Task: “Shop”

Create a shop database with 2 tables - products and product categories:

- Each product belongs to some category
- Insert data into the tables (3-5 rows):

```
CREATE DATABASE shop;

USE shop;

CREATE TABLE categories
(
    id INT PRIMARY KEY AUTOINCREMENT,
    name VARCHAR(255)
);

INSERT INTO categories(category_id, category_name)
VALUES (1, 'less 100'), (2, 'more 100');

CREATE TABLE products
(
    id INT PRIMARY KEY AUTO_INCREMENT,
    name VARCHAR(255),
    price DECIMAL(5, 2) NOT NULL,
    category_id INT,
    FOREIGN KEY (category_id) REFERENCE
categories(category_id)
);

INSERT INTO products (name, price)
VALUES ('bread', 35.38), ('sugar', 69.28),
('cookies', 42.62), ('cola 0.5', 110), ('apple',
103);
```

- Try UPDATE, DELETE:
- Delete products with price above 100
- Change the name and price of some product

```
DELETE FROM products
WHERE price > 100;
```

```
UPDATE products
SET name = 'test_name_2', price = 56.78
WHERE id = 2;
```

Task: “Simple Requests”

Database "world", table "city":

1.Output all rows, but only the columns name and district:

```
# 1
SELECT name, district
FROM city;
```

2. Output only cities from Russia, sort by name:

```
# 2
SELECT name
FROM city
WHERE CountryCode = 'RUS'
ORDER BY name;
```

3. Output cities from Spain, Portugal and Greece,
sort by name in descending order:

```
# 3
SELECT name
FROM city
WHERE CountryCode IN ('GRC', 'ESP', 'PRT')
ORDER BY name DESC;
```

4. Output the cities whose population is in the range from 300000 to 500000:

```
# 4
SELECT name
FROM city
WHERE population BETWEEN 300000 AND 500000;
```

5. Find the cities that begin with the letter A:

```
# 5
SELECT name
FROM city
```

```
WHERE name LIKE 'a%';
```

6. Find cities containing the letter A:

```
# 6
SELECT name
FROM city
WHERE name LIKE '%a%';
```

7. Find cities from Russia with a population of at least 1 mln:

```
# 7
SELECT name
FROM city
WHERE CountryCode = 'RUS' AND population >= 1000000;
```

8. Output cities from Spain starting with the letter A, and cities from Greece with population up to 200000 people:

```
# 8
SELECT name
FROM city
WHERE (CountryCode = 'ESP' AND name LIKE 'A%') OR
(CountryCode = 'GRC' AND population <= 200000);
```

Task: “Group BY”

Database "world", table "city":

1.Output all countries along with the number of cities:

```
1#
SELECT CountryCode AS country, COUNT(name) AS
citiesCount
FROM city
GROUP BY CountryCode;
```

2.Output all countries with the number of cities, leave only countries with at least 2 cities:

```
2#
SELECT CountryCode AS country, COUNT(name) AS
citiesCount
```

```
FROM city
GROUP BY CountryCode
HAVING count(name) >= 2;
```

3. Output all countries with the number of cities with at least 1 million people, leaving only countries with at least 2 cities.
with at least 1 million people, leaving only countries with at least 2 cities of this type:

```
3#
SELECT CountryCode AS country, COUNT(name) AS
citiesCount
FROM city
WHERE population >= 1000000
GROUP BY CountryCode
HAVING count(name) >= 2;
```

4.Find the average population of cities for each country
for each country, in descending order of the average population:

```
4#
SELECT CountryCode AS country, AVG(Population) AS
averagePopulation
FROM city
GROUP BY CountryCode
ORDER BY averagePopulation DESC;
```

Task: "JOIN"

1.Try a CROSS JOIN between the city and country tables:

```
SELECT country.Name AS CountryName, city.Name AS
CapitalCity
FROM city
JOIN country
    ON city.ID = country.Capital;
```

2. Using INNER JOIN: output the country code, country name, and capital city name country and the name of the capital city:

```
SELECT city.CountryCode, country.Name, city.Name
FROM city
INNER JOIN country
```

```
    ON city.ID = country.Capital;
```

3. Make a request that outputs the name of a city, its population, and its country code and name:

```
SELECT city.Name, city.Population, country.Code,
country.Name
FROM city
JOIN country
    ON city.CountryCode = country.Code
ORDER BY country.Name, city.Name;
```

4. For each continent, output the number of cities from that continent. Make sure that there are no cities in Antarctica, but you still need to output 0:

```
SELECT country.Continent, COUNT(city.name) AS
countOfCities
FROM country
LEFT JOIN city
    ON city.CountryCode = country.code
GROUP BY continent;
```

5. Print the number of official languages for each countries in descending order of the number of these languages:

```
SELECT COUNT(countrylanguage.IsOfficial) AS
offLangCount, country.Name
FROM country
LEFT JOIN countrylanguage
    ON country.Code = countrylanguage.CountryCode
WHERE countrylanguage.IsOfficial = 'T' OR
countrylanguage.IsOfficial IS NULL
GROUP BY country.Name
ORDER BY offLangCount DESC;
```