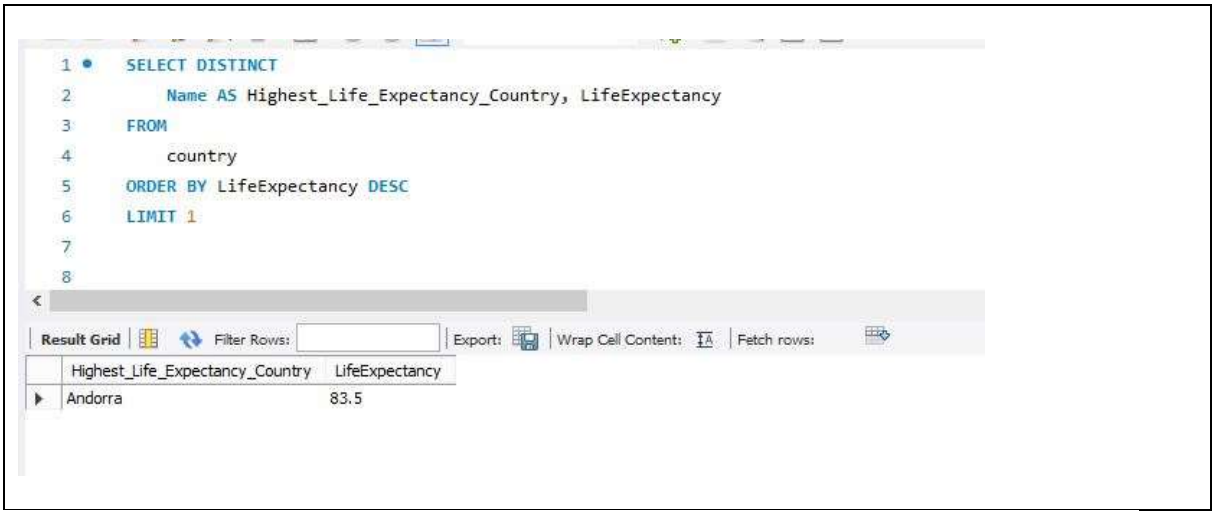
Project 2: MySQL Practical

For each question I would like to see both the syntax used and the output.

1. **Count Cities in USA:** *Scenario:* You've been tasked with conducting a demographic analysis of cities in the United States. Your first step is to determine the total number of cities within the country to provide a baseline for further analysis.

2. **Country with Highest Life Expectancy:** *Scenario:* As part of a global health initiative, you've been assigned to identify the country with the highest life expectancy. This information will be crucial for prioritising healthcare resources and interventions.



```
SELECT DISTINCT
    Name AS Highest_Life_Expectancy_Country, LifeExpectancy
FROM
    country
ORDER BY LifeExpectancy DESC
LIMIT 1
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

Highest_Life_Expectancy_Country	LifeExpectancy
Andorra	83.5

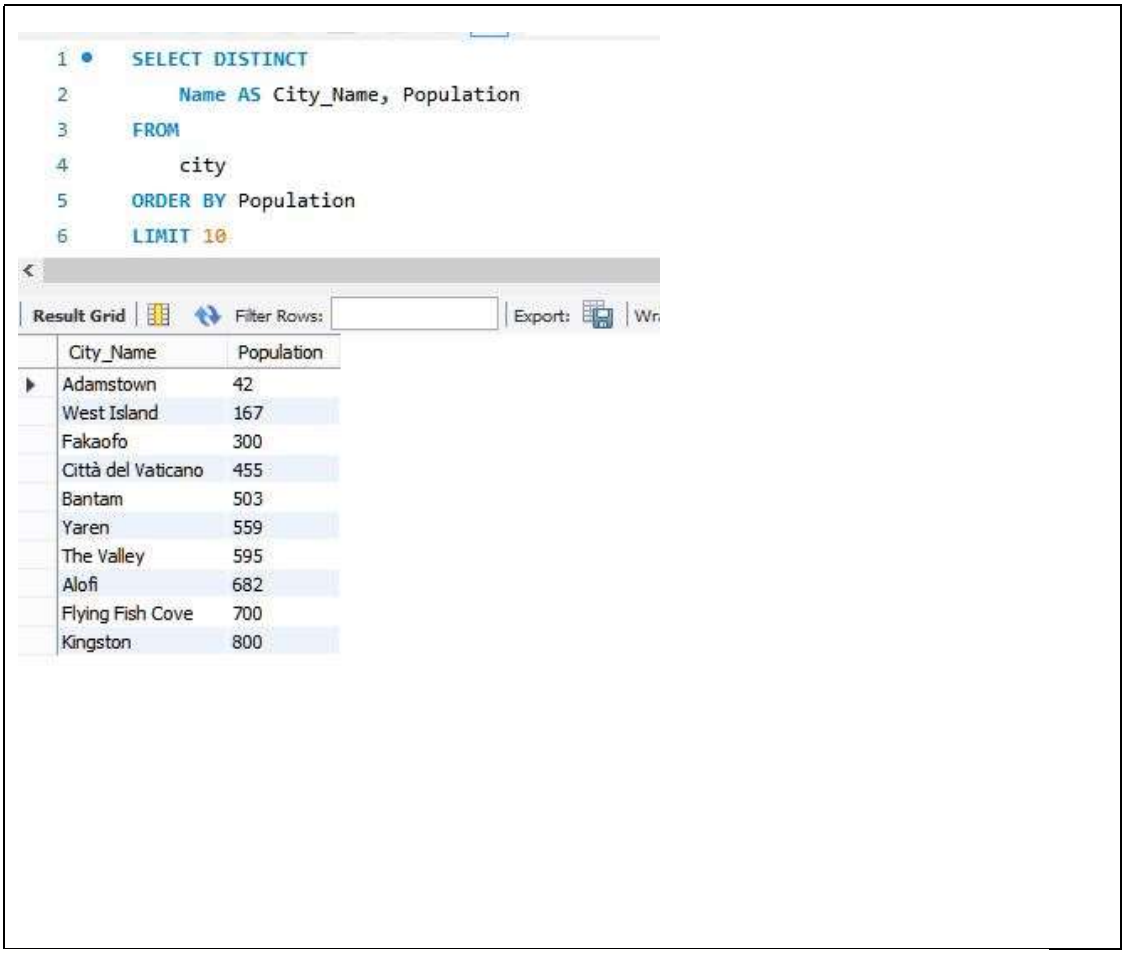
3. **"New Year Promotion: Featuring Cities with 'New :** *Scenario:* In anticipation of the upcoming New Year, your travel agency is gearing up for a special promotion featuring cities with names including the word 'New'. You're tasked with swiftly compiling a list of all cities from around the world. This curated selection will be essential in creating promotional materials and enticing travellers with exciting destinations to kick off the New Year in style.

```
SELECT DISTINCT
    Name AS City_Name
FROM
    city
WHERE
    Name LIKE '%New%'
```

Result Grid | Filter Rows: | Export:

City_Name
Newcastle
Newcastle upon Tyne
Newport
Kowloon and New Kowloon
New Bombay
New Delhi
Khanewal
New York
New Orleans
Newark
Newport News
New Haven
New Bedford

4. **Display Columns with Limit (First 10 Rows):** *Scenario:* You're tasked with providing a brief overview of the most populous cities in the world. To keep the report concise, you're instructed to list only the first 10 cities by population from the database.



```
1  SELECT DISTINCT
2      Name AS City_Name, Population
3  FROM
4      city
5  ORDER BY Population
6  LIMIT 10
```

Result Grid | Filter Rows: | Export: | Wr

City_Name	Population
Adamstown	42
West Island	167
Fakaofo	300
Città del Vaticano	455
Bantam	503
Yaren	559
The Valley	595
Alofi	682
Flying Fish Cove	700
Kingston	800

5. **Cities with Population Larger than 2,000,000:** *Scenario:* A real estate developer is interested in cities with substantial population sizes for potential investment opportunities. You're tasked with identifying cities from the database with populations exceeding 2 million to focus their research efforts.

```sql
SELECT DISTINCT
    Name AS City_Name, Population
FROM
    city
WHERE
    Population > 2000000
order by Name
```

Result Grid | Filter Rows: | Export: | Wrap Ce

City_Name	Population
Abidjan	2500000
Addis Abeba	2495000
Ahmedabad	2876710
Alexandria	3328196
Alger	2168000
Ankara	3038159
Baghdad	4336000
Bandung	2429000
Bangalore	2660088
Bangkok	6320174
Belo Horizonte	2139125
Berlin	3386667
Bucuresti	2016131
Buenos Aires	2982146
Cairo	6789479
Calcutta [K...	4399819
Cali	2077386
Cape Town	2352121
Casablanca	2940623
Changchun	2812000
Chengdu	3361500
Chennai (M...	3841396
Chicago	2896016
Chongqing	6351600
Ciudad de ...	8591309
Dalian	2697000
Delhi	7206704

city 5

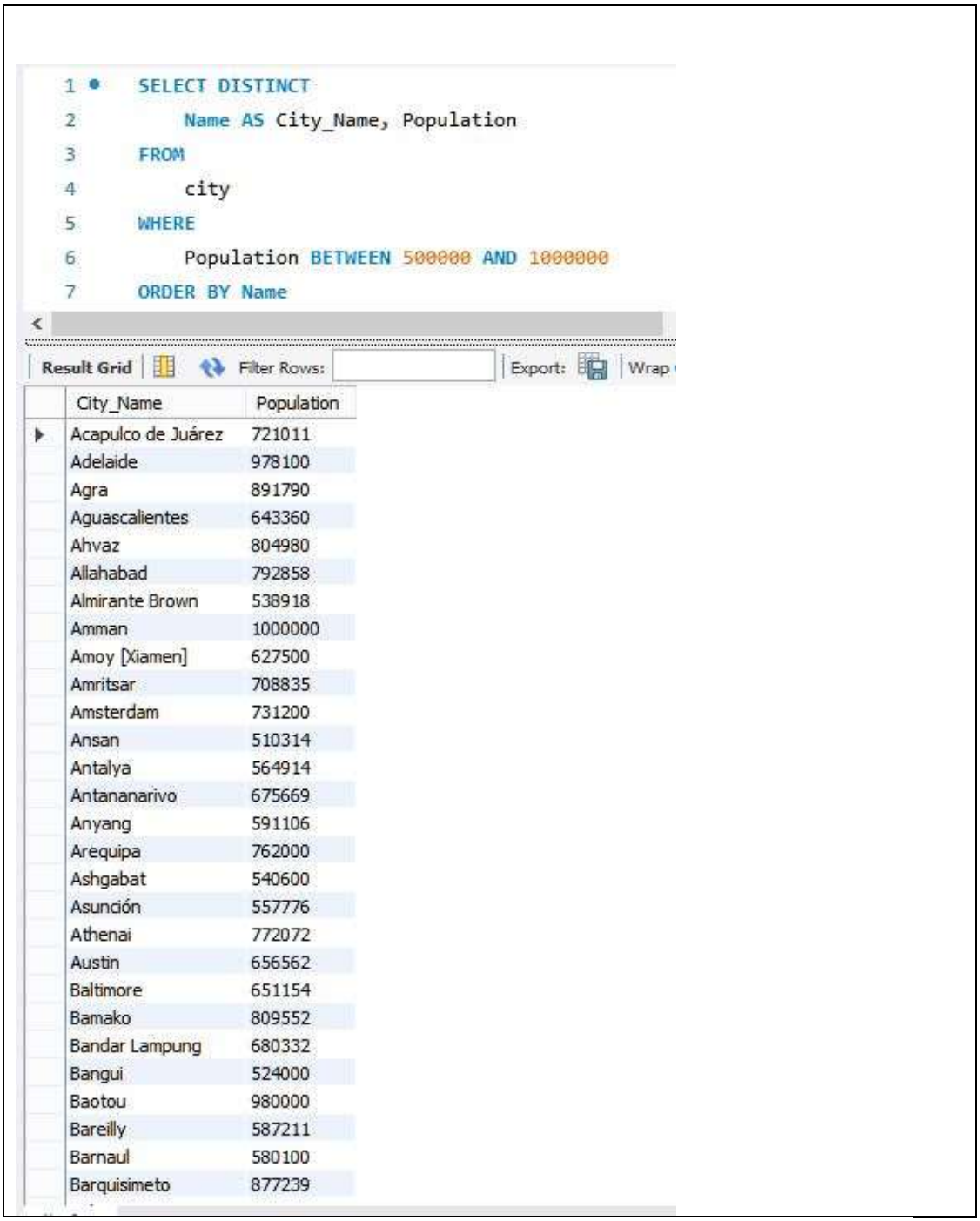
6. **Cities Beginning with 'Be' Prefix:** *Scenario:* A travel blogger is planning a series of articles featuring cities with unique names. You're tasked with compiling a list of cities from the database that start with the prefix 'Be' to assist in the blogger's content creation process.

```
1 •  SELECT DISTINCT
2        Name AS City_Name
3    FROM
4        city
5    WHERE
6        Name LIKE 'Be%'
7    ORDER BY Name
8
```

Result Grid | Filter Rows:

City_Name
Beau Bassin-Rose Hill
Beaumont
Beawar
Béchar
Beerseba
Bei´an
Beihai
Beipiao
Beira
Beirut
Béjaïa
Bekasi
Belém
Belfast
Belford Roxo
Belgaum
Belgorod
Belize City
Bellary
Bellevue
Bello
Belmopan
Belo Horizonte
Bender (Tighina)
Bene Beraq
Bengasi
Bengbu

7. **Cities with Population Between 500,000-1,000,000:** *Scenario:* An urban planning committee needs to identify mid-sized cities suitable for infrastructure development projects. You're tasked with identifying cities with populations ranging between 500,000 and 1 million to inform their decision-making process.



```sql
SELECT DISTINCT
    Name AS City_Name, Population
FROM
    city
WHERE
    Population BETWEEN 500000 AND 1000000
ORDER BY Name
```

Result Grid | Filter Rows: | Export: | Wrap

City_Name	Population
Acapulco de Juárez	721011
Adelaide	978100
Agra	891790
Aguascalientes	643360
Ahvaz	804980
Allahabad	792858
Almirante Brown	538918
Amman	1000000
Amoy [Xiamen]	627500
Amritsar	708835
Amsterdam	731200
Ansan	510314
Antalya	564914
Antananarivo	675669
Anyang	591106
Arequipa	762000
Ashgabat	540600
Asunción	557776
Athenai	772072
Austin	656562
Baltimore	651154
Bamako	809552
Bandar Lampung	680332
Bangui	524000
Baotou	980000
Bareilly	587211
Barnaul	580100
Barquisimeto	877239

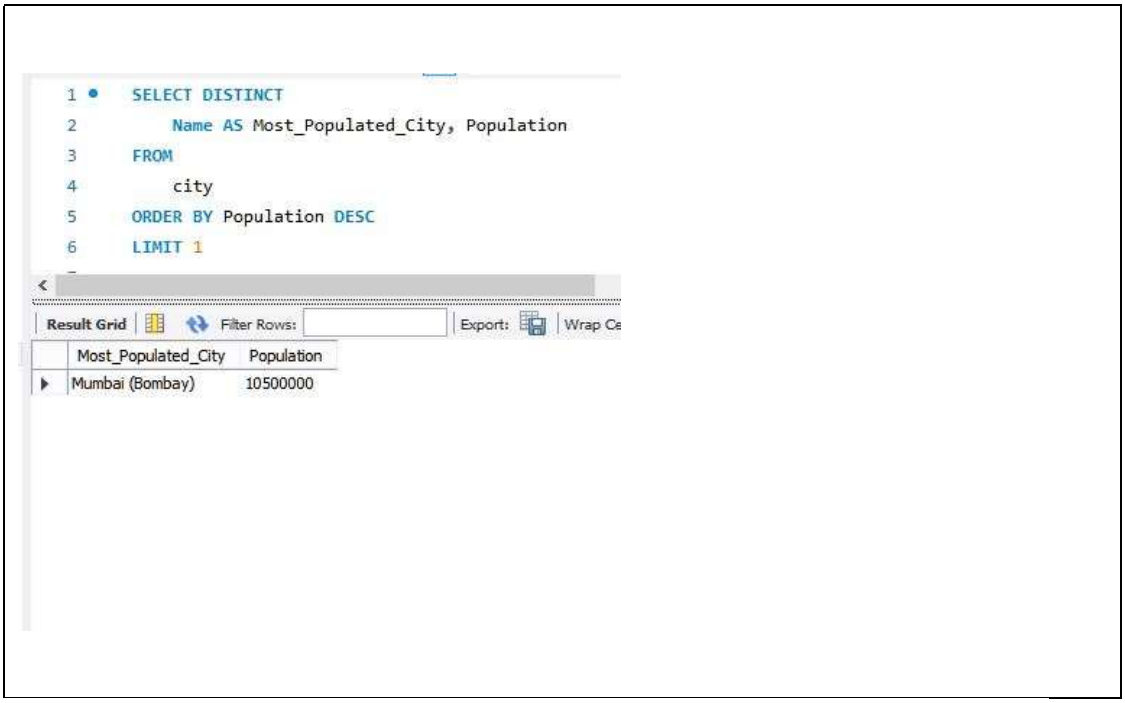
8. **Display Cities Sorted by Name in Ascending Order:** *Scenario:* A geography teacher is preparing a lesson on alphabetical order using city names. You're tasked with providing a sorted list of cities from the database in ascending order by name to support the lesson plan.

```
SELECT DISTINCT
    Name AS City_Name
FROM
    city
ORDER BY Name
```

Result Grid | Filter Rows:

City_Name
[San Cristóbal de] la Laguna
´s-Hertogenbosch
A Coruña (La Coruña)
Aachen
Aalborg
Aba
Abadan
Abaetetuba
Abakan
Abbotsford
Abeokuta
Aberdeen
Abha
Abidjan
Abiko
Abilene
Abohar
Abottabad
Abu Dhabi
Abuja
Acámbaro
Acapulco de Juárez
Acarigua
Accra
Achalpur
Acheng
Acuña
Adamstown
Adana
Addis Abeba
Adelaide

9. **Most Populated City:** *Scenario:* A real estate investment firm is interested in cities with significant population densities for potential development projects. You're tasked with identifying the most populated city from the database to guide their investment decisions and strategic planning.



```
1 •  SELECT DISTINCT
2        Name AS Most_Populated_City, Population
3    FROM
4        city
5    ORDER BY Population DESC
6    LIMIT 1
```

Result Grid | Filter Rows: | Export: | Wrap Ce

Most_Populated_City	Population
Mumbai (Bombay)	10500000

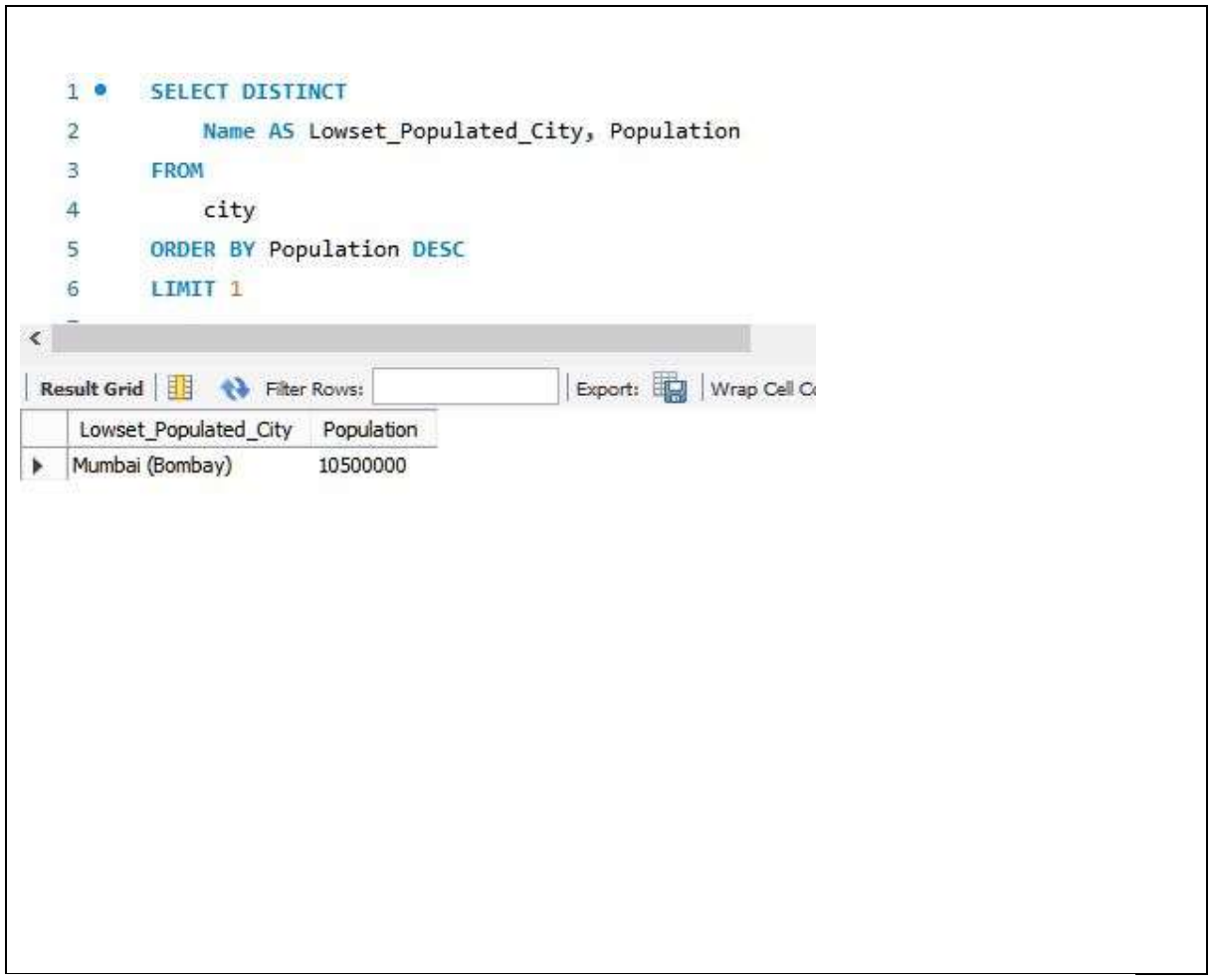
10. **City Name Frequency Analysis: Supporting Geography Education** *Scenario*: In a geography class, students are learning about the distribution of city names around the world. The teacher, in preparation for a lesson on city name frequencies, wants to provide students with a list of unique city names sorted alphabetically, along with their respective counts of occurrences in the database. You're tasked with this sorted list to support the geography teacher.

```
1 •  SELECT
2        Name, COUNT(Name) AS Occurences
3    FROM
4        city
5    GROUP BY Name
6    ORDER BY Occurences DESC
```

Result Grid | Filter Rows: | Export:

Name	Occurences
San José	4
Córdoba	3
San Miguel	3
San Fernando	3
Hamilton	3
La Paz	3
Toledo	3
Cambridge	3
Springfield	3
Richmond	3
Valencia	3
León	3
Victoria	3
Jining	2
Kansas City	2
Ede	2
Mérida	2
Santa Clara	2
Saint John´s	2
Glendale	2
Anyang	2
San Juan	2
Matamoros	2
Newcastle	2
Taiping	2
Manzanillo	2
Arlington	2
Columbus	2
Kaiyuan	2

11. **City with the Lowest Population:** *Scenario:* A census bureau is conducting an analysis of urban population distribution. You're tasked with identifying the city with the lowest population from the database to provide a comprehensive overview of demographic trends.

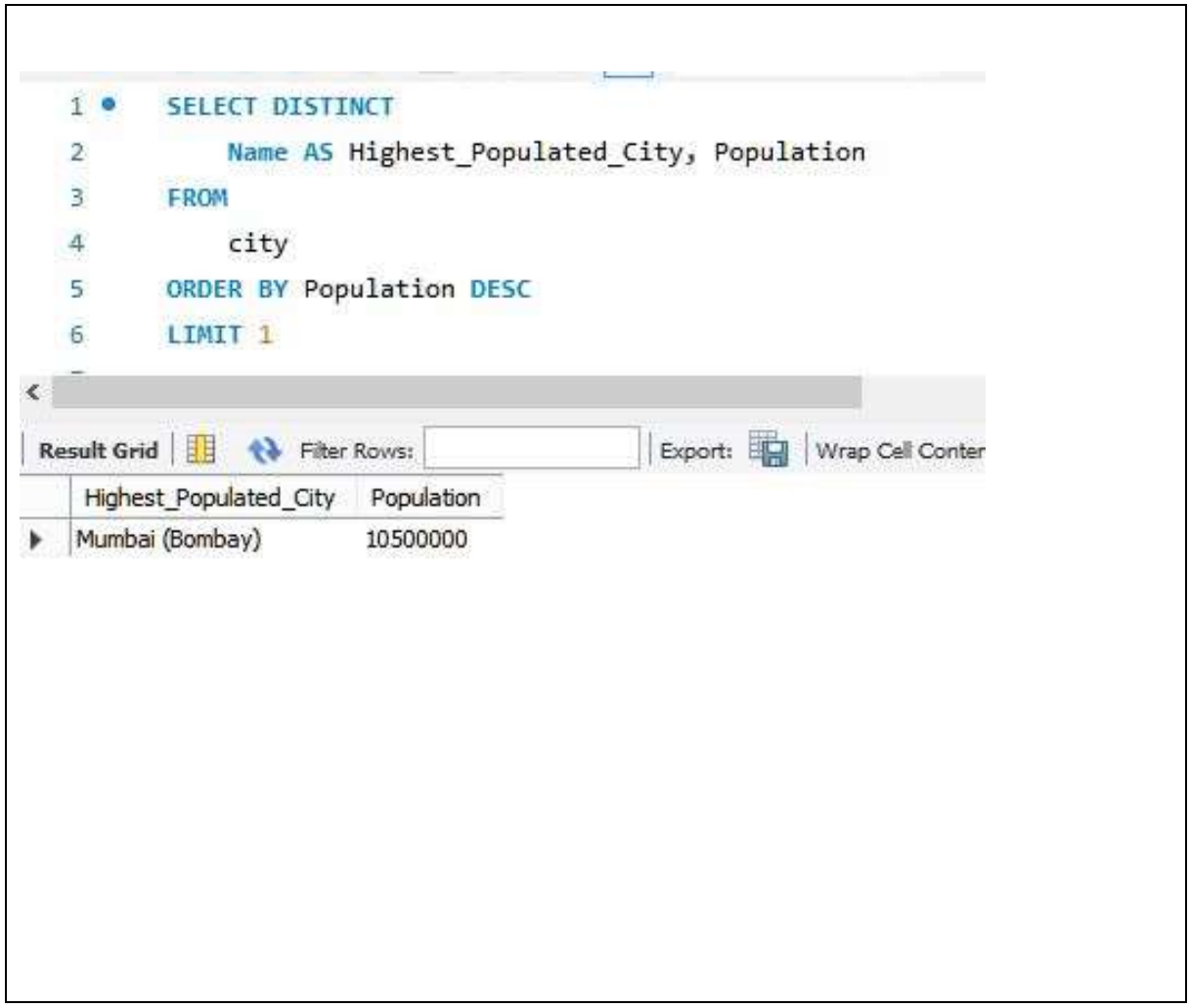


```sql
SELECT DISTINCT
    Name AS Lowset_Populated_City, Population
FROM
    city
ORDER BY Population DESC
LIMIT 1
```

Result Grid | Filter Rows: | Export: | Wrap Cell C

Lowset_Populated_City	Population
Mumbai (Bombay)	10500000

12. **Country with Largest Population:** *Scenario:* A global economic research institute requires data on countries with the largest populations for a comprehensive analysis. You're tasked with identifying the country with the highest population from the database to provide valuable insights into demographic trends.

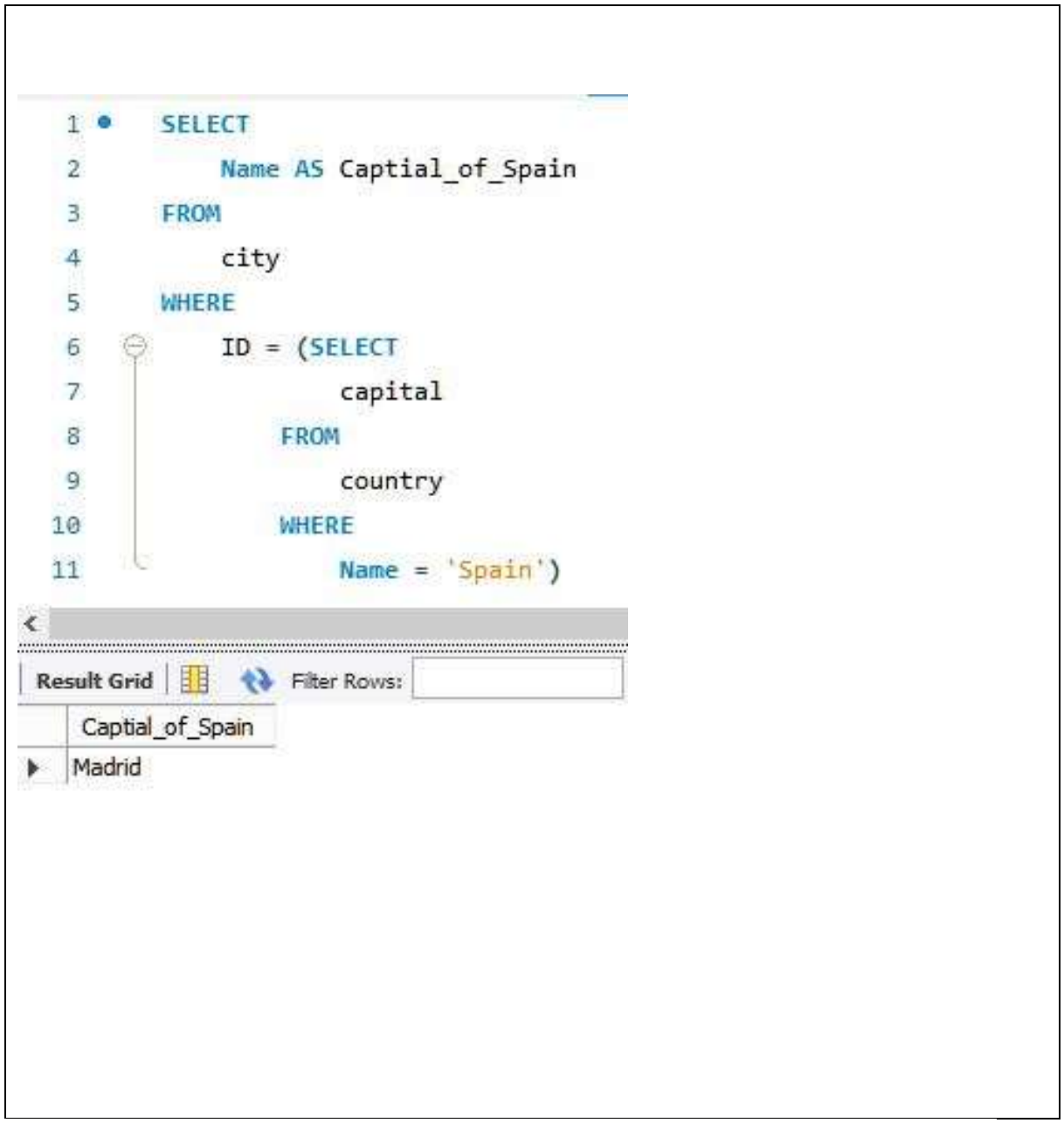


```sql
SELECT DISTINCT
    Name AS Highest_Populated_City, Population
FROM
    city
ORDER BY Population DESC
LIMIT 1
```

Result Grid | Filter Rows: | Export: | Wrap Cell Conter

Highest_Populated_City	Population
Mumbai (Bombay)	10500000

13. **Capital of Spain:** *Scenario:* A travel agency is organising tours across Europe and needs accurate information on capital cities. You're tasked with identifying the capital of Spain from the database to ensure itinerary accuracy and provide travellers with essential destination information.



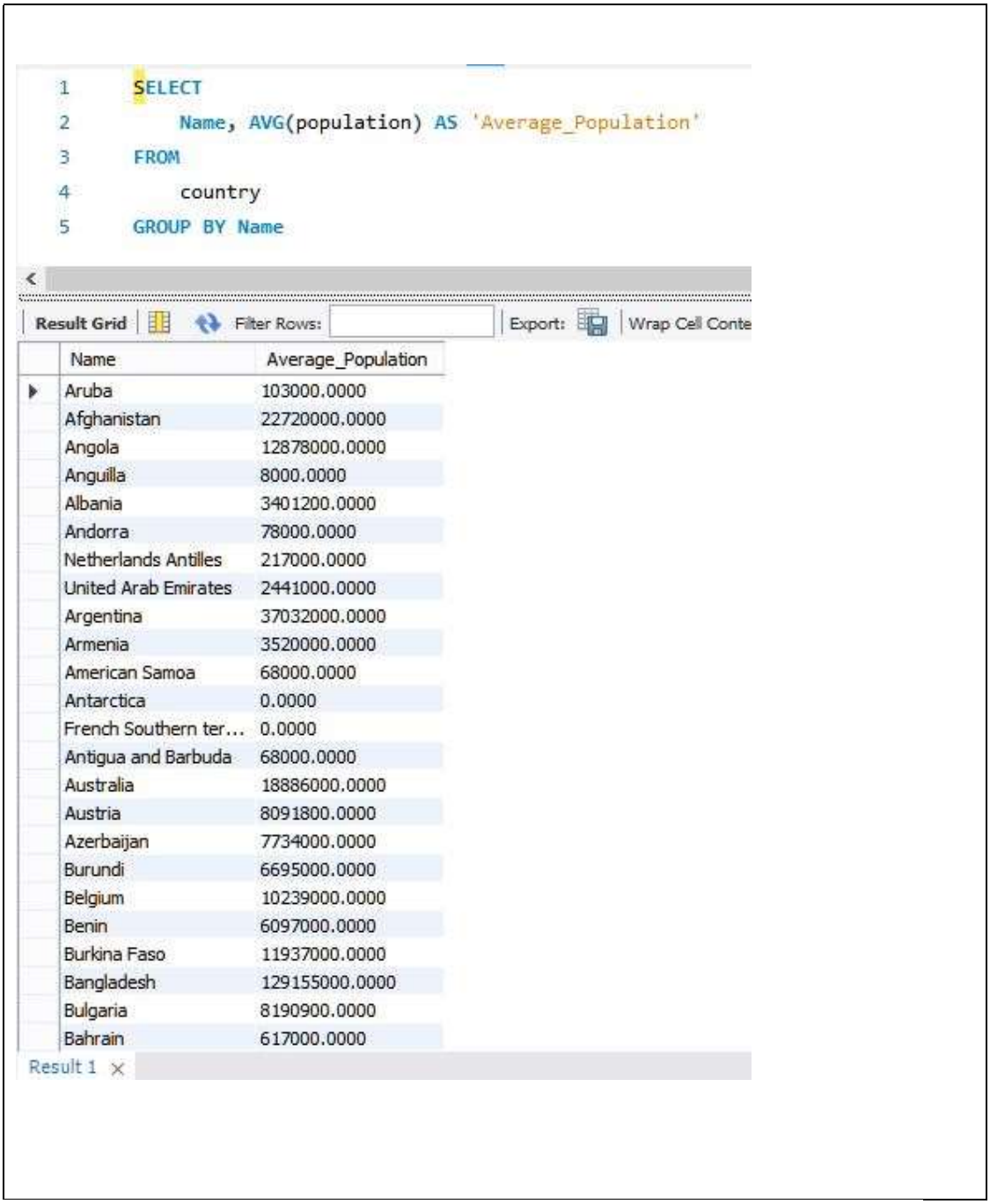
14. **Cities in Europe:** *Scenario:* A European cultural exchange program is seeking to connect students with cities across the continent. You're tasked with compiling a list of cities located in Europe from the database to facilitate program planning and student engagement.

```
SELECT
    city.Name AS City, country.Name AS Europe_Country
FROM
    city
        INNER JOIN
    country ON city.CountryCode = country.Code
WHERE
    country.Region LIKE '%Europe%';
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

City	Europe_Country
Tirana	Albania
Andorra la Vella	Andorra
Wien	Austria
Graz	Austria
Linz	Austria
Salzburg	Austria
Innsbruck	Austria
Klagenfurt	Austria
Antwerpen	Belgium
Gent	Belgium
Charleroi	Belgium
Liège	Belgium
Bruxelles [Brus...	Belgium
Brugge	Belgium
Schaerbeek	Belgium
Namur	Belgium
Mons	Belgium
Sofija	Bulgaria
Plovdiv	Bulgaria
Varna	Bulgaria
Burgas	Bulgaria
Ruse	Bulgaria
Stara Zagora	Bulgaria
Pleven	Bulgaria
Sliven	Bulgaria
Dobric	Bulgaria
Šumen	Bulgaria

15. **Average Population by Country:** *Scenario:* A demographic research team is conducting a comparative analysis of population distributions across countries. You're tasked with calculating the average population for each country from the database to provide valuable insights into global population trends.



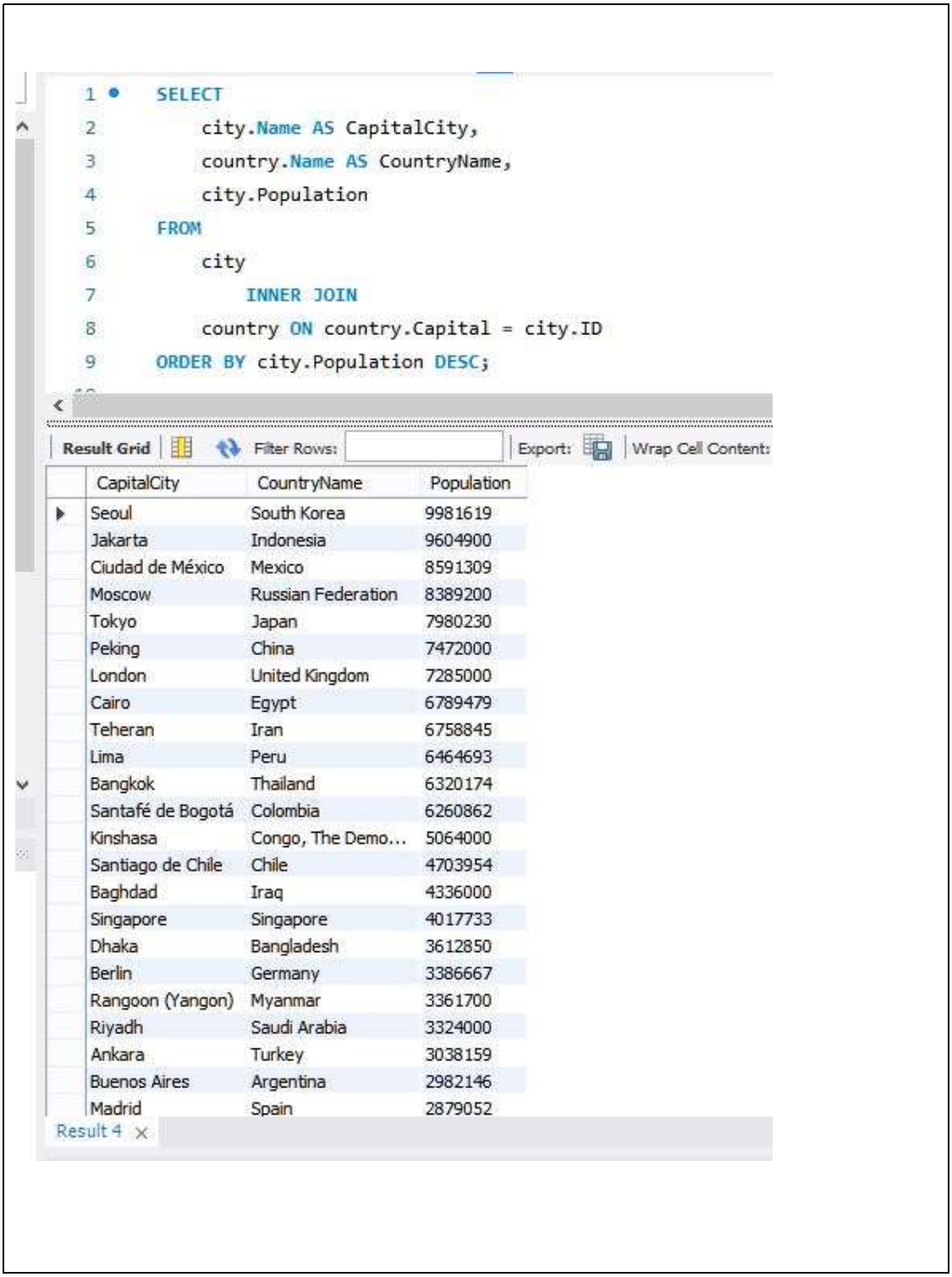
```sql
SELECT
    Name, AVG(population) AS 'Average_Population'
FROM
    country
GROUP BY Name
```

Result Grid | Filter Rows: | Export: | Wrap Cell Conte

Name	Average_Population
Aruba	103000.0000
Afghanistan	22720000.0000
Angola	12878000.0000
Anguilla	8000.0000
Albania	3401200.0000
Andorra	78000.0000
Netherlands Antilles	217000.0000
United Arab Emirates	2441000.0000
Argentina	37032000.0000
Armenia	3520000.0000
American Samoa	68000.0000
Antarctica	0.0000
French Southern ter...	0.0000
Antigua and Barbuda	68000.0000
Australia	18886000.0000
Austria	8091800.0000
Azerbaijan	7734000.0000
Burundi	6695000.0000
Belgium	10239000.0000
Benin	6097000.0000
Burkina Faso	11937000.0000
Bangladesh	129155000.0000
Bulgaria	8190900.0000
Bahrain	617000.0000

Result 1

16. **Capital Cities Population Comparison:** *Scenario:* A statistical analysis firm is examining population distributions between capital cities worldwide. You're tasked with comparing the populations of capital cities from different countries to identify trends and patterns in urban demographics.



```sql
SELECT
    city.Name AS CapitalCity,
    country.Name AS CountryName,
    city.Population
FROM
    city
        INNER JOIN
    country ON country.Capital = city.ID
ORDER BY city.Population DESC;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

CapitalCity	CountryName	Population
Seoul	South Korea	9981619
Jakarta	Indonesia	9604900
Ciudad de México	Mexico	8591309
Moscow	Russian Federation	8389200
Tokyo	Japan	7980230
Peking	China	7472000
London	United Kingdom	7285000
Cairo	Egypt	6789479
Teheran	Iran	6758845
Lima	Peru	6464693
Bangkok	Thailand	6320174
Santafé de Bogotá	Colombia	6260862
Kinshasa	Congo, The Demo...	5064000
Santiago de Chile	Chile	4703954
Baghdad	Iraq	4336000
Singapore	Singapore	4017733
Dhaka	Bangladesh	3612850
Berlin	Germany	3386667
Rangoon (Yangon)	Myanmar	3361700
Riyadh	Saudi Arabia	3324000
Ankara	Turkey	3038159
Buenos Aires	Argentina	2982146
Madrid	Spain	2879052

Result 4

17. **Countries with Low Population Density:** *Scenario:* An agricultural research institute is studying countries with low population densities for potential agricultural development projects. You're tasked with identifying countries with sparse populations from the database to support the institute's research efforts.

```sql
SELECT
    Name AS Lowest_Population_Density_Country,
    Population,
    SurfaceArea,
    (Population / SurfaceArea) AS Population_Density
FROM
    country
WHERE
    SurfaceArea > 0
ORDER BY Population_Density ASC;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Lowest_Population_Density_Country	Population	SurfaceArea	Population_Density
Antarctica	0	13120000.00	0.0000
French Southern territories	0	7780.00	0.0000
Bouvet Island	0	59.00	0.0000
Heard Island and McDonald Islands	0	359.00	0.0000
British Indian Ocean Territory	0	78.00	0.0000
South Georgia and the South Sandwich Islands	0	3903.00	0.0000
United States Minor Outlying Islands	0	16.00	0.0000
Greenland	56000	2166090.00	0.0259
Svalbard and Jan Mayen	3200	62422.00	0.0513
Falkland Islands	2000	12173.00	0.1643
Pitcairn	50	49.00	1.0204
Western Sahara	293000	266000.00	1.1015
Mongolia	2662000	1566500.00	1.6993
French Guiana	181000	90000.00	2.0111
Namibia	1726000	824292.00	2.0939
Australia	18886000	7741220.00	2.4397
Suriname	417000	163265.00	2.5541
Mauritania	2670000	1025520.00	2.6036
Iceland	279000	103000.00	2.7087
Botswana	1622000	581730.00	2.7882
Canada	31147000	9970610.00	3.1239
Libyan Arab Jamahiriya	5605000	1759540.00	3.1855