Лабораторная работа №2

по предмету "Проектирование баз данных"
Вариант 1

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Вариант 1. Заказ продуктов, товаров в магазине

1. Инициализация схемы

SQL-скрипт:

```sql
CREATE EXTENSION IF NOT EXISTS "uuid-ossp";

CREATE TABLE category (
    id uuid PRIMARY KEY DEFAULT uuid_generate_v4(),
    name text NOT NULL
);

CREATE TABLE product (
    id uuid PRIMARY KEY DEFAULT uuid_generate_v4(),
    name text NOT NULL UNIQUE,
    description text,
    price int NOT NULL,
    category_id uuid REFERENCES category(id) NOT NULL
);

CREATE TABLE category_parameter (
    id uuid PRIMARY KEY DEFAULT uuid_generate_v4(),
    category_id uuid REFERENCES category(id) NOT NULL,
    name text NOT NULL
);

CREATE TABLE product_parameter (
    id uuid PRIMARY KEY DEFAULT uuid_generate_v4(),
    product_id uuid REFERENCES product(id) NOT NULL,
    category_param_id uuid REFERENCES category_parameter(id) NOT NULL,
    value text NOT NULL
);

CREATE TABLE store (
    id uuid PRIMARY KEY DEFAULT uuid_generate_v4(),
    location text NOT NULL,
    name text NOT NULL
);

CREATE TABLE store_product (
    id uuid PRIMARY KEY DEFAULT uuid_generate_v4(),
    product_id uuid REFERENCES product(id) NOT NULL,
    store_id uuid REFERENCES store(id) NOT NULL,
    amount int NOT NULL
);

CREATE TABLE app_user (
    id uuid PRIMARY KEY DEFAULT uuid_generate_v4(),
    username text NOT NULL,
    password text NOT NULL,
    name text NOT NULL,
    surname text NOT NULL,
    phone_number text NOT NULL,
    verified boolean NOT NULL DEFAULT false
);
```
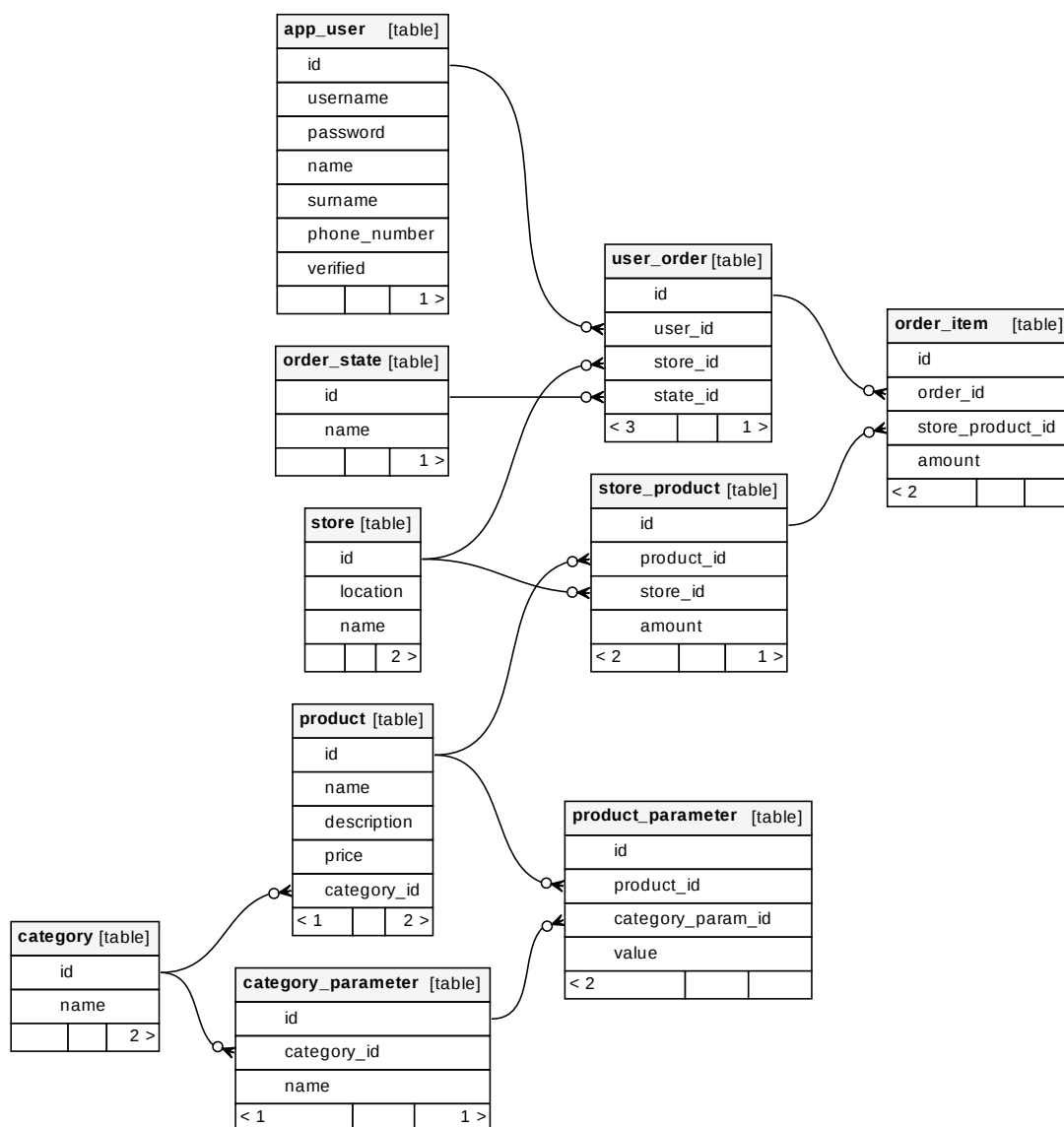
```
CREATE TABLE order_state (
    id uuid PRIMARY KEY DEFAULT uuid_generate_v4(),
    name text NOT NULL
);

CREATE TABLE user_order (
    id uuid PRIMARY KEY DEFAULT uuid_generate_v4(),
    user_id uuid REFERENCES app_user(id) NOT NULL,
    store_id uuid REFERENCES store(id) NOT NULL,
    state_id uuid REFERENCES order_state(id) NOT NULL
);

CREATE TABLE order_item (
    id uuid PRIMARY KEY DEFAULT uuid_generate_v4(),
    order_id uuid REFERENCES user_order(id) NOT NULL,
    store_product_id uuid REFERENCES store_product(id) NOT NULL,
    amount int NOT NULL DEFAULT 1
);
```

Сгенерированная на основе схемы данных диаграмма:

Generated by SchemaSpy

2. Заполнение данных

Заполнение данных с помощью SQL:

```sql
INSERT INTO order_state (name)
VALUES ('COLLECTING'), ('BOOKED'), ('PAID'), ('DELIVERED');

INSERT INTO category (name)
VALUES ('Alcohol'),
       ('Fruits'),
       ('Vegetables'),
       ('Dairy'),
       ('Grocery');

INSERT INTO category_parameter (category_id, name)
VALUES ((SELECT id FROM category WHERE name = 'Alcohol'), 'ABV'),
       ((SELECT id FROM category WHERE name = 'Alcohol'), 'Country'),
       ((SELECT id FROM category WHERE name = 'Fruits'), 'Country'),
       ((SELECT id FROM category WHERE name = 'Vegetables'), 'Country'),
       ((SELECT id FROM category WHERE name = 'Dairy'), 'Fat %'),
       ((SELECT id FROM category WHERE name = 'Dairy'), 'Lactose');

INSERT INTO store (location, name)
VALUES ('St. Petersburg', 'Peter the Great delivery market'),
       ('Moscow', 'Mausoleum market'),
       ('Izmir', 'Waiting for Irish visa market');
```

Заполнение данных с помощью CSV:

1. product

```
name,description,price,category
Pinot Grigio,Italian white wine,100000,Alcohol
Bordeaux,French red wine,50000,Alcohol
Campo Viejo Rioja,Spanish red wine,120000,Alcohol
Apples,Local apples,5000,Fruits
Peaches,Local peaches,6000,Fruits
Carrot,Local carrot,4500,Vegetables
Potato,Local potato,4000,Vegetables
Yogurt,Turkish yogurt,10000,Dairy
Milk "Happy farmer",,10000,Dairy
Milk "Prostokvashino",,11000,Dairy
Spaghetti "Barilla",,15000,Grocery
```

```
psql --username=postgres --echo-all -v ON_ERROR_STOP=1 \
        -c "CREATE TEMP TABLE product_uploaded (
             name text NOT NULL UNIQUE,
             description text,
             price int NOT NULL,
             category text not null
           );" \
        -c "\copy product_uploaded FROM 'lab2/products.csv' WITH (FORMAT CSV, DELIMITER ',',
        -c "INSERT INTO product (name, description, price, category_id)
```

```
            SELECT p.name, p.description, p.price, c.id
            FROM product_uploaded p
            JOIN category c ON p.category = c.name;"
```

```
SELECT * FROM product;
```

id	name	description	price	category_id
ec1520a7-f632-422b-99f5-bfa46651e34a	Campo Viejo Rioja	Spanish red wine	120000	3667fa24-66de-47cd-b618-2a276ba66743
d80ad475-f326-4fd7-ba4e-96fe764d1ed0	Bordeaux	French red wine	50000	3667fa24-66de-47cd-b618-2a276ba66743
8855051d-c2cc-44de-9c0d-87016dd405c6	Pinot Grigio	Italian white wine	100000	3667fa24-66de-47cd-b618-2a276ba66743
f96dbaa3-60a5-4a35-80b1-cf7fbf185606	Peaches	Local peaches	6000	9ba53181-ec21-4e48-a7ae-72427c2e9e3f
9bb08012-2caa-45f7-b874-7b29e691b308	Apples	Local apples	5000	9ba53181-ec21-4e48-a7ae-72427c2e9e3f
e66e3d41-2104-4c8d-a037-e3af94d0d835	Potato	Local potato	4000	7e93c565-9957-4301-9464-feeed7675303
5f58d155-4412-4259-a7d6-22100dfca914	Carrot	Local carrot	4500	7e93c565-9957-4301-9464-feeed7675303
4a76888a-3b31-4de2-badc-589ed3c60a3e	Milk Prostokvashino		11000	e0683d56-01eb-4f69-9eaf-94d83ce0d410
8ceb622a-7d8a-4f09-9649-cfb37649f7d5	Milk Happy farmer		10000	e0683d56-01eb-4f69-9eaf-94d83ce0d410
47165aae-b76e-43b7-9cee-0469e3f67c2c	Yogurt	Turkish yogurt	10000	e0683d56-01eb-4f69-9eaf-94d83ce0d410
7da4304e-b524-4f5d-a9de-5ddc1809779f	Spaghetti Barilla		15000	f5c7a745-6082-4ff8-8acb-9bbc1fa3c436

(11 rows)

2. product_parameter

```
product_name,category_param,value
Pinot Grigio,ABV,12
Pinot Grigio,Country,Italy
Bordeaux,ABV,13
Bordeaux,Country,France
Campo Viejo Rioja,ABV,13.5
Campo Viejo Rioja,Country,Spain
```

```
Apples,Country,Russia
Peaches,Country,Russia
Carrot,Country,Russia
Potato,Country,Russia
Yogurt,Fat %,5
Yogurt,Lactose,true
Milk "Happy farmer",Fat %,2.5
Milk "Happy farmer",Lactose,true
Milk "Prostokvashino",Fat %,3
Milk "Prostokvashino",Lactose,true
```

```
psql --dbname=postgres --username=postgres --host=localhost --echo-all -v ON_ERROR_STOP=1
        -c "CREATE TEMP TABLE product_param_uploaded (
             product_name text NOT NULL,
             category_param text not null,
             value text not null
           );"
        -c "\copy product_param_uploaded FROM 'lab2/product_params.csv' WITH (FORMAT CSV, DEL
        -c "INSERT INTO product_parameter (product_id, category_param_id, value)
            SELECT p.id, cp.id, pp.value
            FROM product_param_uploaded pp
            JOIN product p ON p.name = pp.product_name
            JOIN category_parameter cp ON cp.category_id = p.category_id AND pp.category_para
```

```sql
SELECT * FROM product_parameter;
```

id	product_id	category_param_id	value
92c6ed6e-bc6a-43c8-b84d-90fdba0aa95d	8855051d-c2cc-44de-9c0d-87016dd405c6	229a7de5-41e7-420f-b951-11be4031e329	12
e02cea0d-646e-487a-b8b8-d1823fa4202c	d80ad475-f326-4fd7-ba4e-96fe764d1ed0	229a7de5-41e7-420f-b951-11be4031e329	13
f8928678-8e8e-4f50-9499-40a895f05a5e	ec1520a7-f632-422b-99f5-bfa46651e34a	229a7de5-41e7-420f-b951-11be4031e329	13.5
e44b3045-598e-4c48-907a-7a9a51dc6daa	8855051d-c2cc-44de-9c0d-87016dd405c6	63c0b32c-951b-4abb-9abb-2a0dfd2642ac	Italy
0b57c0bf-20a8-498c-86ae-22ae2da8260f	d80ad475-f326-4fd7-ba4e-96fe764d1ed0	63c0b32c-951b-4abb-9abb-2a0dfd2642ac	France
fe411688-1480-40ec-b85c-0996154335ac	ec1520a7-f632-422b-99f5-bfa46651e34a	63c0b32c-951b-4abb-9abb-2a0dfd2642ac	Spain
f742ca60-8b25-4fe7-ab27-4f6213f679aa	5f58d155-4412-4259-a7d6-22100dfca914	673ca055-c28a-423e-a8e8-16da66888532	Russia
90bbec44-985d-4a97-93ff-1f3937d51a96	e66e3d41-2104-4c8d-a037-e3af94d0d835	673ca055-c28a-423e-a8e8-16da66888532	Russia

83b26d6f-ce05-4228-98e4-6d3982631094	9bb08012-2caa-45f7-b874-7b29e691b308	c3fa1661-be3b-47c1-bee0-38616da3dbcd	Russia
cc1a3627-01e1-468a-9ee6-d3b157371f74	f96dbaa3-60a5-4a35-80b1-cf7fbf185606	c3fa1661-be3b-47c1-bee0-38616da3dbcd	Russia
125a1af7-ad4f-4e96-ad17-d90b96f2e963	47165aae-b76e-43b7-9cee-0469e3f67c2c	ca3b6621-f6d6-494b-b3ac-721937116795	5
ba445c47-fab8-4fa2-a1ba-e1a761c1e545	8ceb622a-7d8a-4f09-9649-cfb37649f7d5	ca3b6621-f6d6-494b-b3ac-721937116795	2.5
7e0ca49a-e13a-4aa9-9fe6-cae743ceeeb8	4a76888a-3b31-4de2-badc-589ed3c60a3e	ca3b6621-f6d6-494b-b3ac-721937116795	3
ffb6fd19-3184-4035-bb66-7401e18e0ed4	47165aae-b76e-43b7-9cee-0469e3f67c2c	43126b6e-bcb0-4978-b1d9-b9b7b4e5cbc3	true
b80184eb-f787-4430-87e5-cffa27e52da0	8ceb622a-7d8a-4f09-9649-cfb37649f7d5	43126b6e-bcb0-4978-b1d9-b9b7b4e5cbc3	true
02bf4a47-5ed1-412b-8e2e-1b2a6d0efe2b	4a76888a-3b31-4de2-badc-589ed3c60a3e	43126b6e-bcb0-4978-b1d9-b9b7b4e5cbc3	true

(16 rows)

3. store_product

```
product_name,store_name,amount
Pinot Grigio,Peter the Great delivery market,2
Bordeaux,Peter the Great delivery market,3
Campo Viejo Rioja,Peter the Great delivery market,1
Apples,Peter the Great delivery market,100
Peaches,Peter the Great delivery market,50
Carrot,Peter the Great delivery market,120
Potato,Peter the Great delivery market,150
Yogurt,Peter the Great delivery market,40
Milk "Happy farmer",Peter the Great delivery market,27
Milk "Prostokvashino",Peter the Great delivery market,40
```

```
psql --dbname=postgres --username=postgres --host=localhost --echo-all -v ON_ERROR_STOP=1
        -c 'CREATE TEMP TABLE store_product_uploaded (
                product_name text NOT NULL,
                store_name text NOT NULL,
                amount int NOT NULL
            );'
        -c "\copy store_product_uploaded FROM 'lab2/store_products.csv' WITH (FORMAT CSV, DEL
        -c 'INSERT INTO store_product (product_id, store_id, amount)
            SELECT p.id, s.id, sp.amount uploaded_amount
            FROM store_product_uploaded sp
            JOIN product p ON p.name = sp.product_name
            JOIN store s ON s.name = sp.store_name
            ON CONFLICT (product_id, store_id) DO UPDATE
            SET amount = store_product.amount + excluded.amount'
```

```
SELECT * FROM store_product;
```

id	product_id	store_id	amount
d8921e3a-4b0c-484b-b85d-2e9498e5e3ba	8855051d-c2cc-44de-9c0d-87016dd405c6	48eeebb6-e8af-4261-b1ef-23aad3a281c5	2
261e45b6-d1bb-47f1-894e-47b06ccf549d	d80ad475-f326-4fd7-ba4e-96fe764d1ed0	48eeebb6-e8af-4261-b1ef-23aad3a281c5	3
1f01c0ff-5350-4ce6-8ec9-4f09ae872bf2	ec1520a7-f632-422b-99f5-bfa46651e34a	48eeebb6-e8af-4261-b1ef-23aad3a281c5	1
e476b5c1-f5be-4621-b647-7603e27e06d9	9bb08012-2caa-45f7-b874-7b29e691b308	48eeebb6-e8af-4261-b1ef-23aad3a281c5	100
1b6b1cf6-a88f-4318-a4eb-60e83224ac19	f96dbaa3-60a5-4a35-80b1-cf7fbf185606	48eeebb6-e8af-4261-b1ef-23aad3a281c5	50
80f730c5-1a77-4e8c-b1c2-d51dfeef4c84	5f58d155-4412-4259-a7d6-22100dfca914	48eeebb6-e8af-4261-b1ef-23aad3a281c5	120
56218e87-1172-4d59-b834-53bb4c9fbcc9	e66e3d41-2104-4c8d-a037-e3af94d0d835	48eeebb6-e8af-4261-b1ef-23aad3a281c5	150
29a69c27-ffff-4cb4-951e-27f3383ec8c3	47165aae-b76e-43b7-9cee-0469e3f67c2c	48eeebb6-e8af-4261-b1ef-23aad3a281c5	40
f31ee4ea-ebc2-4315-a225-ce03315cf550	8ceb622a-7d8a-4f09-9649-cfb37649f7d5	48eeebb6-e8af-4261-b1ef-23aad3a281c5	27
c5d35634-c64b-4ee0-869c-81b1131c431a	4a76888a-3b31-4de2-badc-589ed3c60a3e	48eeebb6-e8af-4261-b1ef-23aad3a281c5	40

(10 rows)