# Project Design Phase-II
# Solution Requirements (Functional & Non-functional)

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| Date | 21 June 2025 |
| Team ID | LTVIP2025TMID48627 |
| Project Name | Measuring the pulse of prosperity: an index of economic freedom |
| Maximum Marks | 4 Marks |

**Functional Requirements:**

Following are the functional requirements of the proposed solution.

| FR No. | Functional Requirement (Epic) | Sub Requirement (Story / Sub-Task) |
|---|---|---|
| FR-1 | User Registration | Registration through Form<br>Registration through Gmail<br>Registration through LinkedIn |
| FR-2 | User Confirmation | Confirmation via Email<br>Confirmation via OTP |
| FR-3 | Data Ingestion & Management | Upload Dataset (e.g., CSV, Excel, from external APIs)<br>Data Validation and Cleaning<br>Data Storage and Organization (e.g., database) |
| FR-4 | Economic Freedom Index Calculation | Define and Configure Index Components<br>Apply Weighting Schemes (configurable by user/admin)<br>Calculate Composite Index Scores for countries/regions |
| FR-5 | Data Analysis & Visualization | Generate Interactive Charts (e.g., Bar, Line, Scatter, Bubble)<br>Create Geographic Visualizations (e.g., Choropleth Maps)<br>Provide Trend Analysis over Time<br>Enable Comparison between Countries/Regions<br>Display Correlation Matrices between indicators |
| FR-6 | Reporting & Export | Generate Customizable Reports (e.g., PDF, HTML)<br>Export Raw and Processed Data (e.g., CSV, Excel)<br>Export Visualizations (e.g., Image formats like PNG, JPEG) |
| FR-7 | User Authentication & Authorization | User Login/Logout<br>Role-based Access Control (e.g., Admin, Analyst, Viewer) |
| FR-8 | Search & Filter Functionality | Search by Country Name, Year, Index Component<br>Filter Data by various criteria (e.g., region, income level) |

**Non-functional Requirements:**

Following are the non-functional requirements of the proposed solution.

| FR No. | Non-Functional Requirement | Description |
|---|---|---|
| NFR-1 | **Usability** | The system should have an intuitive and userfriendly interface, allowing users to easily navigate, interact with data, and interpret results without extensive training. |
| NFR-2 | **Security** | The system must protect sensitive user data (if any) and ensure the integrity and confidentiality of the economic data. This includes secure authentication, authorization, and protection against unauthorized access or data breaches. |
| NFR-3 | **Reliability** | The system should consistently perform its functions accurately and without significant errors. Data calculations, visualizations, and report generation should be reliable and repeatable. |
| NFR-4 | **Performance** | The system should respond quickly to user requests, especially during data processing, index calculation, and visualization generation, even with large datasets. Data loading and rendering times should be minimal. |
| NFR-5 | **Availability** | The system should be accessible to authorized users whenever needed, with minimal downtime. This includes considerations for server uptime, data accessibility, and disaster recovery. |
| NFR-6 | **Scalability** | The system should be able to handle an increasing amount of data (e.g., more countries, more years, new indicators), a growing number of concurrent users, and additional features without significant degradation in performance. |
| NFR-7 | **Maintainability** | The system's codebase and architecture should be well-documented, modular, and easy to modify or extend to accommodate future enhancements |

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| | | or bug fixes. |
| NFR-8 | **Data Accuracy** | The system must ensure the highest level of accuracy for all ingested data, calculations, and visualizations to reflect reliable economic insights. |