

## Project Design Phase-II Technology Stack (Architecture & Stack)

|               |  |
|---------------|--|
| Date          | 26 June 2025   |
| Team ID       | LTVIP2025TMID48502   |
| Project Name  | Measuring The Pulse Of Prosperity: An Index Of Economic Freedom Analysis |
| Maximum Marks | 4 Marks  |

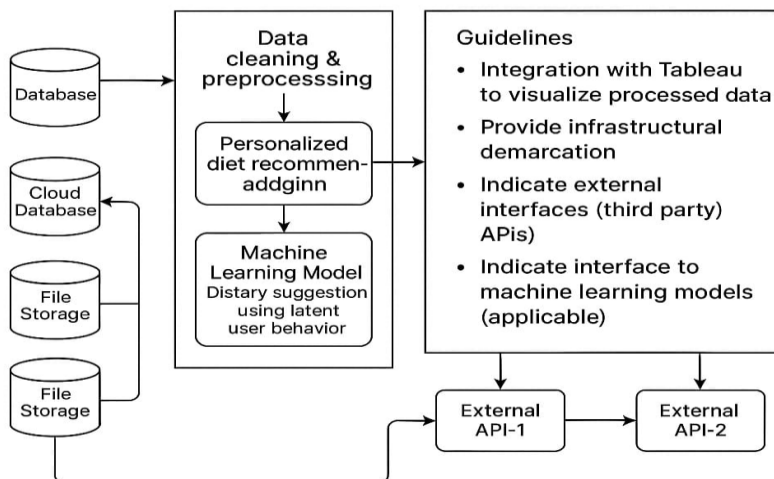
### Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

### Example: Measuring the Pulse of Prosperity – An Index of Economic Freedom Analysis

Reference: <https://developer.ibm.com/patterns/ai-powered-backend-system-for-order-processing-during-pandemics/>

### Comprehensive Analysis and Dietary Strategies with Tableau: Measuring the Pulse of Prosperity: Index of Economic Freedom Analysis



**Table-1 : Components & Technologies:**

| S.No | Component       | Description                                     | Technology                                  |
|------|-----------------|---|---|
| 1.   | User Interface  | How user interacts with application Dashboard,  | Tableau Dashboards, React.js, HTML/CSS      |
| 2.   | Data Collection | Data collection logic (surveys, manual entries) | Python scripts, Tableau Web Data Connectors |
| 3.   | Storage         | Personalized diet recommendation algorithm      | MySQL , MongoDB, AWS S3, Google Drive       |
| 4.   | Database        | Storage of raw & processed dietary data         | MySQL, NoSQL (MongoDB)                      |
| 5.   | ML/Analytics    | Cloud-based access to dietary datasets          | scikit-learn, KNN, Decision Trees           |

|    |                                 |  |  |
|----|---------------------------------|--|--|
| 6. | External API-1                  | Nutrition data from external sources       | USDA Food Data Central API             |
| 7. | External API-2                  | Student info or campus data access         | College ERP API, Google Forms API      |
| 8  | Infrastructure (Server / Cloud) | Hosting Tableau server or cloud dashboards | Tableau Server, AWS EC2, Google Cloud. |

**Table-2: Application Characteristics:**

| S.No | Characteristics          | Description  | Technology                                  |
|------|--------------------------|--|---|
| 1.   | Open-Source Frameworks   | List the open-source frameworks used                               | Python (Pandas, NumPy, scikit-learn), MySQL |
| 2.   | Security Implementations | .Access control for student health data, APIs, and dashboards      | OAuth 2.0, Encryption (SHA-256), IAM Roles  |
| 3.   | Scalable Architecture    | Modular layers: UI – Processing – Storage – ML – Visualization     | Microservices, Docker, Tableau Extensions   |
| 4.   | Availability             | Hosted on cloud with dashboard backup, load-balanced APIs          | Tableau Online, Load Balancer (AWS/GCP)     |
| 5.   | Performance              | Fast dashboard loading, efficient ML model execution, data caching | Tableau Extracts, CDN, Redis (optional)     |

#### References:

<https://c4model.com/>

<https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/>

<https://www.ibm.com/cloud/architecture>

<https://aws.amazon.com/architecture>

<https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d>