11 ДЗ - Мутация данных и манипуляции с партициями.

Собираем Dockerfile.

clickhouse-25.2.1.Dockerfile:

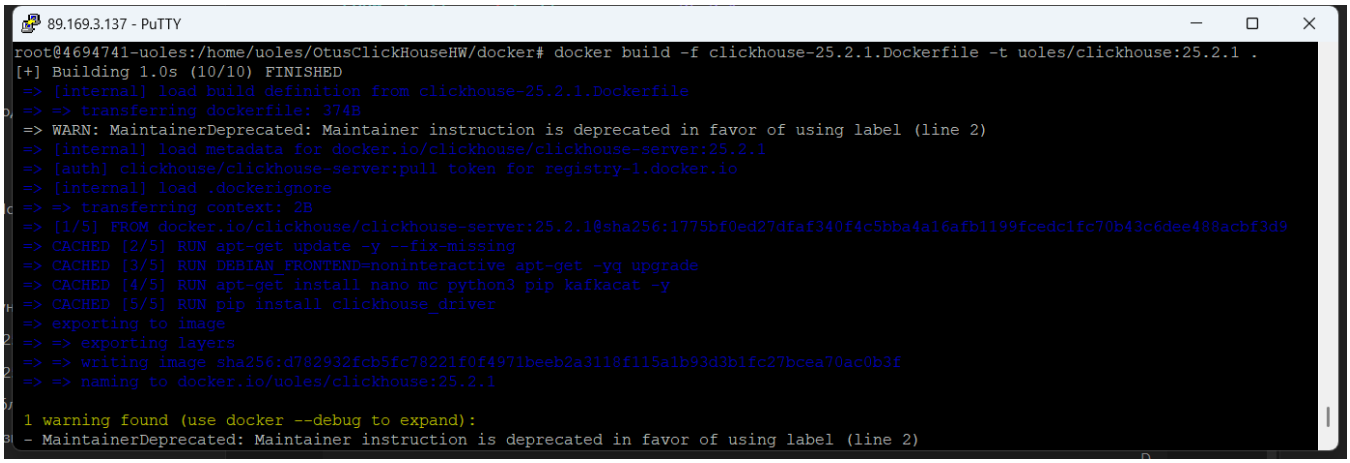
```
FROM clickhouse/clickhouse-server:25.2.1
MAINTAINER Maksim Kulikov <max.uoles@rambler.ru>

RUN apt-get update -y --fix-missing
RUN DEBIAN_FRONTEND=noninteractive apt-get -yq upgrade
RUN apt-get install nano mc python3 pip kafkacat -y
RUN pip install clickhouse_driver

EXPOSE 8123 9000

ENTRYPOINT ["/entrypoint.sh"]
```

Собираем образ командой:

```
docker build -f clickhouse-25.2.1.Dockerfile -t uoles/clickhouse:25.2.1 .
```

Запускаем:

```
docker run -d \
  -p 18123:8123 \
  -p 19000:9000 \
  -e CLICKHOUSE_DB=my_database \
  -e CLICKHOUSE_USER=username \
  -e CLICKHOUSE_DEFAULT_ACCESS_MANAGEMENT=1 \
  -e CLICKHOUSE_PASSWORD=password \
  --name clickhouse-server \
  --ulimit nofile=262144:262144 \
uoles/clickhouse:25.2.1
```



Создание пользователя и роли.

Создаем таблицу user_activity:

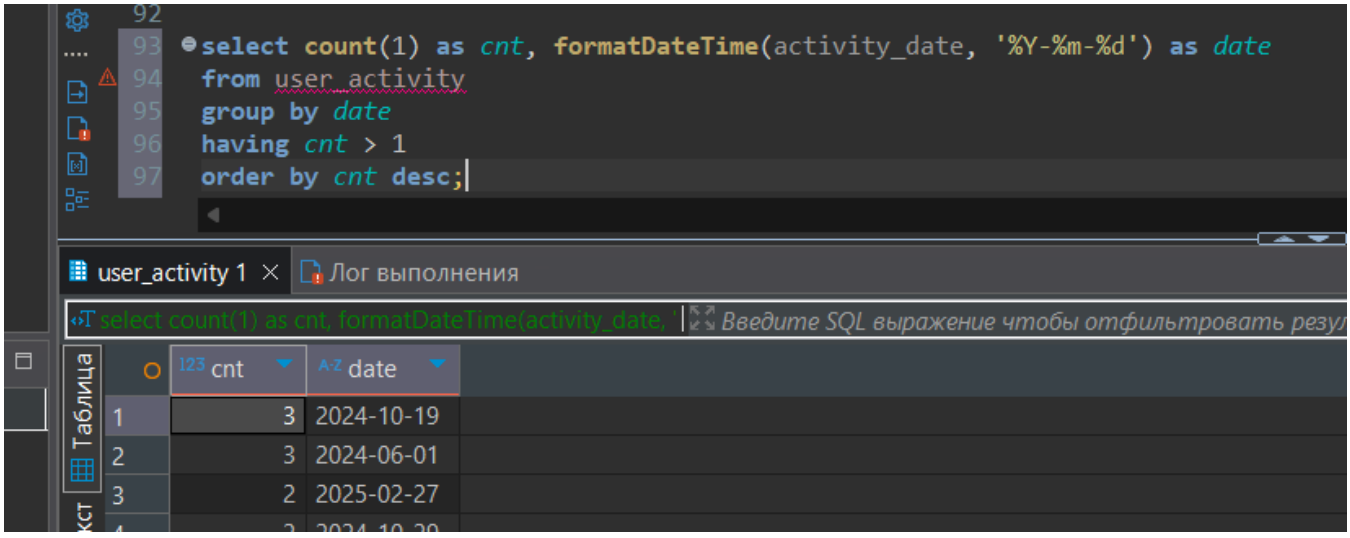
```
CREATE TABLE user_activity
(
    activity_date DateTime,
    user_id UInt32,
    activity_type LowCardinality(String)
)
ENGINE = MergeTree
PARTITION BY toYYYYMMDD(activity_date)
ORDER BY (activity_date);
```

Заполняем таблицу данными:

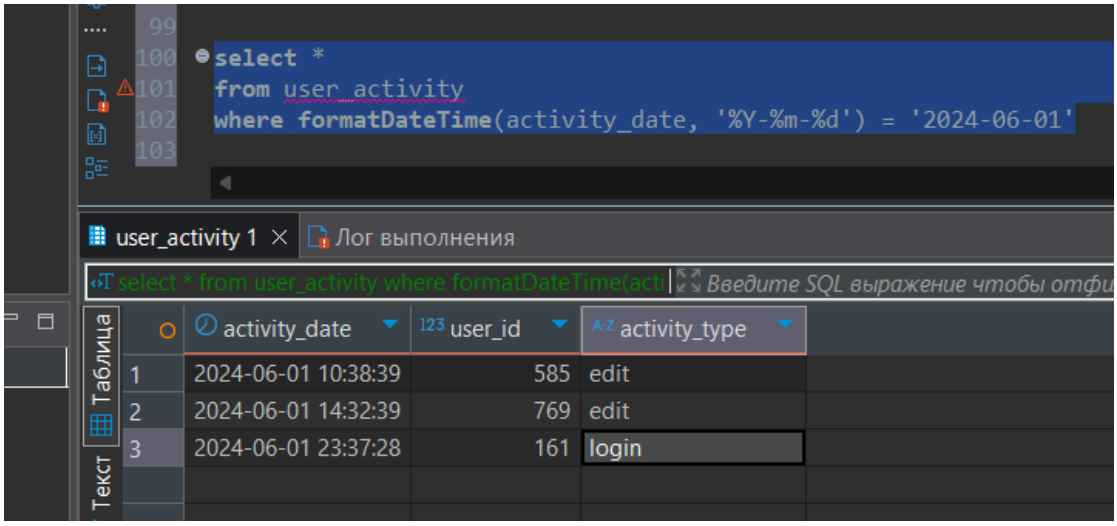
```
INSERT INTO user_activity
SELECT
      now() - toIntervalSecond(rand() % (365 * 24 * 60 * 60)) AS activity_date,
      randUniform(1,1000)::Int AS user_id,
      arrayElement(['login', 'logout', 'edit', 'delete'], randUniform(1,5)::Int) AS
activity_type
FROM system.numbers
LIMIT 100;
```

Ищем данные для изменения:

```
select count(1) as cnt, formatDateTime(activity_date, '%Y-%m-%d') as date
from user_activity
group by date
having cnt > 1
order by cnt desc;
```

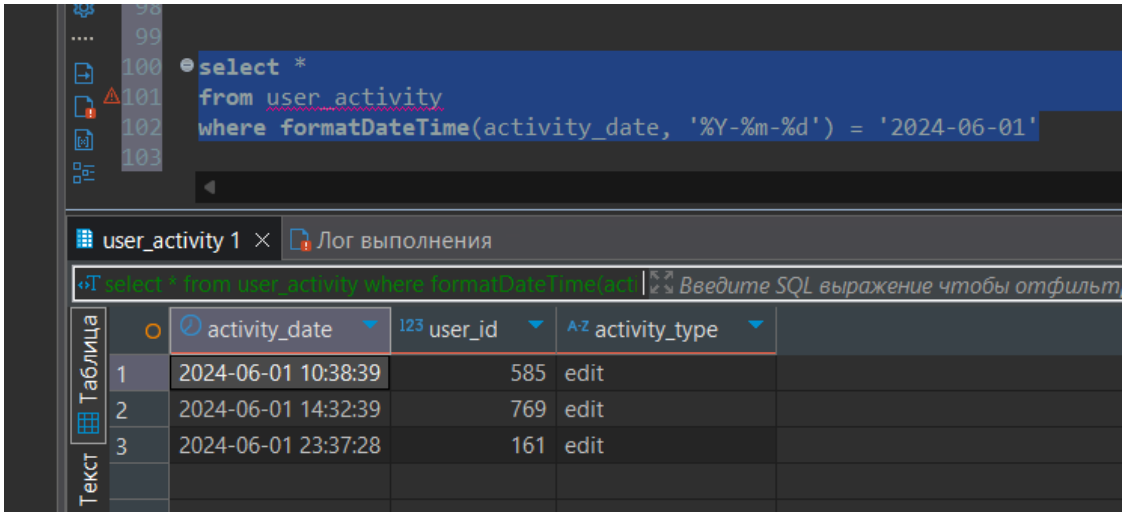


Выбираем дату и вносим изменения:

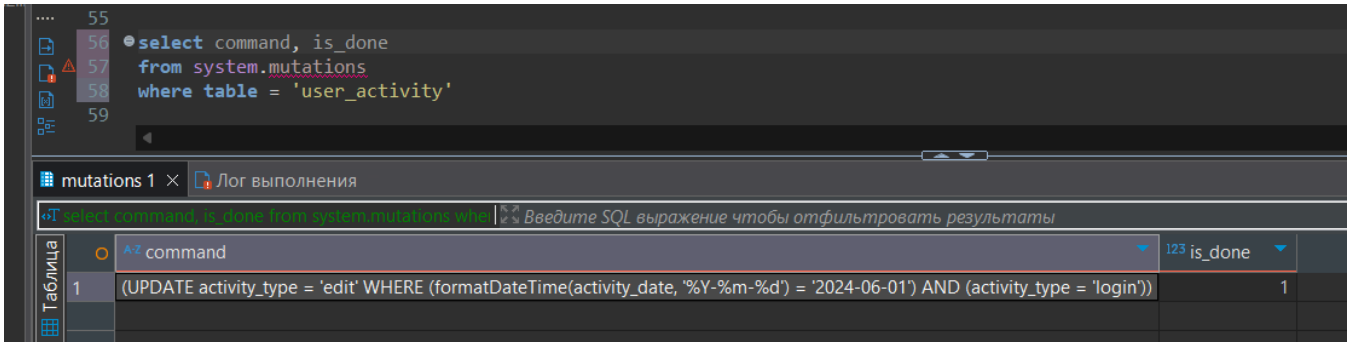


Обновляем поле activity_type:

```
alter table user_activity
update activity_type = 'edit'
where formatDateTime(activity_date, '%Y-%m-%d') = '2024-06-01'
      and activity_type = 'login'
```

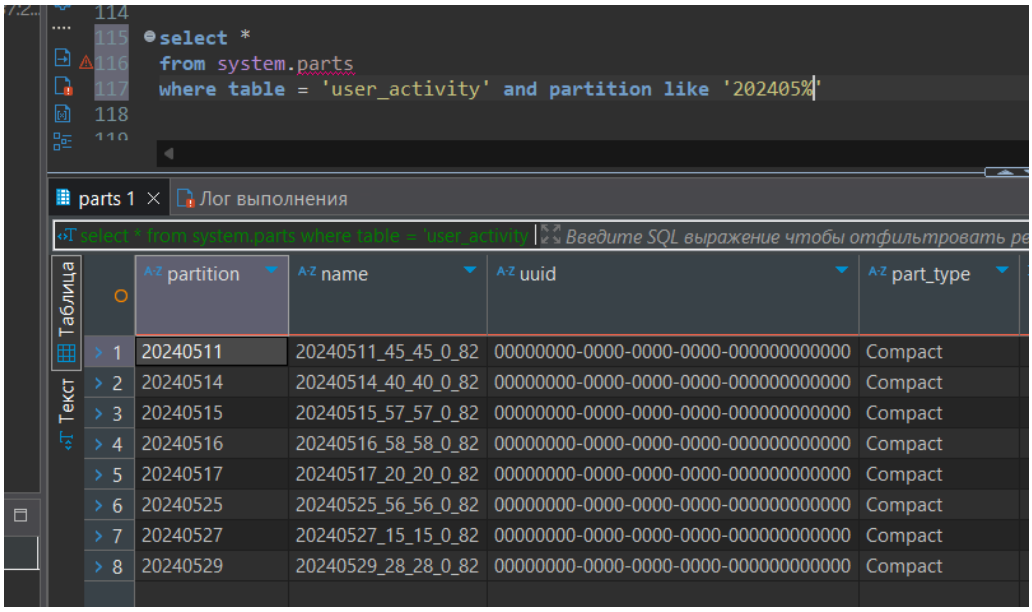


Проверяем наличие мутаций:



Удаляем партиции за определенный месяц.

Выбираем данные для удаления:



```
select *
from system.parts
where table = 'user_activity' and partition like '202405%'
```

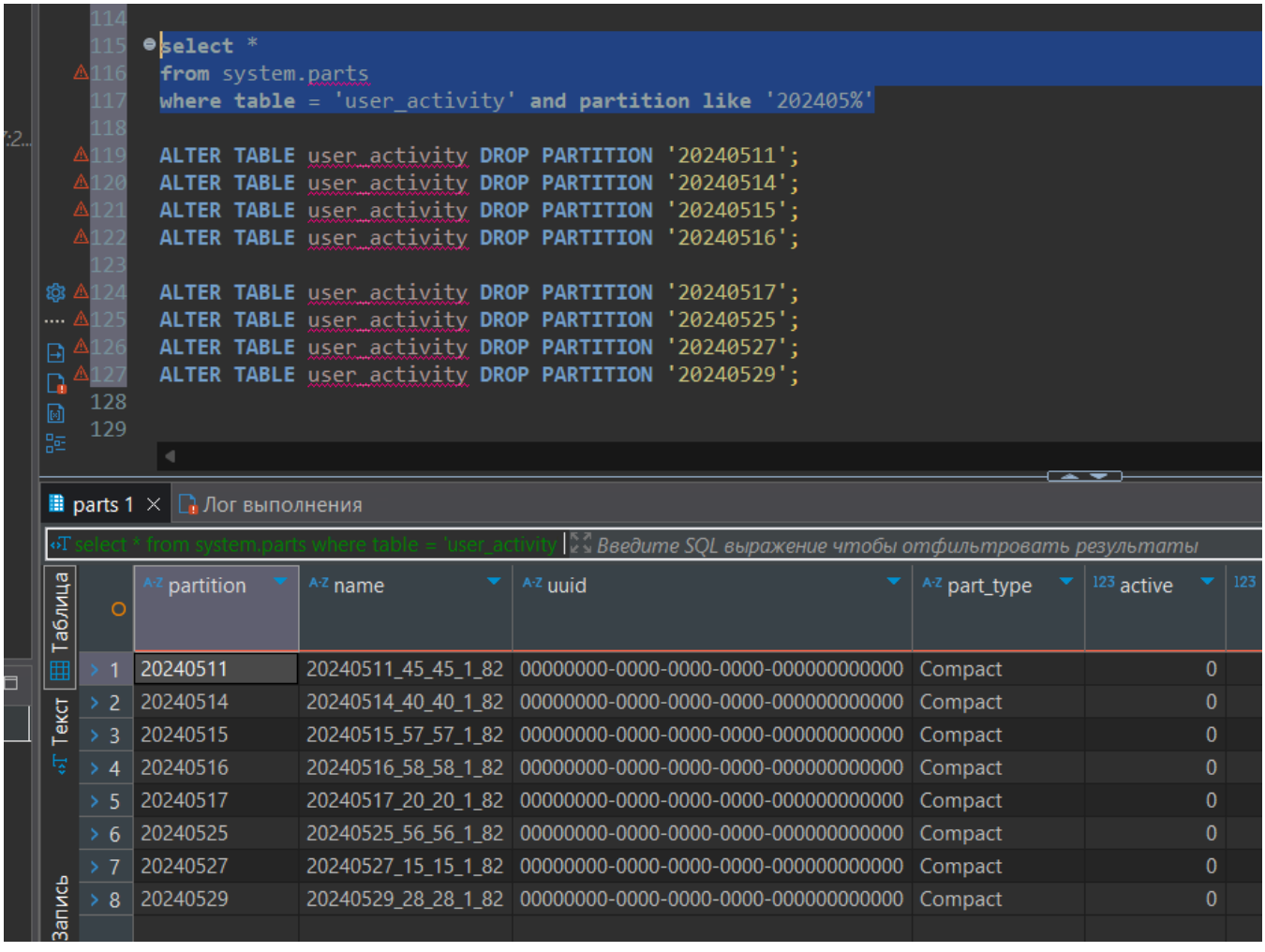
parts 1 | Лог выполнения

select * from system.parts where table = 'user_activity' | Введите SQL выражение чтобы отфильтровать ре

Таблица | Текст

	partition	name	uuid	part_type
1	20240511	20240511_45_45_0_82	00000000-0000-0000-0000-000000000000	Compact
2	20240514	20240514_40_40_0_82	00000000-0000-0000-0000-000000000000	Compact
3	20240515	20240515_57_57_0_82	00000000-0000-0000-0000-000000000000	Compact
4	20240516	20240516_58_58_0_82	00000000-0000-0000-0000-000000000000	Compact
5	20240517	20240517_20_20_0_82	00000000-0000-0000-0000-000000000000	Compact
6	20240525	20240525_56_56_0_82	00000000-0000-0000-0000-000000000000	Compact
7	20240527	20240527_15_15_0_82	00000000-0000-0000-0000-000000000000	Compact
8	20240529	20240529_28_28_0_82	00000000-0000-0000-0000-000000000000	Compact

Удаляем партиции и проверяем данные:



```
select *
from system.parts
where table = 'user_activity' and partition like '202405%'

ALTER TABLE user_activity DROP PARTITION '20240511';
ALTER TABLE user_activity DROP PARTITION '20240514';
ALTER TABLE user_activity DROP PARTITION '20240515';
ALTER TABLE user_activity DROP PARTITION '20240516';

ALTER TABLE user_activity DROP PARTITION '20240517';
ALTER TABLE user_activity DROP PARTITION '20240525';
ALTER TABLE user_activity DROP PARTITION '20240527';
ALTER TABLE user_activity DROP PARTITION '20240529';
```

parts 1 | Лог выполнения

select * from system.parts where table = 'user_activity' | Введите SQL выражение чтобы отфильтровать результаты

Таблица | Текст | Запись

	partition	name	uuid	part_type	active	
1	20240511	20240511_45_45_1_82	00000000-0000-0000-0000-000000000000	Compact	0	
2	20240514	20240514_40_40_1_82	00000000-0000-0000-0000-000000000000	Compact	0	
3	20240515	20240515_57_57_1_82	00000000-0000-0000-0000-000000000000	Compact	0	
4	20240516	20240516_58_58_1_82	00000000-0000-0000-0000-000000000000	Compact	0	
5	20240517	20240517_20_20_1_82	00000000-0000-0000-0000-000000000000	Compact	0	
6	20240525	20240525_56_56_1_82	00000000-0000-0000-0000-000000000000	Compact	0	
7	20240527	20240527_15_15_1_82	00000000-0000-0000-0000-000000000000	Compact	0	
8	20240529	20240529_28_28_1_82	00000000-0000-0000-0000-000000000000	Compact	0	

За май данных в выборке нет: