COUNT(*) as album_count
        FROM album as a
       GROUP BY 1
    ) as table_1
) as table_2
```

```
WITH table_1 as (
    SELECT band_id,
           COUNT(*) as album_count
        FROM album as a
   GROUP BY 1
),
table_2 as (
    SELECT SUM(album_count) as a_c,
           COUNT(*) as counter
        FROM table_1
)
```

**SELECT *
FROM table_2**

Вложенный
подзапрос:

```
SELECT SUM(album_count), COUNT(*)  
  FROM ( SELECT band_id, COUNT(*) as album_count  
        FROM album as a  
       GROUP BY 1  
    ) as subquery
```

Вложенный
подзапрос:

```
SELECT SUM(album_count), COUNT(*)  
  FROM ( SELECT band_id, COUNT(*) as album_count  
           FROM album as a  
      GROUP BY 1  
    ) as subquery
```

Промежуточная таблица:

```
CREATE TABLE table_1 as  
  SELECT band_id,  
         COUNT(*) as album_count  
   FROM album as a  
  GROUP BY 1  
;  
SELECT SUM(album_count), COUNT(*)  
  FROM table_1  
;  
DROP TABLE table_1 ;
```

Вложенный подзапрос:

```
SELECT SUM(album_count), COUNT(*)  
FROM ( SELECT band_id, COUNT(*) as album_count  
      FROM album as a  
     GROUP BY 1  
 ) as subquery
```

Промежуточная таблица:

```
CREATE TABLE table_1 as  
SELECT band_id,  
       COUNT(*) as album_count  
  FROM album as a  
 GROUP BY 1  
;  
SELECT SUM(album_count), COUNT(*)  
  FROM table_1  
;  
DROP TABLE table_1 ;
```

CTE - Common Table Expression

```
WITH table_1 as (  
    SELECT band_id,  
           COUNT(*) as album_count  
      FROM album as a  
     GROUP BY 1  
)  
SELECT SUM(album_count),  
       COUNT(*)  
  FROM table_1
```