Project Design Phase
Solution Architecture

Date	14 June 2025
Team ID	LTVIP2025TMID47655
Project Name	A College Food Choices Case Study
Maximum Marks	4 Marks

Solution Architecture:

⬭ Goals of the Architecture

1. ✅ Identify the most effective technological setup to visualize how meal frequency, food preferences, cost, satisfaction, and nutritional choices impact student health outcomes.
2. ✅ Define the system's structure and behavior using Tableau Public for dashboard delivery and Python/Tableau Prep for optional preprocessing.
3. ✅ Clearly outline features, core components, and development phases for building an interactive, insightful dietary dashboard.
4. ✅ Provide scalable and technical implementation details for future campus or regional expansion.

📐 Architecture Components

Layer	Component	Description
Data Layer	**Source**	Data collected from student surveys, food logs, or CSV files containing fields like Meal Frequency, Calories, Food Type, Satisfaction Level, Gender, Age Group, etc.
Processing Layer	**Data Cleaning & Transformation**	Cleaning missing entries, formatting fields, categorizing responses, and optionally using **Python (Pandas)** or **Tableau Prep** for advanced preprocessing and calculated fields (e.g., average calorie intake, preference score).
Application Layer	**Tableau Logic Engine**	Tableau handles filtering, grouping, and creating calculated fields (e.g., frequency bins, satisfaction ratings, nutrient groups).
Presentation Layer	**Tableau Dashboard**	Final visuals including **bar charts**, **donut charts**, **heat maps**, **highlight tables**, and **interactive filters** for demographics, meal types, and satisfaction levels.
Users	**Stakeholders**	Students, nutritionists, canteen staff, student welfare officers — interacting via **Tableau Public** dashboards or shared PDF/HTML reports.

🔄 Development Phases

Phase	Description
Phase 1 – Data Preparation	Clean and prepare the food choice dataset (e.g., normalize meal frequency, fix missing values, categorize food items).
Phase 2 – Basic Visuals	Create foundational visuals: bar charts (meal frequency), pie/donut charts (food type distribution), filters (demographics).
Phase 3 – Advanced Visuals	Develop visuals like highlight tables (satisfaction by gender), heat maps (calorie vs. satisfaction), and stacked area charts (weekly patterns).
Phase 4 – Dashboard + Story	Integrate visuals into a cohesive Tableau dashboard with slicers, interactivity, and a Tableau Story presenting key dietary insights.
Phase 5 – Final Report	Export final insights in PDF, image, or shareable Tableau link for institutional decision-makers or research use.