1.

DDL:
DDL is Data Definition Language which is used to define data structures. For example: create table, alter table are instructions in SQL.

DML:
DML is Data Manipulation Language which is used to manipulate data itself. For example: insert, update, delete are instructions in SQL.

Difference between DDL and DML:
DDL

It stands for Data Definition Language.

It is used to create database schema and can be used to define some constraints as well.

It basically defines the column (Attributes) of the table.

It doesn't have any further classification.

DDL does not use WHERE clause in its statement.

DML

It stands for Data Manipulation Language.

It is used to add, retrieve or update the data.

It add or update the row of the table. These rows are called as tuple.

It is further classified into Procedural and Non-Procedural DML.

While DML uses WHERE clause in its statement.

a. at least 3 DDL commands;

INSERT — вставляет в таблицу одну или несколько новых строк.
UPDATE — обновляет в одной или нескольких существующих строках таблицы значения одного или нескольких столбцов.
DELETE — удаляет из таблицы одну или несколько строк.

b. at least 4 DML commands.

- SELECT – выборка данных
- INSERT – вставка новых данных
- UPDATE – обновление данных
- DELETE – удаление данных
- MERGE – слияние данных

2.

```
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 order_items(
    order_code integer UNIQUE NOT NULL REFERENCES orders ,
    product_id varchar NOT NULL REFERENCES products,
    quantity integer NOT NULL CHECK ( QUANTITY > 0 ),
    primary key (order_code,product_id)
);

CREATE TABLE products
(
    id varchar UNIQUE NOT NULL PRIMARY KEY ,
    name varchar NOT NULL ,
    description text,
    price double precision NOT NULL CHECK (PRICE > 0)
);
```

3.

a)

```
CREATE TABLE students(
    ID varchar(10) NOT NULL PRIMARY KEY UNIQUE,
    full_name varchar(50) NOT NULL,
    age smallint NOT NULL,
    bird_date date NOT NULL,
    gender varchar(5) NOT NULL,
    average_grade numeric(3,2) NOT NULL,
    info_a_yself text NOT NULL,
    need_for_dorm boolean,
    add_info text
);
```

b)

```
CREATE TABLE instructor(
    ID varchar(10) NOT NULL UNIQUE PRIMARY KEY,
    full_name varchar(50) NOT NULL,
    speaking_language varchar(15) NOT NULL,
    work_experience text NOT NULL,
    pos_having_remote_lessons boolean NOT NULL
);
```

c)

```
CREATE TABLE lesson_participants(
    title varchar(20) NOT NULL,
    teaching_ins varchar(10) references instructor(ID),
    studying_students varchar(10) references students(ID),
    room_number smallint NOT NULL UNIQUE
);
```

4.

```
INSERT INTO lesson_participants (title, teaching_ins, studying_students,
room_number)
VALUES ('first grade', '034D4' , '904G5', '12A');

UPDATE lesson_participants
SET title = 'second cource' ,  teaching_ins = '046D3'
WHERE room_number = '11A';

DELETE FROM lesson_participants WHERE teaching_ins = '046D3';
```