**Project World Data Analysis**

The CEO of Crowd Analytics asked to build dashboards that should answer the following 3 questions using the world dataset available on the World Bank’s website to offer our analytic services to new clients to create a new revenue stream:

1. How can it be used for research?
2. How it can be used in the business sector?
3. How it can be used to illustrate a country’s demographics?

**World Data Sources:**

World data is a dataset imported from Kagle and originally obtained from the World Bank website. The dataset highlights key information and data for all 195 world countries. Its information comprises CPI, Density, Agricultural land, total land area, birth rate, population, unemployment rate, and much more.

**Query Editor (ETL):**

Imported data file from Kagle into the project folder and used the DAX tool to transform XLSX into CSV format, changed data type as needed, and parsed data as follows to prepare data for analysis.

Split the dataset into 2 tables as follows:

Fact tables:

World Data 2023 28 columns, 195 rows, format columns as needed into Text, Currency, Whole number, Decimal, and Percentage.

Life Expectancy Calculations 3 columns, 1 row, calculated average, minimum, and maximum age.

Dimension table:

Countries General Info 8 columns, 195 rows, format columns as needed.

**Query Dependencies:**

On the power query editor screen, click the view tab then click query dependencies to the right to view the dependency tree, take a screenshot, or use the snipping tool.

![A screenshot of a computer

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**Schema:**

|  |  |  |
| --- | --- | --- |
| table | column | # distinct values |
| WorldData2023 | 1. Country (Primary Key) 2. Density(P/Km2) 3. AgriculturalLand(%) 4. LandArea(Km2) 5. ArmedForcesSize 6. Birth Rate 7. Co2-Emissions 8. CPI 9. CPIChange (%) 10. FertilityRate 11. ForestedArea (%) 12. GasolinePrice 13. GDP 14. PrimaryEeducationEnrollment (%) 15. TertiaryEducationEnrollment (%) 16. InfantMortality (Per 1000) 17. LifeExpectancy 18. MaternalMortalityRatio 19. MinimumWage 20. OutOfPocketHealthExpenditure 21. PhysiciansPerThousand 22. Population 23. LaborForceParticipation (%) 24. TaxRevenue (%) 25. TaxRate (%) 26. UnemploymentRate (%) 27. UrbanPopulation 28. GDPPerPerson | 195  137  172  195  107  174  189  185  96  143  165  107  195  143  177  147  141  119  128  165  155  195  149  122  159  168  195  195 |
| CountriesGeneralInfo | 1. Country (Foreign key) 2. Abbreviation 3. Capital 4. LargestCity 5. Official language 6. Latitude 7. Longitude 8. CurrencyCode | 195  195  195  195  78  195  195  143 |
| LifeExpectancyCalculations | 1. AvgAge 2. MinAge 3. MaxAge | 1  1  1 |

**Data Model:**

Added a new column (GDPPerPerson) to the WorldData2023 table to get the average GDP per person.

WorldData2023 primary key Country.

CountriesGeneralInfo foreign key Country.

Fit to page, hide all primary/foreign keys.

Creating measures using ([DAX Formatter](https://www.daxformatter.com/)):

Average CPI Worldwide = AVERAGE(WorldData2023[CPI])

Average Gasoline price WW(Per Liter) = AVERAGE(WorldData2023[GasolinePrice])

Average Min. Wages = AVERAGE(WorldData2023[MinimumWage])

Average Unemployment Rate = AVERAGE(WorldData2023[UnemploymentRate])

Maximum Life Expectancy = MAX(WorldData2023[LifeExpectancy])

World GDP = SUM(WorldData2023[GDP])

World Population = SUM(WorldData2023[Population])

World Urban Population = SUM(WorldData2023[UrbanPopulation])

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**Dashboards design:**

**Preparation tasks:**

1. Theme (15 colors): Use the previously imported theme.
2. Background: Import 3 different backgrounds, one for each dashboard using the browse option under the canvas background.
3. Logo: Use the insert/image option under Power BI to insert the royalty-free globe logo and adjust the position on the top far left side of the background canvas.
4. Text box: Insert a text box under the logo as a title for each of the dashboards.

**The Research Dashboard:**

1. Card: Use 4 of these visuals to display the total of the world GDP, population, urban population, and average world CPI on the top right of the background canvas.
2. Line chart: Use to find the correlation between CPI and GDP and filter by the top 10 countries’ GDPs.
3. Clustered column chart: To find the correlation between unemployment and GDP and filter by the top 10 countries in CPI.
4. Stacked area chart: Use it to compare urban population and GDP and filter by the top 10 countries in GDP.
5. Scatter chart: Use this visual to compare per person GDP and CPI, and filter by top 10 countries in CPI.
6. Stacked column chart: Create to compare infant mortality with birth rate and filter by top 10 countries in infant mortalities.
7. Ribbon chart: Use to visualize the correlation between unemployment and tertiary education and filter by the top 10 countries in the unemployment rate.
8. Text boxes: insert a text box under each visual to illustrate the purpose of the visual.

**The Business Dashboard:**

1. Multi-row card: Use to display 4 worldwide average KPIs (Key Performance Indicators): CPI, Unemployment, Minimum wage, and Gasoline price.
2. Map: Use a world map to illustrate life expectancy by country compared to the worldwide average, minimum, and maximum life expectancy.
3. Pie chart: Use to highlight the percentage of land, agricultural, and forest areas.
4. Matrix table: Use to highlight business-related information & KPIs per country such as capital, largest city, GDP, population, minimum wages, gasoline prices, and unemployment rates.

**The Demographics Dashboard:**

1. Donut chart: Use it to display the correlation between higher levels of education and life expectancy, filter by the top 10 countries with the highest life expectancy.
2. Filled map: Use it to highlight country key information such as capital, largest city, latitude, longitude, and official language.
3. Matrix table: Use to show each country’s key demographic information, such as capital, population, largest city, official language, land areas such as total land size, and agricultural and forested percentages of that size.