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

Date	17 February 2026
Team ID	LTVIP2026TMIDS52086
Project Name	Comprehensive Analysis and Dietary Strategies with Tableau: A College Food Choices Case Study
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: College Food Choices Case Study

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

Guidelines for Technology Stack Selection

When presenting your stack, you must demonstrate **Data Integrity** and **Scalability**.

- **Tool Justification:** Don't just list "Tableau." Explain that Tableau was chosen for its ability to handle **unstructured data** and its "Action Filters," which allow a student to click a "Product Line" and see the entire dashboard update instantly.
- **Data Cleaning:** Always mention **Excel** or **Tableau Prep**. In real-world projects, data is "dirty." Mentioning that you cleaned the data (removing nulls or formatting dates) shows professional rigor.
- **Integration:** Your stack should show a clear path: **Raw Data $\rightarrow$ Processing $\rightarrow$ Visualization $\rightarrow$ End User.**

Guidelines for Problem-Solution Fit

This is the "heart" of your project. You must prove your solution isn't just a "pretty picture" but a functional tool.

- **Focus on the Pain Point:** The "Problem" isn't just "students eat bad food." The problem is **information overload.** Students see too many options and don't have time to calculate nutrition.
- **The "Aha!" Moment:** Your solution should provide an "Aha!" moment. For example: *"By looking at the Word Cloud, a student immediately realizes they spent 40% of their budget on snacks without looking at a single number."*

Formatting & Presentation Tips

- **Use Visual Hierarchy:** In your Word/PDF files, use Bold headers for technology names and bullet points for their roles.
- **Consistency:** Ensure your **Team ID** and **Date** are identical across all templates (Phase-I, Tech Stack, etc.).
- **Visual Proof:** Always include a screenshot of your **Main Dashboard** next to the Technology Stack to show the "output" of that technology.

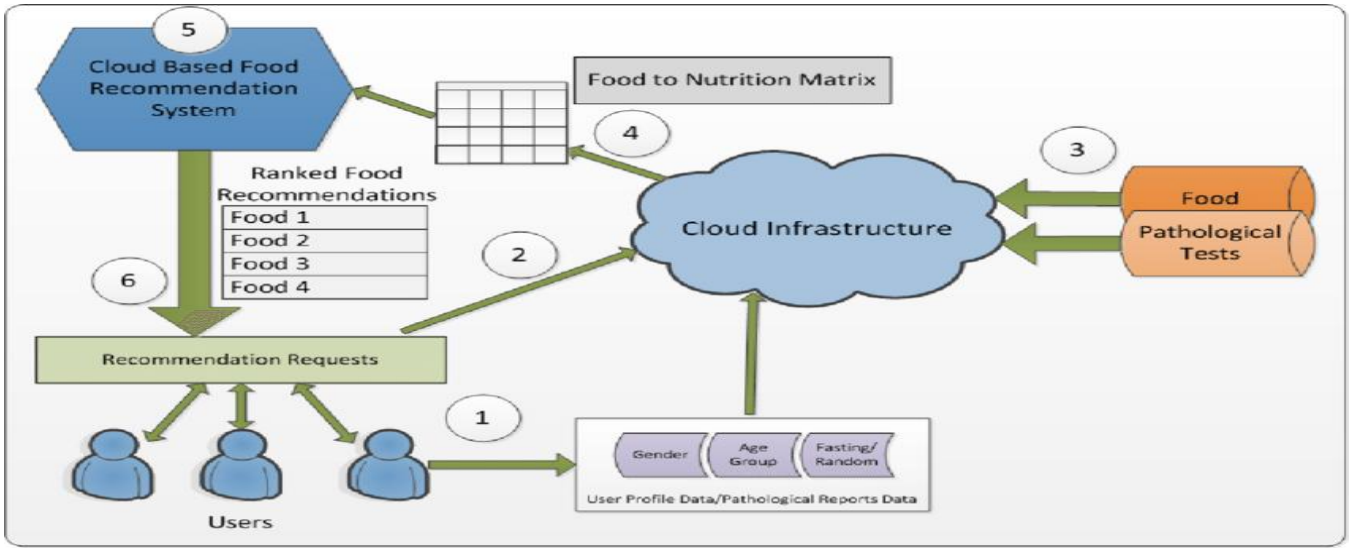

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How users view dietary strategies and interact with filters.	Tableau Dashboard (Web-embedded)
2.	Application Logic-1	Calculations for nutritional trends and calorie/spend build-up	Tableau Calculated Fields / DAX-style logic
3.	Application Logic-2	Logic for identifying food popularity and ranking.	Tableau Sets & Groups
4.	Application Logic-3	Trend forecasting and statistical analysis.	Tableau Analytics Pane (Trend Lines)
5.	Database	Structured storage for college food choices data.	Microsoft Excel (XLSX)
6.	Cloud Database	Online data source for shared access.	Google Sheets / Tableau Cloud
7.	File Storage	Storage of raw transaction records.	Local Filesystem / CSV
8.	External API-1	Connecting to live nutritional databases (optional).	OData / Web Data Connector
9.	External API-2	Geolocation for city-wise analysis.	Tableau Map Service API
10.	Machine Learning Model	Identifying clusters of eating behaviors.	K-Means Clustering (Tableau Built-in)
11.	Infrastructure (Server / Cloud)	Deployment for student access.	Tableau Public / Cloud Foundry

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Used for advanced data preparation and cleaning.	Python (Pandas/NumPy)
2.	Security Implementations	Ensuring student purchase privacy and data access control.	Row-Level Security (RLS) & IAM Controls
3.	Scalable Architecture	3-tier architecture: Data Source, Tableau Server, Client UI.	Tableau 3-Tier Client-Server Architecture
4.	Availability	High availability through cloud-hosted visualization.	Tableau Public Global Servers
5.	Performance	Use of data extracts to ensure fast dashboard loading.	Tableau Data Extracts (.hyper)

References:

https://c4model.com/

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