1. Explain the difference between DDL and DML, give the following
   examples:
   a. at least 3 DDL commands;
   b. at least 4 DML commands.

DDL:
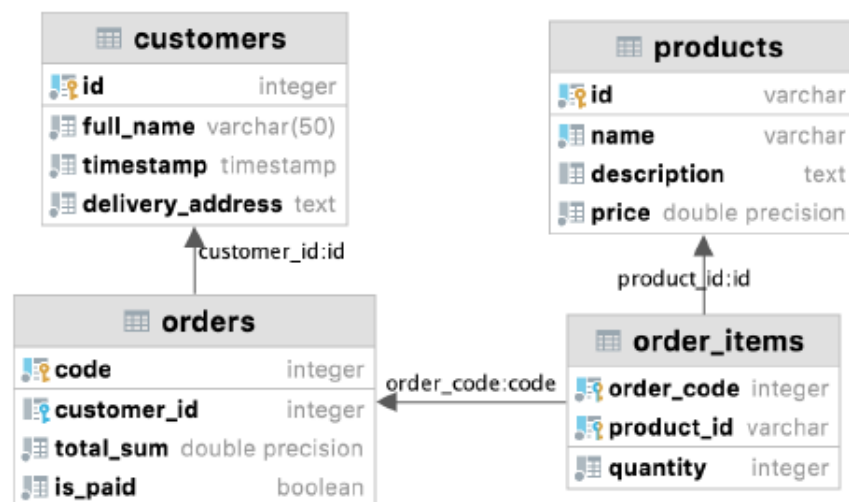DDL is Data Definition Language which is used to define data structures.
Example: CREATE, ALTER, DROP, RENAME

DML:
DML is Data Manipulation Language which is used to manipulate data itself.
Example: UPDATE, INSERT, MERGE.

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 int unique,
    full_name varchar(40) not null,
    timestamp timestamp not null,
    delivery_address text not null,
    primary key (id)
);

Create table products (
    id varchar(40) unique not null,
    name varchar(40) unique not null,
    description text,
    price double precision not null check (price > 0),
    primary key (id)

```
);

Create table orders (
    code int unique not null,
    costumer_id integer references customers(id),
    total_sum double precision not null check (total_sum > 0),
    is_paid bool not null,
    primary key (code)
  );

Create table order_items (
    order_code int unique not null references orders(code),
    product_id  varchar unique 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.
   b. an instructors table storing data such as full name, speaking languages, work experience, the possibility of having remote lessons.
   c. a lesson participants table storing data such as lesson title, teaching instructor, studying students, room number.

```
create table students(
    fullname varchar(40) not null,
    age int not null,
    birth_date date not null,
    gender varchar(10) not null,
    average_grade double precision,
    info_about_yourself text,
    need_for_dormitory bool,
    additional_info text
);

create table instructors (
    full _name varchar(40),
    speaking_languages text not null,
```

```
    work_experience text,
    remote_lessons bool,
    primary key (full_name)
);

create table lesson_participants (
    lesson_title varchar(40) not null,
    teaching_instructor varchar(40) not null references instructor(full_name),
    studying_students int not null,
    room_number int not null
);
```

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

```
INSERT INTO customers
VALUES (12, 'Abdresh Tamerlan', '12:00', 'Aktau');

UPDATE product
SET price = '500'
WHERE id = 11;

DELETE FROM customers WHERE full_name = 'Abdresh Tamerlan';
```