World Population

portfolio case study

Tomislav Radić

OVERVIEW

Interactive Tableau dashboard with demographics of the world between 1950 and 2030.

OBJECTIVE

Create an end-to-end personal project to practice data visualization.

ROLE

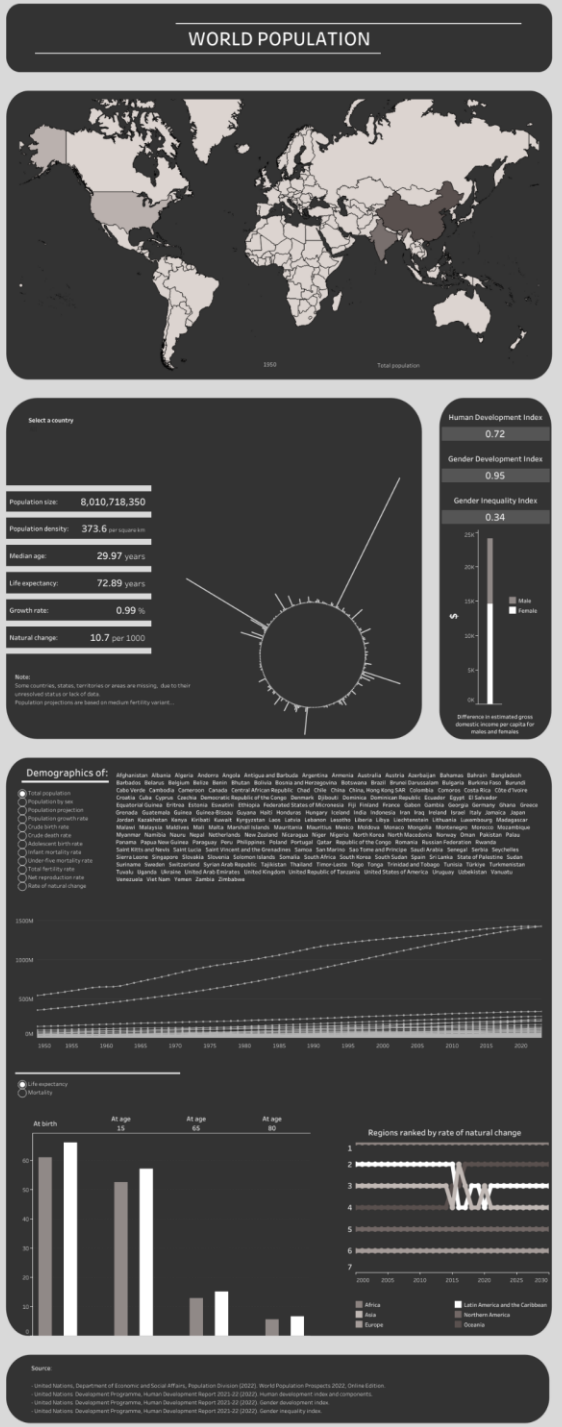
Data Analyst

PROJECT DURATION

10 days

TOOLS

Tableau
Excel
Pandas, Python, Figma



Project Phases

Data Preparation
Cleaning and formatting data.
Data integration.

Data Visualization
Layout. Design. Functionality.

Data Sourcing
Finding the most appropriate and reliable datasets.

Data Sourcing

The first challenge in the project was choosing the right data sets.

The data had to be accurate, complete and the data source reliable.

The original plan was to include as much data as possible from multiple sources, such as UN, World Bank, US Census Bureau, Eurostat and others and to allow the users to choose which source they want to view.

While more ambitious perhaps, it would also be redundant (and out of scope for a project primarily focused on data visualization).

In the end, I settled on one source, the UN, but still had to restrict the ever increasing number of data sets.

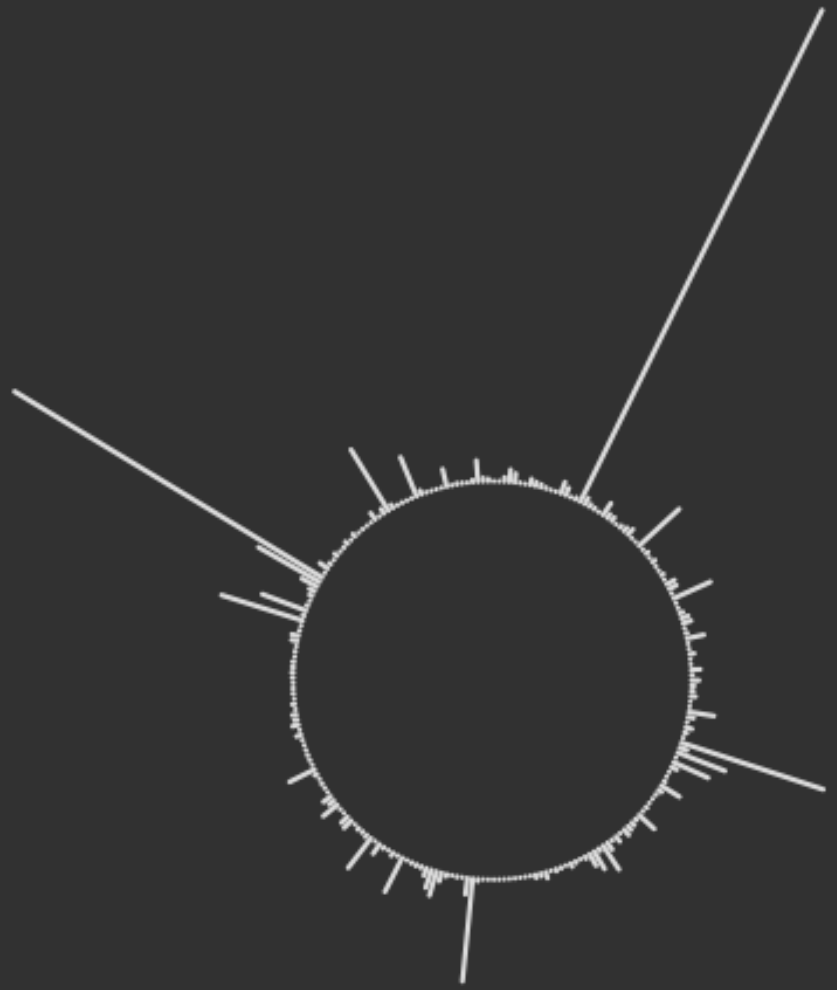
So I chose four data sets from UN, one with demographic indicators and three with different indices (human development, gender develoment and gender inequality).

Unfortunately, the most up to date data is from 2021 with the new data scheduled to come out some time in 2023. which I obviously had no intention waiting.

☺

Data Preparation

- To integrate data sets I used Excel's VLOOKUP and adjusted country names to ensure a consistent format.
- While I wanted to cover the whole world, compromises had to be made as some areas, namely the overseas territories, lacked so much data that they were either totally discarded or their population added to their parent country.
- Some columns only had numbers in thousands, so I used Jupyter and pandas to derive new columns.



Data Visualization

II. Challenge

The challenge was depicting so much data on a small space without making the dashboard look overcrowded.

IV. Result

The dashboard is divided into four parts: geospatial overview, summary, index and demographics.

I. Objective

With all the data cleaned and prepared, the next natural step was to present it visually.

III. Action

I made a simple background in Figma which I used as framework and Tableau's parameters to allow users to switch views.

Dashboard sections

MAPS

Geospatial part (maps, really) offers 30 views based on different parameters - demographic indicators or indices.
For those parameters with a time component, a time slider was added ranging from 1950 to 2030.

SUMMARY

The summary part offers a multiple value selection menu and a quick glance at the most used demographics for one or more countries.
If multiple countries are selected, their population sizes are summed, but other demographics are shown as mean values.

INDEX

The index part of the dashboard shows UN indices for human development, gender development and gender inequality. A chart showing estimated difference in GDP per capita between males and females is also included here.

DEMOGRAPHICS

All other data is shown in the demographics section.

IN RETROSPECT

This dashboards intent was to show some of the key demographic data for the world and how it changed over time - in a clear and concise way. It aimed to be visually appealing and interactive, and to show as much data as possible on a small space. While it covers many demographic indicators and indices for (most of the) the world over 80 years, it is in no way exhaustive.

Due to the great number of data points in the data set and the way Tableau disaggregates data once its published, this dashboard requires performance optimization in the form of better data filtering, lowering the number of data points and smarter use of calculations. Further improvements should be made in accessibility. Even though most charts include a tooltip or a color legend that highlights selected data, the dashboard could be made more accessible to visually impaired people by using different colors and starker contrasts.

Am I a Tableau Zen Master yet? Obviously not, but I'm a tad bit closer to it than I was before I started this project.

Check the project here:
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Every feedback is appreciated