**Setting up the database in MySQL**

1. **Download world\_db(1)** [**here**](https://justit831-my.sharepoint.com/:u:/g/personal/danpe_justit_co_uk/Ef6vAaaYVi5FhHqKGxqnn60B9g2khoYekEIO3Y7J00UcJQ?e=pv9NNE)
2. **Follow each step to create your database** [**here**](https://justit831-my.sharepoint.com/:b:/g/personal/danpe_justit_co_uk/EdeCKl2Sas1Hl7u9amDy0fIB9jGVCKxSR0u2-lFOvS5rXw?e=xKv1U7)

**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.

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| *Syntax: SELECT COUNT(DISTINCT Name) AS 'Number of cities in USA'*  *FROM city WHERE countrycode = 'USA';*  A screenshot of a computer  AI-generated content may be incorrect. |

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 prioritising healthcare resources and interventions.

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| *Syntax: Select name as 'Country Name', LifeExpectancy*  *from country*  *where LifeExpectancy=(select max(lifeexpectancy) from country);*  A screenshot of a computer  AI-generated content may be incorrect. |

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.

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| *Syntax: Select Name from city where name like 'new %' ;*  A screenshot of a computer  AI-generated content may be incorrect. |

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.

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| *Syntax: Select name as 'City Name', Population from city order by population Desc limit 10;*  A screenshot of a computer  AI-generated content may be incorrect. |

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.

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| *Syntax: Select name as 'City Name', Population*  *from city where population>2000000 order by population desc ;*  A screenshot of a computer  AI-generated content may be incorrect. |

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.

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| *Syntax: Select Name from city*  *where name like 'Be%' order by name Asc ;*  A screenshot of a computer  AI-generated content may be incorrect. |

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.

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| *Syntax: Select name as 'City Name', Population*  *from city where population between 500000 and 1000000*  *order by population desc ;*  A screenshot of a computer  AI-generated content may be incorrect. |

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.

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| *Syntax: Select \* from city order by name asc;*  A screenshot of a computer  AI-generated content may be incorrect. |

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.

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| *Syntax: Select name as 'City', Population from city*  *where population=(select max(population) from city);*  A screenshot of a computer  AI-generated content may be incorrect. |

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.

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| *Syntax: SELECT name AS 'City', COUNT(\*) AS 'Number\_of\_Times\_City\_Appears'*  *FROM city GROUP BY name ORDER BY name ASC;*  A screenshot of a computer  AI-generated content may be incorrect.  *Syntax: SELECT name AS 'City', COUNT(\*) AS 'Occurences\_of\_Name'*  *FROM city GROUP BY name ORDER BY count(\*) DESC;*  A screenshot of a computer  AI-generated content may be incorrect. |

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.

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| *Syntax: Select name as 'City', Population from city*  *where population=(select min(population) from city);*  A screenshot of a computer  AI-generated content may be incorrect. |

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.

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| *Syntax: Select name as 'Coutry', Population from country*  *where population=(select max(population) from country);*  A screenshot of a computer  AI-generated content may be incorrect. |

1. **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.

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| *Syntax: SELECT country.name AS 'Country', city.name AS 'Capital'*  *FROM city INNER JOIN country ON city.ID = country.capital*  *WHERE country.name = 'Spain';*  A screenshot of a computer  AI-generated content may be incorrect. |

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.

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| *Syntax: SELECT country.name AS 'Country', city.name AS 'Capital'*  *FROM city INNER JOIN country ON city.ID = country.capital*  *WHERE country.Continent = 'Europe';*  A screenshot of a computer  AI-generated content may be incorrect. |

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.

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| *Syntax: SELECT name AS Country, CONCAT(round(population \* 100.0 / (SELECT SUM(population) FROM country), 2), '%') AS Percentage\_of\_Global\_Population FROM country*  *ORDER BY (population \* 100.0 / (SELECT SUM(population) FROM country)) DESC*;  A screenshot of a data  AI-generated content may be incorrect. |

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.

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| *Syntax: SELECT Country.Name AS Country, City.Name AS City, City.Population*  *FROM City INNER JOIN Country ON City.ID = Country.Capital*  *ORDER BY population DESC;*  A screenshot of a computer  AI-generated content may be incorrect. |

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.

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| *Syntax: SELECT name AS 'Country', population AS 'Population'*  *FROM country where population!= 0 ORDER BY population ASC;*  A screenshot of a computer  AI-generated content may be incorrect. |

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.

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| *Syntax: SELECT ROW\_NUMBER() OVER (ORDER BY City.Population DESC) AS 'Row\_Number', City.Name AS City, Country.Name AS Country, City.Population FROM City INNER JOIN Country ON City.ID = Country.Capital ORDER BY City.Population DESC LIMIT 10 OFFSET 30;*  A screenshot of a computer  AI-generated content may be incorrect. |