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;
```

trips_to_trips_agg 1

SELECT pickup_datetime, countMerge(total_trips) as total_trips, sumMerge(tc

	pickup_datetime	total_trips	total_fare_amount
1	2015-08-24 16:44:37	1	9.5
2	2015-09-10 03:06:47	1	6
3	2015-08-13 11:26:42	1	3.5
4	2015-08-28 05:25:24	2	54
5	2015-09-16 04:14:32	1	8
6	2015-09-18 18:19:05	2	27.5
7	2015-07-22 13:21:16	1	9
8	2015-08-15 02:25:27	1	8
9	2015-08-11 15:52:06	1	10.5
10	2015-08-29 12:05:40	2	18

2. 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;
```

```sql
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
```

trips 1

SELECT pickup_datetime, count() AS total_trips, sum(fare_amount) AS total_f | Enter a SQL expression to filter results (use Ctrl+Space)

	pickup_datetime	total_trips	total_fare_amount	total_extra	total_tip_amount	total_tolls_amount	total_amount
1	2015-08-12 16:14:12	1	9	1	2.1500000954	0	12.9499998093
2	2015-08-06 14:31:23	2	19	2	0	0	22.6000003815
3	2015-08-29 20:33:07	1	13.5	0.5	3.7000000477	0	18.5
4	2015-07-12 11:49:52	1	21	0	0	0	21.7999992371
5	2015-08-13 22:02:40	1	23.5	0.5	0	5.5399999619	30.3400001526
6	2015-09-19 10:56:43	2	31	0	7.6599998474	0	40.2600002289
7	2015-09-04 21:09:00	1	30	0.5	6.2600002289	0	37.5600013733
8	2015-08-17 19:56:24	1	13.5	0.5	0	0	14.8000001907
9	2015-07-11 09:48:35	2	20	0	4.2000000477	0	25.8000001907
10	2015-08-15 20:50:27	1	5.5	0.5	0	0	6.8000001907