

Data Analytics with Tableau Project Documentation

Project Title: Measuring the Pulse of Prosperity: An Index of Economic Freedom Analysis

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2. Project Overview

Purpose: This project aims to assess and visualize the state of economic freedom across 176 countries using 2022 data. It leverages Tableau for advanced data visualization and MySQL for data management.

Features:

- Interactive global maps for freedom index scores
- Insightful treemaps and bar charts analyzing economic indicators like inflation, GDP growth, and population
- Storyboard to present a data narrative
- Integrated web interface embedding Tableau visualizations

Features:

- - Data preprocessing and cleaning in MySQL
- - Interactive visualizations using Tableau
- - Published dashboards and storyboards
- - Embedded Tableau visualizations in a web app using HTML/CSS

3. Architecture

Frontend: The frontend is a static web application developed using HTML, CSS, and Bootstrap to render the embedded Tableau dashboards in a responsive and accessible layout.

Backend: Not required for this project as Tableau and static HTML serve all content.

Database: A MySQL database was used to store and preprocess the raw economic freedom dataset before linking it with Tableau for analysis.

Backend: No backend system required as the project is visualization-focused.

Database: MySQL database used for storing and querying the Economic Freedom dataset.

4. Setup Instructions

Prerequisites:

- MySQL for data storage and querying
- Tableau Desktop for creating visualizations
- Internet browser and basic HTML/CSS setup for integration

Installation:

- Load the dataset into MySQL using Workbench
- Connect Tableau to the MySQL instance
- Build visualizations and dashboards in Tableau
- Publish the content to Tableau Public
- Create a responsive HTML page and embed the published visualizations

- - MySQL
- - Tableau Desktop
- - HTML/CSS environment

Installation:

- - Import the dataset into MySQL using Workbench.
- - Connect Tableau to the MySQL database.
- - Publish dashboards to Tableau Public.

5. Folder Structure

The project directory is structured as follows:

- /data: Contains the economic freedom dataset (raw and SQL formats).
- /visuals: Tableau workbooks and exported image snapshots.
- /web: HTML and CSS files to host Tableau Public embeds.
- /exports: Final outputs such as dashboards and documentation.

Server: Not applicable for this visualization project.

6. Running the Application

To run the visual dashboard:

1. Open the 'index.html' file in any browser.
2. It loads the embedded Tableau dashboards directly from Tableau Public.
3. Internet connection is required for visualization rendering.
4. Users can interact with filters to navigate country-specific or indicator-based views.

7. API Documentation

This project is static and does not involve custom API development.

In a future release, APIs could provide programmatic access to filtered data:

- GET /index-scores
- GET /economic-indicators
- POST /user-feedback

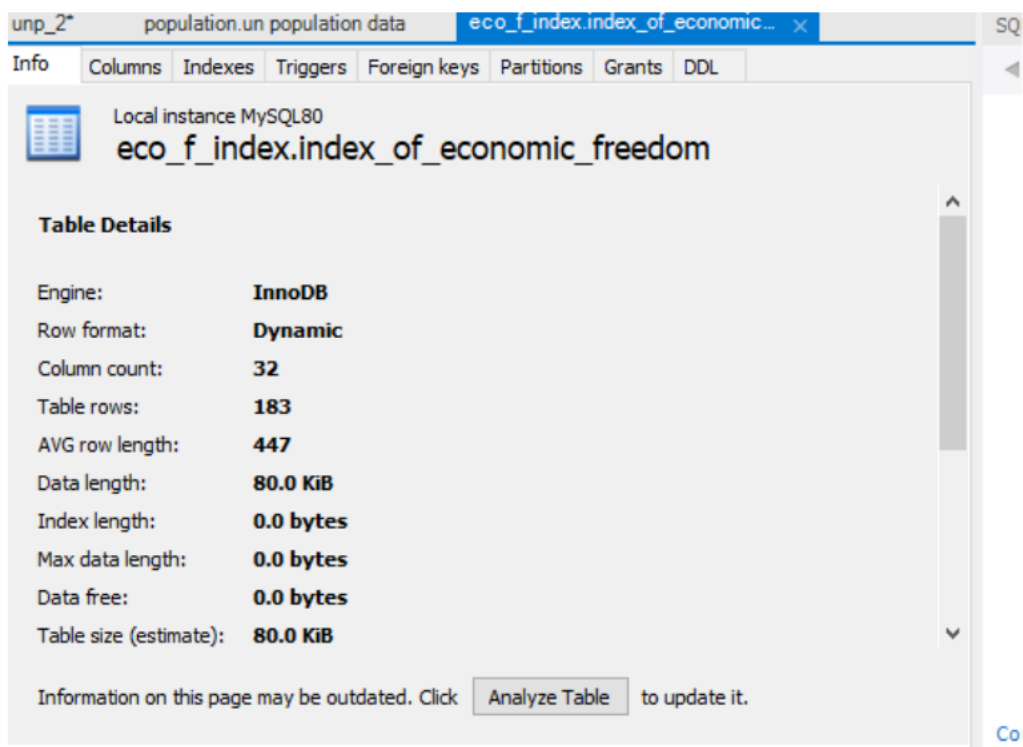
8. Authentication

The current version does not include authentication.

Tableau Public content is open-access. Authentication could be introduced later for user-specific customization or feedback collection.

9. User Interface

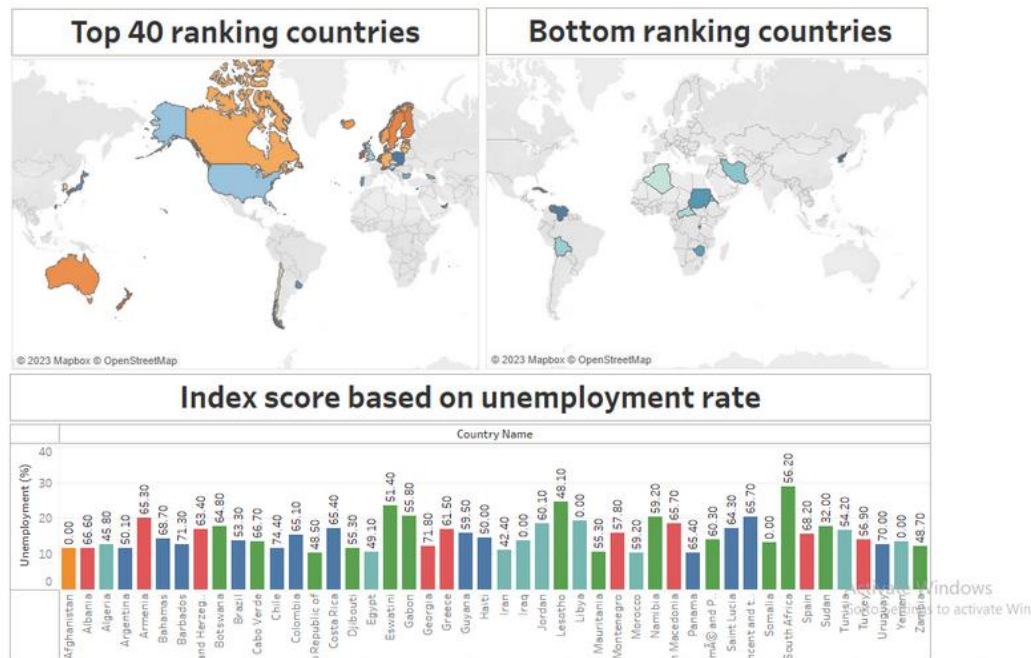
The interface is a clean, responsive webpage displaying embedded Tableau dashboards.



10. Testing

The dashboards were tested within Tableau for responsiveness, performance with filters, and calculated fields. Filters include regional groupings and economic indicators.

Visual load time and interaction quality were manually assessed. Tableau's optimization for public dashboards ensured seamless performance for the dataset size.



12. Known Issues

- Some countries had missing data in the original dataset, which limited the completeness of comparisons.
- Minor UI inconsistencies depending on the browser used for web viewing.
- Dashboard responsiveness may vary on low-bandwidth networks.

13. Future Enhancements

- Expand to multi-year analysis using longitudinal economic data
- Add dynamic filters directly within the web app using JavaScript
- Include more socio-economic indicators for comprehensive analysis
- Expand dataset to include years beyond 2022 for trend analysis.
- Build a backend to store user feedback or usage statistics.

11. Screenshots or Demo

Map of Top 40 Countries by Economic Freedom Index – Highlighting leading economies based on 2022 data:

tableau⁺public

Email

Password

Sign In

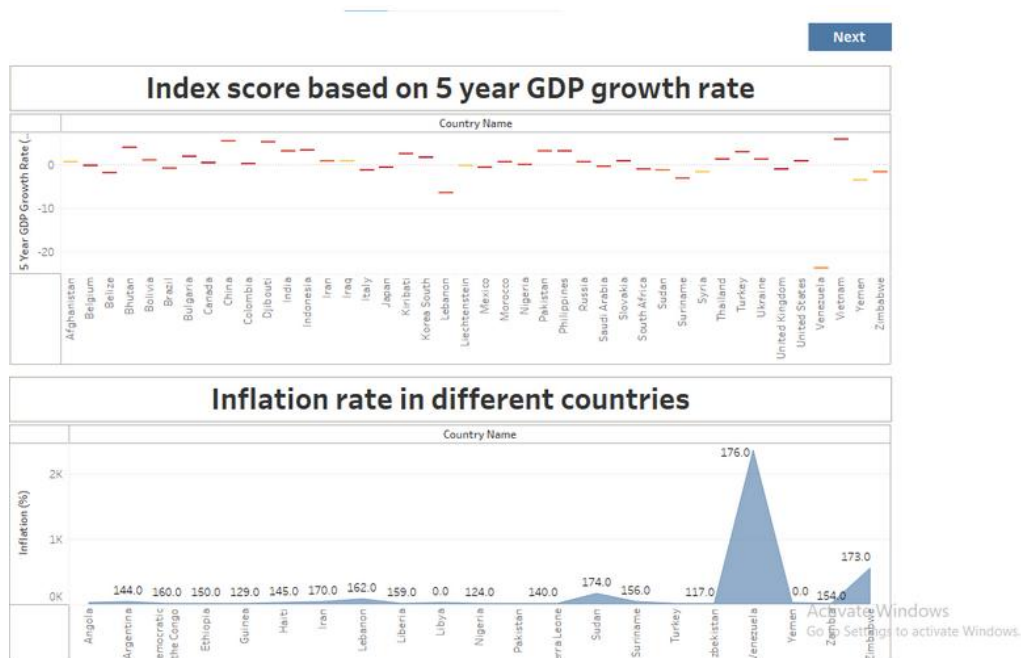
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Treemap on Financial Freedom – Visualizing disparities with sub-Saharan African nations scoring lower:



Storyboard View in Tableau – A structured presentation summarizing key insights and visuals:

