Lab 2 Bazarbai Aruzhan

Task 1.

Explain the difference between DDL and DML

1)DDL(data definition language)-helps to define the structures or schema of the database. We use it to create scheme of database/table. And to define columns of the table.

DDL commands:

-CREATE – create table or database;

-DROP- drop table or database;

-ALTER- change the definition of an existing table(we can add/ drop column/default etc.)

2)DML(data manipulation language)-allow to manipulate data in database.

DML commands:

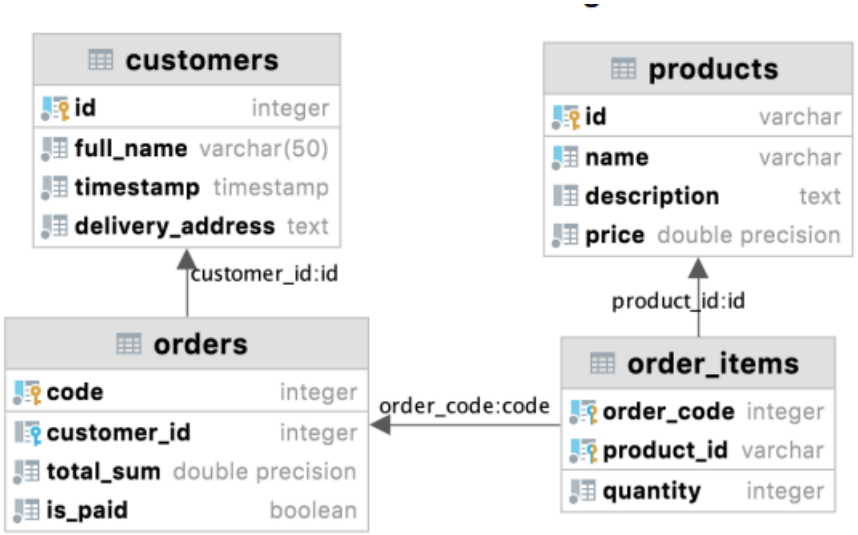
-INSERT- insert data to table

-UPDATE-update existing rows in table(individual or all)

-DELETE-delete rows of table

-SELECT- select and outputs data that satisfies the query

Task 2.



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 orders(
```

```
  code INTEGER PRIMARY KEY ,
  customer_id INTEGER REFERENCES customers(id),
  total_sum DOUBLE PRECISION NOT NULL  CHECK (total_sum>0),
  is_paid BOOLEAN  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 order_items(
  order_code INTEGER REFERENCES orders(code),
  product_id VARCHAR REFERENCES products(id),
  PRIMARY KEY (order_code,product_id),
  quantity INTEGER NOT NULL CHECK(quantity>0)
);
```

task 3

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

```
--condition a
CREATE TABLE students(
   student_id INTEGER primary key ,
   full_name TEXT NOT NULL  ,
   age INTEGER NOT NULL  ,
   birth_date DATE NOT NULL  ,
   gender varchar(10) NOT NULL,
   average_grade NUMERIC(3,2) NOT NULL  CHECK (average_grade>2), --for example 3.56,2.85
   info TEXT NOT NULL  ,
   need_for_dormitory  BOOLEAN NOT NULL  ,
   add_info TEXT
);
--condition b
CREATE TABLE instructors(
   instructor_id INTEGER PRIMARY KEY ,
   full_name TEXT NOT NULL  ,
   speaking_language VARCHAR(50) NOT NULL  ,
   work_experience INTEGER NOT NULL  ,
   remote_lesson BOOLEAN NOT NULL
);
```

--condition c

```
CREATE TABLE lesson(
   lesson_title VARCHAR(50) NOT NULL  ,
   instructor_id INTEGER  REFERENCES instructors,
   student_id INTEGER  REFERENCES students,
   room_number INTEGER NOT NULL
);
```

Task 4

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

```
INSERT INTO products(id,name,description,price)  VALUES('100115','book','dictionary','33.355');
UPDATE products SET name='book1' WHERE name='book';
DALETE FROM products WHERE id='100115';
```