**Tasks**

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. 274

SELECT COUNT(Name)

FROM city

where CountryCode like 'USA'

1. **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 prioritizing healthcare resources and interventions. Andorra.

SELECT Name, Code, LifeExpectancy

FROM country

order by LifeExpectancy DESC

1. **"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 Name

FROM city

where Name like '%NEW%'

1. **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.

SELECT TOP 10 Name, Population

FROM city

ORDER BY Population DESC

1. **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

SELECT name, Population

FROM city

WHERE population > 2000000

Order by Population DESC

1. **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.

SELECT Name

FROM city

WHERE Name like 'Be%'

1. **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.

SELECT Name, Population

FROM city

WHERE Population BETWEEN 500000 AND 1000000

Order By Population DESC

1. **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 Name

FROM city

Order By Name

1. **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.

SELECT Name, Population

FROM city

ORDER BY Population DESC

1. **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's l

SELECT Name, COUNT(\*) AS frequency

FROM city

GROUP BY Name

ORDER BY Name

1. **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.

SELECT Name, Population

FROM city

ORDER BY Population

1. **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.

SELECT Name, Population

FROM country

ORDER bY Population DESC

1. **Capital of Spain:** *Scenario:* A travel agency is organizing 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.

SELECT city.Name as 'city', country.Name AS 'Country', country.Capital, city.Population

from city

JOIN country on city.CountryCode = country.Code

WHERE country.Name = 'Spain'

ORDER BY city.Population DESC

1. **Country with Highest Life Expectancy:** *Scenario:* A healthcare foundation is conducting research on global health indicators. You're tasked with identifying the country with the highest life expectancy from the database to inform their efforts in improving healthcare systems and policies.

SELECT NAME, LifeExpectancy

FROM country

ORDER BY LifeExpectancy DESC

1. **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, Country.Continent

FROM city

JOIN country on city.CountryCode = country.Code

WHERE country.Continent = 'Europe'

1. **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.

SELECT Country.name, city.countryCode, AVG(city.Population) AS 'Average\_Population'

FROM country

JOIN city ON COUNTRY.Code = city.CountryCode

Group BY city.CountryCode, Country.NAME

ORDER BY Average\_Population DESC

1. **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.

SELECT city.Name as 'city', country.Name AS 'Country', country.Capital, city.Population

from city

JOIN country on city.CountryCode = country.Code

ORDER BY city.Population DESC

1. **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.

SELECT Name, Population, SurfaceArea, (Population/SurfaceArea) AS 'Population\_Density'

from country

ORDER BY Population\_Density

BONUS TASKS: Challenge yourself: These are optional tasks. Feel free to skip.

1. **Cities with High GDP per Capita:** *Scenario:* An economic consulting firm is analyzing cities with high GDP per capita for investment opportunities. You're tasked with identifying cities with above-average GDP per capita from the database to assist the firm in identifying potential investment destinations.

SELECT City.Name, country.Name, country.GNP, city.Population, country.gnp / city.Population as 'gdp\_per\_capita'

from city

JOIN country on city.CountryCode = country.Code

WHERE country.GNP / city.Population < (select AVG(country.GNP / city.Population)from city

JOIN country on city.CountryCode = country.Code)

ORDER BY gdp\_per\_capita DESC

1. **Display Columns with Limit (Rows 31-40):** *Scenario:* A market research firm requires detailed information on cities beyond the top rankings for a comprehensive analysis. You're tasked with providing data on cities ranked between 31st and 40th by population to ensure a thorough understanding of urban demographics.

SELECT Name, Population

FROM (select name, population, ROW\_NUMBER() over (ORDER bY population desc) AS Row\_Num

FROM city) as Ranked\_Cities

WHERE ROW\_NUM BETWEEN 31 AND 40

ORDER BY Population DES