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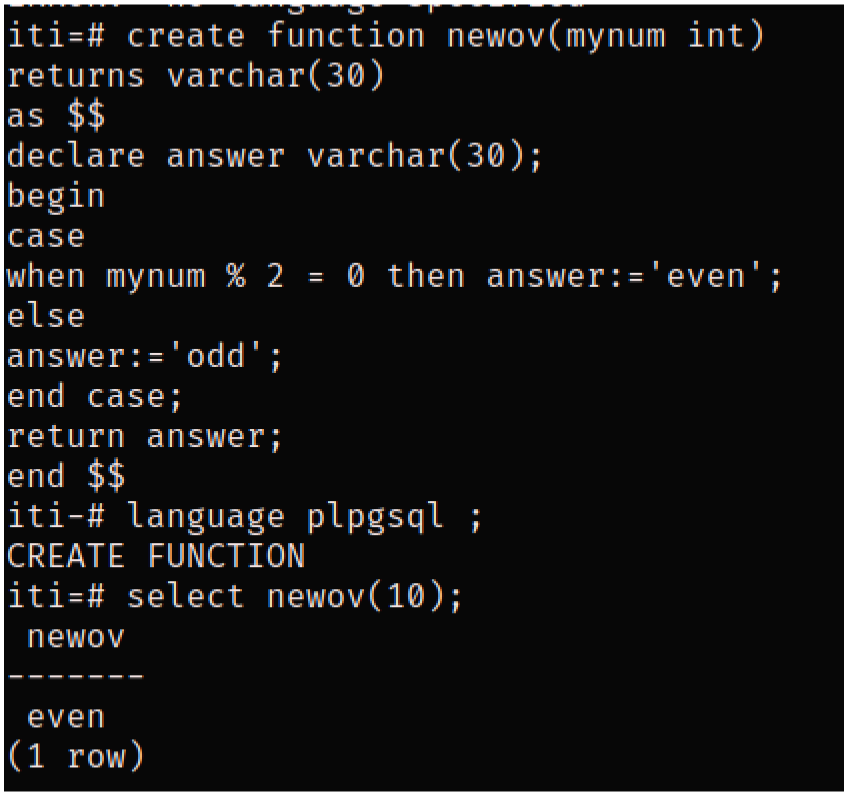
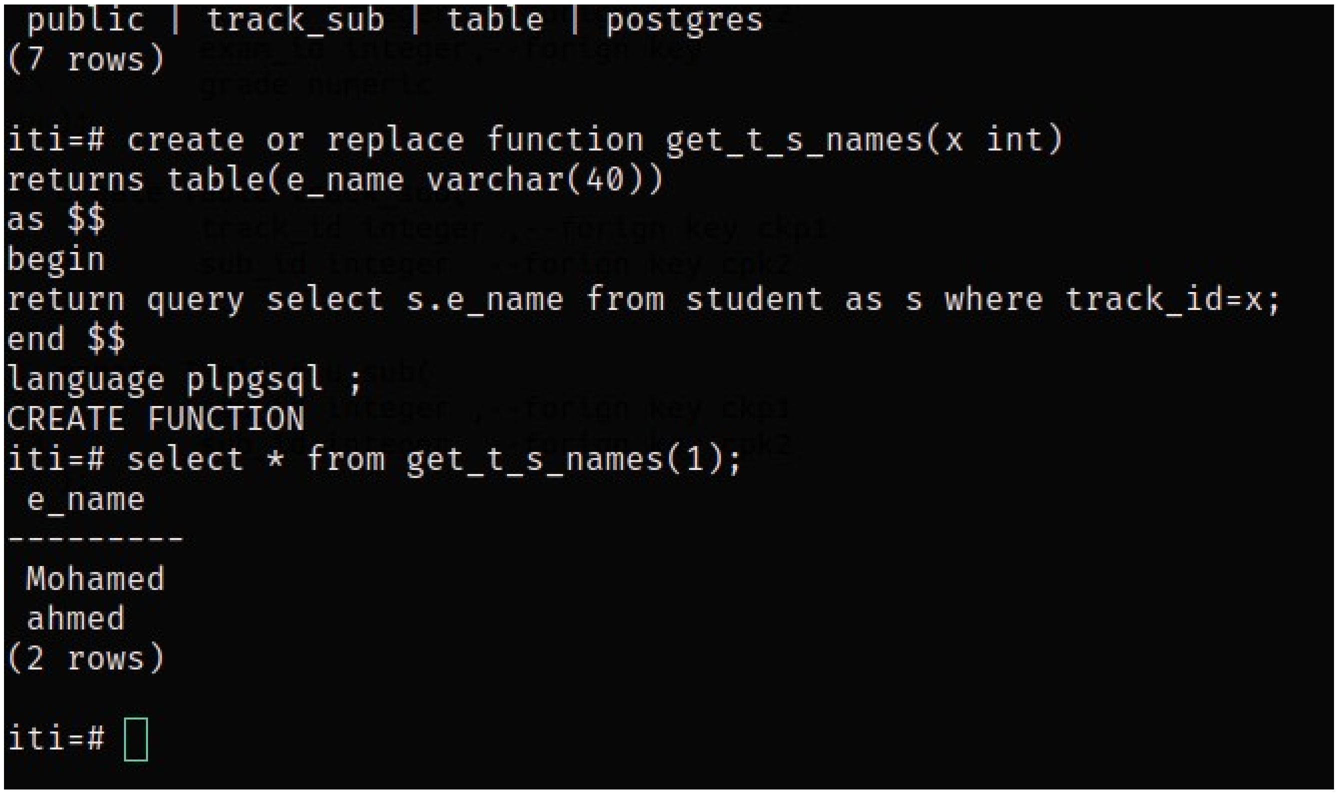
Lab3

1. Create function which takes number and return if this number is odd or even



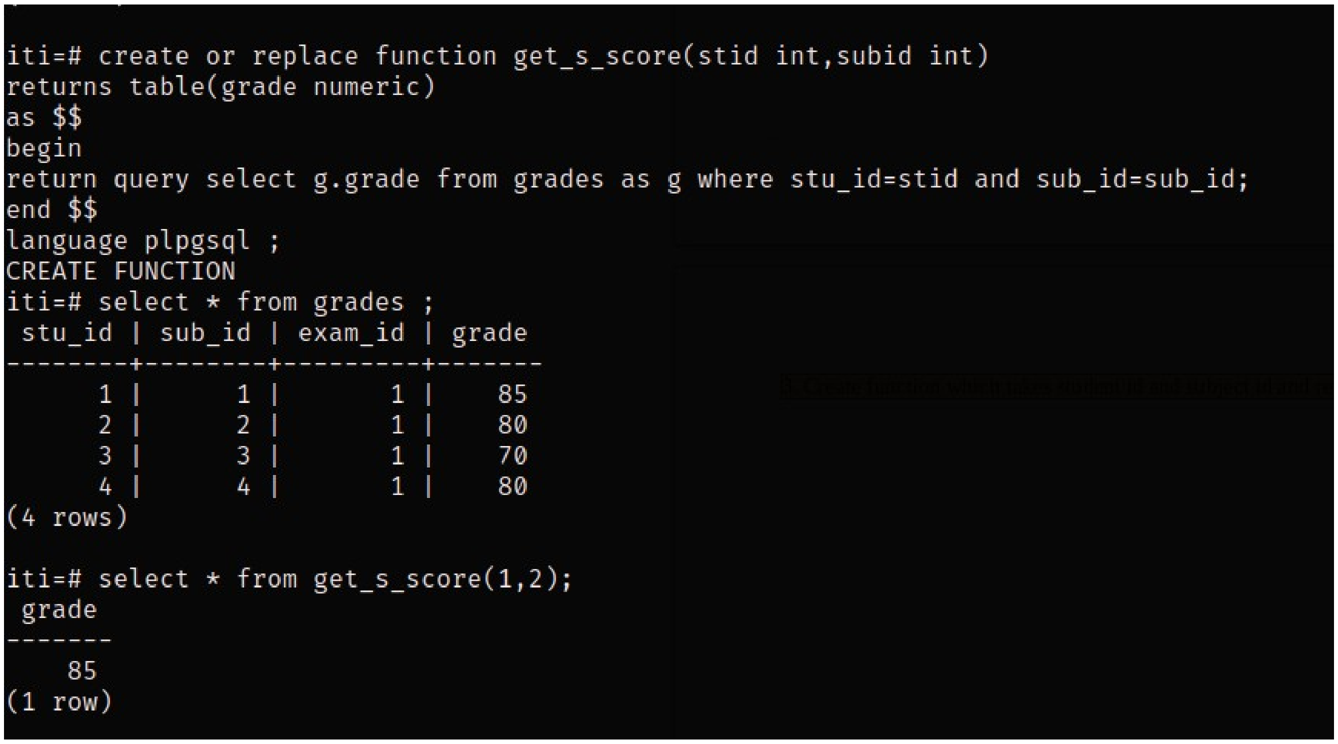
```
iti=# create function newov(mynum int)
returns varchar(30)
as $$
declare answer varchar(30);
begin
case
when mynum % 2 = 0 then answer:='even';
else
answer:='odd';
end case;
return answer;
end $$
iti-# language plpgsql ;
CREATE FUNCTION
iti=# select newov(10);
 newov
-------
 even
(1 row)
```

2. Create function which takes track id and return name of students in this track.



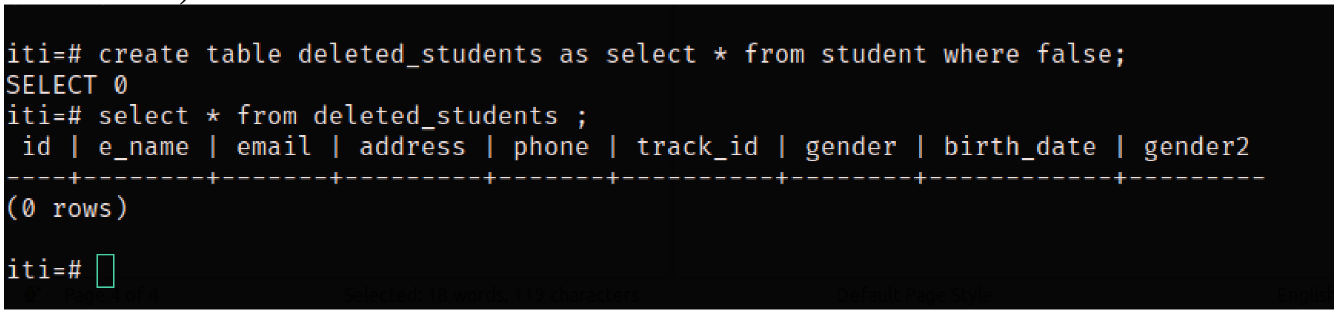
```
 public | track_sub | table | postgres
(7 rows)

iti=# create or replace function get_t_s_names(x int)
returns table(e_name varchar(40))
as $$
begin
return query select s.e_name from student as s where track_id=x;
end $$
language plpgsql ;
CREATE FUNCTION
iti=# select * from get_t_s_names(1);
 e_name
---------
 Mohamed
 ahmed
(2 rows)

iti=#
```

3. Create function which takes student id and subject id and return score the student in subject.



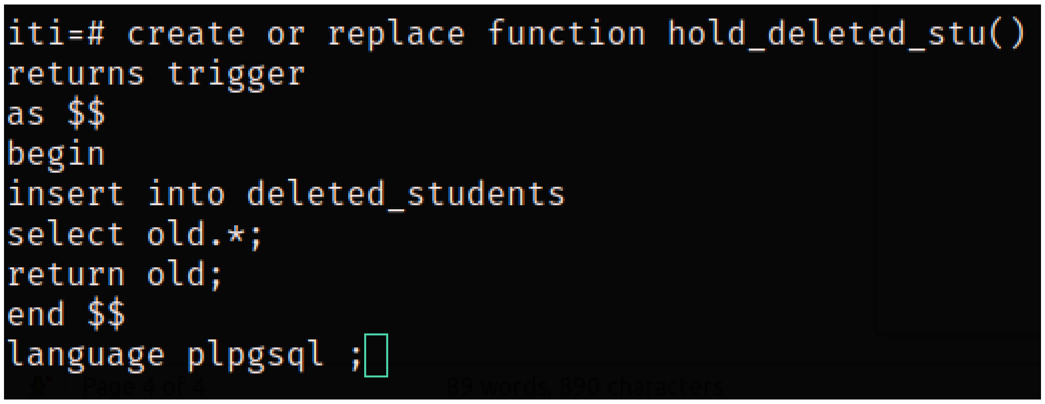
```
iti=# create or replace function get_s_score(stid int,subid int)
returns table(grade numeric)
as $$
begin
return query select g.grade from grades as g where stu_id=stid and sub_id=sub_id;
end $$
language plpgsql ;
CREATE FUNCTION
iti=# select * from grades ;
 stu_id | sub_id | exam_id | grade
--------+--------+---------+-------
      1 |      1 |       1 |    85
      2 |      2 |       1 |    80
      3 |      3 |       1 |    70
      4 |      4 |       1 |    80
(4 rows)

iti=# select * from get_s_score(1,2);
 grade
-------
    85
(1 row)
```

4. Create Table called Deleted_Students which will hold the deleted students' info (same columns as in student tables).

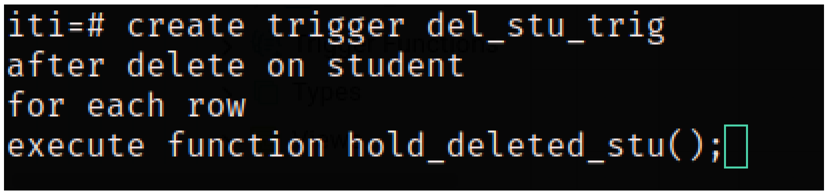


```
iti=# create table deleted_students as select * from student where false;
SELECT 0
iti=# select * from deleted_students ;
 id | e_name | email | address | phone | track_id | gender | birth_date | gender2
----+--------+-------+---------+-------+----------+--------+------------+---------
(0 rows)

iti=# 
```

5. Create trigger to save the deleted student from Student table to Deleted_Students.

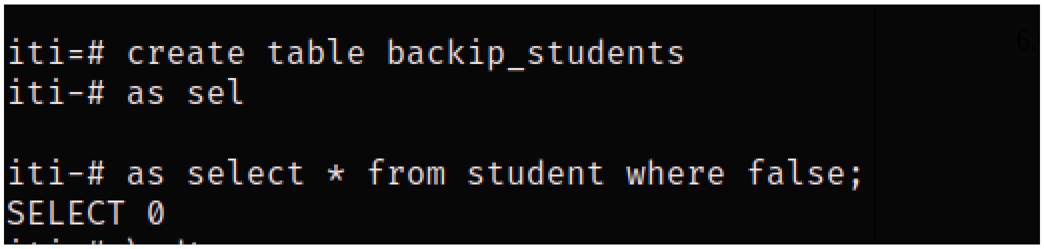


```
iti=# create or replace function hold_deleted_stu()
returns trigger
as $$
begin
insert into deleted_students
select old.*;
return old;
end $$
language plpgsql ;
```

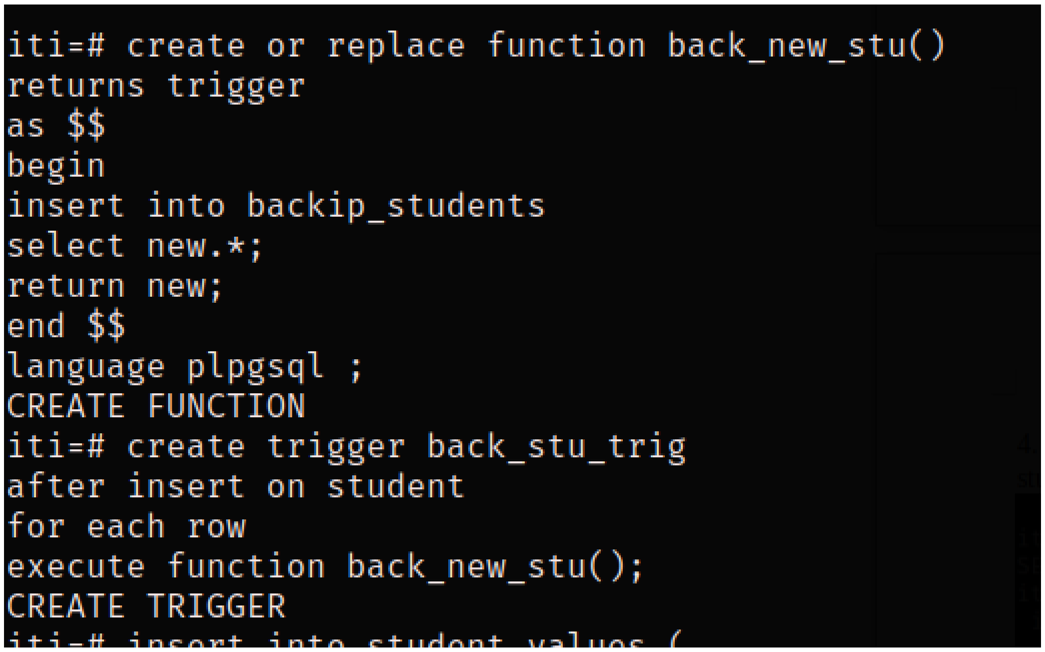


```
iti=# create trigger del_stu_trig
after delete on student
for each row
execute function hold_deleted_stu();
```

6.Create trigger to save the newly added students to Student table to Backup_Students.



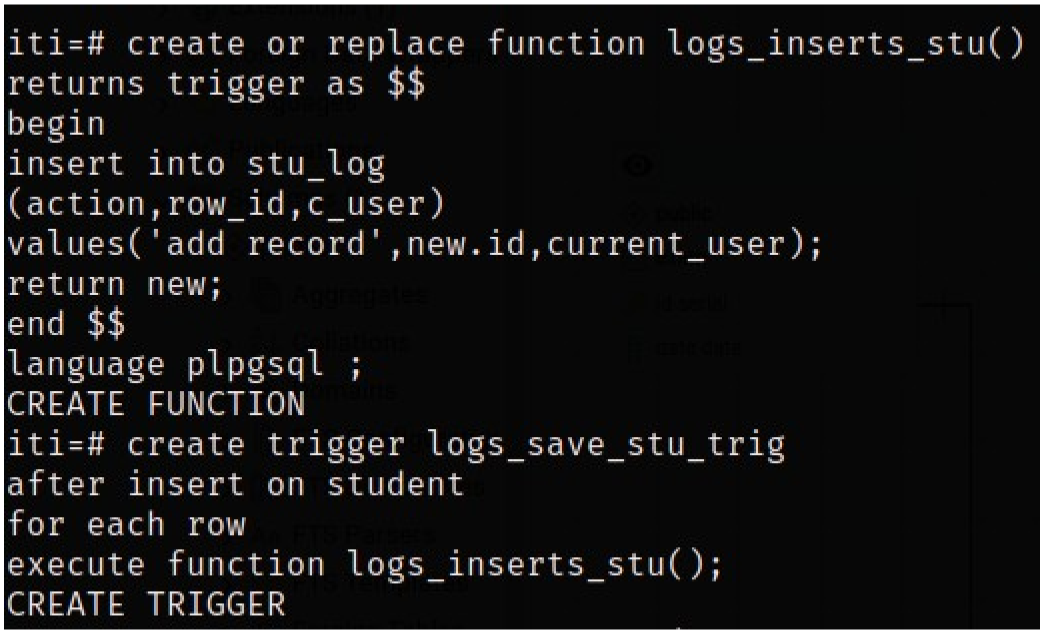
```
iti=# create table backip_students
iti-# as sel

iti-# as select * from student where false;
SELECT 0
```



```
iti=# create or replace function back_new_stu()
returns trigger
as $$
begin
insert into backip_students
select new.*;
return new;
end $$
language plpgsql ;
CREATE FUNCTION
iti=# create trigger back_stu_trig
after insert on student
for each row
execute function back_new_stu();
CREATE TRIGGER
```

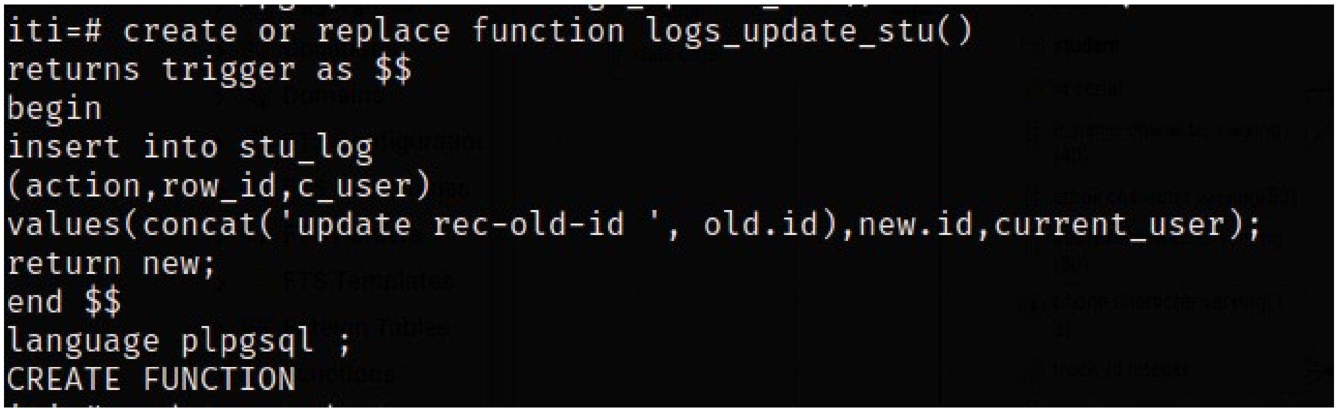
7. Create trigger to keep track of changes of student table(add/update rows). It will log the time of action and
description of action to another table.

a- add trigger

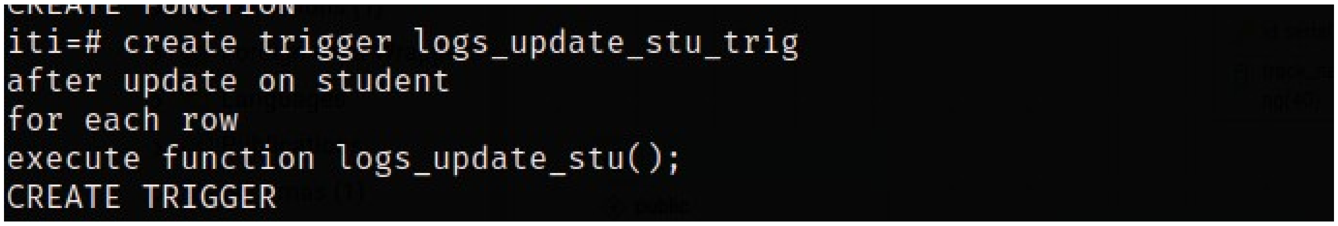


```
iti=# create or replace function logs_inserts_stu()
returns trigger as $$
begin
insert into stu_log
(action,row_id,c_user)
values('add record',new.id,current_user);
return new;
end $$
language plpgsql ;
CREATE FUNCTION
iti=# create trigger logs_save_stu_trig
after insert on student
for each row
execute function logs_inserts_stu();
CREATE TRIGGER
```

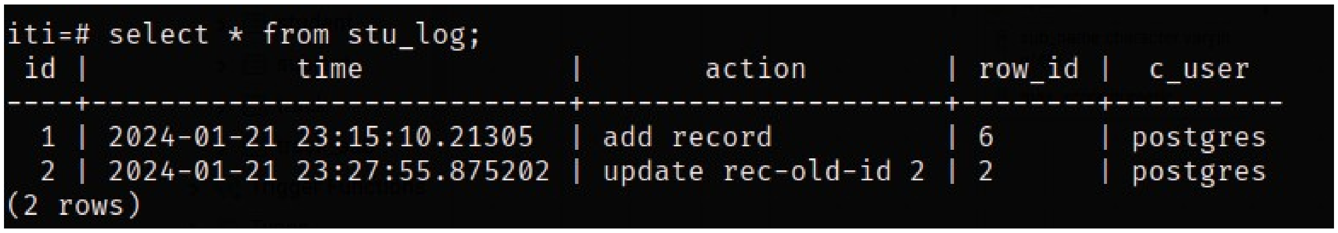
b-update trigger



```
iti=# create or replace function logs_update_stu()
returns trigger as $$
begin
insert into stu_log
(action,row_id,c_user)
values(concat('update rec-old-id ', old.id),new.id,current_user);
return new;
end $$
language plpgsql ;
CREATE FUNCTION
```



```
iti=# create trigger logs_update_stu_trig
after update on student
for each row
execute function logs_update_stu();
CREATE TRIGGER
```



```
iti=# select * from stu_log;
 id |            time            |        action        | row_id |  c_user
----+----------------------------+----------------------+--------+----------
  1 | 2024-01-21 23:15:10.21305  | add record           | 6      | postgres
  2 | 2024-01-21 23:27:55.875202 | update rec-old-id 2  | 2      | postgres
(2 rows)
```