```
testPSQS01 :) CREATE TABLE tbl1
(
    UserID UInt64,
    PageViews UInt8,
    Duration UInt8,
    Sign Int8,
    Version UInt8
)
ENGINE = VersionedCollapsingMergeTree(Sign, Version)
ORDER BY UserID;

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

Query id: 56aa5e85-8e47-4fb7-8cc0-42693be9744d

Ok.

0 rows in set. Elapsed: 0.013 sec.

testPSQS01 :) INSERT INTO tbl1 VALUES (4324182021466249494, 5, 146, -1, 1);
INSERT INTO tbl1 VALUES (4324182021466249494, 5, 146, 1, 1),(4324182021466249494, 6, 185, 1, 2);

INSERT INTO tbl1 FORMAT Values

Query id: a419057e-cfa6-4e25-8690-178144220d99

Ok.

1 row in set. Elapsed: 0.004 sec.


INSERT INTO tbl1 FORMAT Values

Query id: 5d3a1699-8d4c-4604-9b5f-4df6a53a2e3a

Ok.

2 rows in set. Elapsed: 0.003 sec.
```

```
testPSQS01 :) SELECT * FROM tbl1;

SELECT *
FROM tbl1

Query id: c1b6d0d6-f874-4eba-a66b-fb43ff1b9a3e

      ┌──────────UserID─┬─PageViews─┬─Duration─┬─Sign─┬─Version─┐
   1. │   432418202146249494 │         5 │      146 │    1 │       1 │
   2. │   432418202146249494 │         6 │      185 │    1 │       2 │
   3. │   432418202146249494 │         5 │      146 │   -1 │       1 │
      └─────────────────────┴───────────┴──────────┴──────┴─────────┘

3 rows in set. Elapsed: 0.003 sec.

testPSQS01 :) SELECT * FROM tbl1 final;

SELECT *
FROM tbl1
FINAL

Query id: 90a47550-0a5d-46db-9c0d-d2bc86762dbe

      ┌──────────UserID─┬─PageViews─┬─Duration─┬─Sign─┬─Version─┐
   1. │   432418202146249494 │         6 │      185 │    1 │       2 │
      └─────────────────────┴───────────┴──────────┴──────┴─────────┘

1 row in set. Elapsed: 0.003 sec.

testPSQS01 :) █
```

```
testPSQS01 :) CREATE TABLE tbl2
(
    key UInt32,
    value UInt32
)
ENGINE = SummingMergeTree(value)
ORDER BY key;

CREATE TABLE tbl2
(
    `key` UInt32,
    `value` UInt32
)
ENGINE = SummingMergeTree(value)
ORDER BY key

Query id: 2ebc2753-cb4f-49ba-9ca4-30b2ef19a88d

Ok.

0 rows in set. Elapsed: 0.009 sec.

testPSQS01 :) INSERT INTO tbl2 Values(1,1),(1,2),(2,1);

INSERT INTO tbl2 FORMAT Values

Query id: 3b2921fb-8415-41d0-80ee-70014b78ec35

Ok.

3 rows in set. Elapsed: 0.010 sec.

testPSQS01 :) select * from tbl2;

SELECT *
FROM tbl2

Query id: 87f69bf0-aed0-4ec2-9155-881be010bcbf

   ┌─key─┬─value─┐
1. │   1 │     3 │
2. │   2 │     1 │
   └─────┴───────┘

2 rows in set. Elapsed: 0.002 sec.
```

```
testPSQS01 :) CREATE TABLE tbl3
(
    `id` Int32,
    `status` String,
    `price` String,
    `comment` String
)
ENGINE = ReplacingMergeTree()
PRIMARY KEY (id)
ORDER BY (id, status);

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

Query id: 21a6ad41-21e8-4b50-92c3-5850c33bcf56

Ok.

0 rows in set. Elapsed: 0.010 sec.

testPSQS01 :) INSERT INTO tbl3 VALUES (23, 'success', '1000', 'Confirmed');
INSERT INTO tbl3 VALUES (23, 'success', '2000', 'Cancelled');

INSERT INTO tbl3 FORMAT Values

Query id: 4fa73180-c9c6-43ba-8286-7398ed820c70

Ok.

1 row in set. Elapsed: 0.004 sec.

INSERT INTO tbl3 FORMAT Values

Query id: 4f2f1b2a-562f-4c0b-8042-01a945b676eb

Ok.

1 row in set. Elapsed: 0.003 sec.
```

```
1 row in set. Elapsed: 0.003 sec.

testPSQS01 :) SELECT * from tbl3 WHERE id=23;

SELECT *
FROM tbl3
WHERE id = 23

Query id: a39f6dd8-9456-4a6b-a9d7-d47523059dc1

    ┌─id──┬─status──┬─price──┬─comment───┐
 1. │ 23  │ success │ 2000   │ Cancelled │
 2. │ 23  │ success │ 1000   │ Confirmed │
    └─────┴─────────┴────────┴───────────┘

2 rows in set. Elapsed: 0.005 sec.

testPSQS01 :) SELECT * from tbl3 FINAL WHERE id=23;

SELECT *
FROM tbl3
FINAL
WHERE id = 23

Query id: 32d574a1-dc8d-47a6-b7fc-9680c8180a69

    ┌─id──┬─status──┬─price──┬─comment───┐
 1. │ 23  │ success │ 2000   │ Cancelled │
    └─────┴─────────┴────────┴───────────┘

1 row in set. Elapsed: 0.003 sec.
```

```
testPSQS01 :) CREATE TABLE tbl4
(    CounterID UInt8,
     StartDate Date,
     UserID UInt64
) ENGINE = MergeTree
PARTITION BY toYYYYMM(StartDate)
ORDER BY (CounterID, StartDate);


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

Query id: a308f7eb-098e-4b6b-8939-7ae6a838e98b

Ok.

0 rows in set. Elapsed: 0.012 sec.

testPSQS01 :) INSERT INTO tbl4 VALUES(0, '2019-11-11', 1);
INSERT INTO tbl4 VALUES(1, '2019-11-12', 1);

INSERT INTO tbl4 FORMAT Values

Query id: f4b28279-bbaf-4342-954d-24bfb91e187f

Ok.

1 row in set. Elapsed: 0.003 sec.


INSERT INTO tbl4 FORMAT Values

Query id: 20be3068-9f49-4b6d-829f-e804d146c34f

Ok.

1 row in set. Elapsed: 0.002 sec.

testPSQS01 :) █
```

```
testPSQS01 :) CREATE TABLE tbl5
(    CounterID UInt8,
     StartDate Date,
     UserID AggregateFunction(uniq, UInt64)
) ENGINE = AggregatingMergeTree
PARTITION BY toYYYYMM(StartDate)
ORDER BY (CounterID, StartDate);

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

Query id: ca4a9b98-a691-4deb-a987-11e95f143446

Ok.

0 rows in set. Elapsed: 0.009 sec.

testPSQS01 :) INSERT INTO tbl5
select CounterID, StartDate, uniqState(UserID)
from tbl4
group by CounterID, StartDate;

INSERT INTO tbl5 SELECT
    CounterID,
    StartDate,
    uniqState(UserID)
FROM tbl4
GROUP BY
    CounterID,
    StartDate

Query id: 800a5b1f-8a3b-4a41-b8be-596dc13f1b68

Ok.

2 rows in set. Elapsed: 0.005 sec.
```

```
testPSQSO1 :) INSERT INTO tbl5 VALUES (1,'2019-11-12',1);

INSERT INTO tbl5 FORMAT Values

Query id: 1b633d0f-a7f3-496c-9ae5-87344e040af6

Ok.
Error on processing query: Code: 53. DB::Exception: Cannot convert UInt64 to AggregateFunction(uniq, UInt64): While executing ValuesBlockInputFormat: data for INSERT was pars
ed from query. (TYPE_MISMATCH) (version 25.12.4.35 (official build))

testPSQSO1 :) SELECT uniqMerge(UserID) AS state
FROM tbl5
GROUP BY CounterID, StartDate;

SELECT uniqMerge(UserID) AS state
FROM tbl5
GROUP BY
    CounterID,
    StartDate

Query id: d3b8f559-d51e-4200-ba53-17527b7a0bf6

   ┌─state─┐
1. │     1 │
2. │     1 │
   └───────┘

2 rows in set. Elapsed: 0.007 sec.
```

```
testPSQS01 :) CREATE TABLE tbl6
(
    `id` Int32,
    `status` String,
    `price` String,
    `comment` String,
    `sign` Int8
)
ENGINE = CollapsingMergeTree(sign)
PRIMARY KEY (id)
ORDER BY (id, status);

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

Query id: 8a2b1f62-fd2d-45db-87a7-65962dc0ed7f

Ok.

0 rows in set. Elapsed: 0.015 sec.

testPSQS01 :) INSERT INTO tbl6 VALUES (23, 'success', '1000', 'Confirmed', 1);
INSERT INTO tbl6 VALUES (23, 'success', '1000', 'Confirmed', -1), (23, 'success', '2000', 'Cancelled', 1);

INSERT INTO tbl6 FORMAT Values

Query id: c2ea4d58-5c6a-4021-a27c-04ea9338272c

Ok.

1 row in set. Elapsed: 0.005 sec.


INSERT INTO tbl6 FORMAT Values

Query id: ce9683ad-2838-48e6-88c6-5fd80515e823

Ok.

2 rows in set. Elapsed: 0.003 sec.
```

```
testPSQS01 :) SELECT * FROM tbl6;

SELECT *
FROM tbl6

Query id: 5e4dbf0c-c998-4a6a-80dc-7436cffbae65
    ┌─id─┬─status──┬─price─┬─comment───┬─sign─┐
1.  │ 23 │ success │ 1000  │ Confirmed │   -1 │
2.  │ 23 │ success │ 2000  │ Cancelled │    1 │
3.  │ 23 │ success │ 1000  │ Confirmed │    1 │
    └────┴─────────┴───────┴───────────┴──────┘

3 rows in set. Elapsed: 0.003 sec.

testPSQS01 :) SELECT * FROM tbl6 FINAL;

SELECT *
FROM tbl6
FINAL

Query id: e3e9e51a-72d8-43a7-ba86-28aa8062db76
    ┌─id─┬─status──┬─price─┬─comment───┬─sign─┐
1.  │ 23 │ success │ 2000  │ Cancelled │    1 │
    └────┴─────────┴───────┴───────────┴──────┘

1 row in set. Elapsed: 0.004 sec.

testPSQS01 :) █
```

```
 1   tbl1) Сначала думал, что там движок CollapsingMergeTree, т.к. увидел поле Sign,
 2   но не обратил внимание на Version.
 3   Получил на запрос SELECT * FROM tbl1; 2 строки вместо 3х, как в описании,
 4   и при этом верный результат при SELECT * FROM tbl1 final;
 5
 6   tbl2) Увидел, что в результирующем наборе сумма по полю value по ключу key = 1, понял,
 7   что там SummingMergeTree.
 8
 9   tbl3) Заметил, что в финальном результате только последняя запись,
10   значит это ReplacingMergeTree.
11
12   tbl4) Не было проверок результата, поэтому стало ясно, что это дефолтный MergeTree.
13
14   tbl5) Как в ДЗ, получил ошибку на попытку вставки 3й записи, т.к. вставляемое в
15   3ю колонку значение было без обработки функцией.
16   Но раз в описании колонки была агрегирующая функция, значит движок AggregatingMergeTree.
17
18   tbl6) Заметил поле Sign, понял, чем таблица отличается от tbl1. Что тут CollapsingMergeTree.
```