

Project Design Phase-II

Technology Stack (Architecture & Stack)

Date: 24 June 2025

Team ID: LTVIP2025TMID50492

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

Maximum Marks: 4 Marks

Technical Architecture

The system is designed as a web-based interactive dashboard using Tableau to visualize and analyze the Economic Freedom Index data. Users can explore country-wise, regional, and indicator-wise data to derive meaningful insights.

Table-1: Components & Technologies

| S.No | Component | Description | Technology |
|------|------------------------|---|---|
| 1 | User Interface | Web-based dashboard interface | Tableau Public, HTML, CSS, JavaScript |
| 2 | Application Logic - 1 | Data processing and visualization logic | Tableau Visualization Logic, Python (for backend tasks) |
| 3 | Application Logic - 2 | Data preprocessing and cleaning | Python (Pandas, NumPy) |
| 4 | Application Logic - 3 | Data sourcing and updates | Python Scripts / Tableau Data Extracts |
| 5 | Database | Storage of raw and processed data | Google Sheets, CSV Files, or Local Database (SQLite) |
| 6 | Cloud Database | Cloud storage for datasets (optional) | Google Drive / Tableau Cloud |
| 7 | File Storage | Storage for reports and exported files | Local Filesystem, Google Drive |
| 8 | External API - 1 | Global Economic Data APIs | World Bank API, IMF Data API |
| 9 | External API - 2 | Country Information APIs | REST Countries API |
| 10 | Machine Learning Model | Trend prediction or pattern detection | Regression Models in Python (Optional) |

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|----|-------------------------------|--|---|
| | | (future scope) | - future) |
| 11 | Infrastructure (Server/Cloud) | Hosting environment for Tableau dashboard or reports | Tableau Public, Optional Cloud Hosting (AWS, Azure) |

Table-2: Application Characteristics

| S.No | Characteristics | Description | Technology |
|------|--------------------------|---|--|
| 1 | Open-Source Frameworks | Data processing and API interaction | Python (Pandas, Requests), JavaScript |
| 2 | Security Implementations | Restricted access to data upload and backend management | Password protection, Google Drive access controls |
| 3 | Scalable Architecture | Dashboard supports increasing data and user base | Tableau Public allows scalability for visualizations |
| 4 | Availability | Dashboard hosted on Tableau Public ensures 24/7 global availability | Tableau Public, Cloud storage redundancy |
| 5 | Performance | Optimized data extracts, caching where applicable | Tableau Extracts, Optimized visualizations |