

## Движки MergeTree Family

1) Требуется значения

UserID	PageViews	Duration	Sign	Version
4324182021466249494	5	146	1	1
4324182021466249494	6	185	1	2

UserID	PageViews	Duration	Sign	Version
4324182021466249494	5	146	-1	1

Смержить в

UserID	PageViews	Duration	Sign	Version
4324182021466249494	6	185	1	2

Выбираем VersionedCollapsingMergeTree:

```
CREATE TABLE tbl1
(
  `UserID` UInt64,
  `PageViews` UInt8,
  `Duration` UInt8,
  `Sign` Int8,
  `Version` UInt8
)
ENGINE = VersionedCollapsingMergeTree(Sign, Version)
ORDER BY UserID;

INSERT INTO tbl1 VALUES (4324182021466249494, 5, 146, -1, 1);
INSERT INTO tbl1 VALUES (4324182021466249494, 5, 146, 1,
1),(4324182021466249494, 6, 185, 1, 2);
```

```
SELECT * FROM tbl1;
```

1.	UserID	PageViews	Duration	Sign	Version
	4324182021466249494	5	146	-1	1
2.	4324182021466249494	5	146	1	1
3.	4324182021466249494	6	185	1	2

```
SELECT * FROM tbl1 final;
```

1.	UserID	PageViews	Duration	Sign	Version
	4324182021466249494	6	185	1	2

2) Требуется значения  $(1, 1)$ ,  $(1, 2)$ ,  $(2, 1)$  просуммировать в

key	value
1	3
2	1

Выбираем SummingMergeTree:

```
CREATE TABLE tbl2
```

```
(
```

```
    `key` UInt32,
```

```
    `value` UInt32
```

```
)
```

```
ENGINE = SummingMergeTree(value)
```

```
ORDER BY key;
```

```
INSERT INTO tbl2 Values(1,1),(1,2),(2,1);
```

```
select * from tbl2;
```

	key	value
1.	1	3
2.	2	1

3) Необходимо значения

id	status	price	comment
23	success	2000	Cancelled

id	status	price	comment
23	success	1000	Confirmed

Смержить в

id	status	price	comment
23	success	2000	Cancelled

В условии произошла замена записи с одинаковыми ключами сортировки на последнюю добавленную - выбираем

ReplacingMergeTree:

```
CREATE TABLE tbl3
(
  `id` Int32,
  `status` String,
  `price` String,
  `comment` String
)
ENGINE = ReplacingMergeTree
PRIMARY KEY id
```

```
ORDER BY (id, status);
```

```
INSERT INTO tbl3 VALUES (23, 'success', '1000', 'Confirmed');
```

```
INSERT INTO tbl3 VALUES (23, 'success', '2000', 'Cancelled');
```

```
SELECT * from tbl3 WHERE id=23;
```

1.	id	status	price	comment
	23	success	2000	Cancelled
2.	id	status	price	comment
	23	success	1000	Confirmed

```
SELECT * from tbl3 FINAL WHERE id=23;
```

1.	id	status	price	comment
	23	success	2000	Cancelled

4) Необходимо создать 2 таблицы первая будет выступать в качестве источника данных для второй. Вторая таблица агрегирует UserId по количеству уникальных значений.

Соответственно выбираем для первой таблицы движок

MergeTree, а для второй - AggregatingMergeTree:

```
CREATE TABLE tbl4  
(  
    `CounterID` UInt8,  
    `StartDate` Date,  
    `UserID` UInt64  
)  
ENGINE = MergeTree
```

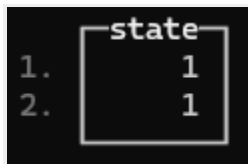
```
PARTITION BY toYYYYMM(StartDate)
ORDER BY (CounterID, StartDate);
```

```
INSERT INTO tbl4 VALUES(0, '2019-11-11', 1);
INSERT INTO tbl4 VALUES(1, '2019-11-12', 1);
```

```
CREATE TABLE tbl5
(
  `CounterID` UInt8,
  `StartDate` Date,
  `UserID` AggregateFunction(uniq, UInt64)
)
ENGINE = AggregatingMergeTree
PARTITION BY toYYYYMM(StartDate)
ORDER BY (CounterID, StartDate);
```

```
INSERT INTO tbl5
select CounterID, StartDate, uniqState(UserID)
from tbl4
group by CounterID, StartDate;
```

```
SELECT uniqMerge(UserID) AS state;
```



	state
1.	1
2.	1

## 5) Необходимо значения

id	status	price	comment	sign
23	success	1000	Confirmed	-1
23	success	2000	Cancelled	1

id	status	price	comment	sign
23	success	1000	Confirmed	1

Смержить в

id	status	price	comment	sign
23	success	2000	Cancelled	1

Выбираем CollapsingMergeTree:

```
CREATE TABLE tbl6
(
  `id` Int32,
  `status` String,
  `price` String,
  `comment` String,
  `sign` Int8
)
ENGINE = CollapsingMergeTree(sign)
PRIMARY KEY id
ORDER BY (id, status);

INSERT INTO tbl6 VALUES (23, 'success', '1000', 'Confirmed', 1);
INSERT INTO tbl6 VALUES (23, 'success', '1000', 'Confirmed', -1), (23,
'success', '2000', 'Cancelled', 1);
```

```
SELECT * FROM tbl6;
```

1.	id	status	price	comment	sign
	23	success	1000	Confirmed	-1
2.	23	success	2000	Cancelled	1
3.	id	status	price	comment	sign
	23	success	1000	Confirmed	1

```
SELECT * FROM tbl6 FINAL;
```

1.	id	status	price	comment	sign
	23	success	2000	Cancelled	1