

## Part 3 – Data Manipulation Language (DML)

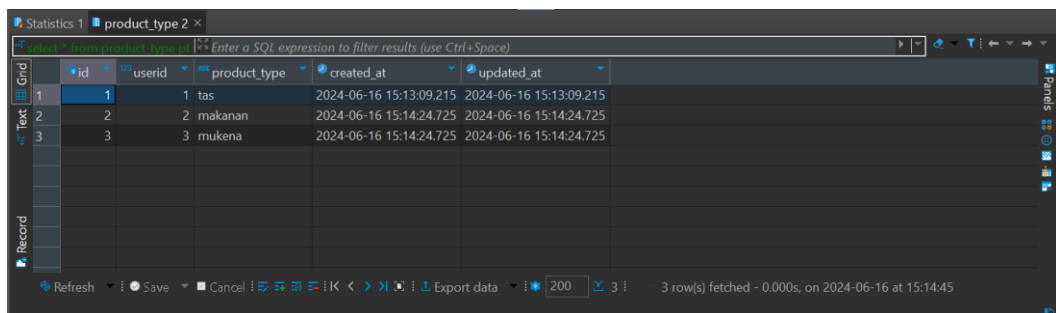
### Release 1 : Create, Update, and Delete Data

#### 1. Create

- a. insert into product\_type (userid, product\_type, created\_at, updated\_at)  
values (1, 'tas', now(), now());

insert into product\_type (userid, product\_type, created\_at, updated\_at)  
values (2, 'makanan', now(), now());

insert into product\_type (userid, product\_type, created\_at, updated\_at)  
values (3, 'mukena', now(), now());

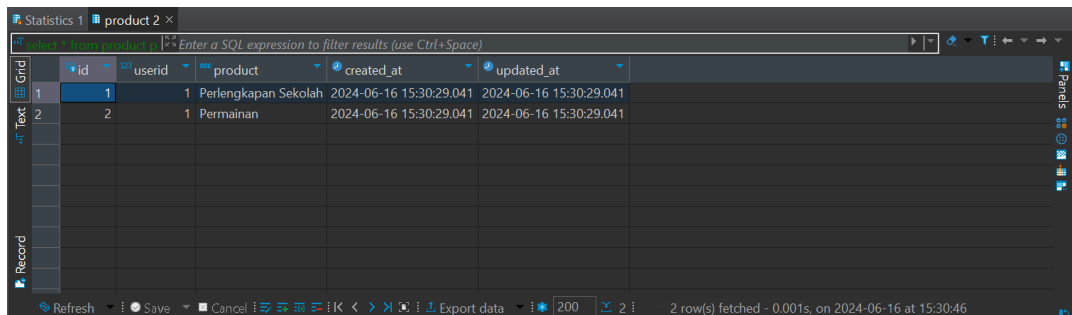


The screenshot shows a database interface with a table named 'product\_type'. The table has five columns: id, userid, product\_type, created\_at, and updated\_at. The data is as follows:

id	userid	product_type	created_at	updated_at
1	1	tas	2024-06-16 15:13:09.215	2024-06-16 15:13:09.215
2	2	makanan	2024-06-16 15:14:24.725	2024-06-16 15:14:24.725
3	3	mukena	2024-06-16 15:14:24.725	2024-06-16 15:14:24.725

- b. insert into product (userid, product, created\_at, updated\_at)  
values (1, 'Perlengkapan Sekolah', now(), now());

insert into product (userid, product, created\_at, updated\_at)  
values (1, 'Permainan', now(), now());



The screenshot shows a database interface with a table named 'product'. The table has five columns: id, userid, product, created\_at, and updated\_at. The data is as follows:

id	userid	product	created_at	updated_at
1	1	Perlengkapan Sekolah	2024-06-16 15:30:29.041	2024-06-16 15:30:29.041
2	1	Permainan	2024-06-16 15:30:29.041	2024-06-16 15:30:29.041

- c. insert into product (userid, product, created\_at, updated\_at)  
values (2, 'Perlengkapan Sekolah', now(), now());

insert into product (userid, product, created\_at, updated\_at)  
values (2, 'Peralatan Olahraga', now(), now());

insert into product (userid, product, created\_at, updated\_at)  
values (2, 'Permainan', now(), now());

	id	userid	product	created_at	updated_at
1	1	1	Perlengkapan Sekolah	2024-06-16 15:30:29.041	2024-06-16 15:30:29.041
2	2	1	Permainan	2024-06-16 15:30:29.041	2024-06-16 15:30:29.041
3	3	2	Perlengkapan Sekolah	2024-06-16 15:33:22.969	2024-06-16 15:33:22.969
4	4	2	Peralatan Olahraga	2024-06-16 15:33:22.969	2024-06-16 15:33:22.969
5	5	2	Permainan	2024-06-16 15:33:22.969	2024-06-16 15:33:22.969

- d. insert into product (userid, product, created\_at, updated\_at)  
values (3, 'Perlengkapan Sekolah', now(), now());

insert into product (userid, product, created\_at, updated\_at)  
values (3, 'Peralatan Ibadah', now(), now());

insert into product (userid, product, created\_at, updated\_at)  
values (3, 'Perlengkapan Dapur', now(), now());

	id	userid	product	created_at	updated_at
1	1	1	Perlengkapan Sekolah	2024-06-16 15:30:29.041	2024-06-16 15:30:29.041
2	2	1	Permainan	2024-06-16 15:30:29.041	2024-06-16 15:30:29.041
3	3	2	Perlengkapan Sekolah	2024-06-16 15:33:22.969	2024-06-16 15:33:22.969
4	4	2	Peralatan Olahraga	2024-06-16 15:33:22.969	2024-06-16 15:33:22.969
5	5	2	Permainan	2024-06-16 15:33:22.969	2024-06-16 15:33:22.969
6	6	3	Perlengkapan Sekolah	2024-06-16 15:36:28.210	2024-06-16 15:36:28.210
7	7	3	Peralatan Ibadah	2024-06-16 15:36:28.210	2024-06-16 15:36:28.210
8	8	3	Perlengkapan Dapur	2024-06-16 15:36:28.210	2024-06-16 15:36:28.210

- e. insert into product\_description (userid, product\_description, created\_at,  
updated\_at)  
values (1, 'Alat untuk membawa buku dan perlengkapan sekolah lainnya', now(),  
now());

insert into product\_description (userid, product\_description, created\_at,  
updated\_at)  
values (1, 'Perang antariksa untuk melawan kejahatan', now(), now());

insert into product\_description (userid, product\_description, created\_at,  
updated\_at)  
values (2, 'Alat untuk membawa buku dan perlengkapan sekolah lainnya', now(),  
now());

insert into product\_description (userid, product\_description, created\_at,  
updated\_at)  
values (2, 'Alat untuk berlari', now(), now());

insert into product\_description (userid, product\_description, created\_at,  
updated\_at)

values (2, 'Perang antariksa untuk melawan kejahatan', now(), now());

insert into product\_description (userid, product\_description, created\_at,  
updated\_at)

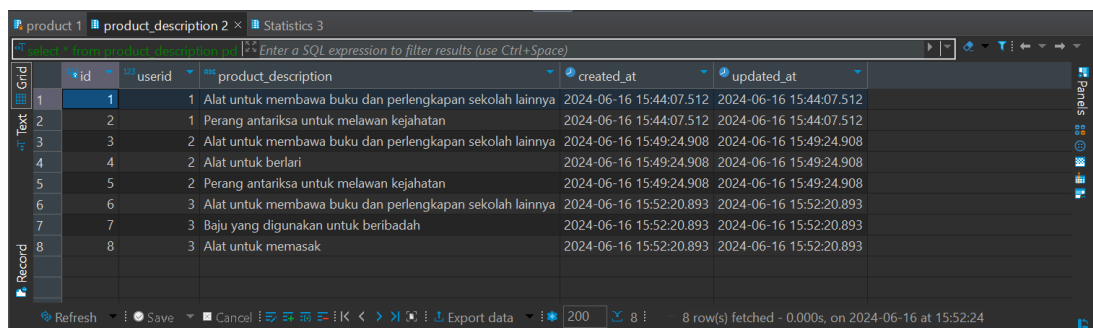
values (3, 'Alat untuk membawa buku dan perlengkapan sekolah lainnya', now(),  
now());

insert into product\_description (userid, product\_description, created\_at,  
updated\_at)

values (3, 'Baju yang digunakan untuk beribadah', now(), now());

insert into product\_description (userid, product\_description, created\_at,  
updated\_at)

values (3, 'Alat untuk memasak', now(), now());



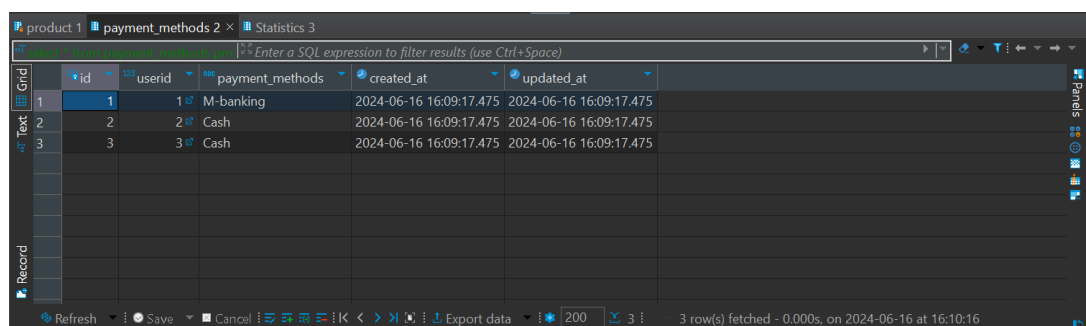
The screenshot shows a database application interface with a table named 'product\_description'. The table has columns: id, userid, product\_description, created\_at, and updated\_at. The data is as follows:

id	userid	product_description	created_at	updated_at
1	1	Alat untuk membawa buku dan perlengkapan sekolah lainnya	2024-06-16 15:44:07.512	2024-06-16 15:44:07.512
2	2	Perang antariksa untuk melawan kejahatan	2024-06-16 15:44:07.512	2024-06-16 15:44:07.512
3	3	Alat untuk membawa buku dan perlengkapan sekolah lainnya	2024-06-16 15:49:24.908	2024-06-16 15:49:24.908
4	4	Alat untuk berlari	2024-06-16 15:49:24.908	2024-06-16 15:49:24.908
5	5	Perang antariksa untuk melawan kejahatan	2024-06-16 15:49:24.908	2024-06-16 15:49:24.908
6	6	Alat untuk membawa buku dan perlengkapan sekolah lainnya	2024-06-16 15:52:20.893	2024-06-16 15:52:20.893
7	7	Baju yang digunakan untuk beribadah	2024-06-16 15:52:20.893	2024-06-16 15:52:20.893
8	8	Alat untuk memasak	2024-06-16 15:52:20.893	2024-06-16 15:52:20.893

- f. insert into payment\_methods (userid, payment\_methods, created\_at, updated\_at)  
values (1, 'M-banking', now(), now());

insert into payment\_methods (userid, payment\_methods, created\_at, updated\_at)  
values (2, 'Cash', now(), now());

insert into payment\_methods (userid, payment\_methods, created\_at, updated\_at)  
values (3, 'Cash', now(), now());



The screenshot shows a database application interface with a table named 'payment\_methods'. The table has columns: id, userid, payment\_methods, created\_at, and updated\_at. The data is as follows:

id	userid	payment_methods	created_at	updated_at
1	1	M-banking	2024-06-16 16:09:17.475	2024-06-16 16:09:17.475
2	2	Cash	2024-06-16 16:09:17.475	2024-06-16 16:09:17.475
3	3	Cash	2024-06-16 16:09:17.475	2024-06-16 16:09:17.475

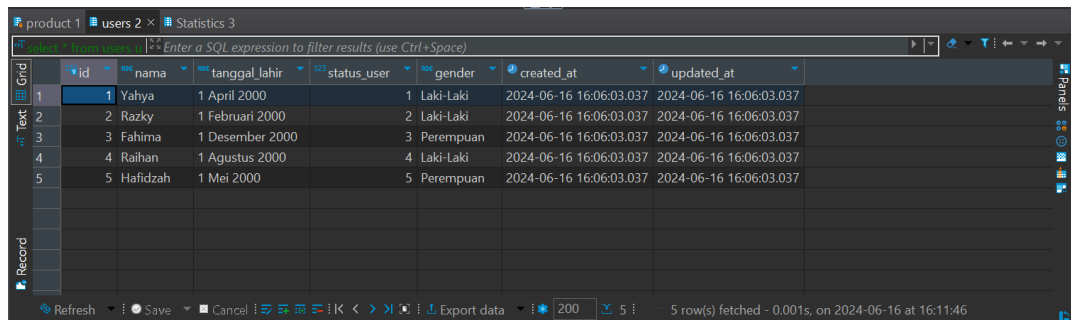
- g. insert into users (nama, tanggal\_lahir, status\_user, gender, created\_at, updated\_at)  
values ('Yahya', '1 April 2000', 1, 'Laki-Laki', now(), now());

insert into users (nama, tanggal\_lahir, status\_user, gender, created\_at, updated\_at)  
values ('Razky', '1 Februari 2000', 2, 'Laki-Laki', now(), now());

insert into users (nama, tanggal\_lahir, status\_user, gender, created\_at, updated\_at)  
values ('Fahima', '1 Desember 2000', 3, 'Perempuan', now(), now());

insert into users (nama, tanggal\_lahir, status\_user, gender, created\_at, updated\_at)  
values ('Raihan', '1 Agustus 2000', 4, 'Laki-Laki', now(), now());

insert into users (nama, tanggal\_lahir, status\_user, gender, created\_at, updated\_at)  
values ('Hafidzah', '1 Mei 2000', 5, 'Perempuan', now(), now());



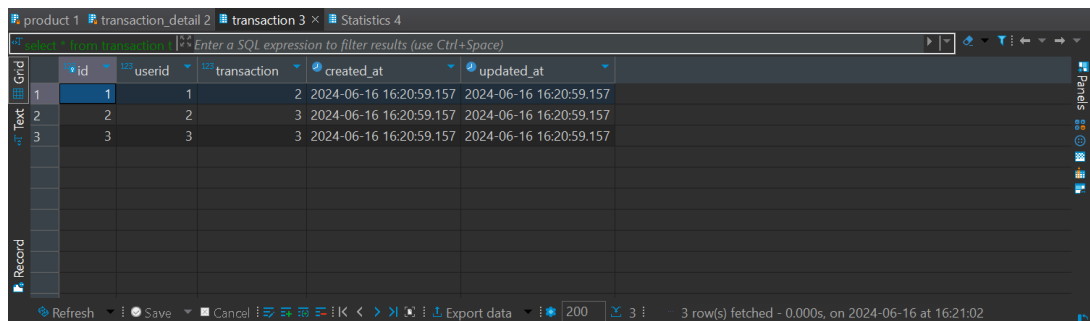
The screenshot shows a database application interface with a table named 'users'. The table has 5 rows of data. The columns are: id, nama, tanggal\_lahir, status\_user, gender, created\_at, and updated\_at. The data is as follows:

id	nama	tanggal_lahir	status_user	gender	created_at	updated_at
1	Yahya	1 April 2000	1	Laki-Laki	2024-06-16 16:06:03.037	2024-06-16 16:06:03.037
2	Razky	1 Februari 2000	2	Laki-Laki	2024-06-16 16:06:03.037	2024-06-16 16:06:03.037
3	Fahima	1 Desember 2000	3	Perempuan	2024-06-16 16:06:03.037	2024-06-16 16:06:03.037
4	Raihan	1 Agustus 2000	4	Laki-Laki	2024-06-16 16:06:03.037	2024-06-16 16:06:03.037
5	Hafidzah	1 Mei 2000	5	Perempuan	2024-06-16 16:06:03.037	2024-06-16 16:06:03.037

- h. insert into transaction (userid, transaction, created\_at, updated\_at)  
values (1, 2, now(), now());

insert into transaction (userid, transaction, created\_at, updated\_at)  
values (2, 3, now(), now());

insert into transaction (userid, transaction, created\_at, updated\_at)  
values (3, 3, now(), now());



The screenshot shows a database application interface with a table named 'transaction'. The table has 3 rows of data. The columns are: id, userid, transaction, created\_at, and updated\_at. The data is as follows:

id	userid	transaction	created_at	updated_at
1	1	2	2024-06-16 16:20:59.157	2024-06-16 16:20:59.157
2	2	3	2024-06-16 16:20:59.157	2024-06-16 16:20:59.157
3	3	3	2024-06-16 16:20:59.157	2024-06-16 16:20:59.157

- i. insert into transaction\_detail (userid, transaction\_detail, created\_at, updated\_at)  
values (1, 'Membeli 1 Tas dan 1 Game Console', now(), now());

insert into transaction\_detail (userid, transaction\_detail, created\_at, updated\_at)  
values (2, 'Membeli 1 Tas, 1 Sepatu Olahraga, dan 1 Game Console', now(),  
now());

insert into transaction\_detail (userid, transaction\_detail, created\_at, updated\_at)  
values (3, 'Membeli 1 Tas, 1 Mukena, dan 1 Spatula', now(), now());

product 1 transaction\_detail 2 Statistics 4

Enter a SQL expression to filter results (use Ctrl+Space)

	id	userid	transaction_detail	created_at	updated_at
1	1	1	Membeli 1 Tas dan 1 Game Console	2024-06-16 16:28:55.749	2024-06-16 16:28:55.749
2	2	2	Membeli 1 Tas, 1 Sepatu Olahraga, dan 1 Game Console	2024-06-16 16:28:55.749	2024-06-16 16:28:55.749
3	3	3	Membeli 1 Tas, 1 Mukuena, dan 1 Spatula	2024-06-16 16:28:55.749	2024-06-16 16:28:55.749

Refresh Save Cancel 200 3 3 row(s) fetched - 0.000s, on 2024-06-16 at 16:28:59

## 2. Select

- a. select \* from users u  
where u.gender like 'L%'

product 1 users 2 Statistics 4

Enter a SQL expression to filter results (use Ctrl+Space)

	id	nama	tanggal_lahir	status_user	gender	created_at	updated_at
1	1	Yahya	1 April 2000	1	Laki-Laki	2024-06-16 16:06:03.037	2024-06-16 16:06:03.037
2	2	Razky	1 Februari 2000	2	Laki-Laki	2024-06-16 16:06:03.037	2024-06-16 16:06:03.037
3	4	Raihan	1 Agustus 2000	4	Laki-Laki	2024-06-16 16:06:03.037	2024-06-16 16:06:03.037

Refresh Save Cancel 200 3 3 row(s) fetched - 0.001s, on 2024-06-16 at 16:37:50

- b. select \* from product p  
where id = 3

product 1 product 2 Statistics 4

Enter a SQL expression to filter results (use Ctrl+Space)

	id	userid	product	created_at	updated_at
1	3	2	Perlengkapan Sekolah	2024-06-16 15:33:22.969	2024-06-16 15:33:22.969

Refresh Save Cancel 200 1 1 row(s) fetched - 0.000s, on 2024-06-16 at 16:41:11

- c. select \* from users u  
where u.created\_at = '2024-06-08 11:32:01.804' and u.nama like 'A%';

product 1 users 2 users 3

Enter a SQL expression to filter results (use Ctrl+Space)

	id	nama	tanggal_lahir	status_user	gender	created_at	updated_at
1	6	Akmal	1 November 2000	6	Laki-Laki	2024-06-08 11:32:01.804	2024-06-16 17:04:02.311

Refresh Save Cancel 200 1 1 row(s) fetched - 0.000s, on 2024-06-16 at 17:28:58

- d. select count(id) from users  
where gender like 'P%';

count
2

1 row(s) fetched - 0.000s, on 2024-06-16 at 17:53:44

- e. select \* from users u  
order by nama asc;

id	nama	tanggal_lahir	status_user	gender	created_at	updated_at
6	Akmal	1 November 2000		Laki-Laki	2024-06-08 11:32:01.804	2024-06-16 17:04:02.311
3	Fahima	1 Desember 2000		Perempuan	2024-06-16 16:06:03.037	2024-06-16 16:06:03.037
5	Hafidzah	1 Mei 2000		Perempuan	2024-06-16 16:06:03.037	2024-06-16 16:06:03.037
4	Raihan	1 Agustus 2000		Laki-Laki	2024-06-16 16:06:03.037	2024-06-16 16:06:03.037
2	Razky	1 Februari 2000		Laki-Laki	2024-06-16 16:06:03.037	2024-06-16 16:06:03.037
1	Yahya	1 April 2000		Laki-Laki	2024-06-16 16:06:03.037	2024-06-16 16:06:03.037

6 row(s) fetched - 0.001s, on 2024-06-16 at 17:56:49

- f. select \* from product p  
where userid = 3;

id	userid	product	created_at	updated_at
6	3	Perlengkapan Sekolah	2024-06-16 15:36:28.210	2024-06-16 15:36:28.210
7	3	Peralatan Ibadah	2024-06-16 15:36:28.210	2024-06-16 15:36:28.210
8	3	Perlengkapan Dapur	2024-06-16 15:36:28.210	2024-06-16 15:36:28.210
9	3	Permainan	2024-06-16 18:01:30.209	2024-06-16 18:01:30.209
10	3	Makanan	2024-06-16 18:01:30.209	2024-06-16 18:01:30.209

5 row(s) fetched - 0.000s, on 2024-06-16 at 18:01:45

### 3. Update

- a. update product set product = 'Product Dummy' where id = 1;

Name	Value
Updated Rows	1
Query	update product set product = 'Product Dummy' where id = 1
Start time	Sun Jun 16 18:04:43 WIB 2024
Finish time	Sun Jun 16 18:04:43 WIB 2024

b. update transaction\_detail set item = '3' where id = 1;

Name	Value
Updated Rows	1
Query	update transaction_detail set item = '3' where id = 1
Start time	Sun Jun 16 18:23:47 WIB 2024
Finish time	Sun Jun 16 18:23:47 WIB 2024

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4. Delete

a. delete from product  
where id = 1;

Name	Value
Updated Rows	1
Query	delete from product where id = 1
Start time	Sun Jun 16 18:37:07 WIB 2024
Finish time	Sun Jun 16 18:37:07 WIB 2024

b. delete from product\_type  
where id = 1;

Name	Value
Updated Rows	1
Query	delete from product_type where id = 1
Start time	Sun Jun 16 18:38:54 WIB 2024
Finish time	Sun Jun 16 18:38:54 WIB 2024

## Release 2 : Join, Union, Sub-query, Function

1. select \* from transaction t  
where id = 1  
union  
select \* from transaction t  
where id = 2;

	id	userid	transaction	created_at	updated_at
1	1	1	2	2024-06-16 16:20:59.157	2024-06-16 16:20:59.157
2	2	2	3	2024-06-16 16:20:59.157	2024-06-16 16:20:59.157

2. select \* from transaction t  
where id = 1;

	id	userid	transaction	created_at	updated_at	transaction_money
1	1	1	2	2024-06-16 16:20:59.157	2024-06-16 16:20:59.157	RP.25,000

3. select \* from transaction t  
where id = 2;

	id	userid	transaction	created_at	updated_at	transaction_money
1	2	2	3	2024-06-16 16:20:59.157	2024-06-16 16:20:59.157	RP.40,000



4. select \* from product p  
inner join product\_type pt  
on p.id = pt.userid;

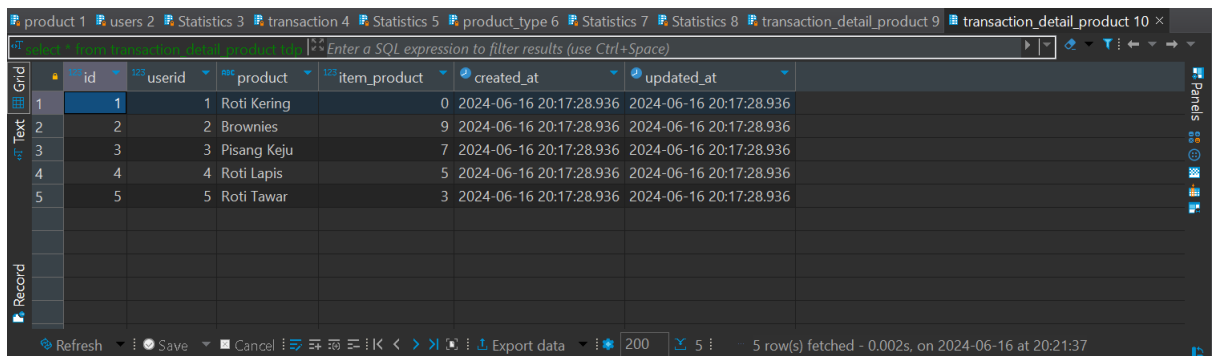
	id	userid	product	created_at	updated_at	id	userid	product_type	created_at
1	2	1	Permainan	2024-06-16 15:30:29.041	2024-06-16 15:30:29.041	2	2	makanan	2024-06-16 15:14:24.725
2	3	2	Perlengkapan Sekolah	2024-06-16 15:33:22.969	2024-06-16 15:33:22.969	3	3	mukena	2024-06-16 15:14:24.725

- 5.
6. select \* from transaction\_detail\_product where id in  
(select userid from transaction\_detail\_product group by userid having  
sum(item\_product) = 0);

	id	userid	product	item_product	created_at	updated_at
1	1	1	Roti Kering	0	2024-06-16 20:17:28.936	2024-06-16 20:17:28.936

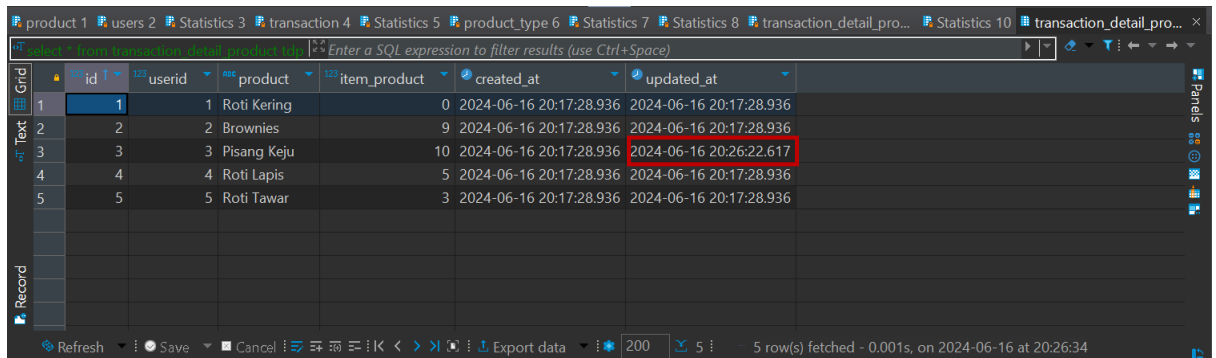
7. create or replace function  
trigger\_set\_timestamp()  
returns trigger as \$\$  
begin  
    new.updated\_at = now ();  
return new;  
end;  
\$\$ language plpgsql;  
  
create trigger set\_timestamp  
before update on transaction\_detail\_product  
for each row  
execute procedure  
trigger\_set\_timestamp();

Sebelum update id nomor 3 yaitu jumlahnya 7, akan diganti menjadi 10



	id	userid	product	item_product	created_at	updated_at
1	1	1	Roti Kering	0	2024-06-16 20:17:28.936	2024-06-16 20:17:28.936
2	2	2	Brownies	9	2024-06-16 20:17:28.936	2024-06-16 20:17:28.936
3	3	3	Pisang Keju	7	2024-06-16 20:17:28.936	2024-06-16 20:17:28.936
4	4	4	Roti Lapis	5	2024-06-16 20:17:28.936	2024-06-16 20:17:28.936
5	5	5	Roti Tawar	3	2024-06-16 20:17:28.936	2024-06-16 20:17:28.936

update transaction\_detail\_product set item\_product = '10' where id = 3;



	id	userid	product	item_product	created_at	updated_at
1	1	1	Roti Kering	0	2024-06-16 20:17:28.936	2024-06-16 20:17:28.936
2	2	2	Brownies	9	2024-06-16 20:17:28.936	2024-06-16 20:17:28.936
3	3	3	Pisang Keju	10	2024-06-16 20:17:28.936	2024-06-16 20:26:22.617
4	4	4	Roti Lapis	5	2024-06-16 20:17:28.936	2024-06-16 20:17:28.936
5	5	5	Roti Tawar	3	2024-06-16 20:17:28.936	2024-06-16 20:17:28.936

Setelah di update, kolom updated\_at otomatis terganti, dan function update\_at berhasil