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

Date	11th June 2025
Team ID	LTVIP2025TMID48638
Project Name	Comprehensive Analysis and Dietary strategies with tableau: A college food case study.
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	Data Collection & Extraction from Database	Downloading the dataset of the task
FR-2	Collect the dataset	Collecting the required dataset for performing the following task
FR-3	Connect data with Tableau	Connecting the dataset to the tableau public desktop to perform visualizations.
FR-4	Data Preparation	Preparing of the dataset in order to form visualizations
FR-4	Prepare the Data for Visualization	Complete preparation of dataset which includes: 1. Cleaning 2. Pre-Processing 3. Data Interpretation 4. Assigning the rows and columns to the data
FR-5	Data Visualizations	With using the dataset creating interactive visualizations
FR-6	No of Unique Visualizations	Creating the following visualizations : 1. GPA Distribution 2. Gender Distribution 3. Breakfast distribution 4. Calorie Consumption per day 5. Favourite Comfort Foods 6. Comfort Food Reasons 7. Cooking Frequency per week 8. Cuisine Preferences 9. Diet Status 10. Exercise Frequency 11. Employee Status 12. Healthy Feeling 13. Life Rewarding Rating 14. Marital Status 15. Nutritional Check 16. Parental Cooking Habits 17. Meal Payment Habits 18. Weight Self Perception 19. Sports Participation 20. Vitamin Intake 21. Weight Distribution 22. Eating out 23. Coffee Consumption
FR-8	Responsive and Design of Dashboard	Creating **well-designed, user-friendly, and interactive interface** that adjusts intelligently to different screen sizes, user needs, and data insights
FR-9	No of Scenes of Story	Creation of **distinct view or visual segment** of your story — typically, each **dashboard tab** or **narrative step**

		in tools like Tableau.
FR-10	Performance Testing	**Load Testing** Simulate multiple users or large datasets to test response time & limits **Query Performance Analysis** Measure query speed, indexing, joins, filters, and aggregations **Dashboard Rendering Speed** Track how long visualizations take to load/render in Tableau, Power BI **Data Refresh/ETL Timing** Time taken to extract, transform, and load data (ETL pipelines) **Resource Utilization Monitoring** Track CPU, memory, disk usage while running queries or dashboards
FR-11	Utilization of Data Filters	1.Remove irrelevant or noisy data 2.Focus on specific groups (e.g., only females, only high GPA, only 2024 data) 3. Enable dynamic exploration by end users
FR-12	No of Calculation Fields	• Create new metrics (e.g., BMI = weight/height²) • Categorize or group data logically Simplify complex expressions in charts Customize visualizations and filters
FR-13	No of Visualizations/Graph	Making of different visualizations depending on the different fields
FR-14	Web Integration	Embed Dashboards into Websites: Use iFrames or embed code (e.g., Tableau Public) to show dashboards directly on a webpage Share via Web Links: Publish dashboards to Tableau Server, Public, or Power BI service and share link Create Embedded Portals: Build internal web portals that centralize dashboards and filters for user. Use Tracking and Analytics: Embed Google Analytics or logging scripts to track how users interact with dashboards.
FR-15	Record explanation Video for project end to end solution	➢ **Define Your Objective** Decide your goal: showcase insights, explain process, or present to recruiters? ➢ **Create a Scriptor Storyboard** Plan what you'll say for each section (introduction, problem, process, output) ➢ **Set Up Your** Install tools like OBS Studio,

		Tools Zoom, PowerPoint Recorder. ➢ **Open All Project Files** Open Tableau dashboards, dataset (e.g., Excel/CSV), and any code if applicable ➢ **Record Voice+Screen** Start screen recording with your narration explaining:
FR-16	Project Documentation-Step by step project development procedure	➢ **Project Title** Choose a clear, meaningful title (e.g., *Comprehensive Dietary Analysis with Tableau*) ➢ **Introduction** Write a brief overview of the problem, goal, and why it matters ➢ **Objective** State the aim (e.g., "To analyze eating habits and health patterns of students") ➢ **Dataset Description** Explain the source, format (CSV), size, columns, and what each field represents ➢ **Data Cleaning** Document how you handled missing values, outliers, irrelevant columns ➢ **Exploratory Data Analysis (EDA)** List initial observations using basic charts (counts, averages, etc.)

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	**Students** can reflect on their eating and fitness behaviours. **Researchers** can use visual trends to publish findings on youth nutrition
NFR-2	**Security**	Remove or mask personal identifiers (e.g., names, student IDs) Ensure that even combined field identifiers
NFR-3	**Reliability**	Follows visualization and design best practice Includes documentation and transparent insights

NFR-4	**Performance**	**1.Data Processing Speed** Tableau handles preprocessing and visual rendering efficiently. Null values Excel before import, reducing lag 2. **User Navigation** The dashboards follow a logical flow from **basic demographics → food p** Navigation is seamless
NFR-5	**Availability**	**1.Target Uptime** The Tableau dashboard should be available **at least 99.5%** **of the time**, excluding scheduled maintenance.. **2.Redundancy/Backup** Regular **backups of the workbook (.twbx)** and datasets will be maintaine case of failure
NFR-6	**Scalability**	**1.Data Scalability** The dashboard must be able to handle larger datasets (e.g., f manual restructuring. **2.User Scalability** The published dashboard must be responsive and accessibl Tableau Public. **3.Performance Under Load** Dashboard load time should remain under **5 seconds** for da