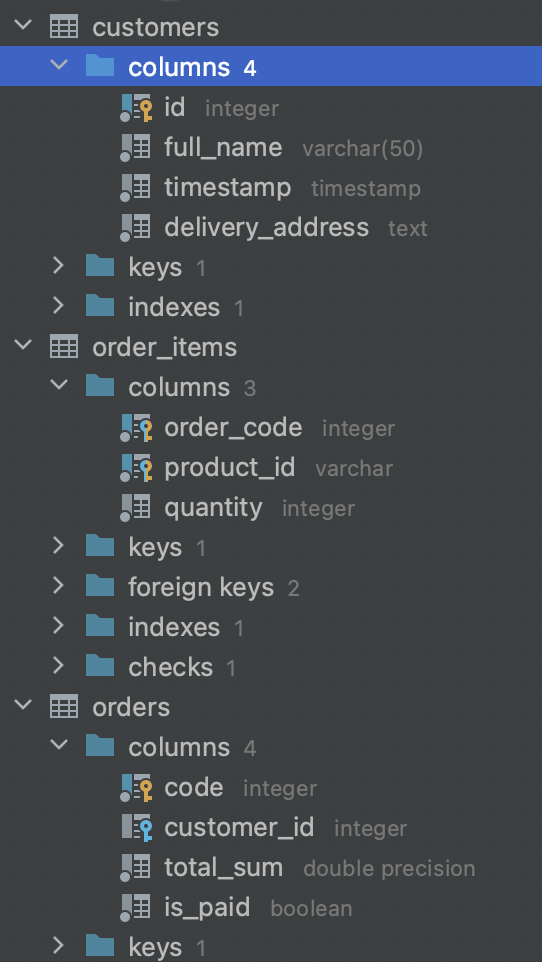
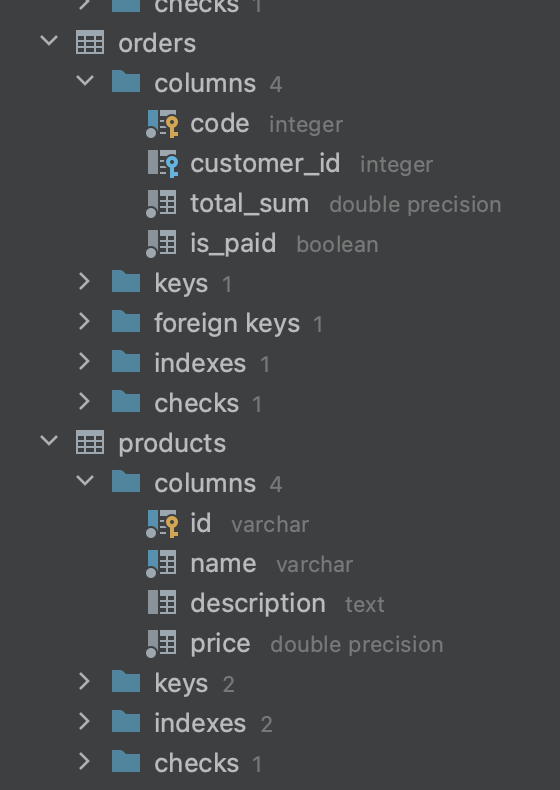
Laboratory 3

1. The difference between DDL and DML. Data Definition Language - is a standard for commands that define the different structures in a database. DDL statements create, modify, and remove database objects such as tables, indexes, and users.

A **data-manipulation language** (**DML**) is a language that enables users to access or ma- nipulate data as organized by the appropriate data model.

1. CREATE TABLE table\_name (), ALTER TABLE table\_name add constraint …, DROP TABLE table\_name
2. SELECT \* FROM table\_name, DELETE FROM table\_name, UPDATE table\_name SET …, INSERT INTO table\_name (…) VALUES (…)
3. -- Second exercise  
     
   CREATE TABLE customers  
   (  
    id integer primary key not null,  
    full\_name varchar(50) not null,  
    timestamp timestamp not null,  
    delivery\_address text not null  
   );  
     
     
   create table orders (  
    code integer primary key,  
    customer\_id integer references customers(id),  
    total\_sum double precision not null,  
    is\_paid boolean not null  
   );  
     
   create table products (  
    id varchar primary key,  
    name varchar unique not null,  
    description text,  
    price double precision not null  
   );  
     
   create table order\_items (  
    order\_code integer references orders(code),  
    product\_id varchar references products(id),  
    primary key(order\_code, product\_id),  
    quantity integer not null  
   );  
     
   alter table order\_items  
   add constraint quantity check (quantity >0);  
     
   alter table orders  
   add constraint total\_sum check (total\_sum > 0);  
     
   alter table products  
   add constraint price check (price > 0);
4. 



1. -- Third exercise  
     
   create database university;  
     
   create type gender as enum('Female', 'Male', 'Other');  
     
     
   create table students (  
    full\_name varchar(50) primary key,  
    age integer not null,  
    birth\_date date not null,  
    gender gender not null,  
    average\_grade float(3) not null,  
    information\_about\_yourself text,  
    need\_for\_dormitory boolean not null default false,  
    additional\_info text  
   );  
     
     
   alter table students  
   add constraint age check (age > 0),  
   add constraint average\_grade check (average\_grade>=0 and average\_grade<=4.0);  
     
     
     
   create table instructors (  
    full\_name varchar(50) primary key,  
    speaking\_languages varchar[] not null,  
    possibility\_of\_remote\_lessons boolean not null  
   );  
     
     
     
   create table work\_experience (  
    full\_name varchar references instructors(full\_name),  
    company\_name varchar,  
    job\_title varchar,  
    duration\_years integer,  
    additional\_info text  
   );  
     
     
     
     
   create table lesson\_participants (  
    lesson\_title varchar not null,  
    teaching\_instructor varchar(50) references instructors(full\_name),  
    studying\_students varchar unique references students(full\_name),  
    room\_number integer not null  
   );  
     
     
   insert into lesson\_participants (lesson\_title, teaching\_instructor, studying\_students, room\_number)  
   values ('DBMS', 'Instructor1', 'Student2', 54);  
     
   select \* from lesson\_participants;  
     
   select \* from students;  
     
   insert into students (full\_name, age, birth\_date, gender, average\_grade, information\_about\_yourself, additional\_info)  
   VALUES ('Student2', 19, '01.11.2003', 'Female', 3.444, '','');
2. -- Fourth exercise  
   insert into customers (id, full\_name, timestamp, delivery\_address)  
   VALUES (1, 'CustomerName', '12.01.2022 23:03:04', 'Address1');  
     
   insert into customers (id, full\_name, timestamp, delivery\_address)  
   VALUES (2, 'CustomerName2', '12.01.2022 23:03:04', 'Address2');  
     
   insert into orders (code, customer\_id, total\_sum, is\_paid)  
   VALUES (1, 1, 3000, false);  
     
   delete from customers where id =1;  
     
   update customers  
   set full\_name = 'SecondChangedCustomerName'  
   where id = 2;  
     
     
   select \* from customers;  
     
   select \* from orders;