1. Практическая часть

1.1. Создание таблиц

```sql
CREATE TABLE city
  (
    name        VARCHAR(40),
    population  INT,
    area        INT,
    country     VARCHAR(40),
    PRIMARY KEY(name)
  );

CREATE TABLE country
  (
    name        VARCHAR(40),
    population  INT,
    area        INT,
    capital     VARCHAR(40),
    PRIMARY KEY(name)
  );
```

1.2. Заполнение таблиц

```sql
INSERT INTO City VALUES('Shanghai', 24150000, 6340, 'China');
INSERT INTO City VALUES('Alexandria', 3917084, 2679, 'Egypt');
INSERT INTO City VALUES('Suzhou', 6297, 8488, 'China');
INSERT INTO City VALUES('Hyderabad', 3637483, 650, 'India');
INSERT INTO City VALUES('Guangzhou', 10000000, 7434, 'China');
INSERT INTO City VALUES('Pyongyang', 2581076, 1100, 'North Korea');
INSERT INTO City VALUES('Chennai', 4590267, 181, 'India');
INSERT INTO City VALUES('New York', 19795791, 1214, 'United States');
INSERT INTO City VALUES('Bangkok', 5674843, 1568, 'Thailand');
INSERT INTO City VALUES('Lagos', 13123000, 999, 'Nigeria');
INSERT INTO City VALUES('London', 8538689, 1706, 'United Kingdom');
INSERT INTO City VALUES('Lahore', 7129629, 1172, 'Pakistan');
INSERT INTO City VALUES('Rio de Janeiro', 6453682, 1265, 'Brazil');
INSERT INTO City VALUES('Brazilia', 2609997, 5801, 'Brazil');
INSERT INTO City VALUES('Islamabad', 1082262, 851, 'Pakistan');
INSERT INTO City VALUES('Abuja', 778567, 609, 'Nigeria');
INSERT INTO City VALUES('Washington', 601723, 177, 'United States');
INSERT INTO City VALUES('New Delhi', 295000, 42, 'India');
INSERT INTO City VALUES('Cairo', 8026454, 528, 'Egypt');
INSERT INTO City VALUES('Beijing', 21705000, 16801, 'China');

INSERT INTO Country VALUES('China', 1373541278, 9596960, 'Beijing');
INSERT INTO Country VALUES('Egypt', 85294388, 1001450, 'Cairo');
INSERT INTO Country VALUES('India', 1291594000, 3287263, 'New Delhi');
INSERT INTO Country VALUES('North Korea', 24720407, 120540, 'Pyongyang');
INSERT INTO Country VALUES('United States', 325607197, 9519431, 'Washington');
INSERT INTO Country VALUES('Thailand', 70498494, 514000, 'Bangkok');
INSERT INTO Country VALUES('Nigeria', 182201962, 923768, 'Abuja');
INSERT INTO Country VALUES('United Kingdom', 63395574, 243809, 'London');
INSERT INTO Country VALUES('Pakistan', 199085847, 803940, 'Islamabad');
INSERT INTO Country VALUES('Brazil', 205823665, 8514877, 'Brazilia');
```

1.3. Задания

- Вывести информацию по стране, передаваемой в качестве параметра в where, включающую в себя все города для этой страны с их населением.

```
SELECT City.Name, City.Population
FROM City JOIN Country ON Country.Name=City.Country
WHERE Country='China'
```

Name	Population
Beijing	21705000
Guangzhou	10000000
Shanghai	24150000
Suzhou	6297

- Вывести сумму площади по городам в рамках каждой страны.

```
SELECT Country.Name, SUM(City.Area)
FROM City JOIN Country ON Country.Name=City.Country
GROUP BY Country.Name
```

Name	SUM(City.Area)
Brazil	7066
China	39063
Egypt	3207
India	873
Nigeria	1608
North Korea	1100
Pakistan	2023
Thailand	1568
United Kingdom	1706
United States	1391

- Сделать Foreign key Country.Capital -> City.Name

```
ALTER TABLE Country ADD FOREIGN KEY (Capital) REFERENCES City(Name)
```

2. Домашнее задание

2.1. Создание таблиц

```sql
CREATE TABLE festival
  (
    name      VARCHAR(40),
    city      VARCHAR(40),
    places    INT,
    country   VARCHAR(40),
    organizer VARCHAR(40),
    PRIMARY KEY(name)
  );

CREATE TABLE festivalorganizer
  (
    name                 VARCHAR(40),
    accreditationcountry VARCHAR(40),
    PRIMARY KEY(name, accreditationcountry)
  );
```

2.2. Создание внешних ключей

```sql
ALTER TABLE FestivalOrganizer ADD FOREIGN KEY (AccreditationCountry) REFERENCE Country(Name)
ALTER TABLE City ADD FOREIGN KEY (Country) REFERENCES Country(Name)
ALTER TABLE Festival ADD FOREIGN KEY (Country) REFERENCES Country(Name)
ALTER TABLE Festival ADD FOREIGN KEY (City) REFERENCES City(Name)
ALTER TABLE Festival ADD FOREIGN KEY (Country, Organizer) REFERENCES FestivalOrganizer(AccreditationCountry, Name)
ALTER TABLE Country ADD FOREIGN KEY (Name) REFERENCES FestivalOrganizer(AccreditationCountry)
```

2.3. Заполнение таблиц

```sql
INSERT INTO FestivalOrganizer VALUES('18 Hours Ltd','Brazil');
INSERT INTO FestivalOrganizer VALUES('AEG Live','Brazil');
INSERT INTO FestivalOrganizer VALUES('AEG Live','China');
INSERT INTO FestivalOrganizer VALUES('Aidan Liban','Egypt');
INSERT INTO FestivalOrganizer VALUES('Alexis Barrett','India');
INSERT INTO FestivalOrganizer VALUES('Alison Povey','Nigeria');
INSERT INTO FestivalOrganizer VALUES('Alison Povey','North Korea');
INSERT INTO FestivalOrganizer VALUES('AllenEvents','Pakistan');
INSERT INTO FestivalOrganizer VALUES('Beach Music','Thailand');
INSERT INTO FestivalOrganizer VALUES('Dug Up Music','United Kingdom');
INSERT INTO FestivalOrganizer VALUES('DHP Group','United States');

INSERT INTO Festival VALUES('Bestival','Abuja', 3456, 'Nigeria', 'Alison Povey');
INSERT INTO Festival VALUES('Field Day','Alexandria', 2540, 'Egypt', 'Aidan Liban');
INSERT INTO Festival VALUES('Glastonbury','Bangkok', 4877, 'Thailand', 'Beach Music');
INSERT INTO Festival VALUES('Green Man','Beijing', 3624, 'China', 'AEG Live');
INSERT INTO Festival VALUES('Latitude','Brazilia', 2596, 'Brazil', 'AEG Live');
INSERT INTO Festival VALUES('Lovebox','Rio de Janeiro', 3328, 'Brazil', '18 Hours Ltd');
INSERT INTO Festival VALUES('Reading Festival','Cairo', 2748, 'Egypt', 'Aidan Liban');
INSERT INTO Festival VALUES('Secret Garden Party','Chennai', 2836, 'India', 'Alexis Barrett');
INSERT INTO Festival VALUES('The Great Escape','Islamabad', 2312, 'Pakistan', '
```

```
AllenEvents');
INSERT INTO Festival VALUES('Wilderness','London', 4641, 'United Kingdom', 'Dug
 Up Music');
```

2.4. Задания

* Вывести все фестивали, которые проводятся в стране с наибольшим населением.

```
SELECT Festival.Name
FROM Festival
JOIN Country ON Festival.Country = Country.Name
WHERE Country.Population = (
SELECT MAX( Population )
FROM Country )
```

Name
Green Man

* Вывести все фестивали, которые проводятся в городах с населением большим, чем N (N выбрать самостоятельно, в зависимости от ваших данных).

```
SELECT Festival.Name
FROM Festival JOIN City ON Festival.City=City.Name
WHERE City.Population>5000000
```

Name
Glastonbury
Green Man
Reading Festival
Wilderness
Lovebox

* Рассчитать среднее население городов в странах, в городах которых проходят 3 крупнейших фестиваля. Крупнейшим считается фестиваль в городе с населением большим, чем во всех остальных городах.

```
CREATE VIEW GreatestFestivals AS
SELECT Festival.Name, Festival.City, Festival.Country
FROM Festival JOIN City ON Festival.City=City.Name
WHERE Festival.City IN(
SELECT City.Name
FROM City
WHERE City.Population IN(
SELECT MAX(Population)
FROM City
GROUP BY City.Country))
```

```sql
CREATE VIEW Average AS
SELECT GreatestFestivals.Country, AVG(City.Population) AS Average
FROM City JOIN GreatestFestivals ON City.Country=GreatestFestivals.Country
GROUP BY GreatestFestivals.Country

SELECT Country, Average
FROM Average
ORDER BY Average DESC
LIMIT 3
```

Country	Average
United Kingdom	8538689.0000
Egypt	5971769.0000
Thailand	5674843.0000