Laboratory work 2
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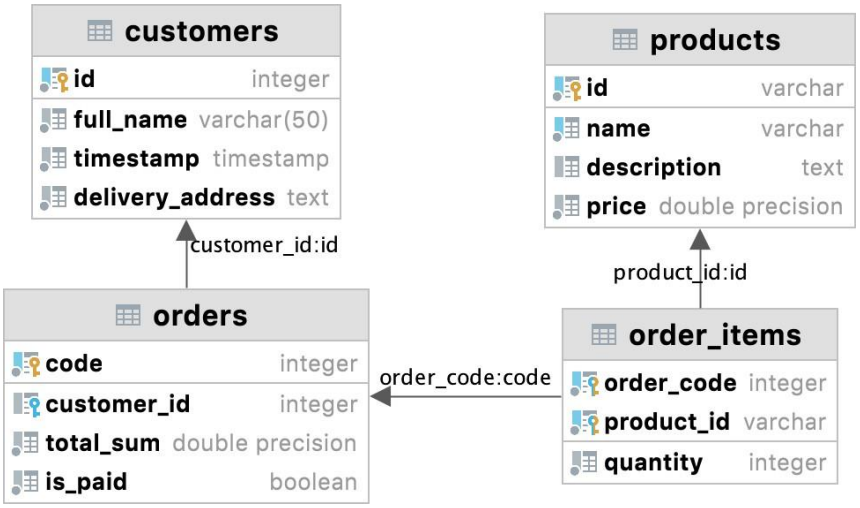
Please write your answers to the pdf file for defence:

1. Explain the difference between DDL and DML, give the following examples:
   DML statements are used to insert, update or delete the records.
   DDL statements are used to create database, schema, constraints, users, tables etc.
   a. at least 3 DDL commands;
   DDL commands CREATE, ALTER, DROP

   b. at least 4 DML commands.
   DML commands SELECT, INSERT, UPDATE, DELETE

2. Write SQL statements to create tables in the figure below:



grey circle - not null, blue column - unique; quantity, total_sum, price > 0

```
create table customers
(
    id integer primary key,
    full_name varchar(50) not null,
    timestamp timestamp not null,
    delivery_address text not null
);

create table products
(
    id varchar primary key,
    name varchar unique not null,
    description text,
```

```
    price double precision not null check (price>0)
);

create table orders
(
    code integer primary key,
    customer_id integer,
    foreign key (customer_id) references customers (id),
    total_sum double precision not null check (total_sum>0),
    is_paid boolean not null
);

create table order_item
(
    order_code integer,
    foreign key (order_code) references orders (code),
    product_id varchar,
    foreign key (product_id) references products (id),
    quantity integer not null check (quantity>0),
    primary key (order_code, product_id)
);
```

3. Write SQL statements describing tables with appropriate ***data types***

and ***constraints*** satisfying the following conditions*(maybe you need additional tables to store data **atomically** and **efficiently**)*:

a. a students table storing data such as full name, age, birth date, gender, average grade, information about yourself, the need for a dormitory, additional info.

```
create table student
(
    id integer primary key,
    full_name varchar(60) not null,
    age integer not null check (age>16),
    birth_date date not null,
    gender varchar(13),
    foreign key (gender) references genders(gender_type),
    grade double precision not null,
    info_about_yourself text not null,
    need_dormitory boolean not null,
    add_info text not null
);
```

b. an instructors table storing data such as full name, speaking languages, work experience, the possibility of having remote lessons.

```
create table instructors
(
    full_name varchar not null primary key,
    speaking_languages varchar not null,
    work_exp varchar not null,
    remote_lessons boolean not null
);
```

c. a lesson participants table storing data such as lesson title, teaching instructor, studying students, room number.

```
create table participants
(
    lesson_title varchar(60) not null,
    instructor varchar(50) not null,
    student varchar(50) not null,
    room_number int check (room_number > 0)
);
```

4. Give examples of insertion, update and deletion of data on tables from exercise 2.

```
insert into products(id, name, description, price) values
(14, 'Coca-Cola', 'zero', 270);
update products set name=’Moyo’ where name=’Amiran’;
delete from products where name=Fuse-Tea';
```

Note: you can test your queries in datagrip