Final Report

1. INTRODUCTION

1.1 Project Overview

The project 'Comprehensive Analysis and Dietary Strategies with Tableau' aims to explore the dietary habits of college students and visualize them using Tableau. By analyzing food consumption patterns, GPA correlation, and nutritional gaps, the project delivers insights to support healthy choices and educational interventions.

1.2 Purpose

The purpose of this project is to empower educational institutions and health coordinators with visual, data-driven insights into students' eating behaviors. It aims to identify unhealthy dietary trends, predict nutritional risks, and encourage personalized nutrition planning.

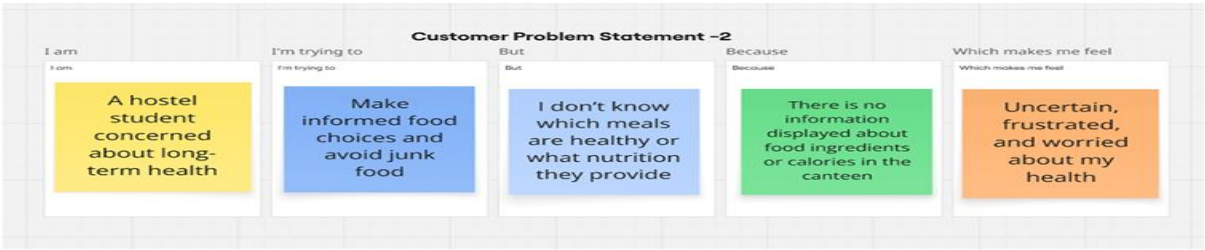
2. IDEATION PHASE

2.1 Problem Statement

Students face dietary challenges due to poor food choices, limited time, and lack of nutritional awareness. These habits often correlate with academic underperformance. Educational institutions lack real-time visibility to monitor or address these issues effectively.

Customer Problem Statement-1:

Customer Problem Statement-2:

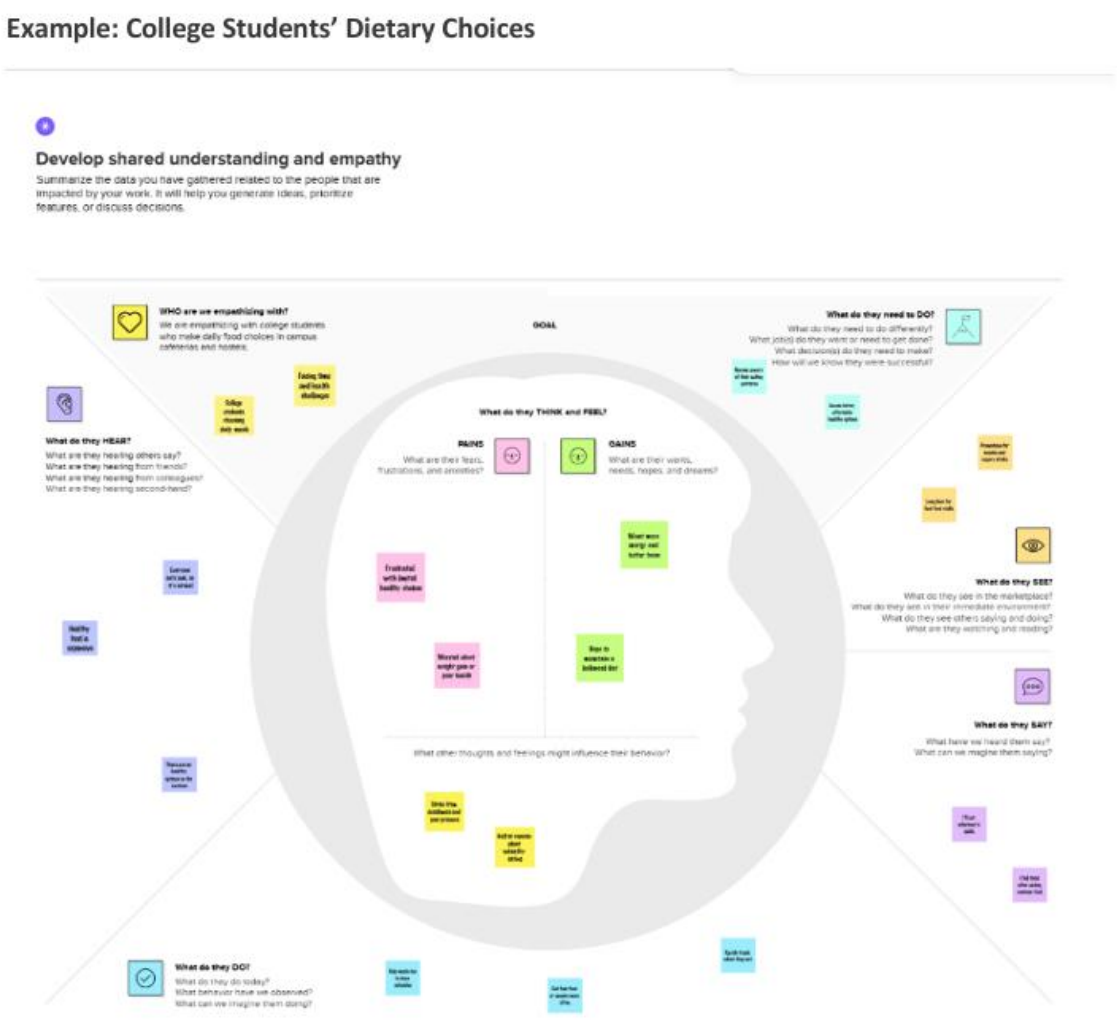


Problem Statements :

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	a 29-year-old tech-savvy software engineer living in Bangalore, commuting 40 km daily, environmentally conscious, and interested in switching to an EV.	find an EV that fits my budget, gives good range, and can be charged nearby.	I can't find a single place that compares EV models and charging stations together.	most websites only show specs or ads — not helpful data for buyers like me.	confused, frustrated, and stuck in making a decision.
PS-2	a college student from Vijayawada with a limited budget, no car experience, and looking for my first electric bike or scooter.	choose a simple, affordable EV that I can charge near my hostel.	I don't understand which EV suits me because the data is too technical and spread out.	there is no visual dashboard that explains things clearly for first-time buyers.	lost, unsure, and scared to make the wrong choice.

2.2 Empathy Map Canvas

An empathy map is a simple tool that helps us understand college students' thoughts, feelings, and behaviours related to their food choices. This project allows us to view the situation from the student's perspective — their goals, struggles, and motivations regarding diet and health. By understanding what students think, say, do, and feel about their eating habits, we can design more meaningful and student-focused visualizations in Tableau that truly address their needs.



2.3 Brainstorming

Key ideas generated include: breakfast skipping trends, comfort food analysis by GPA, prediction using calorie intake, vegetable deficiency tracking, and student segmentation by gender and performance.

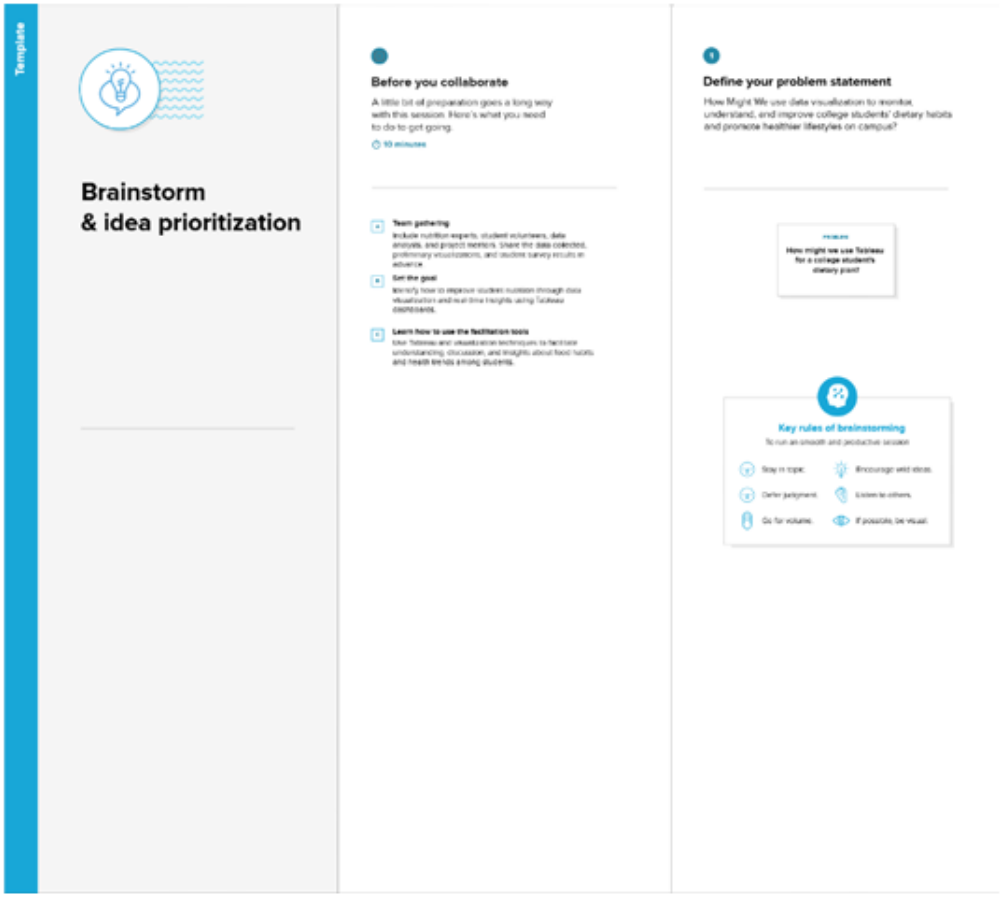
Brainstorm & Idea Prioritization Template:

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions.

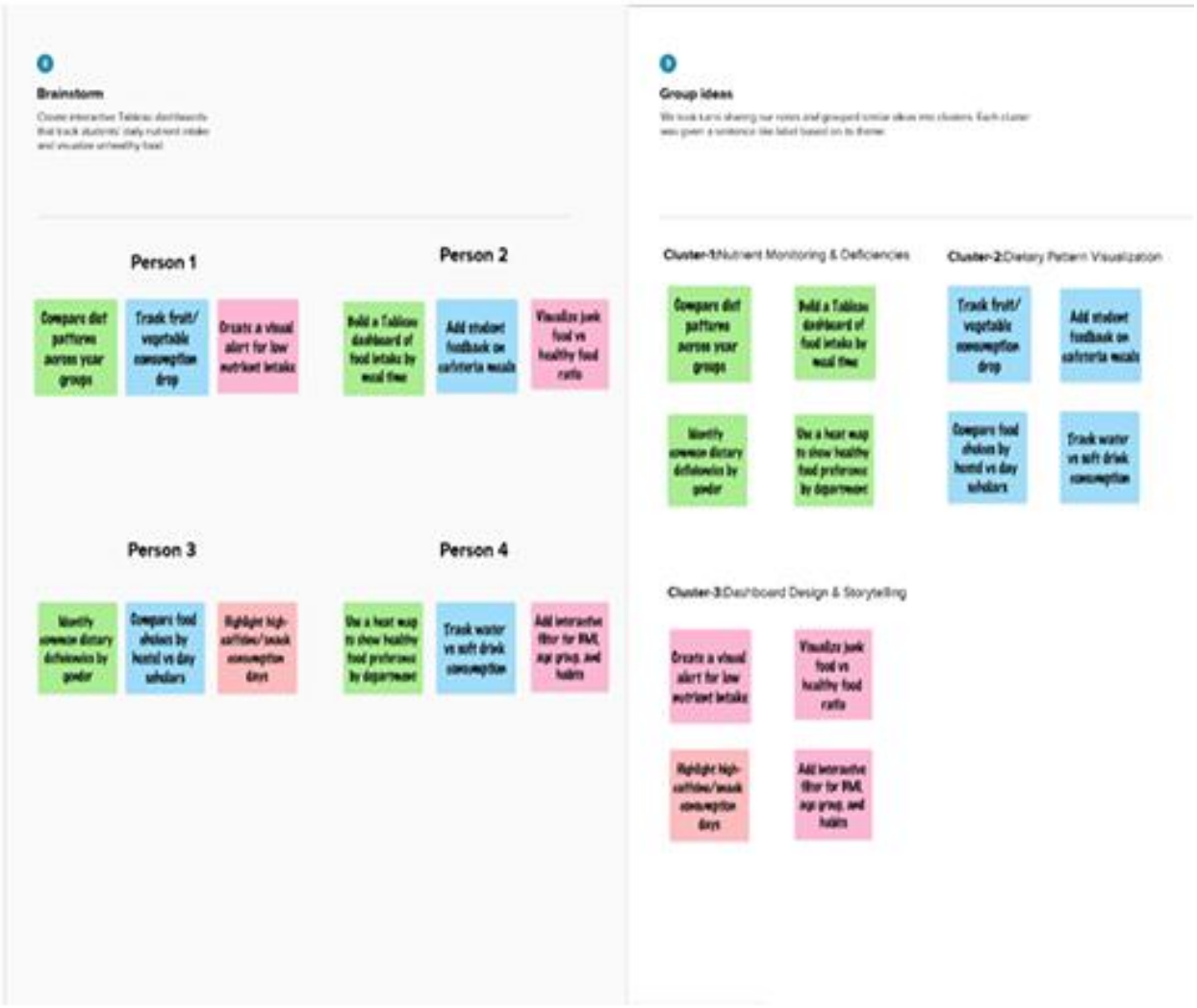
Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

Reference: https://www.mural.co/templates/brainstorm-and-idea-prioritization

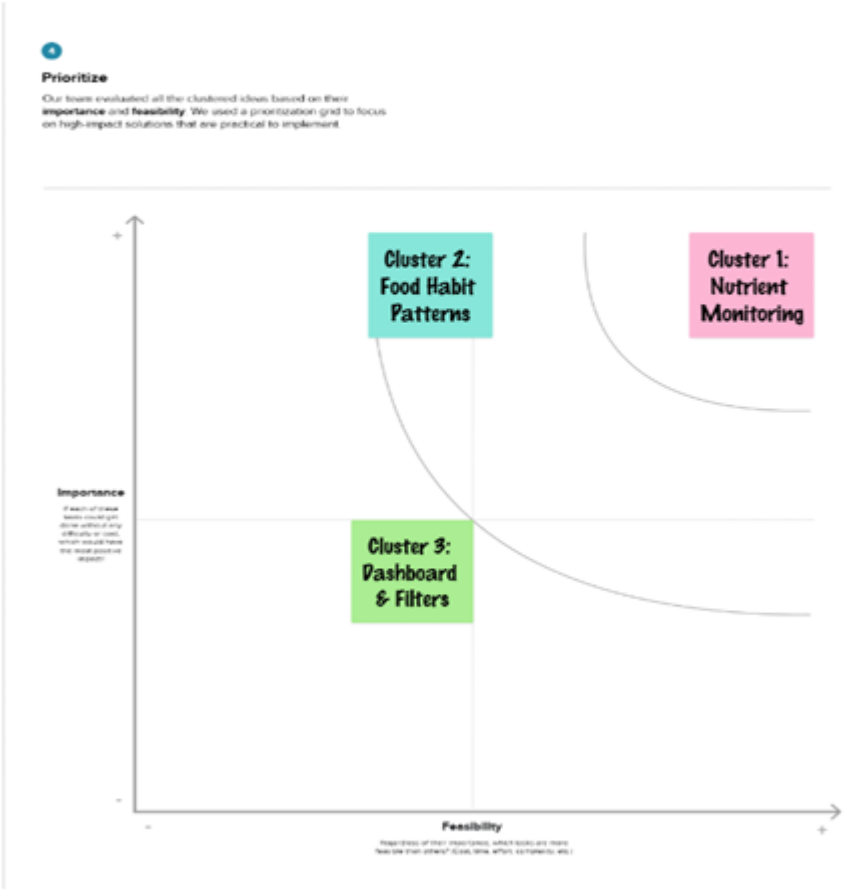
Step-1: Team Gathering, Collaboration and Select the Problem Statement



Step-2: Brainstorm, Idea Listing and Grouping



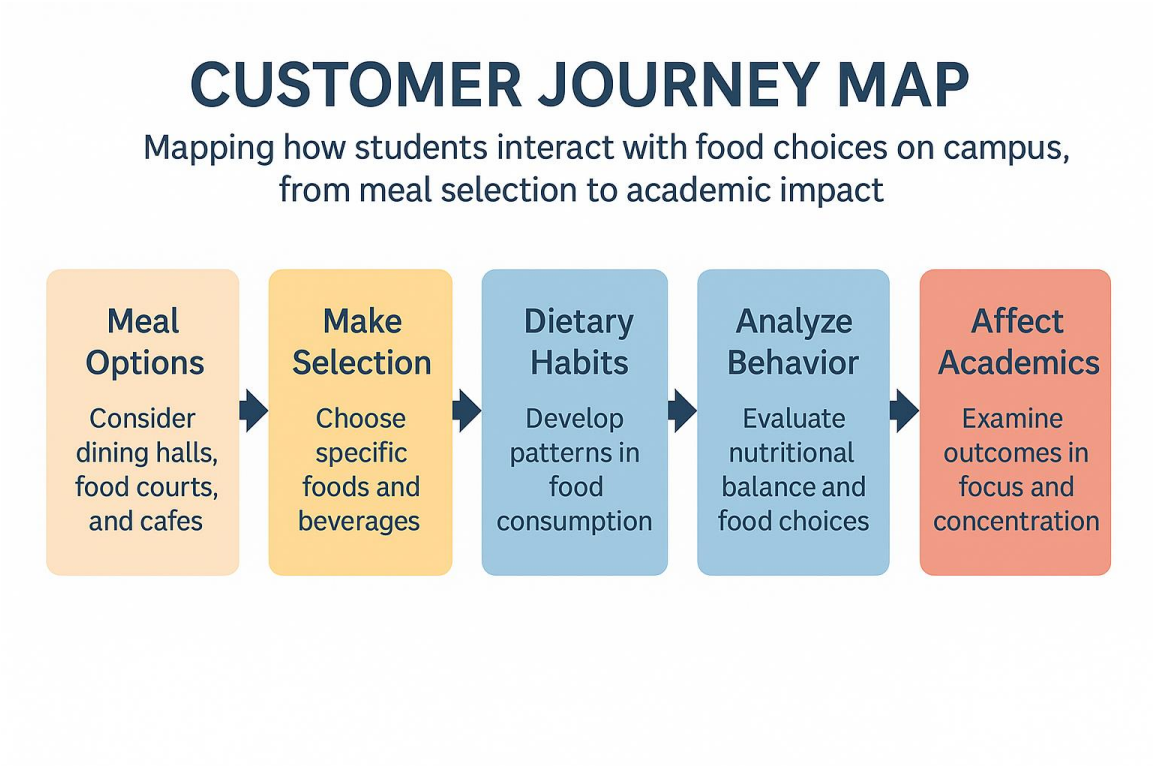
Step-3: Idea Prioritization



3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

Mapping how students interact with food choices on campus, from meal selection to academic impact.



3.2 Solution Requirement

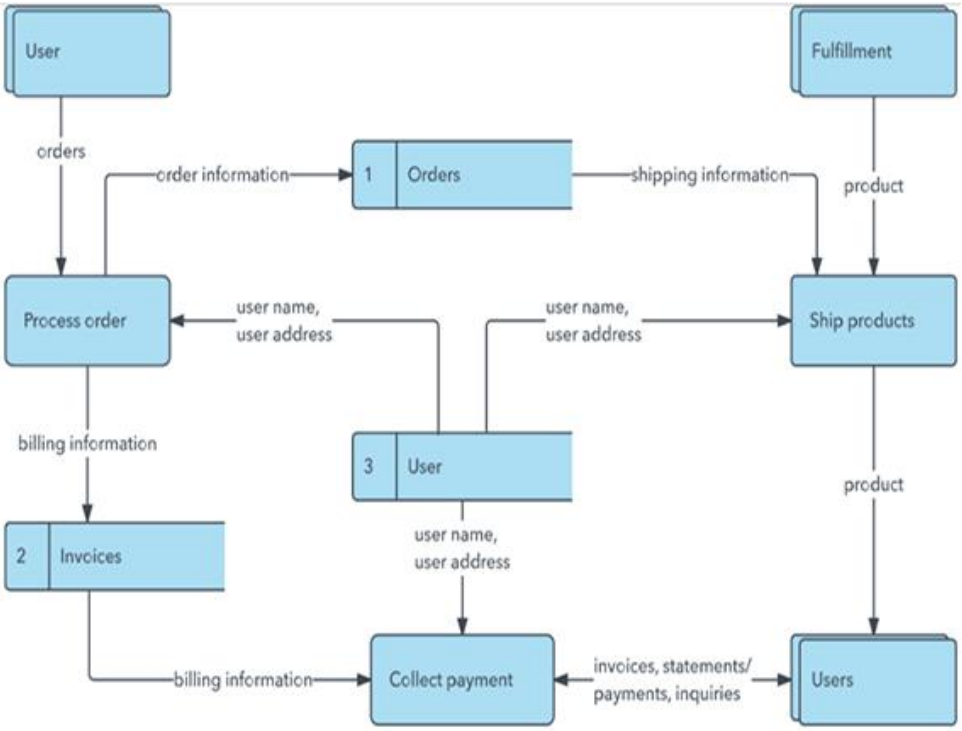
Dataset of student food habits, Tableau Desktop, calculated fields, filters, and category bins.

3.3 Data Flow Diagram

Data → Preprocessing → Tableau → Dashboard → Stakeholder Insights

Data Flow Diagrams: The Data Flow Diagram (DFD) for our project shows how student dietary data is collected, processed, and visualized. We gather raw data from sources like student surveys, cafeteria logs, and nutrition databases. This data is cleaned and organized using Excel or Google Sheets. Next, the data is imported into Tableau Desktop, where we create interactive dashboards and visual stories about student food habits and health patterns. These visualizations are then published on Tableau Public and embedded into a

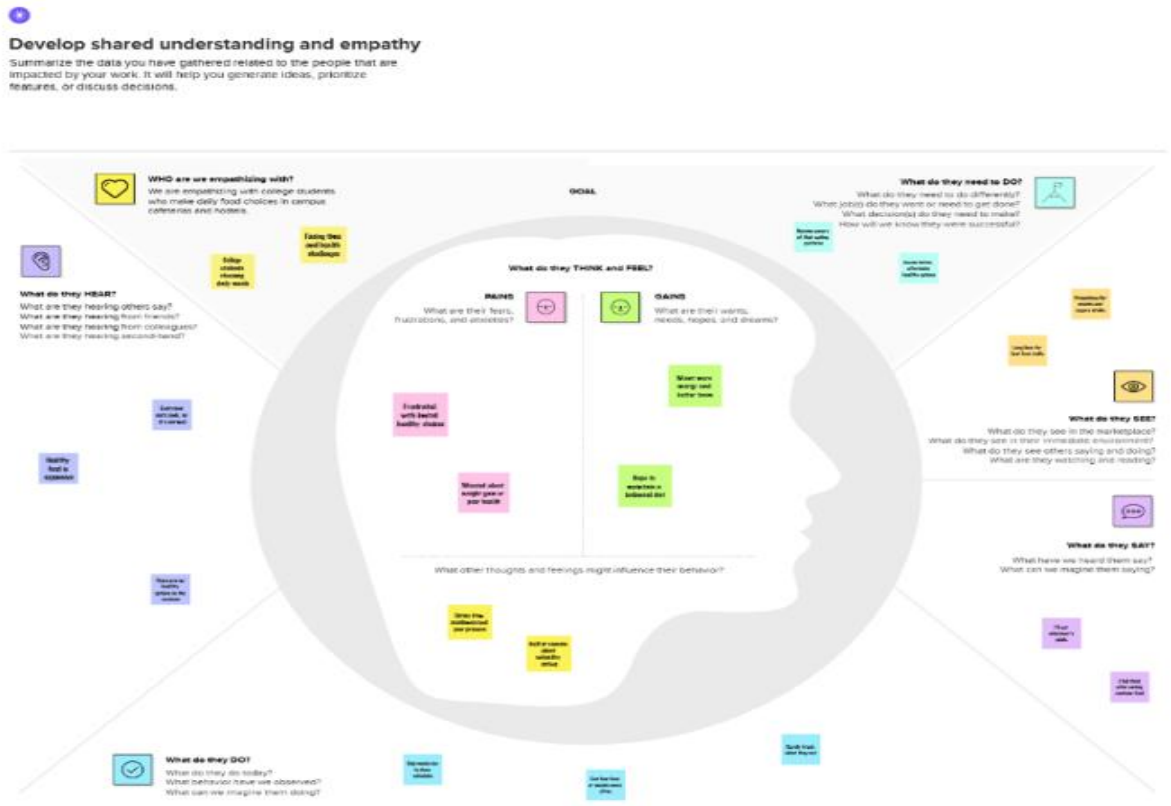
web interface using HTML/CSS, allowing easy access for students and college staff. The DFD clearly shows the connection between data sources, tools, and users, making the system easier to understand and implement. From Tableau Public, the visual components can be embedded into a web application or student portal using HTML, CSS, or Bootstrap, allowing students and institutions to explore the insights without needing Tableau software installed. The DFD outlines all these key components—data sources, processing stages, visualization tools, and end-user access points—showing how they are interconnected. This visual flow makes the project architecture clear and supports effective communication between technical teams, college administrators, and student users.



User Stories – College Food Choices Visualization Project

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Student (Web user)	Diet Tracking Dashboard	USN-1	As a student, I can view my food intake patterns in a dashboard.	I can see visual summaries of my weekly meals and nutrient breakdown	High	Sprint-1
	Healthy Food Suggestions	USN-2	As a student, I can get healthy food recommendations based on my diet data.	I can view personalized suggestions on the dashboard	High	Sprint-2
	Food Category Filtering	USN-3	As a student, I can filter food items by type, calorie range, or nutrition level	Filters apply and update charts/dashboards correctly	Medium	Sprint-2
	Visual Storyboard	USN-4	As a student, I can view visual stories about college food trends and health outcomes	I can see narrative visuals embedded in the dashboard	High	Sprint-2
	Web Access	USN-5	As a student, I can access the dashboard through a public webpage	I can access the dashboard without needing Tableau installed	High	Sprint-1
Admin (College Staff)	Data Upload and Updates	USN-6	As an admin, I can upload and update student food intake or survey data	Data updates reflect live in Tableau dashboards	High	Sprint-2
Developer	Dashboard Integration	USN-7	As a developer, I can embed Tableau dashboards into the college portal	Dashboards load across devices and maintain interactive features	Medium	Sprint-2

Example: College Students' Dietary Choices

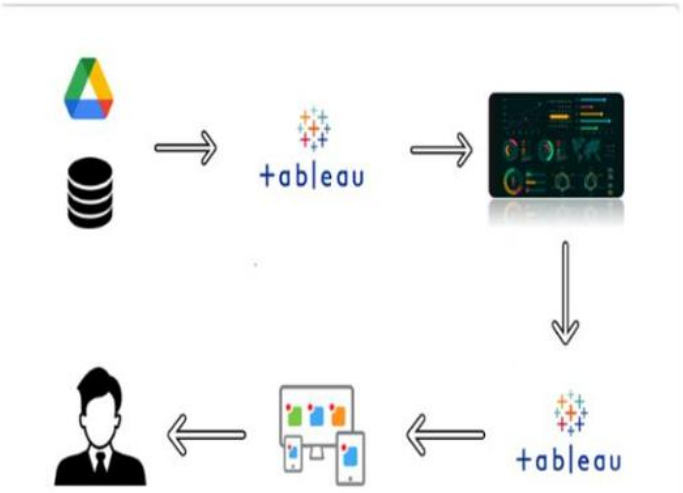


3.4 Technology Stack

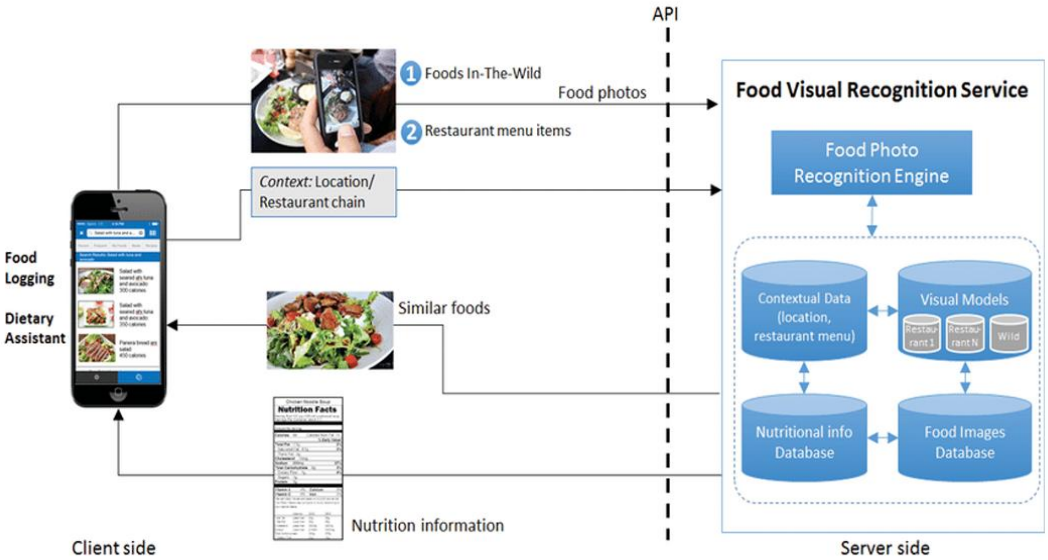
- Tableau Public
- MS Excel (CSV preprocessing)
- Python (optional data cleaning)
- PDF/Docs for documentation

Technical Architecture:

Example: Dietary Data Visualization for Smarter Student Health Decisions



Technical Architecture:



4. PROJECT DESIGN

4.1 Problem Solution Fit

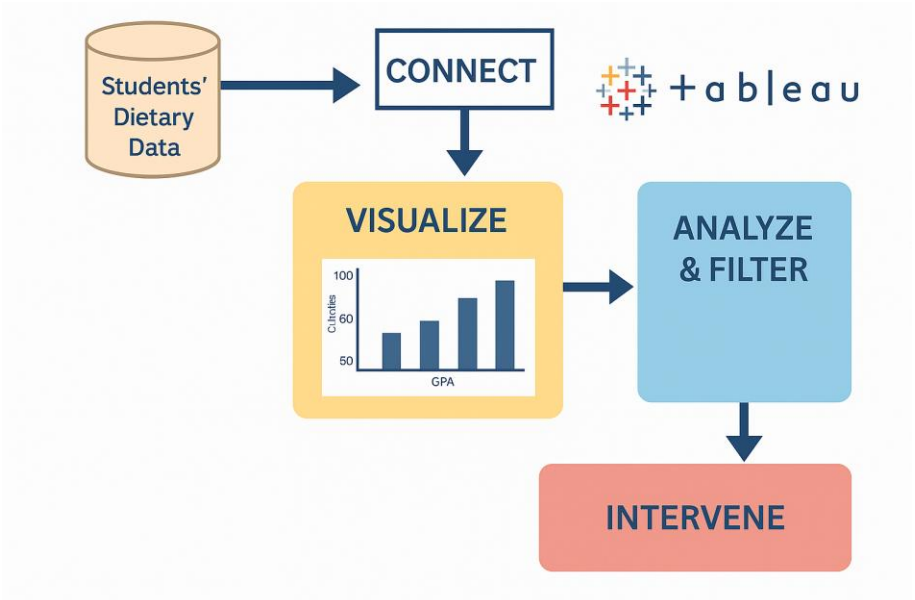
By understanding dietary behavior and mapping it visually, the solution supports real-world student health concerns.

4.2 Proposed Solution

Use Tableau to create scenario-based dashboards that track and predict student dietary deficiencies and trends.

4.3 Solution Architecture

Student Food Dataset → Data Prep (Calculated fields) → Visualizations (Bar, Pie, Line) → Interactive Dashboards



5.

PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Phase-wise: Ideation → Data Collection → Dashboard Design → Analysis → Testing → Final Documentation

6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

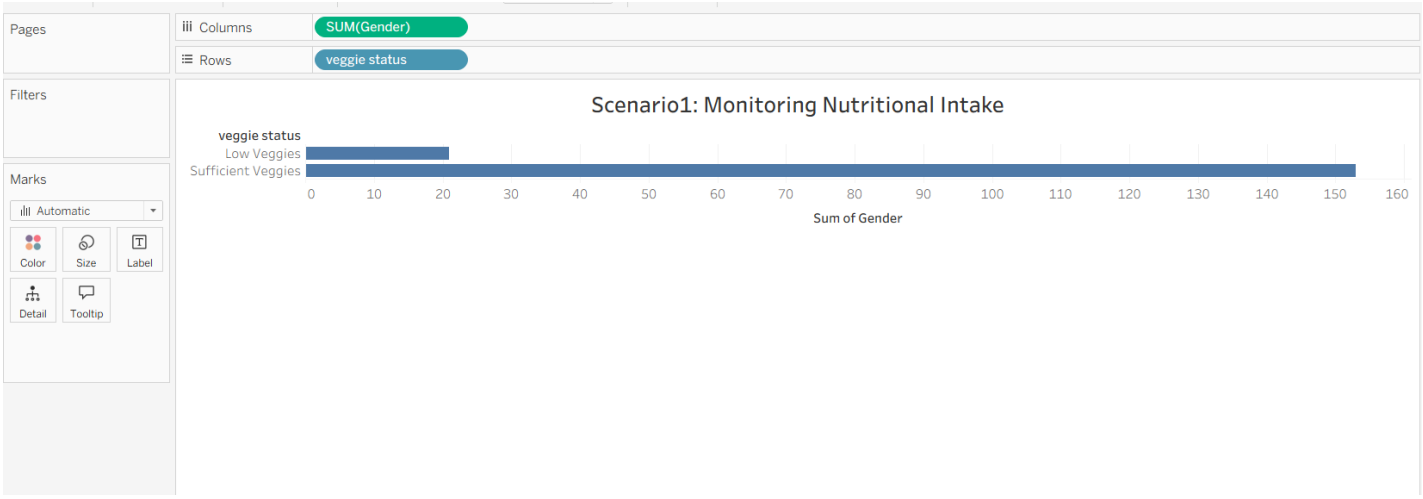
Dashboards tested on Tableau for responsiveness, filter actions, data load, and interactive user experience.

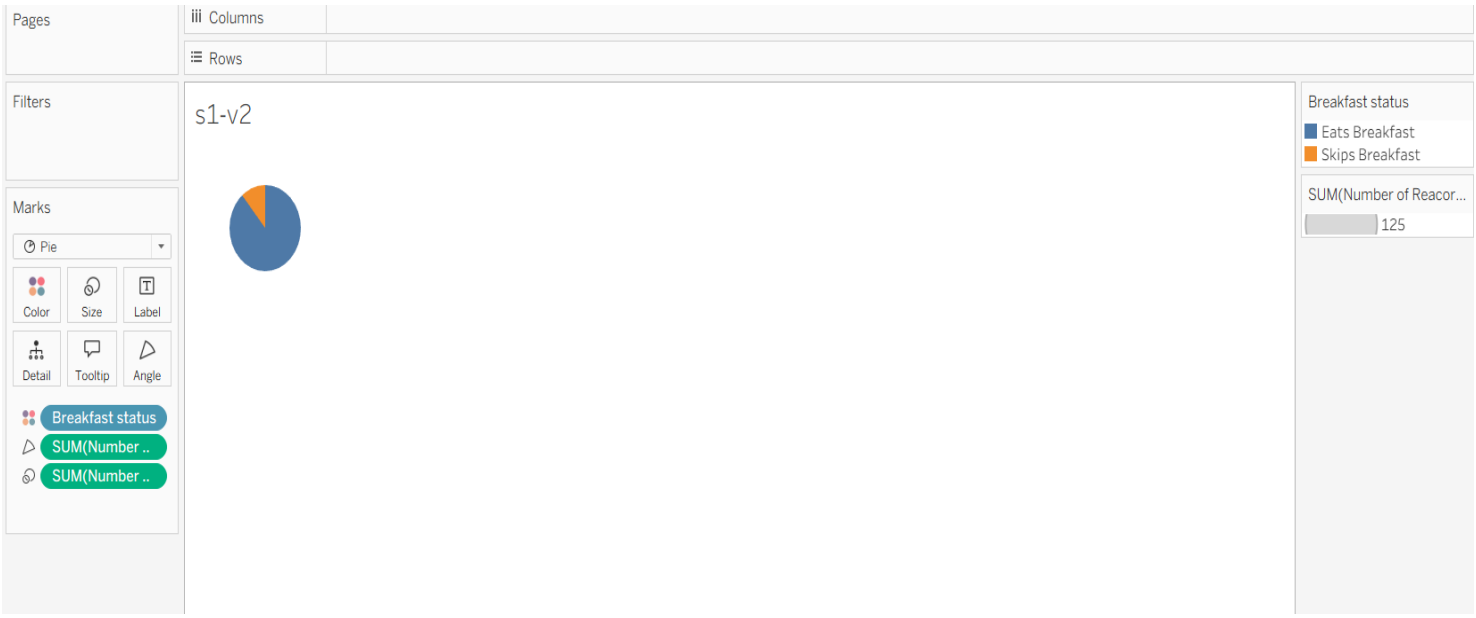
7. RESULTS

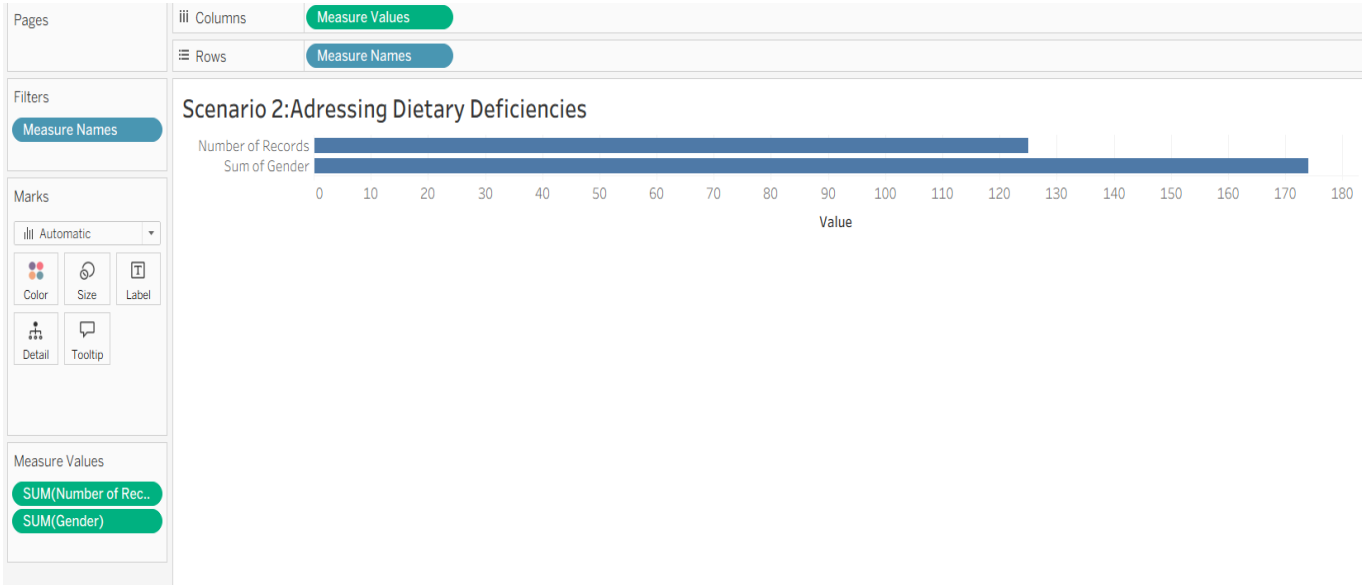
7.1 Output Screenshots

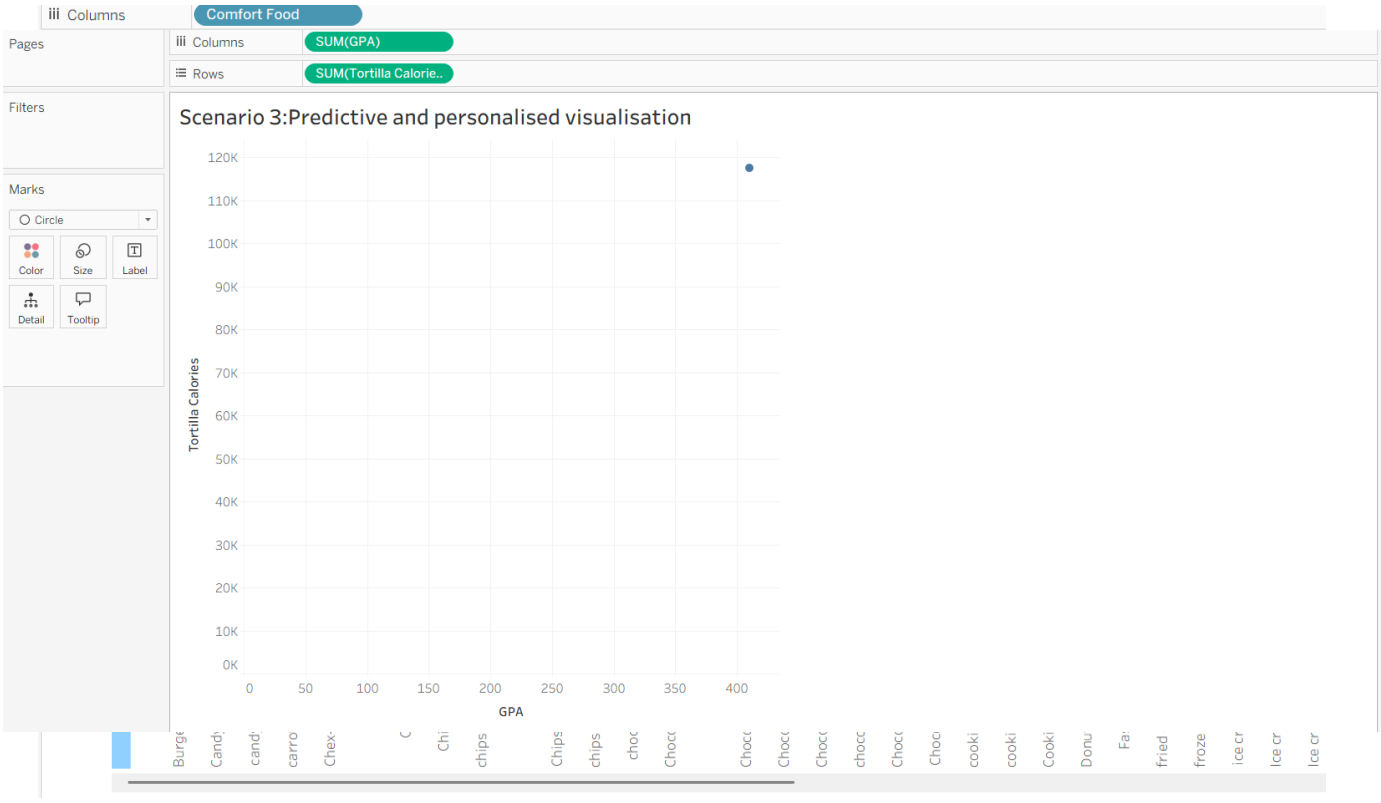
Scenario-wise visualizations for:

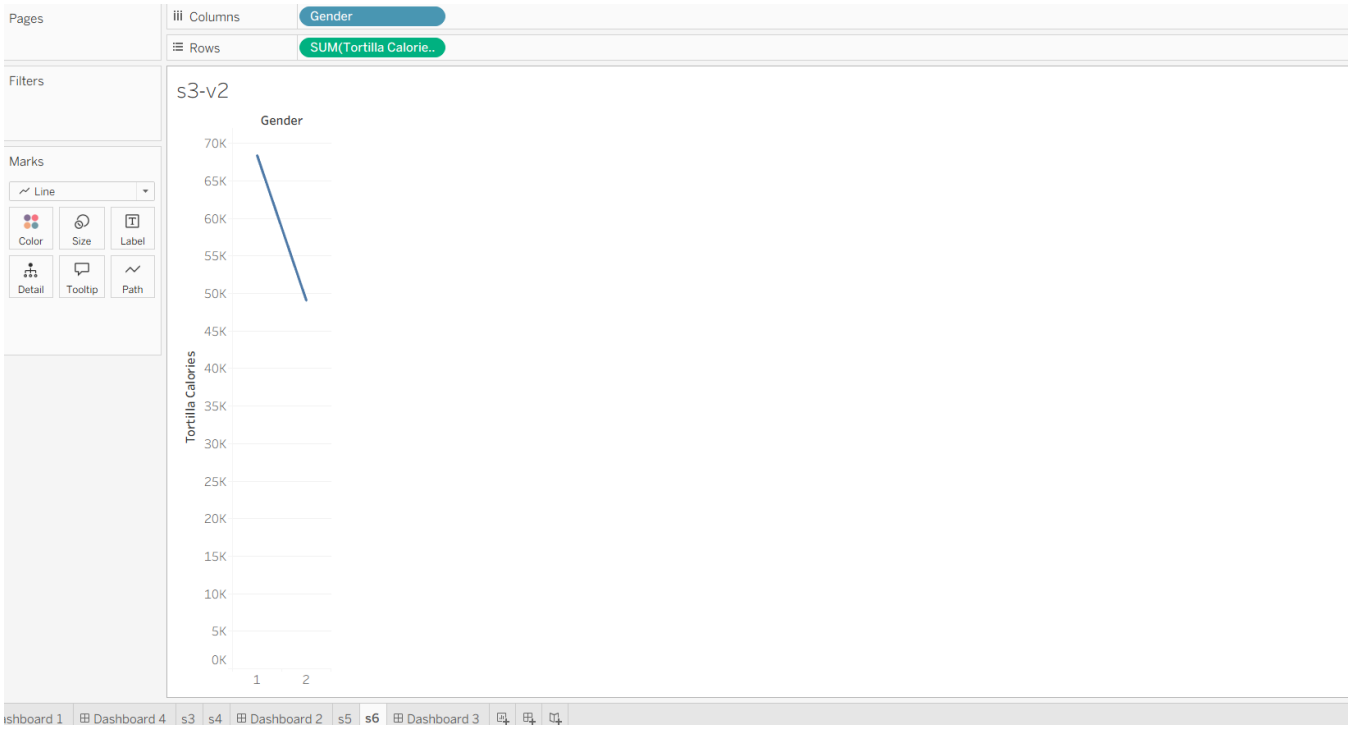
• Nutritional Intake Monitoring


Pages
Columns
SUM(Gender)
Rows
veggie status
Filters
Marks
Automatic
Color
Size
Label
Detail
Tooltip
Scenario1: Monitoring Nutritional Intake
veggie status
Low Veggies
Sufficient Veggies
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
Sum of Gender

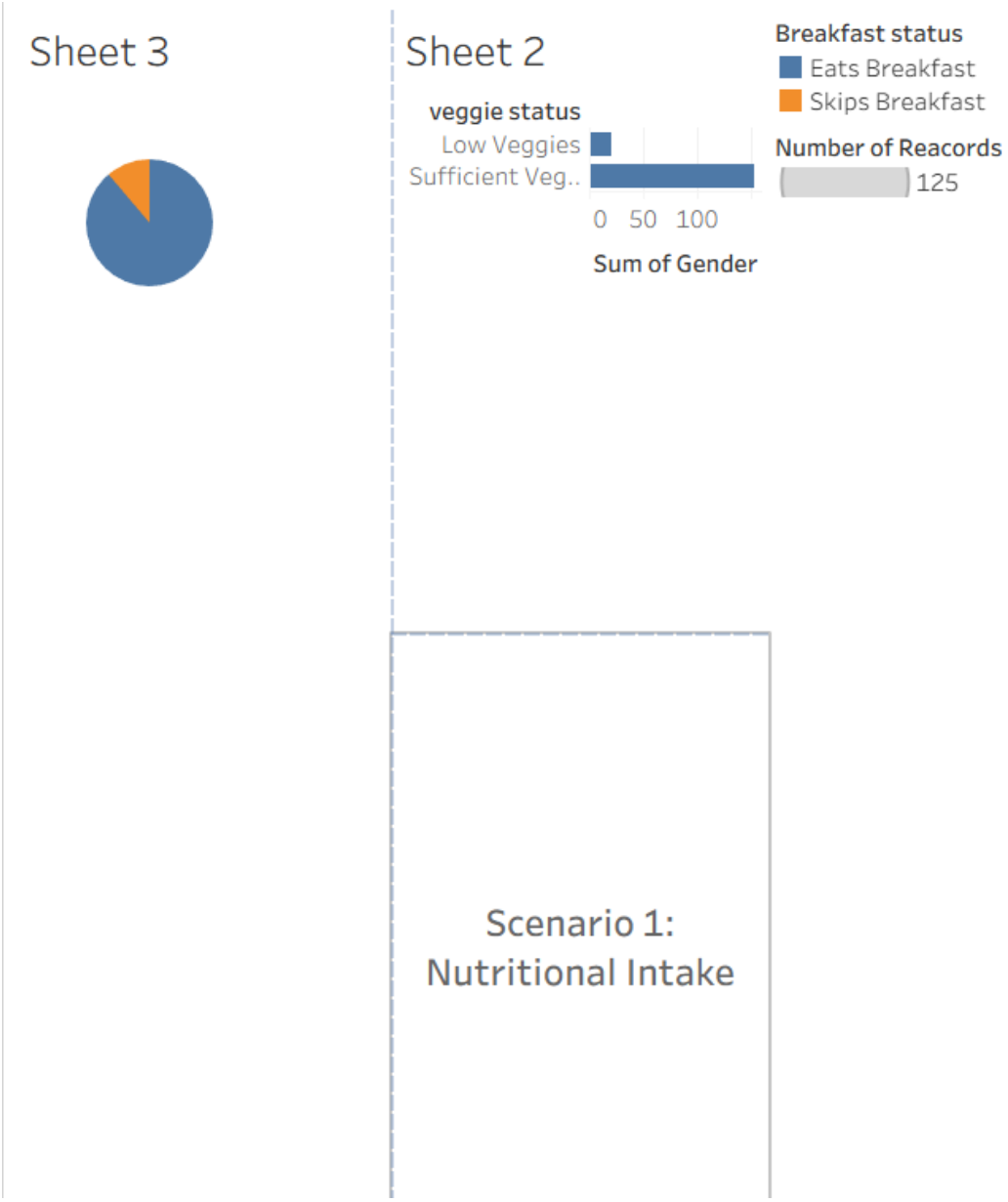

Pages
Columns
Rows
Filters
Marks
Pie
Color
Size
Label
Detail
Tooltip
Angle
Breakfast status
SUM(Number ..
SUM(Number ..
s1-v2
Breakfast status
Eats Breakfast
Skips Breakfast
SUM(Number of Reacor...
125


Pages
Columns
Measure Values
Rows
Measure Names
Filters
Measure Names
Marks
Automatic
Color
Size
Label
Detail
Tooltip
Measure Values
SUM(Number of Rec..
SUM(Gender)
Scenario 2:Adressing Dietary Deficiencies
Number of Records
Sum of Gender
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
Value


Columns
Comfort Food
Pages
Columns
SUM(GPA)
Rows
SUM(Tortilla Calorie..
Filters
Marks
Circle
Color
Size
Label
Detail
Tooltip
Scenario 3:Predictive and personalised visualisation
Tortilla Calories
120K
110K
100K
90K
80K
70K
60K
50K
40K
30K
20K
10K
0K
0
50
100
150
200
250
300
350
400
GPA


Pages
Columns
Gender
Rows
SUM(Tortilla Calorie..
Filters
Marks
Line
Color
Size
Label
Detail
Tooltip
Path
s3-v2
Gender
Tortilla Calories
70K
65K
60K
55K
50K
45K
40K
35K
30K
25K
20K
15K
10K
5K
0K
1
2
Dashboard 1
Dashboard 4
s3
s4
Dashboard 2
s5
s6
Dashboard 3

• Dietary Deficiency Analysis
• Predictive Calorie Impact



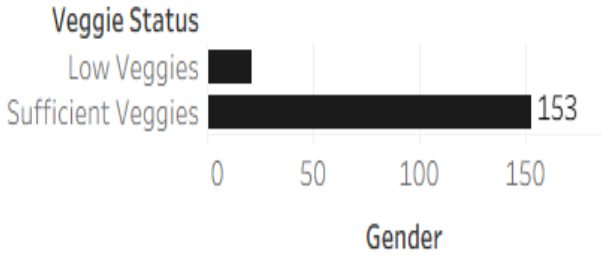
8. ADVANTAGES & DISADVANTAGES

Advantages:
• Easy-to-understand dashboards
• Real-time insights

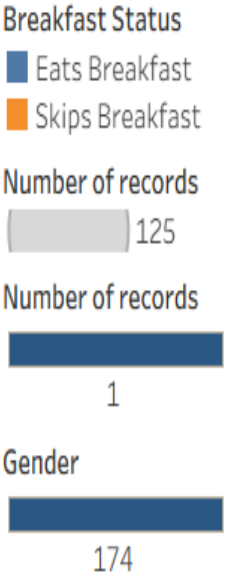
• Visual impact on decisions

Disadvantages:

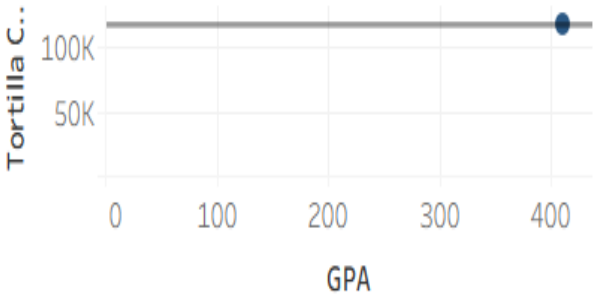
Scenario 1: Monitoring Nutritional Intake



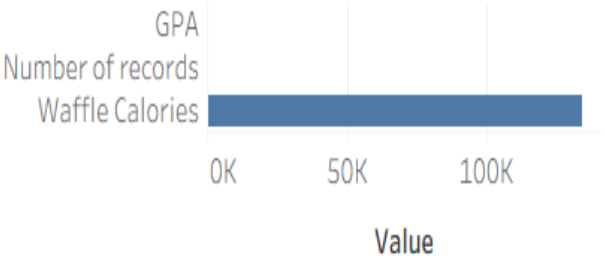
s-1 v2



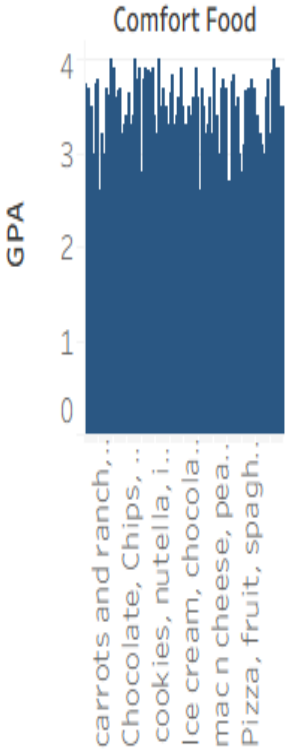
s-3 v2



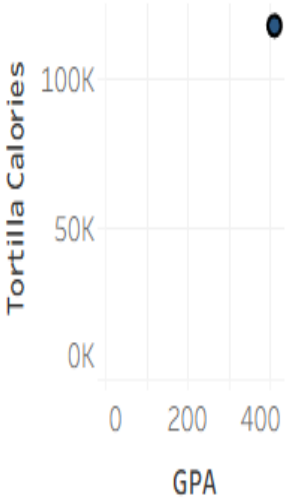
Scenario 2: Addressing Dietary Deficiencies



s-2 v2



Scenario 3: Predictive & Personalized Nutrition



• Limited to available dataset
• Depends on Tableau functionality

9. CONCLUSION

The project successfully visualized key dietary trends among students and demonstrated how nutrition correlates with academic performance. The Tableau dashboards serve as a decision-making tool for health initiatives.

10. FUTURE SCOPE

Integration with live cafeteria data, mobile app interfaces, AI-driven recommendations, and more detailed health indicators.

11. APPENDIX

Dataset Link:https://www.kaggle.com/datasets/borapajo/foodchoices?select=food_coded.csv

Dashboard Link:
https://public.tableau.com/views/foodvisualisation/Dashboard4?:language=en-US&:sid=&:redirect=auth&:display_count=n&:origin=viz_share_link