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| World Database Exercise Book |
| module 7 – databases |

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## Module 7 – Databases

## Exercises Introduction

This Exercise Book makes use of the pre-loaded **World** database which comes with your **MySQL** installation.

These exercises should provide a good test for your knowledge of Structured Query Language (SQL). Please work through this book at your own pace: it is more important that you use this book to enhance your SQL abilities than to speed through it as fast as you can without retaining anything.

You do not need to store the answers to each Exercise in this book, but you are free to use it as an extension of your notes, if you wish.

World database Exercises

Each Exercise should return at least one record, according to its individual specification. They are not listed in order of difficulty.

1. Using COUNT, get the number of cities in the USA.  
     
   SELECT COUNT(CountryCode) FROM city WHERE CountryCode='USA';
2. Find out what the population and life expectancy for people in Argentina  
     
   SELECT Population, LifeExpectancy FROM country WHERE code ='ARG';
3. Using IS NOT NULL, ORDER BY, LIMIT, what country has the highest life expectancy?  
     
   SELECT Name, LifeExpectancy FROM country WHERE LifeExpectancy ORDER BY LifeExpectancy LIMIT 1;
4. Using JOIN … ON, what is the capital of Spain (ESP)?  
     
   SELECT ci.Name FROM country AS co JOIN city AS ci ON co.Capital = ci.ID WHERE co.Code ='ESP';
5. Using JOIN … ON, list all the languages spoken in the 'Southeast Asia' region.  
     
   SELECT Language FROM country AS c JOIN countrylanguage AS l ON l.CountryCode = c.Code WHERE c.Region = 'Southeast Asia';
6. Select 25 cities around the world that start with the letter 'F' in a single SQL query.  
     
   SELECT Name AS city\_name from city WHERE Name LIKE 'F%' LIMIT 25;
7. Using COUNT, get the number of cities in China.  
     
   SELECT COUNT(Name) FROM city WHERE CountryCode='CHN';
8. Using IS NOT NULL, ORDER BY, & LIMIT, what country has the lowest population?  
     
   SELECT Name, Population FROM country WHERE population != 0 ORDER BY Population ASC LIMIT 1;
9. Using aggregation, return the number of countries in the database.  
     
   SELECT Count(Name) FROM country;
10. What are the top ten largest countries by population?  
      
    SELECT Name, Population FROM country ORDER BY Population DESC LIMIT 10;
11. List the top five largest cities in Japan  
      
    SELECT Name, Population FROM city WHERE CountryCode='JPN' ORDER BY Population DESC LIMIT 5;.
12. List the names and country codes of every country which has Elisabeth II as its Head of State.  
      
    SELECT Code, Name FROM country WHERE HeadOfState='Elisabeth II';

Or   
  
SELECT Code, Name, HeadOfState FROM country WHERE HeadOfState='Elisabeth II'; -- Better visualisation

1. List the top ten countries which have the smallest population-to-area ratio.  
     
   SELECT Name, Population/SurfaceArea AS Population\_Ratio FROM country WHERE Population != 0 ORDER BY Population\_Ratio ASC LIMIT 10;

Or

SELECT Name, Population/SurfaceArea AS Population\_Ratio FROM country WHERE Population ORDER BY Population\_Ratio ASC LIMIT 10; -- With 0 population

1. List every unique world language, according to the World database.  
     
   SELECT DISTINCT Language FROM countrylanguage;
2. What are the top 10 richest countries by GDP?  
     
   SELECT Name, GNP FROM country ORDER BY GNP DESC LIMIT 10;
3. What are the top 10 largest countries by surface area?  
     
   SELECT Name, SurfaceArea FROM country ORDER BY SurfaceArea DESC LIMIT 10;
4. List every country where over 50% of its population can speak French.  
     
   SELECT \* FROM countrylanguage where Percentage > 50 AND Language ='French';
5. Which country has the worst life expectancy?  
     
   SELECT Name, LifeExpectancy FROM country WHERE LifeExpectancy IS NOT NULL ORDER BY LifeExpectancy LIMIT 1;
6. What is the most common government form?  
     
   SELECT GovernmentForm, COUNT(GovernmentForm) AS value\_occurance FROM country GROUP BY GovernmentForm ORDER BY value\_occurance DESC LIMIT 1;
7. How many countries have gained independence since records began?  
     
   SELECT COUNT(IndepYear) FROM country WHERE IndepYear IS NOT NULL;