1. **Создать материализованное представление и наполнить его**

**DROP TABLE IF EXISTS default.trips;**

**CREATE TABLE default.trips**

**(**

**`trip\_id` UInt32,**

**`pickup\_datetime` DateTime,**

**`dropoff\_datetime` DateTime,**

**`pickup\_longitude` Nullable(Float64),**

**`pickup\_latitude` Nullable(Float64),**

**`dropoff\_longitude` Nullable(Float64),**

**`dropoff\_latitude` Nullable(Float64),**

**`passenger\_count` UInt8,**

**`trip\_distance` Float32,**

**`fare\_amount` Float32,**

**`extra` Float32,**

**`tip\_amount` Float32,**

**`tolls\_amount` Float32,**

**`total\_amount` Float32,**

**`payment\_type` Enum8('CSH' = 1,**

**'CRE' = 2,**

**'NOC' = 3,**

**'DIS' = 4,**

**'UNK' = 5),**

**`pickup\_ntaname` LowCardinality(String),**

**`dropoff\_ntaname` LowCardinality(String)**

**)**

**ENGINE = MergeTree**

**ORDER BY**

**(pickup\_datetime, dropoff\_datetime);**

**drop table if exists default.trips\_agg;**

**CREATE TABLE default.trips\_agg**

**(**

**pickup\_datetime DateTime,**

**total\_trips AggregateFunction(count, UInt32),**

**total\_fare\_amount AggregateFunction(sum, Float32),**

**total\_extra AggregateFunction(sum, Float32),**

**total\_tip\_amount AggregateFunction(sum, Float32),**

**total\_tolls\_amount AggregateFunction(sum, Float32),**

**total\_amount AggregateFunction(sum, Float32)**

**) ENGINE = AggregatingMergeTree**

**ORDER BY pickup\_datetime;**

**drop view if exists default.trips\_to\_trips\_agg;**

**CREATE MATERIALIZED VIEW default.trips\_to\_trips\_agg**

**TO default.trips\_agg AS**

**SELECT**

**pickup\_datetime,**

**countState() AS total\_trips,**

**sumState(fare\_amount) AS total\_fare\_amount,**

**sumState(extra) AS total\_extra,**

**sumState(tip\_amount) AS total\_tip\_amount,**

**sumState(tolls\_amount) AS total\_tolls\_amount,**

**sumState(total\_amount) AS total\_amount**

**FROM default.trips**

**GROUP BY pickup\_datetime;**

**INSERT INTO trips**

**SELECT**

**trip\_id,**

**pickup\_datetime,**

**dropoff\_datetime,**

**pickup\_longitude,**

**pickup\_latitude,**

**dropoff\_longitude,**

**dropoff\_latitude,**

**passenger\_count,**

**trip\_distance,**

**fare\_amount,**

**extra,**

**tip\_amount,**

**tolls\_amount,**

**total\_amount,**

**payment\_type,**

**pickup\_ntaname,**

**dropoff\_ntaname**

**FROM**

**gcs(**

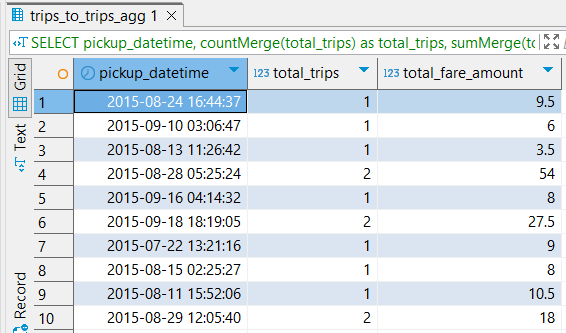
**'https://storage.googleapis.com/clickhouse-public-datasets/nyc-taxi/trips\_{0..2}.gz',**

**'TabSeparatedWithNames'**

**);**

**optimize table default.trips\_agg;**

**SELECT pickup\_datetime, countMerge(total\_trips) as total\_trips, sumMerge(total\_fare\_amount) as total\_fare\_amount FROM default.trips\_to\_trips\_agg GROUP BY pickup\_datetime LIMIT 10;**

****

1. **Создать проекцию и материализовать ее**

**drop** **view** **if** **exists** default.trips\_to\_trips\_agg;

**drop** **table** **if** **exists** default.trips\_agg;

**DROP** **TABLE** **IF** **EXISTS** default.trips;

**CREATE** **TABLE** default.trips

(

**`trip\_id`** **UInt32**,

**`pickup\_datetime`** **DateTime**,

**`dropoff\_datetime`** **DateTime**,

**`pickup\_longitude`** Nullable(**Float64**),

**`pickup\_latitude`** Nullable(**Float64**),

**`dropoff\_longitude`** Nullable(**Float64**),

**`dropoff\_latitude`** Nullable(**Float64**),

**`passenger\_count`** **UInt8**,

**`trip\_distance`** **Float32**,

**`fare\_amount`** **Float32**,

**`extra`** **Float32**,

**`tip\_amount`** **Float32**,

**`tolls\_amount`** **Float32**,

**`total\_amount`** **Float32**,

**`payment\_type`** **Enum8**('CSH' = 1,

'CRE' = 2,

'NOC' = 3,

'DIS' = 4,

'UNK' = 5),

**`pickup\_ntaname`** LowCardinality(**String**),

**`dropoff\_ntaname`** LowCardinality(**String**)

)

**ENGINE** = MergeTree

**ORDER** **BY**

(pickup\_datetime, dropoff\_datetime);

**ALTER** **TABLE** default.trips **drop** PROJECTION **if** **exists** trips\_agg;

**ALTER** **TABLE** default.trips **ADD** PROJECTION trips\_agg

(

**SELECT**

pickup\_datetime,

**count**() **AS** total\_trips,

**sum**(fare\_amount) **AS** total\_fare\_amount,

**sum**(extra) **AS** total\_extra,

**sum**(tip\_amount) **AS** total\_tip\_amount,

**sum**(tolls\_amount) **AS** total\_tolls\_amount,

**sum**(total\_amount) **AS** total\_amount

**GROUP** **BY** pickup\_datetime

);

**ALTER** **TABLE** default.trips **MATERIALIZE** PROJECTION trips\_agg;

**SET** optimize\_use\_projections = 1;

**INSERT** **INTO** trips

**SELECT**

trip\_id,

pickup\_datetime,

dropoff\_datetime,

pickup\_longitude,

pickup\_latitude,

dropoff\_longitude,

dropoff\_latitude,

passenger\_count,

trip\_distance,

fare\_amount,

extra,

tip\_amount,

tolls\_amount,

total\_amount,

payment\_type,

pickup\_ntaname,

dropoff\_ntaname

**FROM**

gcs(

'https://storage.googleapis.com/clickhouse-public-datasets/nyc-taxi/trips\_{0..2}.gz',

'TabSeparatedWithNames'

);

**SELECT**

pickup\_datetime,

**count**() **AS** total\_trips,

**sum**(fare\_amount) **AS** total\_fare\_amount,

**sum**(extra) **AS** total\_extra,

**sum**(tip\_amount) **AS** total\_tip\_amount,

**sum**(tolls\_amount) **AS** total\_tolls\_amount,

**sum**(total\_amount) **AS** total\_amount

**FROM** default.trips

**GROUP** **BY** pickup\_datetime

