

Final Project Report Template

1. Introduction

1.1. Project overviews

An Index of Economic Freedom is a vital tool that meticulously assesses jurisdictions based on key parameters such as trade freedom, tax burden, and judicial effectiveness. This comprehensive evaluation culminates in a singular score, providing a nuanced perspective on the economic landscape. The annual publication by The Heritage Foundation categorizes countries on a spectrum from “free” to “repressed,” wielding significant influence over policy decisions and shedding light on impactful correlations.

1.2. Objectives

The primary objective of an economic freedom analysis project, particularly when referencing the widely recognized "Index of Economic Freedom" by The Heritage Foundation, revolves around:

- **Measuring and Evaluating Economic Liberty:**
 - The core aim is to quantify the level of economic freedom within nations. This involves assessing the degree to which individuals and businesses are free to make their own economic decisions.
- **Analyzing the Relationship Between Economic Freedom and Prosperity:**
 - A key objective is to examine the correlation between economic freedom and various economic and social outcomes, such as economic growth, income levels, and overall well-being.
- **Providing a Comparative Analysis:**
 - These projects aim to offer a framework for comparing the economic freedom of different countries, allowing for insights into best practices and areas for improvement.

2. Project Initialization and Planning Phase

2.1. Define Problem Statement

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	Indonesia	Rule of Law: Concerns persist regarding property rights, judicial effectiveness, and government integrity. Corruption remains a significant issue	There is room for improvement regarding investment freedom	Indonesia's large and diverse economy presents both opportunities and challenges. Ongoing government reforms play a crucial role in shaping economic landscape	Regret
PS-2	India	Rule of Law: Issues persist regarding property rights, judicial effectiveness, and government integrity. Corruption remains a significant challenge.	Government Size: There are concerns about the level of government intervention in the economy	Government Size: There are concerns about the level government intervention in the economy. The informal economy plays a substantial role.	Regret

PS-3	Afghanistan	Compiling accurate and up-to-date economic data is a major hurdle. Many International sources have incomplete data on Afghanistan	This data scarcity makes it difficult to produce a precise and reliable economic freedom index score	Afghanistan faces a serve humanitarian crisis, with widespread poverty, food, insecurity ,and limited access to basic services	Sad
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2.2. Project Proposal (Proposed Solution)

Project Overview	
Objective	To study the individual effects of different components of the index. For example, how strong property rights effect foreign direct investment. To understand the ways in which economic freedom causes increases in prosperity. For example, by increasing innovation, or by increasing investment.
Scope	Measurement of Economic Freedom: <ul style="list-style-type: none"> The primary scope is to quantify the level of economic freedom within a country. This involves assessing factors related to: <ul style="list-style-type: none"> Rule of Law: Property rights, judicial effectiveness, and government integrity. Government Size: Tax burden, government spending, and fiscal health.
Problem Statement	
Description	Policy Guidance: It can inform decisions related to taxation, regulation, trade, and property rights. <ul style="list-style-type: none"> By highlighting the benefits of economic freedom, the analysis can encourage countries to adopt policies that foster entrepreneurship, investment, and innovation.
Impact	This can lead to increased foreign direct investment in countries with high levels of economic freedom. <ul style="list-style-type: none"> This can lead to increased economic opportunities and reduced poverty.
Proposed Solution	
Approach	The proposed solution is a clearly state the problem: "This analysis aims to investigate the relationship between economic freedom, as measured by the Index of Economic Freedom, and various indicators of economic and social prosperity."
Key Features	Policy Relevance: <ul style="list-style-type: none"> Generating evidence-based policy recommendations. Identifying best practices for promoting economic freedom. Evaluating the effects of policy changes.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	Laptop (DELL)	Hp RYZEN 5
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	476 GB
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	scikit-learn, pandas, numpy
Development Environment	IDE, version control	Jupyter Notebook, Git
Data		
Data	Format	Ms Excel

2.3. Initial Project Planning

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members	Sprint Start Date	Sprint End Date (Planned)
Sprint-1	Data collection	SCRUM-1	Downloading the datasets	2	High	Boya Jammanna	3-3-2025	5-3-2025
Sprint-2	Working with Dataset	SCRUM-3	Understand the Data	1	High	Y Madhurima	5-3-2025	7-3-2025
Sprint-2	Working with Dataset	SCRUM-3	Import Dataset into Database and connect Tableau desktop to Database server	2	High	Y Madhurima	5-3-2025	7-3-2025
Sprint-3	Data Visualization	SCRUM-6	2022 Economic Freedom score Top 40 Ranking countries in the index	2	High	Y Madhurima	7-3-2025	12-3-2025

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members	Sprint Start Date	Sprint End Date (Planned)
			Bottom ranking countries in the index Index score based on unemployment rate Index score based on financial freedom Index score based on population Index score based on 5 year on GDP growth rate Inflation rate in different countries Co-relation between inflation and unemployment Co-relation between GDP(PPP) and monetary freedom Top 40 countries by GDP growth rate					
Sprint-4	Dashboard	SCRUM-18	Creating the dashboard	1	High	Y Madhurima	12-3-2025	15-3-2025
Sprint-5	Story	SCRUM-20	Creating the story board	2	High	Y Madhurima	15-3-2025	17-3-2025
Sprint-5	Publishing and Web integration	SCRUM-22	Publishing dashboard and report to	2	High	Ediga Shekar	17-3-2025	22-3-2025

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members	Sprint Start Date	Sprint End Date (Planned)
			tableau public Integrating with Web with Embed code			C M Sneha		

3. Data Collection and Pre-processing Phase

3.1. Data Collection Plan and Raw Data Sources Identified

3.2. Data Quality Report

Data Source	Data Quality Issue	Severity	Resolution Plan
UNESCO World Heritage Sites 2019	The data is not properly organised where the datatypes are incorrect and some columns doesn't have the data accurate and there are unnecessary columns with null values	High	Cleaned the data also eliminated the unnecessary columns, incorrect data types and added some extra columns for better visualizations.

3.3. Data Exploration and Pre-processing

Section	Description
Data Overview	<p>The analysis assesses the quality and consistency of the data used in the index. This involves examining the sources of data, the potential for bias, and the accuracy of the measurements.</p> <ul style="list-style-type: none"> Consideration is given to how well the data captures the realities of diverse economic environments.
Data Cleaning	<p>When analysing the Index of Economic Freedom, "data cleaning" refers to the essential process of ensuring the accuracy, consistency, and reliability of the data used to construct the index. This is a crucial step in producing a valid and meaningful assessment of economic freedom. Economic data from various countries may have gaps or missing values. Data cleaning involves determining the appropriate methods for handling these gaps, such as imputation or exclusion.</p>
Data Transformation	<p>When considering "data transformation" within the context of the Index of Economic Freedom, it's about how raw data is processed and converted into the index's standardized scores. This process is crucial for creating a consistent and comparable measure of economic freedom across diverse economies. Raw data from various sources often uses different units and scales. Transformation standardizes this data, typically onto a common scale (often 0 to 100), allowing for direct comparisons. This process ensures that factors like tax rates, trade tariffs, and property rights assessments are all measured on a uniform basis.</p>
Data Type Conversion	<p>When discussing "data type conversion" in the context of the Index of Economic Freedom, we're focusing on how raw data, which comes in various forms, is transformed into a standardized</p>

	<p>numerical format suitable for inclusion in the index.</p> <p>The index draws data from a wide range of sources, including:</p> <ul style="list-style-type: none"> • Government statistics (e.g., tax rates, government spending). <p>This data comes in various formats:</p> <ul style="list-style-type: none"> • Percentages (e.g., tax burden). <p>Standardization Requirement:</p> <p>To create a meaningful index, all these diverse data types must be converted into a common numerical scale.</p>
Column Splitting and Merging	<p>When analysing the Index of Economic Freedom, the concepts of "column splitting and merging" relate to how the raw data is organized and processed to create the final index scores.</p> <p>Column Splitting:</p> <ul style="list-style-type: none"> • Disaggregation of Data: <ul style="list-style-type: none"> ○ The Index of Economic Freedom uses numerous data points to assess each country. Sometimes, raw data might be provided in a single column that contains multiple pieces of information. <p>Column Merging:</p> <ul style="list-style-type: none"> • Aggregation of Data: <ul style="list-style-type: none"> ○ Conversely, "column merging" involves combining data from multiple columns to create a composite score or a broader metric. <p>For example, after individual scores are calculated for "property rights," "judicial effectiveness," and "government integrity," these scores might be merged to create an overall "rule of law" score.</p>
Data Modelling	<p>When considering "data modelling" within the context of the Index of Economic Freedom, it's essential to understand how the raw economic data is structured and organized to create a meaningful and usable index.</p> <p>Conceptual Modelling:</p> <ul style="list-style-type: none"> • This involves defining the core concepts of economic freedom and identifying the relevant factors to measure it. <p>Logical Modelling:</p> <ul style="list-style-type: none"> • This involves defining the relationships between the different data elements. <p>Physical Modelling:</p> <p>This involves determining how the data will be stored and accessed.</p>
Save Processed Data	<p>When considering the "saved data process" of the Index of Economic Freedom analysis project, it's crucial to understand how the collected, cleaned, and transformed data is stored, managed, and made accessible.</p> <p>Data Storage:</p>

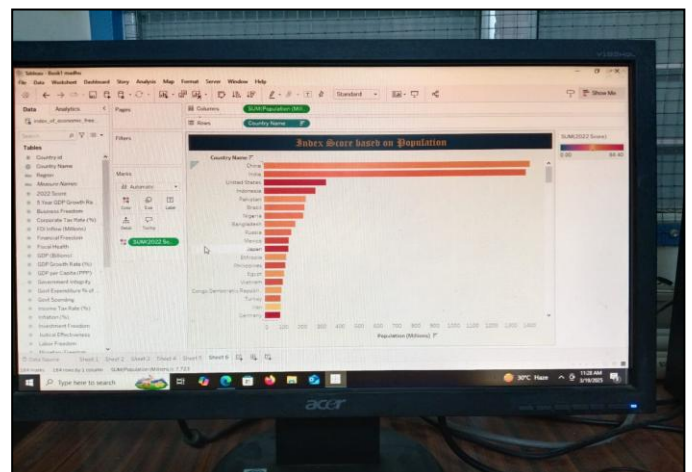
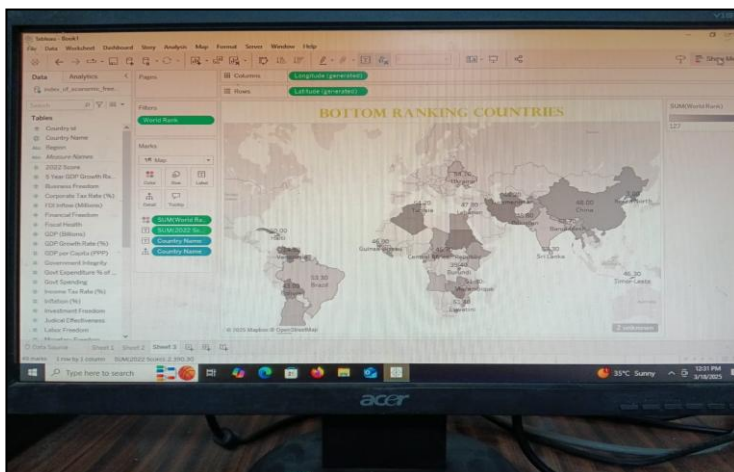
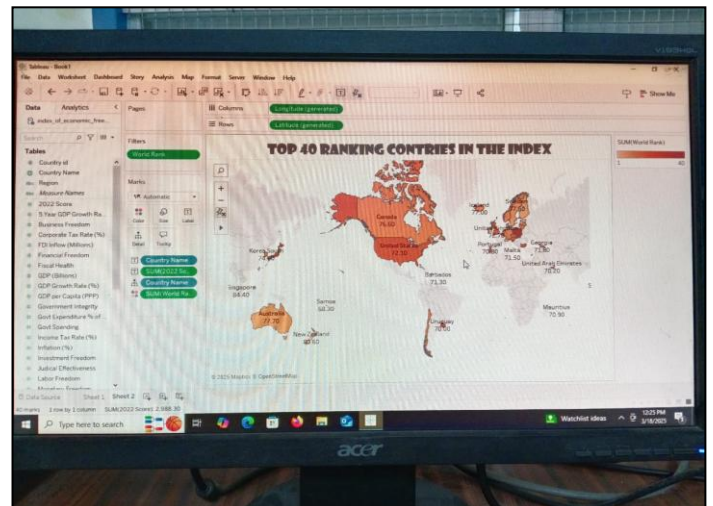
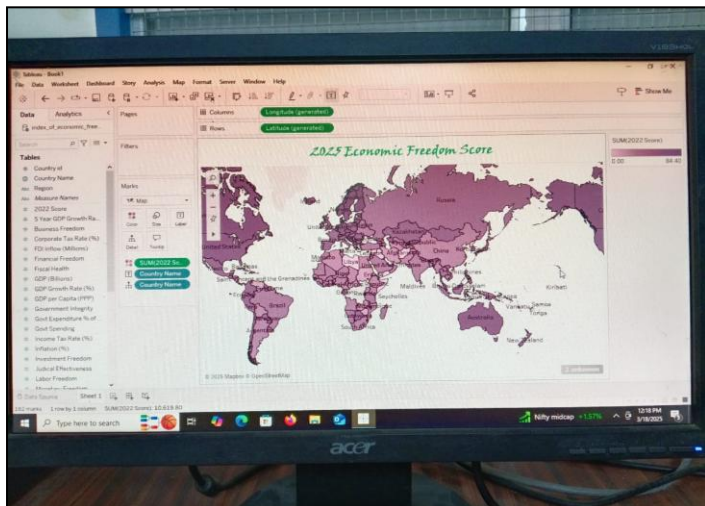
Databases: Relational databases or other database systems to store structured data.

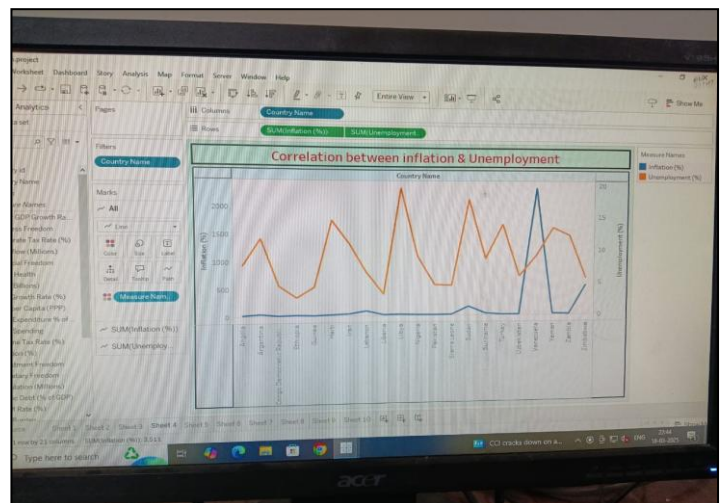
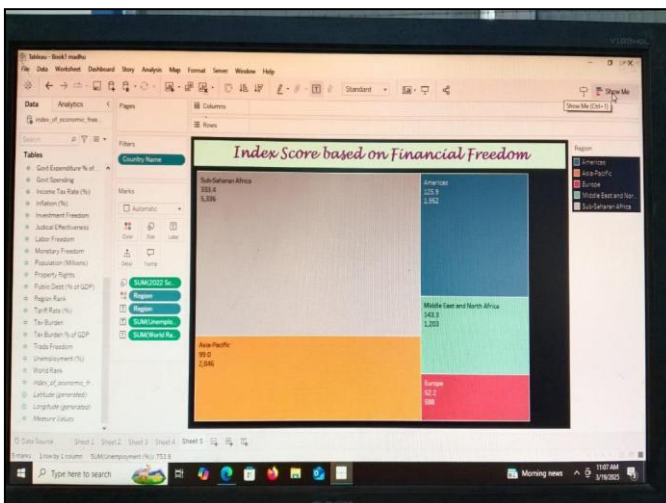
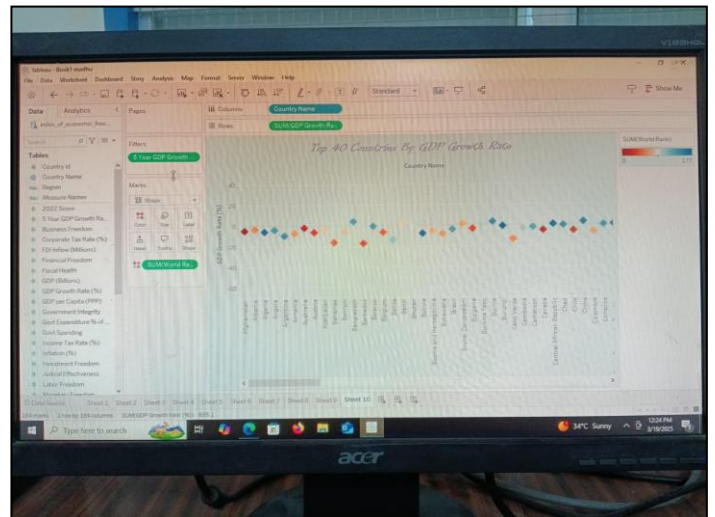
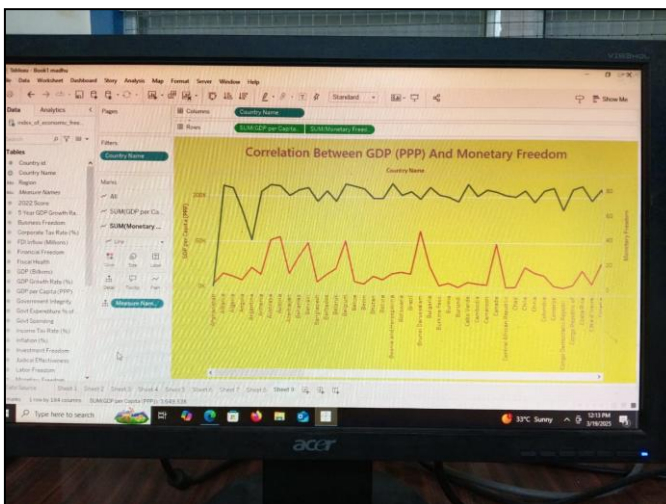
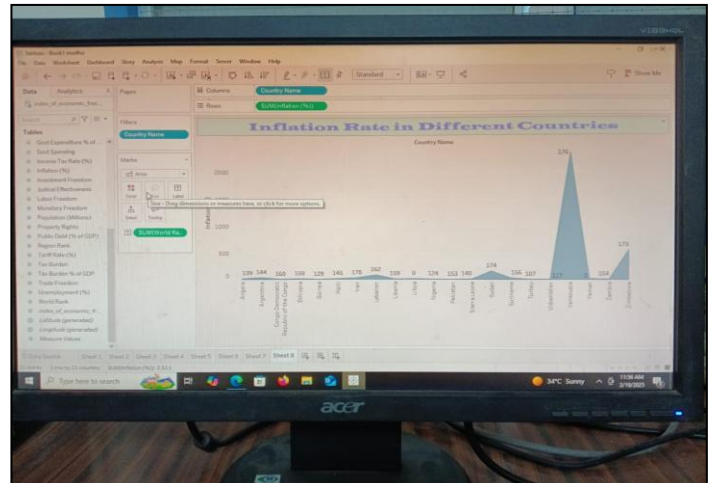
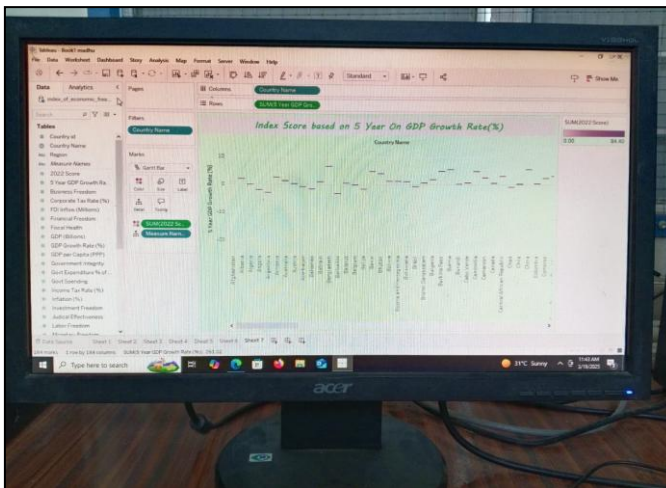
4. Data Visualization

4.1. Framing Business Questions

1. Which countries have the highest and lowest economic freedom scores?
2. How does GDP growth rate correlate with a country's economic freedom ranking?
3. What factors contribute to the low economic rankings of these countries?
4. What is the relationship between inflation and unemployment across different countries?
5. Market Expansion: Which regions have the highest financial freedom scores, and how can businesses leverage these insights for market entry or expansion?
6. What is the relationship between inflation and unemployment across different countries?
7. How does population size correlate with the 2022 economic score?
8. Which countries have the highest and lowest 5-year GDP growth rates?
9. How does inflation impact business operations in countries with high inflation rates?
10. What is the strength and direction of the correlation between GDP (PPP) and Monetary Freedom across countries?

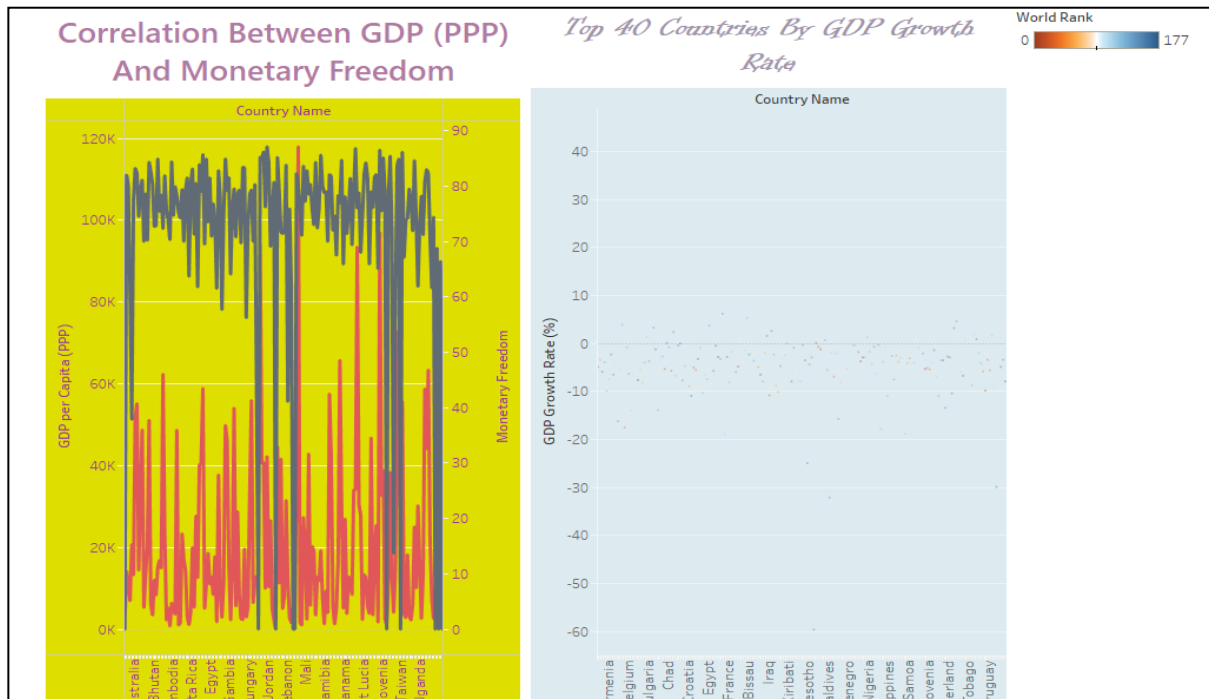
4.2. Developing Visualizations





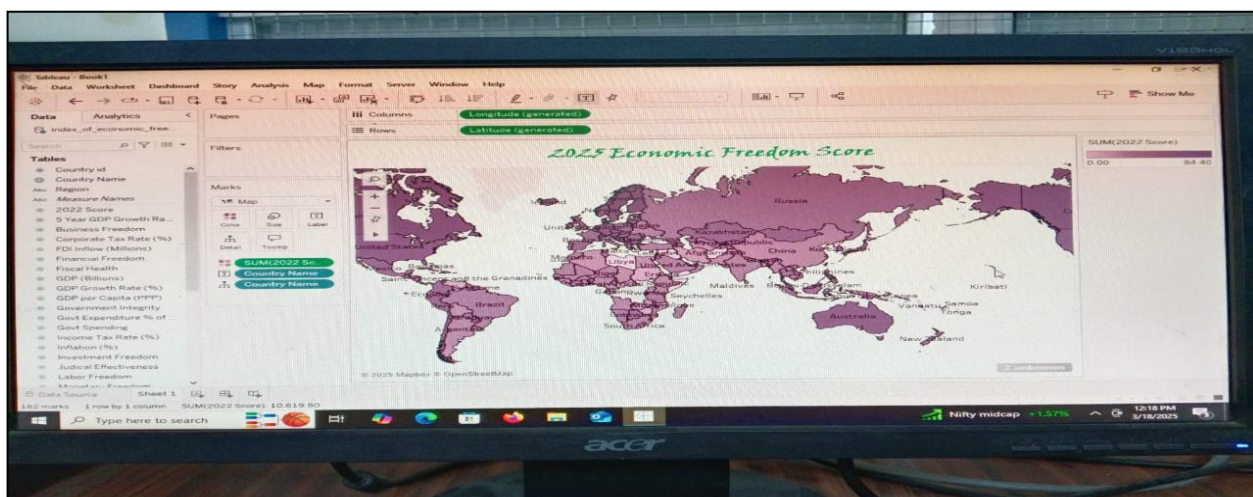
5. Dashboard

5.1. Dashboard design file



6. Report

6.1. Story design file



7. Performance Testing

7.1. Utilization of Data filters

- World rank
- Country Name
- 5 year GDP growth rate

7.2. No of Calculations used

- We did not use any calculations

7.2. No of Visualization

- 2025 Economic Freedom Score
- Top 40 ranking countries in the index
- Index score based on Financial Freedom
- Bottom Ranking countries
- Correlation between inflation and unemployment
- Index score based on Population
- Index score based on 5 Year on GDP Growth Rate (%)
- Inflation rate in different countries
- Top 40 countries by GDP growth rate
- Correlation between GDP (PPP) and Monetary Freedom

8. Conclusion/Observation

In summary, the conclusion of such projects generally reinforces the idea that economic freedom is a vital ingredient for economic prosperity and social well-being, and that policies should be geared towards its preservation and enhancement.

In essence, observations from these projects provide valuable insights into the complex relationship between economic freedom and economic outcomes, while also highlighting the importance of sound institutions and policies.

9. Future Scope

The future scope of economic freedom analysis projects, like those associated with the "Index of Economic Freedom," holds significant potential for evolution and expansion.

1. Enhanced Data Collection and Granularity
2. Deepening the Analysis of Interconnections
3. Expanding the Scope of Policy Relevance

- **10. Appendix**
- **10.1. Source Code (if any)**
- **10.2. Git Hub & Project Demo Link**

<https://github.com/reddymadhur22/An-index-of-economic-freedom-analysis->