

# Project Report Format

## **1. INTRODUCTION**

### **1.1 Project Overview**

This project analyzes global economic prosperity using the Index of Economic Freedom and key indicators like GDP, inflation, and unemployment.

An interactive Tableau dashboard was built to visualize patterns, rankings, and correlations across countries.

It helps users understand how economic freedom impacts national development and financial stability.

The data was cleaned, enriched, and filtered for meaningful insights, especially for the year 2022. The final output supports decision-making, academic research, and policy analysis through visual storytelling.

### **1.2 Purpose**

The purpose of this project is to visually explore and analyze the relationship between Economic Freedom and national prosperity indicators such as GDP growth, inflation, unemployment, and population.

Using Tableau, the project aims to present these insights through interactive dashboards, enabling users to easily compare countries, identify patterns, and make data-driven conclusions about global economic performance.

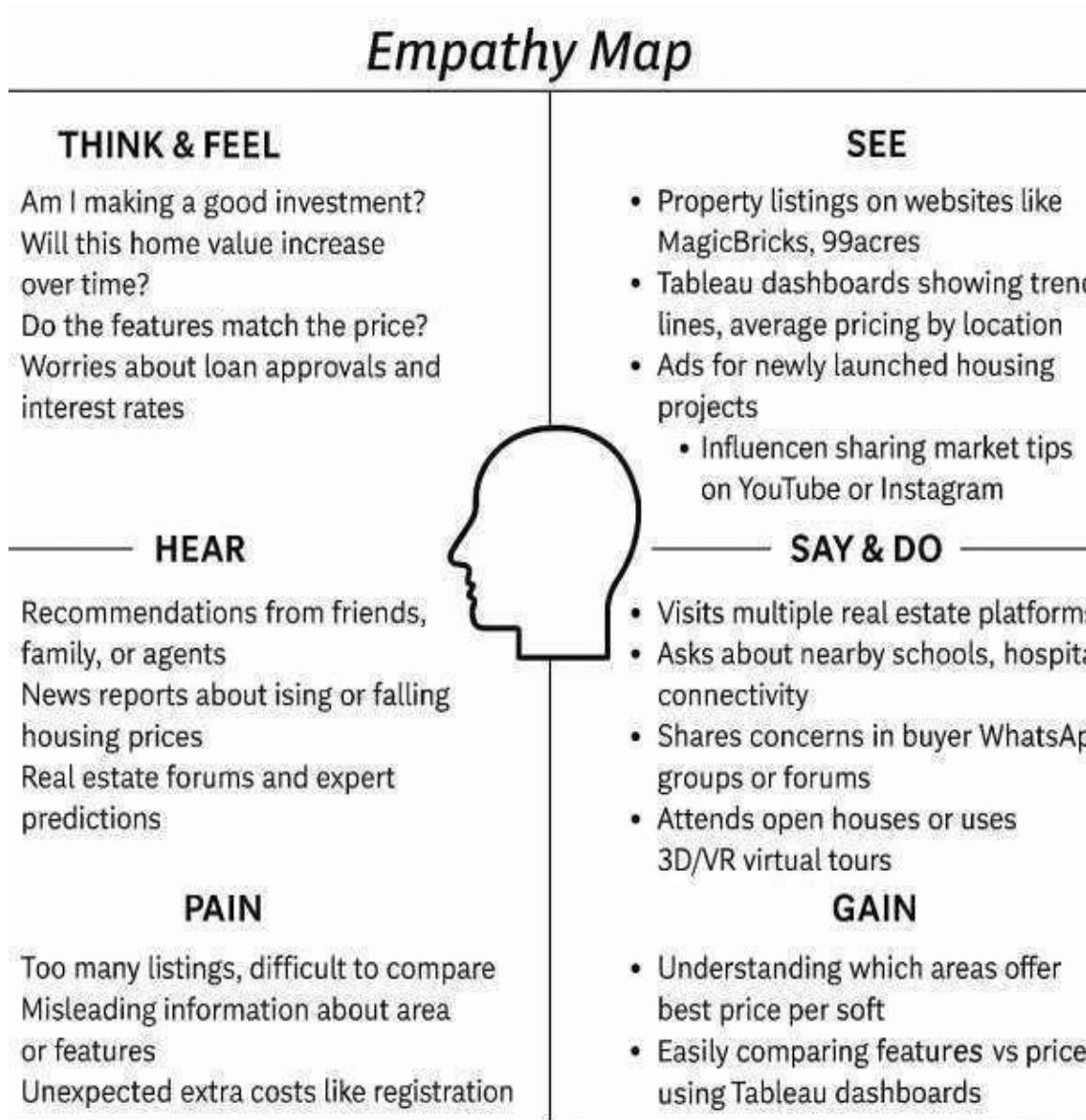
## **2. IDEATION PHASE: -**

### **2.1 Problem Statement**

<b>Problem Statement (PS)</b>	<b>I am (Customer)</b>	<b>I'm trying to</b>	<b>But</b>	<b>Because</b>	<b>Which makes me feel</b>
PS-1	a policy researcher or economist	analyze how economic freedom affects prosperity	I can't view freedom and prosperity data together	the data is scattered and non-visual	confused about drawing conclusions
PS-2	a student or analyst	explore economic trends across countries	I can't interact with complete index data easily	the insights are not presented visually	limited and overwhelmed

I am	I'm trying to	But	Because	Which makes me feel
<ul style="list-style-type: none"> <li>a Student or Analyst</li> </ul>	<ul style="list-style-type: none"> <li>explore economic trends across countries</li> </ul>	<ul style="list-style-type: none"> <li>I can't interact with complex index data easily</li> </ul>	<ul style="list-style-type: none"> <li>the insights are not presented visually</li> </ul>	<ul style="list-style-type: none"> <li>limited and overwhelmed</li> </ul>

## 2.2 Empathy Map Canvas



## 2.3 Brainstorming: -

### Brainstorming – Project:

Measuring the Pulse of Prosperity: An Index of Economic Freedom Analysis using Tableau

### Step 1: Team Gathering, Collaboration and Problem Selection

Team Members: Ganesh Tetanela

**Problem:** Understanding how economic freedom impacts national prosperity indicators (GDP, HDI, Inflation, etc.) using visual analytics in Tableau.

### Step 2: Brainstorming, Idea Listing and Grouping: -

Idea Group	Ideas
Index Overview	Show 2022 Economic Freedom Score for all countries
Top Performers	Display Top 40 countries based on Economic Freedom Index
Low Performers	Display Bottom-ranking countries by Economic Freedom
Unemployment Analysis	Analyze Index Score vs Unemployment Rate
Financial Freedom Link	Compare Index Score with Financial Freedom Score
Population Insight	Plot Index Score vs Population

### Step 3: Idea Prioritization: -

Idea	Feasibility	Impact	Priority
2022 Economic Freedom Score	High	High	High
Top 40 Countries by Index	High	High	High
Bottom-ranked Countries	High	Medium	High
Score vs Unemployment Rate	High	High	High
Score vs Financial Freedom	Medium	Medium	Medium
Score vs Population	Medium	Medium	Medium

## 3.REQUIREMENT ANALYSIS

### 3.1 Customer Journey map

Scenario (Existing experience through a product or service)	Notice [What does the user notice about the current state of the customer journey?]	Enter [What does the user want to do before the process?]	Engage [What does the user want to do during the process?]	Exit [What does the user expect to happen after the process?]	Extend [What happens after the experience is over?]
<b>Experience stage</b> What activities are central to the center of the customer journey experience?	Discover global indexes and rankings; want to know where a country stands	Start searching for Economic Freedom Index and development data	Load the dataset into Tableau and interact with dashboards	Draw insights, compare countries, identify trends	Apply insights in reports, policy papers, or further research
<b>Interventions</b> What interventions do they have at hand along the way? • People: Office, data from UN • Places: Office, academic sites, news • Things: Search engines	People: Students, Analysts, Policymakers Places: Academic sites, news Things: Search engines	People: Data portals, teammates Places: Kaggle, IMF, World Bank Things: CSV files, Excel	People: Tableau community Places: Tableau Desktop/Public Things: Filters, charts, dashboards	People: Teachers, mentors Things: Export tools, dashboard snapshots	People: Colleagues, public users Things: Shared dashboards, research summaries
<b>Goals &amp; motivations</b> What does the user want to accomplish through this?	Help me discover reliable global economic data	Help me access and explore prosperity indicators easily	Help me see how economic freedom links to growth and inflation	Help me summarize patterns and insights clearly	Help me share or expand on these findings for decision-making or publication
<b>Positive elements</b> What motivates the typical person that uses this product or service, something positive?	Finds a rich index dataset with diverse indicators	Sees structured data covering all countries	Interactive dashboards show real-time insights and visual patterns	Recognizes economic patterns and top-performing countries	Uses findings in their project, class, or professional report
<b>Negative elements</b> What motivates the typical person that uses this product or service, something negative?	Gets confused with too many data sources	Datasets are unclear or missing values	Unsure how to visualize the data correctly	Charts don't load fast; some values are inconsistent	Needs more metrics; can't customize the dashboard easily
<b>Area of opportunity</b> How might we make this better? • People: More data, better filters • Places: Better visualization, easier navigation	Curate relevant datasets with full indicators	Provide cleaned, merged starter files	Add guided visual layout (map, scatter, correlation) with filters	Provide downloadable summary insights and KPIs	Allow public interaction and a feedback loop for improvement

### 3.2 Solution Requirement: -

#### Functional Requirements: -

The following are the functional requirements of the proposed solution.

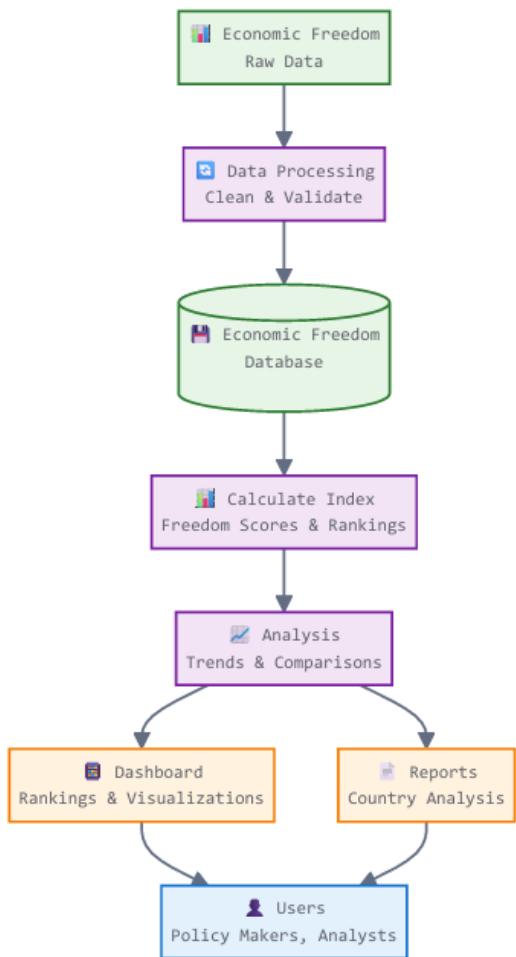
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Data Import	Load index_of_economic_freedom.csv into Tableau
FR-2	Filtering & Interaction	Enable filters for year, region, country, and prosperity indicators
FR-3	Visualization Generation	Display charts: maps, bar, scatter, donut, correlation plots
FR-4	Comparison Feature	Show relationships between freedom score and GDP, inflation, unemployment
FR-5	Export/Download	Allow export of dashboards to PDF or images from Tableau Public
FR-6	Dynamic Dashboard	Provide interactive dashboards for custom exploration of country metrics

## Non-functional Requirements:

The following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Dashboard should be clean, intuitive, and usable by both students and analysts
NFR-2	Security	Hosted securely on Tableau Public, with no sensitive data exposure
NFR-3	Reliability	Dashboards must work consistently without crash or data loss
NFR-4	Performance	Visuals should render in under 3 seconds for standard data size
NFR-5	Availability	Published dashboards should be accessible 24/7
NFR-6	Scalability	Capable of handling added countries, indicators, and yearly data growth

## 3.3 Data Flow Diagram: -



## User Stories: -

User Type	Functional Requirement (Epic)	User Story Number	User Story/ Task	Acceptance criteria	Priority	Release
Policy Analyst	Compare Economic Indicator s	USN-1	As a policy analyst, I want to compare GDP growth with freedom scores	I can see trends across countries via visuals	High	Sprint-1
Data Analyst	Explore correlation insights	USN-2	As a data analyst, I want to explore inflation vs unemployment correlation	I can analyze the scatter plot and extract observations	High	Sprint-1
Student Researcher	Analyze Top Countries	USN-3	As a student, I want to identify top 40 countries by GDP growth and freedom index	I can view ranked lists and charts	High	Sprint-2
Public User	Access Dashboards	USN-4	As a public user, I want to access the dashboards on Tableau Public	I can interact with published visuals	Medium	Sprint-2

### 3.4 Technology Stack: -

#### Technical Architecture: -

The Deliverable shall include the architectural diagram below and the information as per table 1.

S.No	Component	Description	Technology
1	User Interface	Dashboard view	Tableau Public
2.	Application Logic-1	Data filtering	Tableau filters and parameters
3.	Application Logic-2	Visualization	Tableau dashboards & calculated fields
4.	Application Logic-3	Not used (optional)	—
5.	Database	Source dataset	index_of_economic_freedo m.csv in Excel/CSV format
6.	Cloud Database	Hosted data files	Google Drive / Tableau Public
7.	File Storage	Source file storage	Local system / Google Drive
8.	External API-1	World Bank API	Word Bank
9.	External API-2	((Optional) Map service	Google Maps API (if used)
10	Infrastructure	Cloud hosting	Tableau Public

**Table-2: Application Characteristics: -**

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Uses open data (Heritage Foundation, World Bank, Kaggle) and Tableau Public	Tableau Public, Excel
2.	Security Implementations	Tableau's privacy settings and data control on Tableau Public	Tableau Privacy Settings
3.	Scalable Architecture	Can visualize more countries, years, and indicators	Tableau filters, cloud storage
4.	Availability	Dashboards accessible 24/7	Tableau Public

## 4 PROJECT DESIGN

### 4.1 Problem Solution Fit Problem – Solution Fit Template: -

parameter	Details
1. Target Customer	<ul style="list-style-type: none"><li>- Policy makers and economic researchers</li><li>- Students and data analysts studying international economics</li></ul>
2. Problems	<ul style="list-style-type: none"><li>- Economic freedom and prosperity indicators are scattered across multiple databases</li><li>- Hard to correlate data like GDP, inflation, and freedom scores in one place</li><li>- Non-visual formats make analysis difficult and time-consuming</li><li>- Trend discovery is manual and tedious</li></ul>
3. Existing Alternatives	<ul style="list-style-type: none"><li>- Raw data access via Excel, CSVs from Heritage, World Bank, IMF</li><li>- Reports in PDFs or static infographics</li><li>- Manual plotting in Excel</li><li>- Reading articles and comparing from multiple sources</li></ul>
4. Your Solution	<ul style="list-style-type: none"><li>- A centralized, filterable Tableau dashboard combining Economic Freedom Index with prosperity indicators</li><li>- Visual insights through maps, scatter plots, and correlation charts</li><li>- Dynamic filters for year, country, region, and indicators</li></ul>
5. Key Benefits	<ul style="list-style-type: none"><li>- Easy pattern discovery for GDP, inflation, and freedom</li><li>- Speeds up analysis with visuals and interactive elements</li><li>- Helpful for both research and presentations</li><li>- Can be exported, reused, and embedded in reports</li></ul>
6. Unique Value Proposition (UVP)	<ul style="list-style-type: none"><li>- Unlike raw data or static reports, this dashboard provides a real-time, interactive exploration of how economic freedom relates to national prosperity</li><li>- Built with open data and Tableau Public, it's accessible, visual, and designed for informed decision-making</li></ul>

**Purpose:** -

- Solve complex economic data challenges in a format accessible to non-technical users.
- Increase understanding of prosperity indicators by connecting them with freedom index data.
- Speed up research and reporting through interactive, visual analytics.
- Strengthen policy recommendations and academic presentations using real-time insights.
- Reduce dependency on static spreadsheets and enhance user confidence with dynamic dashboards.

## 4.2 Proposed Solution

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Global economic data is often scattered, non-visual, and hard to interpret. Analysts, researchers, and students face difficulty understanding the impact of economic freedom on national prosperity due to lack of integrated, interactive tools.
2.	Idea / Solution description	Our solution is a Tableau-based dashboard that visually analyzes the relationship between Economic Freedom and key indicators like GDP growth, inflation, population, and unemployment. It allows users to: <ul style="list-style-type: none"> <li>- View top/bottom ranked countries</li> <li>- Analyze inflation vs unemployment correlation</li> <li>- Explore GDP vs freedom trends</li> <li>- Filter by region, year, and indicators</li> </ul>
3.	Novelty / Uniqueness	Unlike static Excel files or traditional reports, this dashboard provides an interactive, multi-indicator view built using only Tableau and publicly available datasets. It unifies economic and prosperity indicators across countries and years with filterable, easy-to-understand visual format
4.	Social Impact / Customer Satisfaction	This solution enhances economic awareness among students and researchers, assists policy analysts in data-driven decision-making, and promotes transparency. It reduces time and confusion in processing global datasets, improving both accessibility and clarity of complex economic information.
5.	Business Model (Revenue Model)	This dashboard could be monetized as part of consultancy reports, academic dashboards, or educational toolkits. Revenue opportunities include: <ul style="list-style-type: none"> <li>- Custom dashboards for policy agencies or institutions</li> </ul>

		<ul style="list-style-type: none"> <li>- Freemium model with premium insights</li> <li>- Integration into online research platforms</li> </ul>
6.	Scalability of the Solution	<ul style="list-style-type: none"> <li>• The solution can scale easily:</li> <li>• - Add more years, indicators, or countries without reworking the architecture</li> <li>• - Adapt for other indexes like Human Development or Corruption Index</li> <li>• - Expand use cases to include forecasting or time-series trend analysis across different domains</li> </ul>

## 4.2 Proposed Solution

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Global economic data is often scattered, non-visual, and hard to interpret. Analysts, researchers, and students face difficulty understanding the impact of economic freedom on national prosperity due to lack of integrated, interactive tools.
2.	Idea / Solution description	<p>Our solution is a Tableau-based dashboard that visually analyzes the relationship between Economic Freedom and key indicators like GDP growth, inflation, population, and unemployment. It allows users to:</p> <ul style="list-style-type: none"> <li>- View top/bottom ranked countries</li> <li>- Analyze inflation vs unemployment correlation</li> <li>- Explore GDP vs freedom trends</li> <li>- Filter by region, year, and indicators</li> </ul>
3.	Novelty / Uniqueness	Unlike static Excel files or traditional reports, this dashboard provides an interactive, multi-indicator view built using only Tableau and publicly available datasets. It unifies economic and prosperity indicators across countries and years with filterable, easy-to-understand visual format
4.	Social Impact / Customer Satisfaction	This solution enhances economic awareness among students and researchers, assists policy analysts in data-driven decision-making, and promotes transparency. It reduces time and confusion in processing global datasets, improving both accessibility and clarity of complex economic information.
5.	Business Model (Revenue Model)	<p>This dashboard could be monetized as part of consultancy reports, academic dashboards, or educational toolkits. Revenue opportunities include:</p> <ul style="list-style-type: none"> <li>- Custom dashboards for policy agencies or institutions</li> <li>- Freemium model with premium insights</li> <li>- Integration into online research platforms</li> </ul>

### **4.3 Solution Architecture: -**

- Solution architecture is a structured process that bridges the gap between economic data analysis problems and modern data visualization solutions. Its goals are to:
- Find the best tech solution to solve the challenges in visualizing scattered global economic indicators.
- Describe the system's structure and behavior to stakeholders (students, analysts, researchers).
- Define key features, data flow, and platform integration using Tableau.
- Guide the solution's development and delivery through organized architecture.

## **Key Aspects**

### ***Business Problem***

Policy makers, analysts, and students face difficulty interpreting how economic freedom correlates with GDP growth, inflation, and unemployment due to scattered datasets and lack of unified visualization.

### ***Technology Solution***

The solution uses Tableau Public to create an interactive dashboard. It combines data from the Index of Economic Freedom and prosperity indicators (GDP, inflation, unemployment) from World Bank datasets. Users can filter by region, year, and country to explore meaningful insights through maps, scatter plots, and charts.

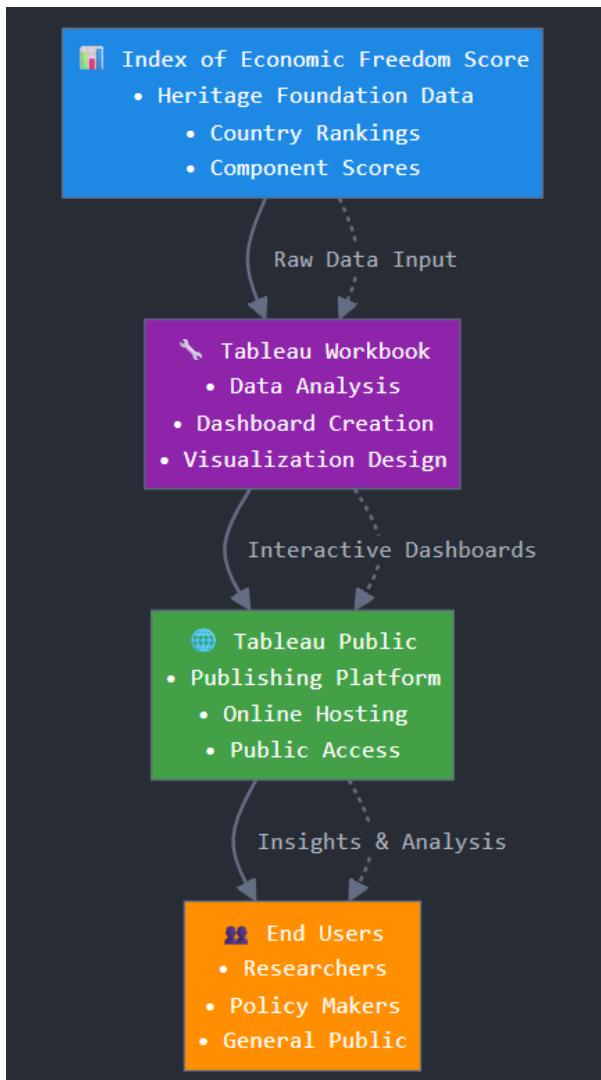
### ***Features***

- Choropleth map showing 2022 Economic Freedom Scores
- Top 40 & Bottom Countries based on Index Score
- Scatter plots: Freedom Score vs GDP, Unemployment, Inflation
- Correlation analysis between Inflation and Unemployment
- Country-level filters, downloadable insights, and public access

### ***Solution Delivery***

- Hosted via Tableau Public Dashboard
- Published using merged CSV dataset
- Shared through public URL and snapshots for reports and presentations

## Example - Solution Architecture Diagram: -



## 5. PROJECT PLANNING & SCHEDULING

### 5.1 Project Planning Product Backlog, Sprint, Schedule & Estimation (4 marks)

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Data Import & Cleaning	USN-1	As a user, I want to import and clean the Economic Freedom dataset in Tableau	3	High	Ganesh (Self)
Sprint-1	Data Enrichment & Mapping	USN-2	As a user, I want to join economic indicators like GDP, Inflation, Unemployment	2	High	Ganesh (Self)
Sprint-2	Index & Ranking Visualizations	USN-3	As a user, I want to create dashboards for top 40 and bottom 40 countries	3	High	Ganesh (Self)
Sprint-2	Indicator-based Comparisons	USN-4	As a user, I want to visualize score vs GDP, Unemployment, and Population	2	Medium	Ganesh (Self)
Sprint-3	Correlation Analysis	USN-5	As a user, I want to show correlation between Inflation & Unemployment	2	High	Ganesh (Self)
Sprint-3	GDP Growth & Freedom Mapping	USN-6	As a user, I want to correlate 5-year GDP growth with Index Score	2	Medium	Ganesh (Self)
Sprint-4	Dashboard Layout & Filtering Testing & Optimization	USN-7	As a user, I want to create a dashboard with region, year, and indicator filters	3	High	Ganesh (Self)
Sprint-4	Final Testing & Tableau Public Upload	USN-8	As a user, I want to test, finalize, and publish dashboard to Tableau Public	1	High	Ganesh (Self)

## Project Tracker, Velocity & Burndown Chart: (4 Marks)

Sprint-1	5	2 Days	20 June 2025	21 June 2025	5	21 June 2025
Sprint-2	5	2 Days	22 June 2025	23 June 2025	5	23 June 2025
Sprint-3	4	2 Days	24 June 2025	25 June 2025	4	25 June 2025
Sprint-4	4	1 Day	26 June 2025	26 June 2025	4	26 June 2025

**Velocity:** -

**Final Average Team Velocity =**

$$(5 + 5 + 4 + 4) / (2 + 2 + 2 + 1) = 18 / 7 = 2.57 \text{ story points/day (rounded to 2.6)}$$

**Burndown Chart:** -

A burn down chart is a graphical representation of work left to do versus time. It is often used in agile [software development](#) methodologies such as [Scrum](#). However, burn down charts can be applied to any project containing measurable progress over time.



## 6.FUNCTIONAL AND PERFORMANCE TESTING

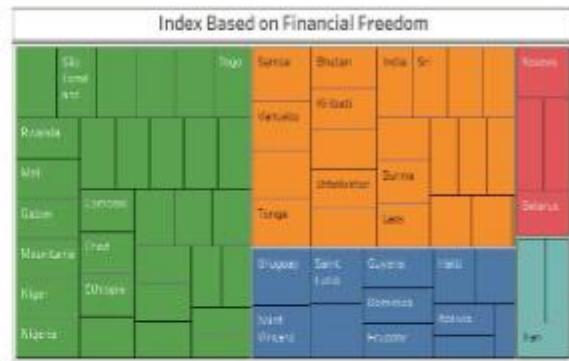
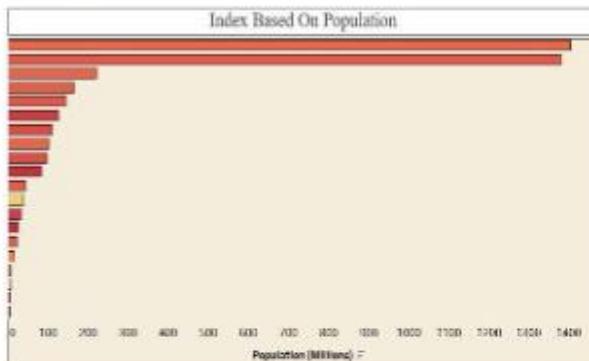
### 6.1 Performance Testing: -

#### Model Performance Testing: -

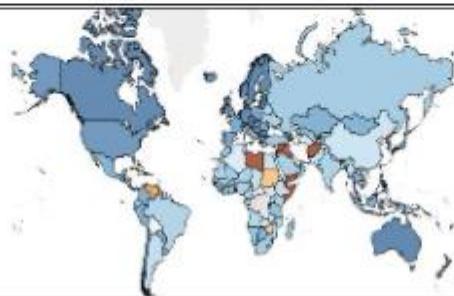
S.No.	Parameter	Screenshot / Values
1.	Data Rendered	<ul style="list-style-type: none"><li>- Total Rows: 184</li><li>- Columns: 32</li><li>- File used: index_of_economic_freedom.csv</li><li>- Rendered from Tableau Data Source tab)</li></ul>
2.	Data Preprocessing	<ul style="list-style-type: none"><li>- Cleaned null values</li><li>- Filtered for Year = 2022</li><li>- Renamed and reformatted key columns (e.g., GDP, Score)</li><li>- Joined multiple economic indicators manually</li></ul>
3.	Utilization of Filters	<p>Filters applied to:</p> <ul style="list-style-type: none"><li>• Year</li><li>• Region</li><li>• Economic Indicators (e.g., GDP, Inflation, Unemployment)</li></ul> <p>Filters shown on dashboards and visual sheets</p>
4.	Calculation fields Used	<ul style="list-style-type: none"><li>- Created calculated fields:<ul style="list-style-type: none"><li>• GDP Growth Bucket</li><li>• Prosperity Category (based on Index Score)</li><li>• Region-wise score average</li></ul></li></ul>
5.	Dashboard design	<p>No. of Visualizations / Graphs – 10</p> <ol style="list-style-type: none"><li>1. Economic Freedom Map</li><li>2. Top 40 Countries by Index</li><li>3. Bottom 40 Countries</li><li>4. Index vs Unemployment</li><li>5. Financial Freedom Tree Map</li><li>6. Population Bar Chart</li><li>7. GDP Growth Gantt Chart</li><li>8. Inflation Area Chart</li><li>9. Inflation vs Unemployment</li><li>10. GDP(PPP) vs Monetary Freedom No. Of Dashboards - 3</li></ol>
6	Story Design	<p><b>No of Visualizations / Graphs – 1</b></p> <ul style="list-style-type: none"><li>- Story includes 7 scenario charts</li><li>- Organized into 3 dashboards</li><li>- Story includes transition across regional and indicator-based scenarios</li></ul>

## Screenshot of Data Source: -

## Screenshot of Dashboard with Filters: -



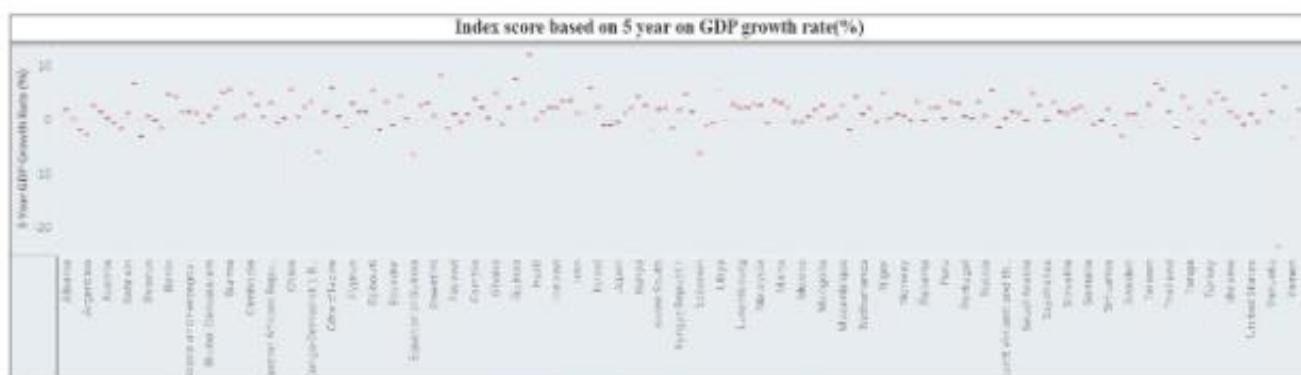
## 2022 Economic Score



2 unknown

Dashboard 2

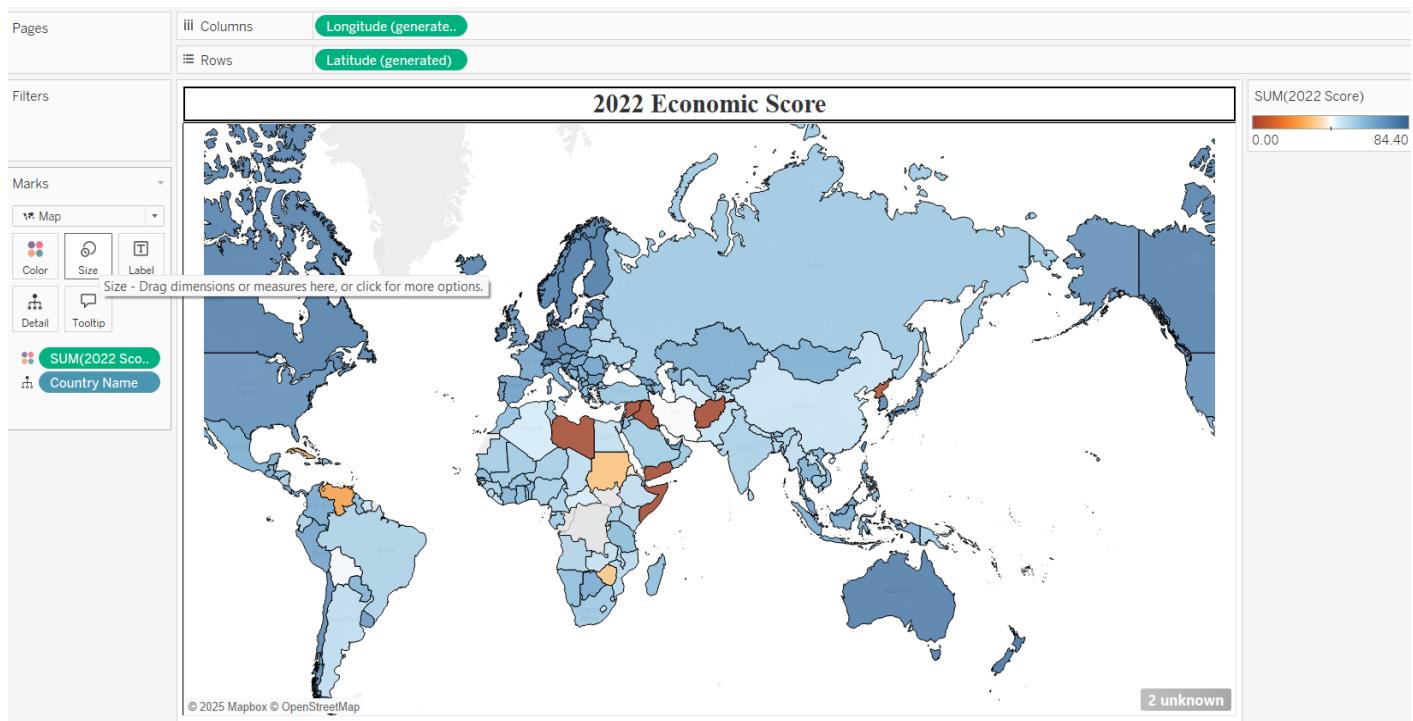
Next



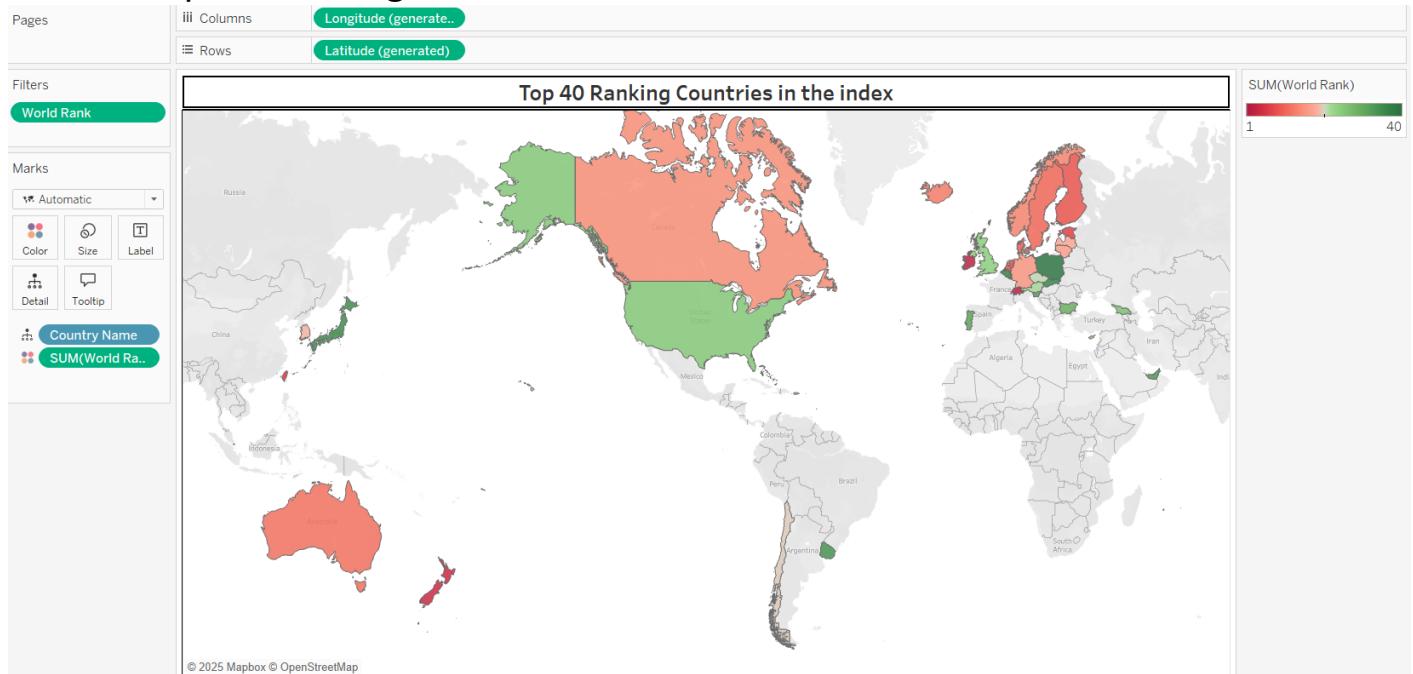
## 7. Results

### 7.1 Output Screenshots

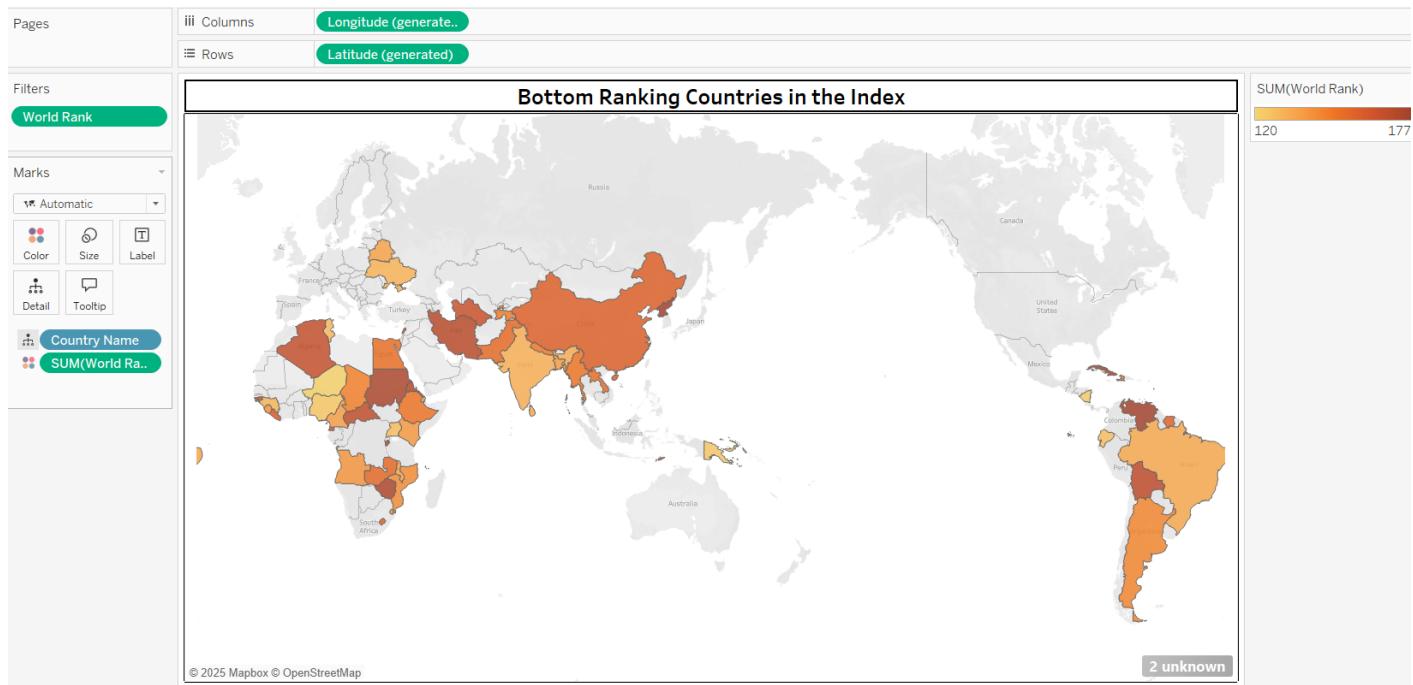
#### Case 1: 2022 Economic Score



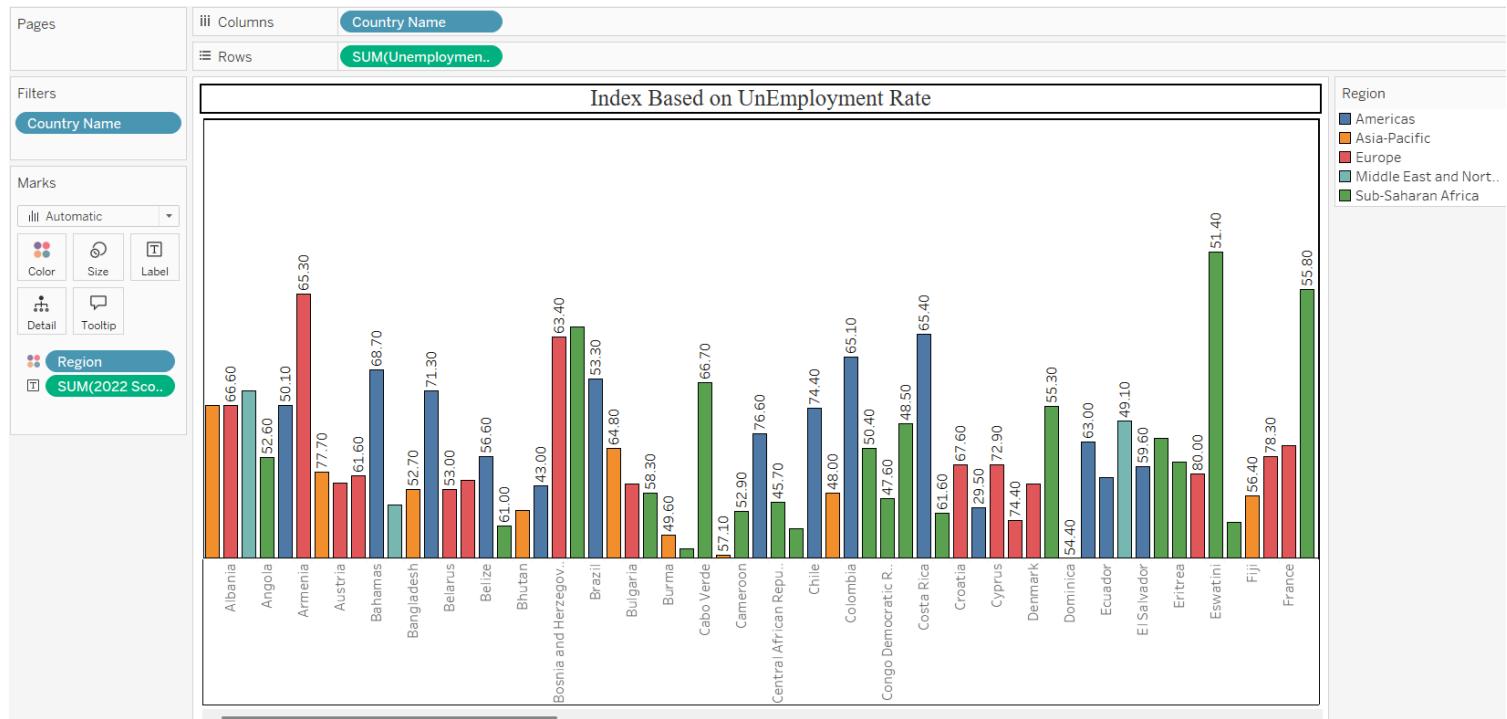
#### Case 2: Top 40 Ranking Countries in the Index



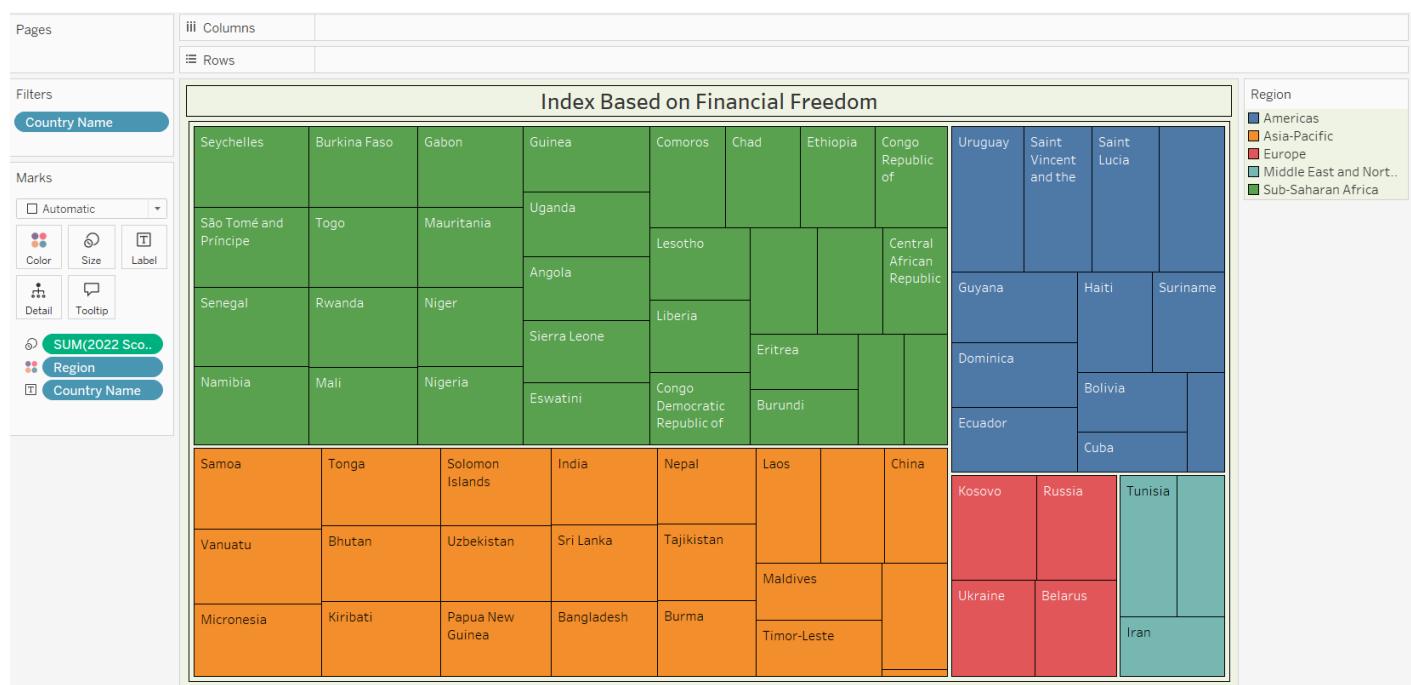
## Case 3: Bottom Ranking Countries in the Index



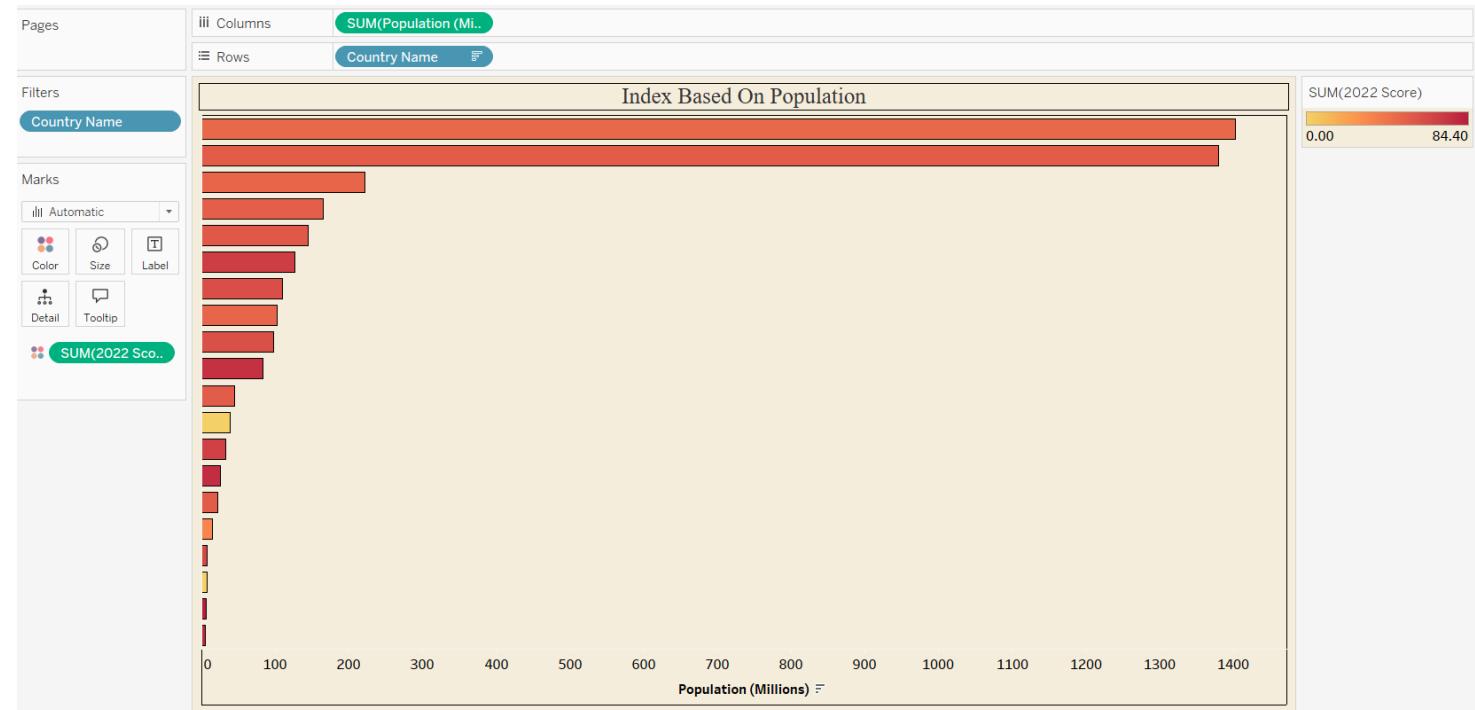
## Case 4: Index based on Unemployment Rate



## **Case 5: Index based on Financial Freedom**



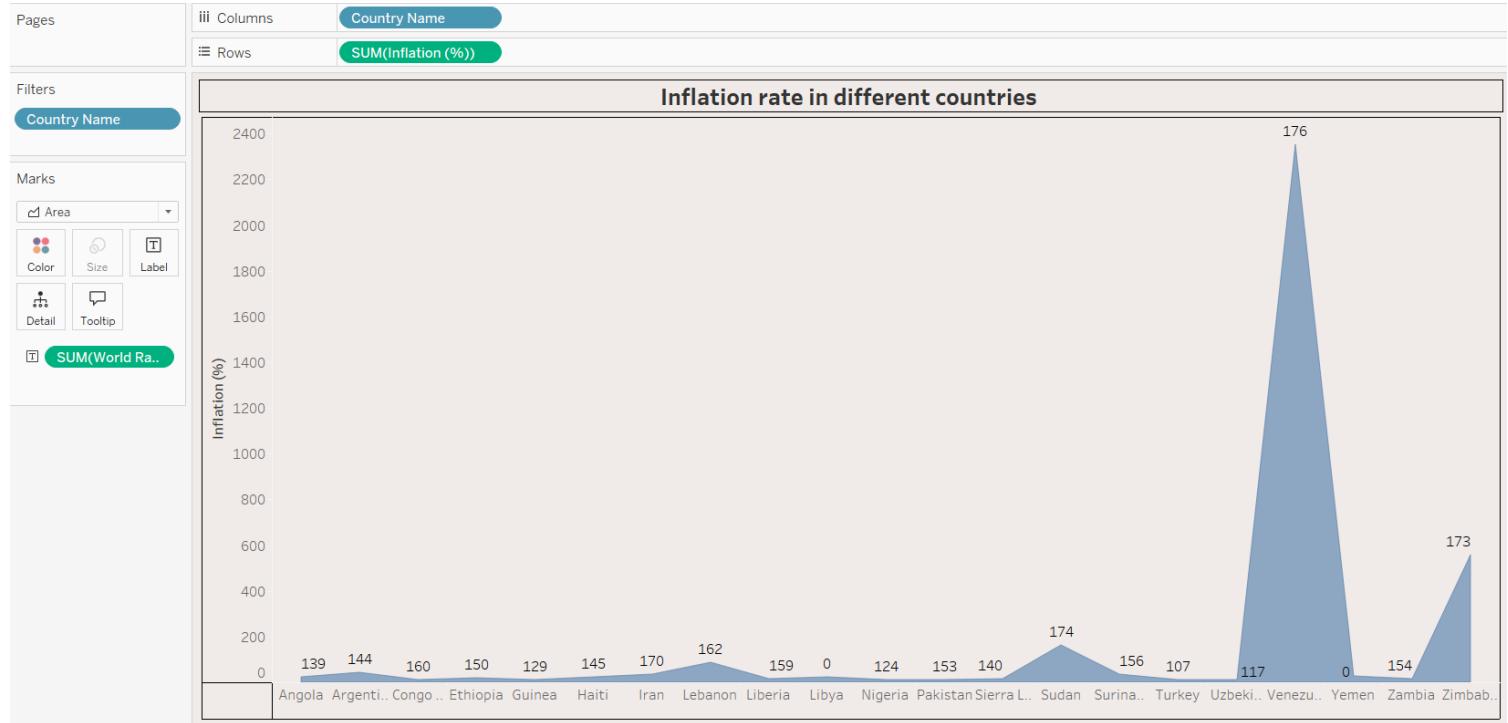
## Case 6: Index based on Population



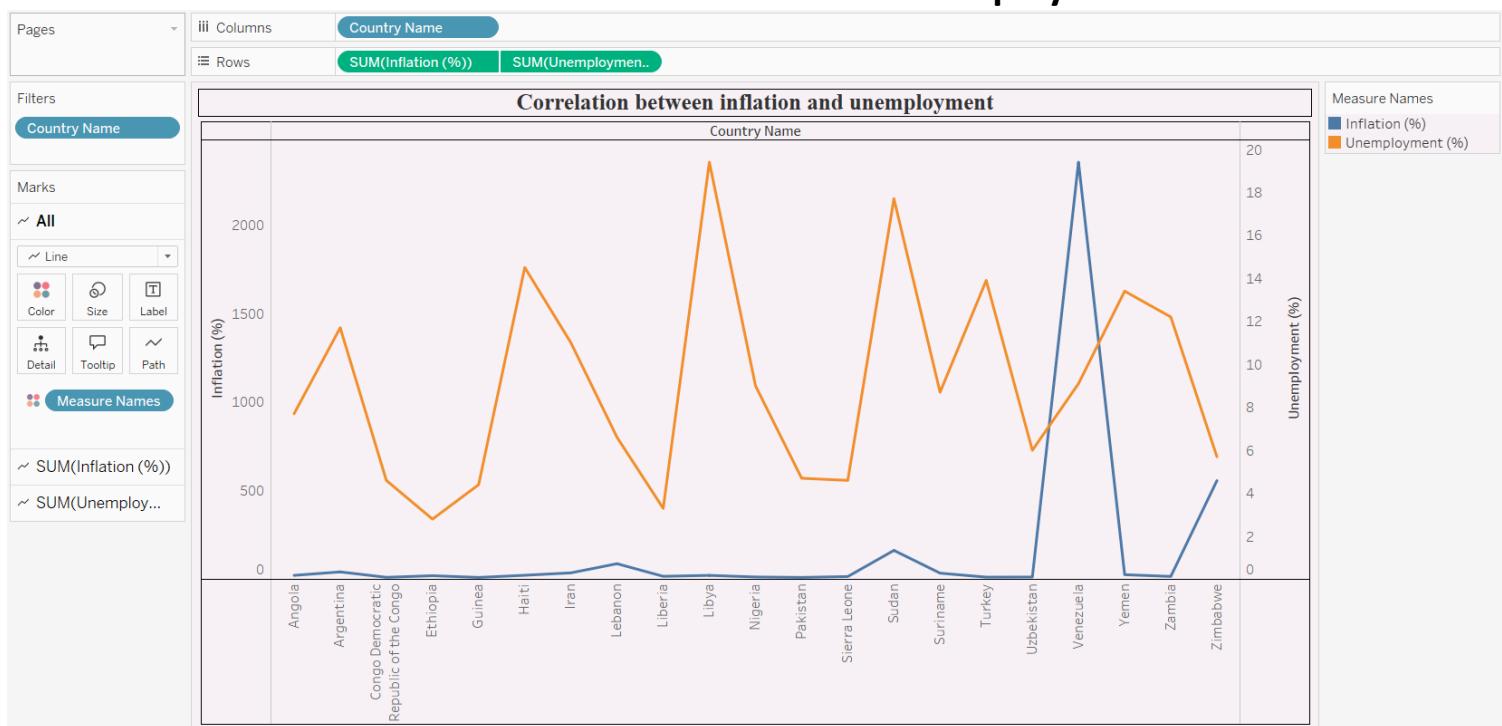
## Case 7: Index score based on 5 years on GDP growth rate (%)



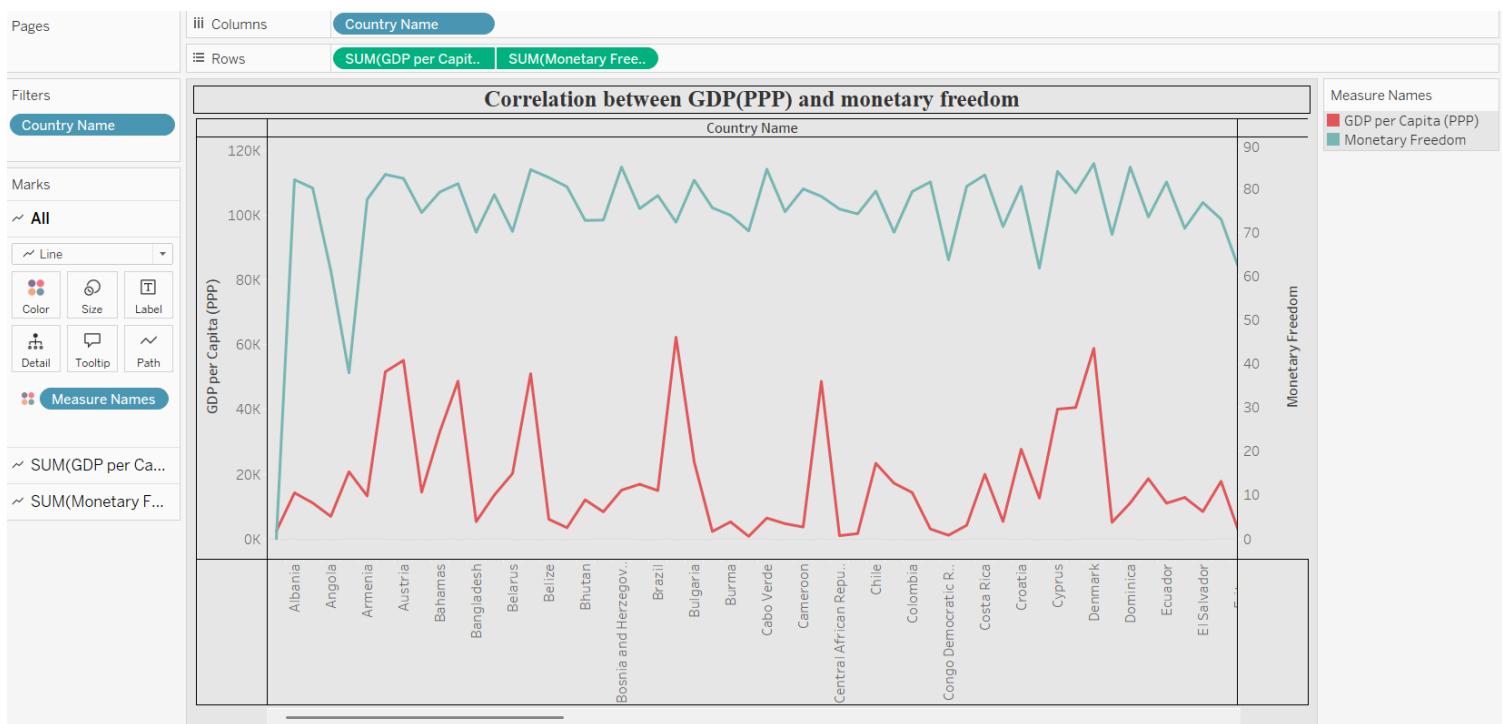
## Case 8: Inflation Rate in Different Countries



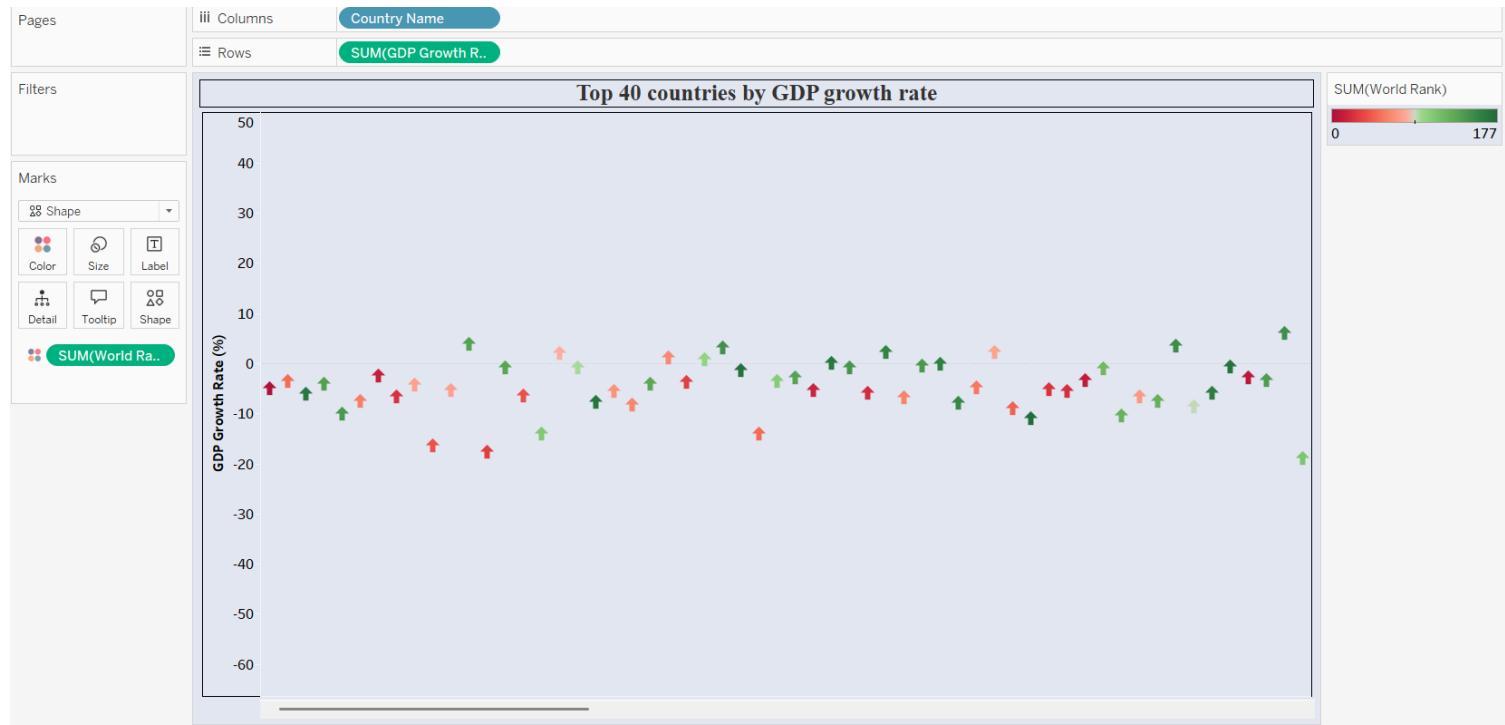
## Case 9: Correlation between Inflation and Unemployment



## Case 10: Correlation between GDP(PPP) and monetary freedom

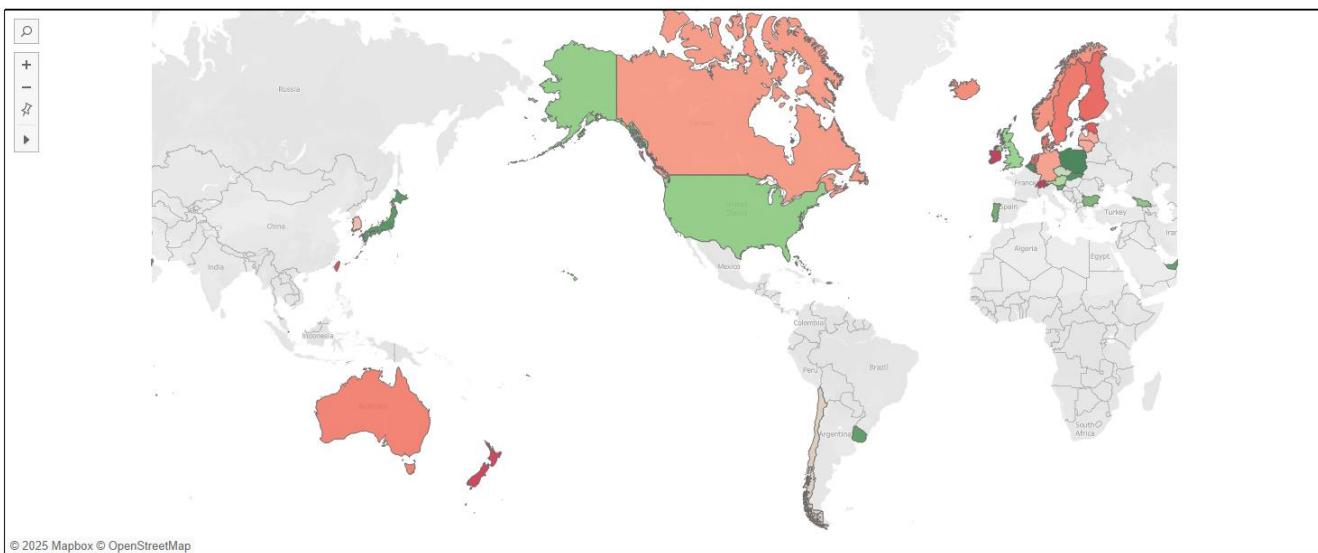


## Case 11: Top 40 countries by GDP growth rate



### Story:

#### Story 1



## 8. ADVANTAGES & DISADVANTAGES: -

## **Advantages**

- Interactive dashboards allow users to explore data visually and intuitively.
- Combines multiple indicators (GDP, inflation, unemployment, etc.) into one unified view.
- Region-wise and country-level comparisons help in policy analysis and academic research.
- Built using public datasets and free tools (Tableau Public), making it accessible to all.
- Custom filters and calculated fields enable in-depth, user-driven insights.

## **Disadvantages**

- Data accuracy depends on external sources and may have missing or outdated values.
- Limited to available indicators — cannot show real-time or predictive data.
- Tableau Public lacks advanced security, making sensitive data unsuitable.
- Requires internet access to view the published dashboard.
- Learning curve for new users who are unfamiliar with data visualization tools.

## **9.conclusion**

This project visualizes the relationship between economic freedom and prosperity indicators like GDP, inflation, and unemployment.

Using Tableau, we created interactive dashboards for easy country-wise and regional analysis.

The insights help users understand how freedom influences economic outcomes globally.

It proves that data visualization is a powerful tool for simplifying complex economic data.

## **10. FUTURE SCOPE: -**

- Integrate more indicators like education index, corruption index, and HDI for deeper insights.
- Add time-series forecasting to predict future trends in economic freedom and prosperity.
- Expand the dashboard to include real-time data updates from APIs (e.g., World Bank).
- Enable user-defined country comparisons and downloadable reports.
- Convert the project into a web-based interactive platform for broader public access.

## **11. APPENDIX**

- **Source Code:** N/A

- **Dataset Link:** -

<https://drive.google.com/file/d/1EBla1LtM3Ni2Uh3nekLB6wt3263Q3NeX/view>

- **GitHub & Project Demo**

- **Git hub Link:** -

<https://github.com/ganeshtetela/measuring-the-Pulse-of-Prosperity-An-Index-of-Economic-Freedom->

**Project Video Demo Link:** -

<https://drive.google.com/file/d/1oB2NAfewAH4Za0gwcOfleD46UxMOIqB2/view?usp=sharing>