

Date	26 June 2025
Team ID	LTVIP2025TMID20734
Project Name	Comprehensive Analysis and Dietary Strategies: A College Food Choices Case Study

1.INTRODUCTION

1.1 Project Overview

The College Food Choices project explores the eating behaviours and lifestyle patterns of college students through interactive data visualization. It aims to understand how students manage their diets amid academic pressure, personal preferences, and accessibility. The project draws from survey responses covering variables such as meal types, employment status, GPA, and life satisfaction. Using Tableau, these insights are transformed into intuitive dashboards and visual stories. The analysis highlights notable trends like the impact of part-time jobs on eating habits and how gender influences food preferences. By linking nutrition to academic and emotional well-being, the project reveals hidden correlations within student life. This data-driven approach supports informed decisions for both institutions and individuals.

The visualizations are created using Tableau Public, enabling accessible and responsive displays directly on the web. With a clean user interface and embedded dashboards, users can easily explore different aspects of the data. Each section—Dashboard, Story, and Insights—presents a unique perspective that collectively builds a comprehensive view. The project's strength lies in simplifying complex survey data into digestible visual narratives. It encourages awareness and positive change in student lifestyles. Overall, it serves as a practical application of data analytics in solving real-world behavioural challenges.

1.2 Purpose

The purpose of this project is to analyse and visualize college students' food choices and lifestyle habits. It aims to uncover patterns affecting nutrition, academics, and well-being. The insights help promote healthier decisions through data-driven understanding.

2. IDEATION PHASE

2.1 Problem Statement

College students often face challenges in maintaining balanced diets due to academic stress, limited time, financial constraints, and lack of nutritional awareness. These factors contribute to irregular eating habits, reliance on fast food, and inadequate nutrition, which can negatively affect both physical health and academic performance. There is a need for a comprehensive, data-driven approach to understand these patterns and support healthier food choices among students.

2.2 Empathy Map Canvas

An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behaviors and attitudes. It is a useful tool to help teams better understand their users. Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenges.

Who is the User?

The primary users in this project are college students who are navigating daily food choices while balancing academic, social, and personal responsibilities. These students often face time constraints, budget limitations, and varying levels of nutritional awareness, all of which influence their eating habits.

They may rely on campus dining, street food, homemade meals, or fast food — depending on convenience, preferences, and lifestyle. Their choices are shaped by factors like taste, health goals, peer influence, cultural background, and emotional state. Understanding this user group is essential to identifying the challenges they face in maintaining a balanced diet and designing interventions that promote healthier eating behaviours.

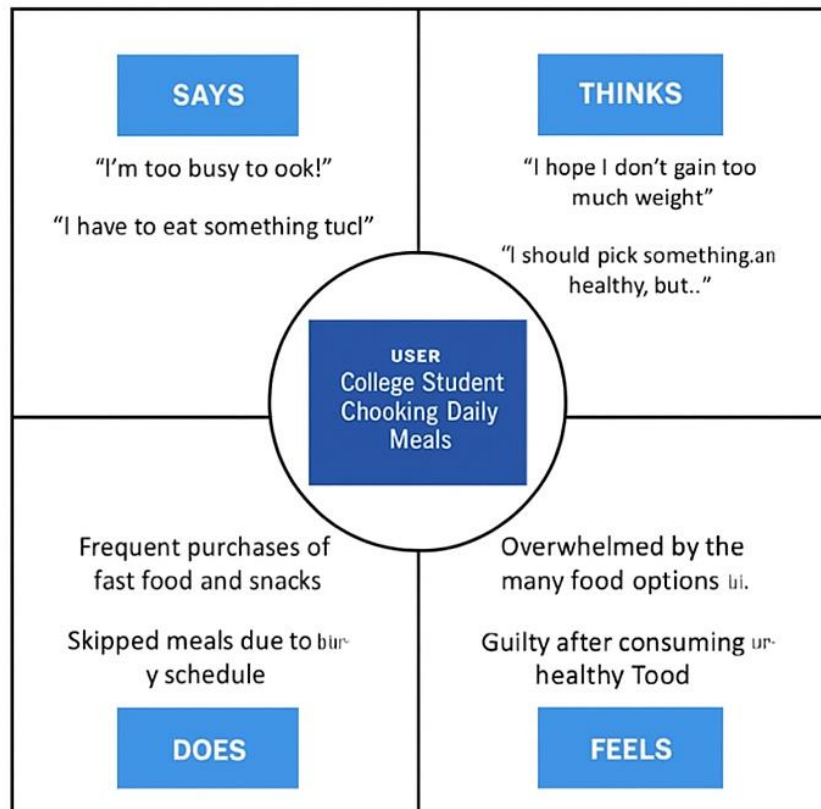
Key User Insights

- Students prioritize taste and convenience over nutritional value in their daily food choices.
- Time constraints due to academics often lead to skipping meals or opting for fast food.
- Many students lack awareness of balanced diet practices and rely on easily available options.
- Emotional state (e.g., stress, boredom) influences comfort food consumption and snacking habits.
- Budget limitations play a significant role in determining food quality and frequency of meals outside.
- Cooking at home is often avoided due to lack of time, skills, or facilities.

- Peer influence and social settings affect both food preferences and eating frequency.

Example:


Empathy Map



2.3 Brainstorming

Brainstorm & Idea Prioritization:

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



Brainstorm & idea prioritization

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.

🕒 10 minutes to prepare
👥 1 hour to collaborate
👤 2-8 people recommended

Before you collaborate
A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

🕒 10 minutes

Team gathering
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

Set the goal
Think about the problem you'll be focusing on solving in the brainstorming session.

Learn how to use the facilitation tools
Use the Facilitation Superpowers to run a happy and productive session.

[Open article](#) →

Define your problem statement
What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

🕒 5 minutes

How might we [your problem statement]?

Key rules of brainstorming
To run an smooth and productive session

- Stay in topic.
- Defer judgment.
- Go for volume.
- Encourage wild ideas.
- Listen to others.
- If possible, be visual.

Step-2: Brainstorm, Idea Listing and Grouping

2
Brainstorm
Write down any ideas that come to mind that address your problem statement.

🕒 10 minutes

TIP
You can select a sticky note and hit the pencil (switch to sketch) icon to start drawing!

3
Group ideas
Take turns sharing your ideas while clustering similar or related notes as you go. In the last 10 minutes, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

🕒 20 minutes

TIP
Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.

Amar

Yuktesh

Person 3

Person 4

Person 5

Person 6

Person 7

Person 8

Step-3: Idea Prioritization

4

Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

🕒 20 minutes



3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

1. Stages & Experiences

- Awareness: Students learn about the project through university channels.
- Onboarding: Users submit dietary survey responses or explore dashboards.
- Exploration: They interact with filters to compare food choices and health indicators.
- Insight Discovery: Students realize trends about food habits vs. GPA or energy.
- Action Planning: Based on visualizations, they plan healthier routines.
- Re-engagement: They return periodically to track or refine their progress.

2. Interactions

- Filling out initial food and lifestyle questionnaire.
- Using filters (like gender, meals per week, food type) on Tableau dashboard.
- Viewing visual stories for insights (e.g., fast food vs homemade).
- Downloading or exporting insights for personal or academic use.
- Sharing dashboards or charts with classmates or in clubs.
- Setting goals through comparison features in the visual.

3. Digital Touchpoints

- University website or student portal (dashboard embed).
- Tableau Public dashboard (mobile responsive).
- QR codes in dining areas linking to food comparison dashboards.
- Email notifications with Tableau Story highlights.
- Interactive stories on web pages (Story1 view).
- Optional link within student apps or campus newsletters.

4. Goals & Motivations

- Discover how their eating habits compare with peers.
- Improve personal health, energy, and study performance.
- Identify healthier and more affordable food options.
- Stay accountable to diet plans or routines.
- Understand long-term impacts of food behavior.
- Engage in data-backed, self-improvement.

5. Opportunities to Improve

- Embed tips or recommendations in dashboard popups.
- Add cafeteria meal ratings and pricing analysis.
- Link exercise data (if possible) for holistic health views.

- Implement gamified goals (e.g., 7 days home-cooked challenge).
- Provide downloadable shopping lists for balanced eating.
- Enable anonymous comparison to motivate self-improvement.

3.2 Solution Requirement

Functional Requirements

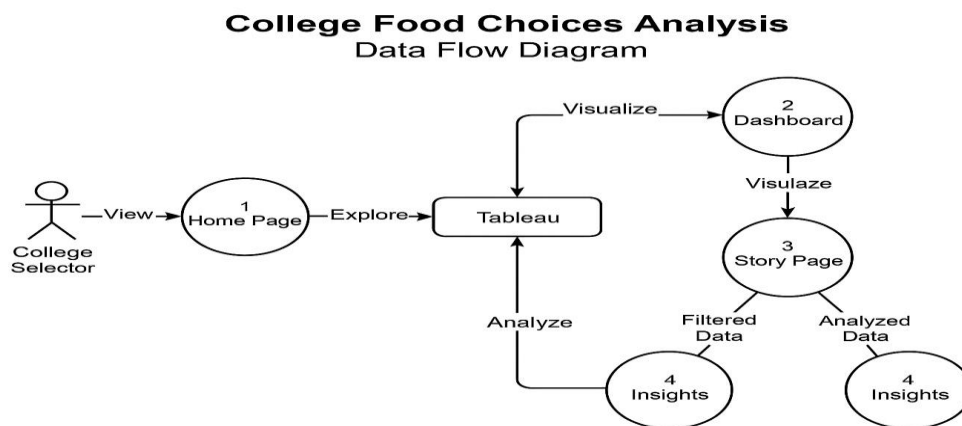
FR No	Functional Requirement	Story / Sub Work
1	User can access the home page	Display project title, brief introduction, and navigation button.
2	Navigation menu should switch between sections	Sections: Home, About, Dashboard, Story, Insights.
3	Dashboard should display visual insights	Embed Tableau dashboard showing food choice trends.
4	Story section should show data narrative	Embed a Tableau story about the college food choices journey.
5	Home button redirects to main landing section	Smooth scroll or navigation to the hero section.
6	About section shows project details	Display description, image, and bullet points about the project.
7	Insights section provides conclusions	Display text summaries or analysis findings based on the dashboard.
8	Button should allow navigation to the dashboard	“Navigate to Dashboard” button in the Home section must work.
9	Tableau visualizations should render dynamically	Ensure embedded charts resize with screen size using responsive containers.
10	Display fallback static image if Tableau fails to load	Noscript fallback images for Tableau dashboards and stories.

Non-Functional Requirements

NFR No.	Non-Functional Requirement	Description
1	Performance	Dashboards must load within 3–5 seconds for smooth user experience.
2	Scalability	The system should support increasing numbers of users without performance loss.
3	Availability	Tableau dashboards should be accessible 24/7 with minimal downtime.
4	Usability	Interface must be user-friendly and intuitive, even for non-technical users.
5	Compatibility	Dashboards should work across modern browsers and mobile devices.
6	Security	Embedded dashboards should use HTTPS and limit data exposure.
7	Maintainability	Project code and dashboard configuration should be easy to update or revise.
8	Portability	Tableau visualizations should be embeddable in multiple platforms if needed.
9	Responsiveness	Visuals should dynamically adapt to various screen sizes and resolutions.
10	Accessibility	The solution should follow WCAG guidelines for accessible design.

3.3 Data Flow Diagram

Data Flow Diagrams:



User Stories:

Activity	User Story (Top Priority)	Story (Enhancement)	Story (Later Release)
Explore Metrics	As a user, I want to view key metrics clearly to understand food choices among students.	Add interactive filters to drill down into specific metrics.	Enable alerts for metric changes over time.
Analyze Zones	As a user, I want to analyze different zones (e.g., campus areas) for food preference trends.	Add heatmaps for visualizing zone-based insights.	Support zone comparisons across different time frames.
Compare Placements	As a user, I want to compare food item placements for effectiveness.	Add side-by-side dashboard view to visually compare placements.	Introduce AI-based suggestions for better placements.
Export Insights	As a user, I want to export charts and insights for presentations or reports.	Add export to Excel and PowerPoint functionality.	Automate scheduled report emails.
Take Actions	As a user, I want to take actions based on insights, like flagging low-rated items.	Link insights to task manager or notification system.	Enable integration with college app or menu system for real-time updates.
Manager	As a manager, I want a high-level summary of student food preferences and habits.	Enable custom KPI dashboards per department.	Add AI-based executive summary generator.

3.4 Technology Stack

Technical Architecture:



Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1	User Interface	Final dashboard seen by end users	Tableau Public, HTML, Flask
2	Data Source	Housing dataset source	Google Drive / Local CSV
3	Data Collection	Gathering dataset for analysis	Manual / Scripted download
4	Data Preparation	Cleaning & transformation	Tableau Prep
5	Data Visualization	Building charts & visuals	Tableau Public Desktop
6	Dashboard & Story	Visual storytelling with filters	Tableau Story
7	Web Integration	Embedding dashboards into UI	Flask (Python Web Framework)
8	Hosting Infrastructure	Hosting the Flask app	Localhost / Web server

Table-2: Application Characteristics:

S.No	Characteristics	Description & Technology
1	Open-Source Frameworks	Tableau Public, Flask
2	Security Implementations	Dataset access via local storage or private Tableau links
3	Scalable Architecture	Layered and modular architecture flow
4	Availability	Accessible via Tableau Cloud and Flask Web App
5	Performance	Optimized Tableau dashboards using filters and cache

4. PROJECT DESIGN

4.1 Problem-Solution Fit

The Problem:

College students often struggle to maintain balanced diets due to lack of awareness and busy schedules. There is insufficient visibility into their eating patterns, nutritional intake, and influencing factors. Traditional methods fail to present dietary data in an engaging and interpretable way. Stakeholders lack actionable insights to support students' health and wellness initiatives. A visual, data-driven solution is needed to understand and address these dietary challenges effectively.

The Solution:

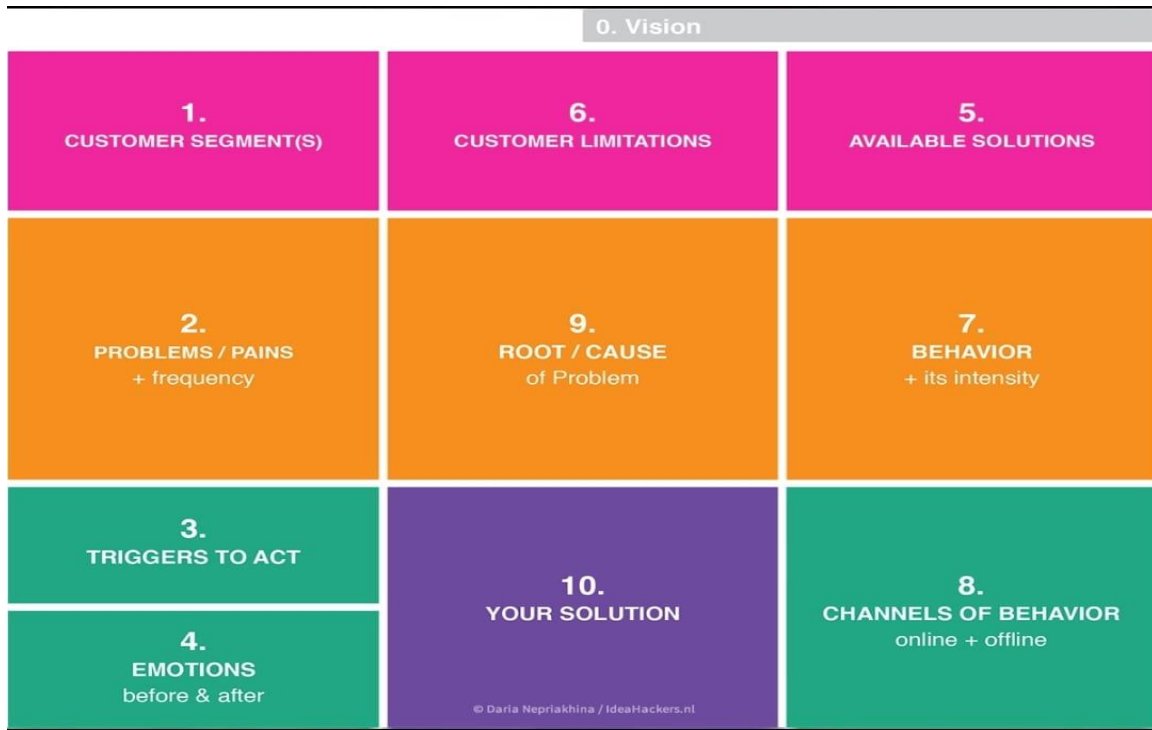
The project provides a dynamic Tableau dashboard to visualize college students' dietary habits and preferences. It transforms survey data into interactive visual stories for better understanding of food patterns. Users can explore metrics, analyse behaviour trends, and make data-driven decisions. It supports stakeholders in identifying nutrition gaps and promoting healthy eating. The solution enhances transparency and engagement through intuitive visual analytics.

Why It Fits:

Tableau provides powerful visualization tools to clearly interpret complex dietary data. It helps identify trends and correlations in students' food choices, habits, and health behaviours. Interactive dashboards make insights easily accessible for students, educators, and health advisors. The platform enables data-driven strategies tailored to student needs and preferences. This approach enhances awareness, supports better decisions, and fosters healthier college lifestyles.

Purpose:

1. Understand Student Eating Habits: Analyses and visualize dietary patterns among college students.
2. Promote Health Awareness: Educate students and stakeholders about the impact of food choices on well-being.
3. Enable Data-Driven Decisions: Use Tableau dashboards to support informed health and nutrition strategies.
4. Identify Behavioural Trends: Detect relationships between diet, lifestyle, and academic performance.
5. Support Institutional Planning: Provide actionable insights to help colleges improve student wellness programs.

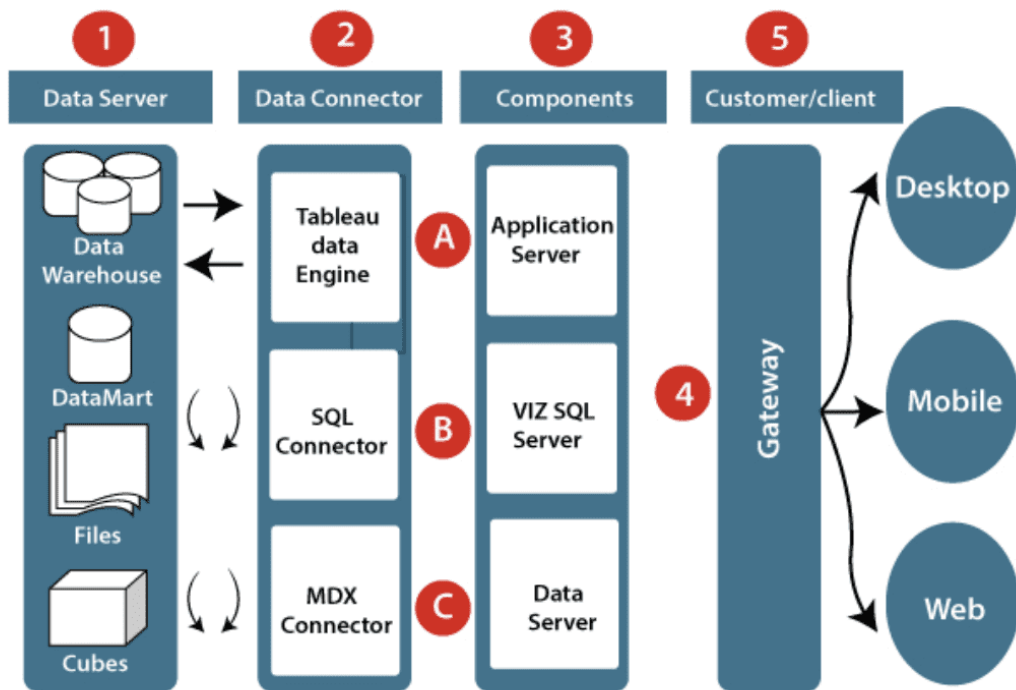


4.2 Proposed Solution

S.No.	Parameter	Description
1	Problem Statement (Problem to be solved)	Lack of understanding and visibility into college students' dietary behaviours, making it hard to address health and nutritional issues effectively.
2	Idea/Solution Description	Develop an interactive Tableau dashboard to visualize survey data on student food habits, exercise patterns, and health perceptions to drive better insights.
3	Novelty/Uniqueness	The solution offers a unified, data-driven view combining diet, lifestyle, and self-perception using real-time interactive dashboards, tailored for colleges.
4	Social Impact/Customer Satisfaction	Helps improve student health awareness and habits; assists colleges in designing targeted health programs, boosting student satisfaction and well-being.
5	Business Model (Revenue Model)	Potential revenue from offering custom dashboards and insights as a subscription service to educational institutions and health organizations.
6	Scalability of the Solution	Easily scalable to multiple colleges by updating datasets; dashboards can be replicated, customized, and deployed with minimal adjustments.

4.3 Solution Architecture

Solution Architecture Diagram:



5. Project Planning and scheduling

5.1 Project Planning

Product Backlog, Sprint Schedule, and Estimation:

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task (College Food Choices)	Story Points	Priority	Team Member
Sprint-1	Data Collection	USN-1	As a data analyst, I want to download the “College Food Choices” survey dataset for processing.	2	High	Dasu Hanu Venkat Naga Sai
Sprint-1	Data Collection	USN-2	As a data analyst, I want to load the dataset into Tableau Prep for initial profiling.	1	High	Bhaskarla Suma Lohitha
Sprint-1	Data Preparation	USN-3	As a data analyst, I want to handle missing values (e.g., blank cooking-frequency or calorie fields).	3	High	Bhogadi Vignesh Babu
Sprint-1	Data Preparation	USN-4	As a data analyst, I want to transform categorical codes (e.g., cuisine 1-6, gender 1-2) into readable labels.	2	Medium	Battula Pavan Kumar
Sprint-2	KPI Visualization	USN-5	As a stakeholder, I want to view KPIs such as avg. daily calories, avg. cooking sessions, and record count	2	High	Dasu Hanu Venkat Naga Sai
Sprint-2	Visualization by Cooking Habits	USN-6	As a stakeholder, I want to see how cooking frequency affects self-reported health/GPA.	2	Medium	Bhogadi Vignesh Babu
Sprint-2	Feature-based Visualization	USN-7	As a stakeholder, I want to compare nutrition importance by gender, year, and fruit-&-veggie servings.	3	High	Bhaskarla Suma Lohitha
Sprint-2	Dashboard Sharing	USN-8	As a manager, I want to download or share the interactive dashboard with the wellness team.	1	Medium	Battula Pavan Kumar

Project Tracker, Velocity & Burndown Chart

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date	Story Points Completed	Sprint Release Date
Sprint -1	8	5 Days	20 Jun 2025	24 Jun 2025	8	24 Jun 2025
Sprint -2	8	5 Days	25 Jun 2025	29 Jun 2025	TBD	TBD

Velocity:

Velocity = Total Story Points Completed / Number of Sprints

= $8 / 1 = 8$ story points/sprint (after Sprint-1)

Once Sprint-2 is complete:

Velocity = $(8 + 8) / 2 = 8$ story points/sprint (maintained)

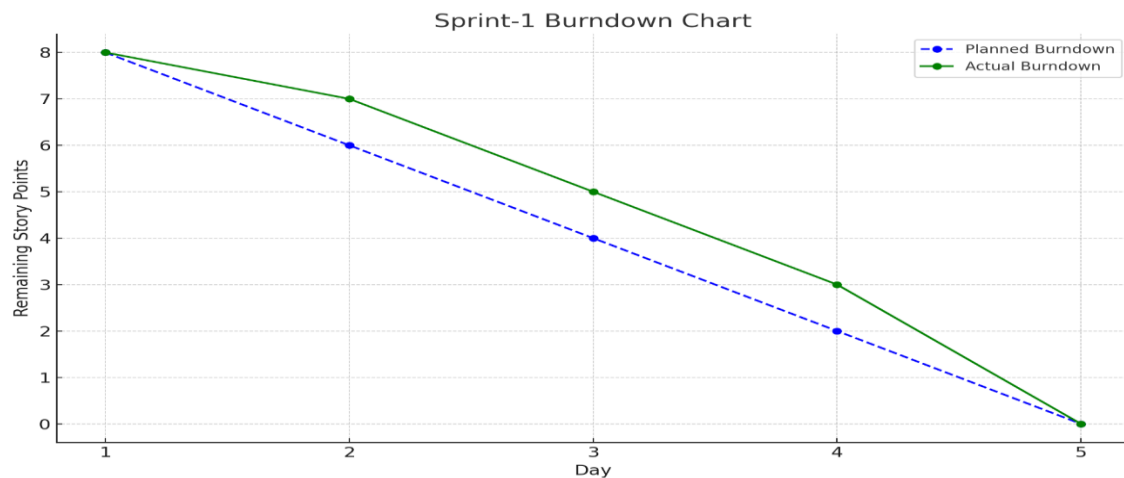
Burndown Chart:

Use tools like Excel or Google Sheets to plot:

X-axis: Days of the sprint

Y-axis: Remaining story points

Show planned vs actual burndown



6.FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

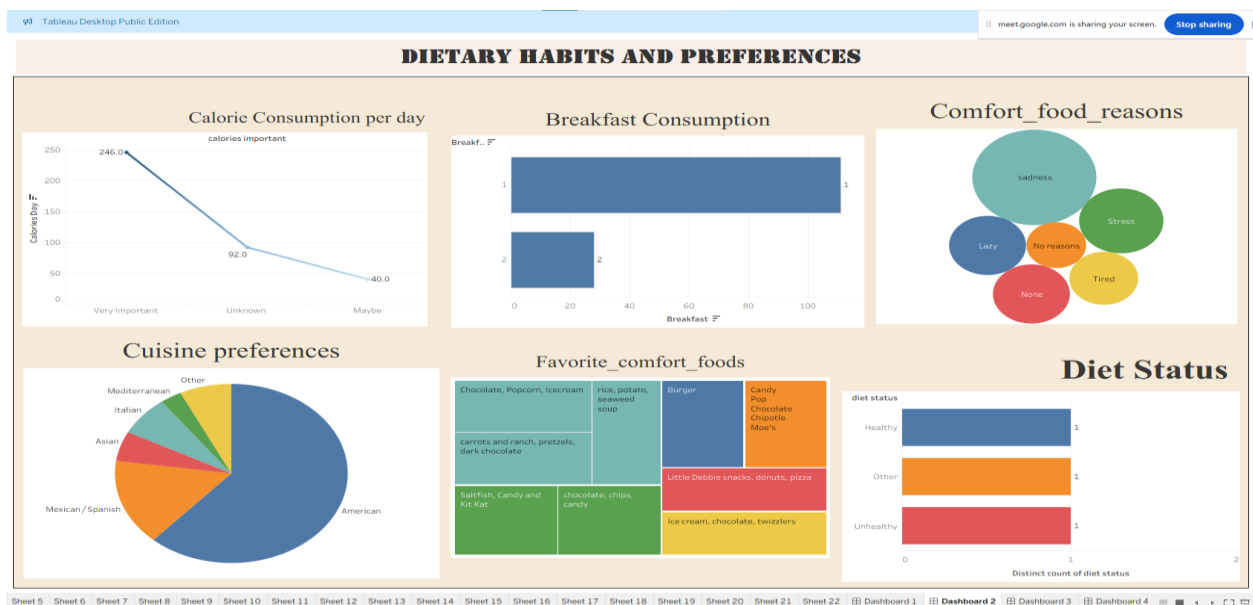
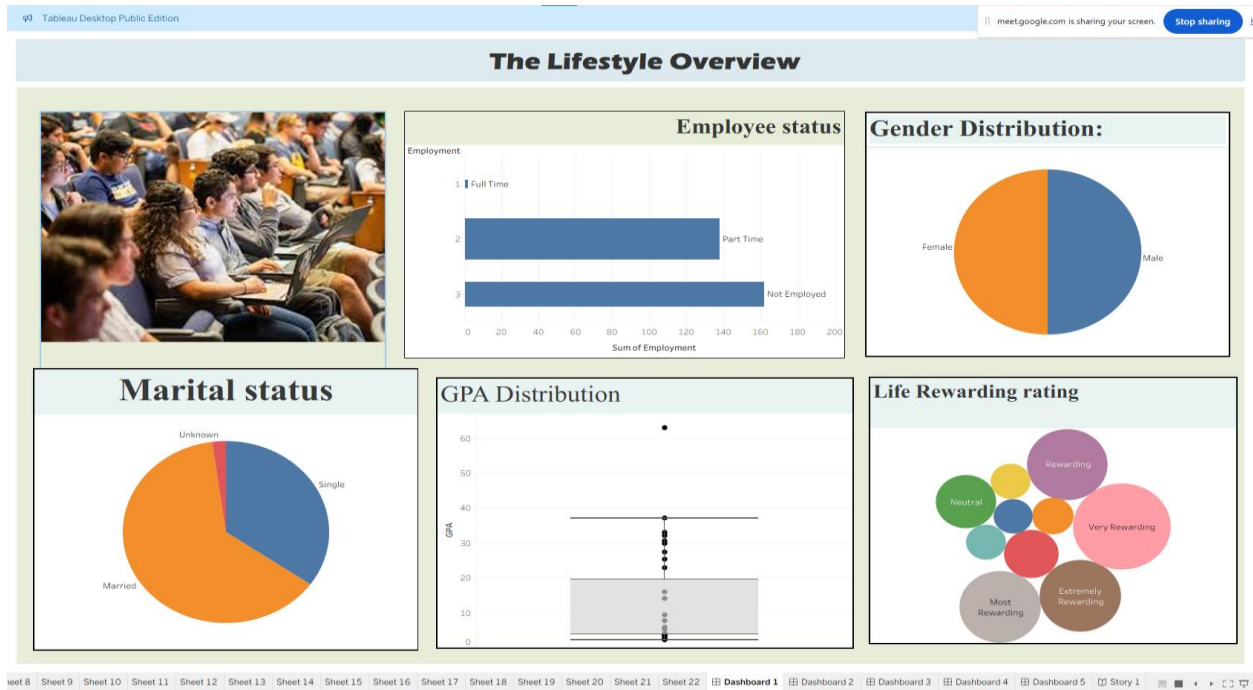
Model Performance Testing:

S. No.	Parameter	Screenshot / Values
1	Data Rendered	Survey dataset on college students' food choices including cooking frequency, cuisine preference, and health awareness, visualized using Tableau Public.
2	Data Preprocessing	Missing values handled, categorical values (e.g., gender, year) transformed, cuisine and food types categorized using Tableau Prep.
3	Utilization of Filters	Filters used for Gender, Year of Study, Cooking Frequency, Cuisine Type, and Nutrition Importance to allow drill-down and comparisons.
4	Calculation Fields Used	Average Calories, Count of Home-Cooked Meals, Percentage Choosing Homemade, GPA vs Cooking Frequency Score, Total Respondents Count.
5	Dashboard Design	KPIs (3), Pie Chart (1), Bar Chart (1), Line Chart (1) – Showing insights on food habits, health, and cooking behaviour → Total: 6 Visualizations
6	Story Design	Tableau Story with 3 views: Overview of Student Habits, Comparison by Gender & Year, and Cooking Frequency vs Self-reported Health → Total: 3 Views

7. RESULTS

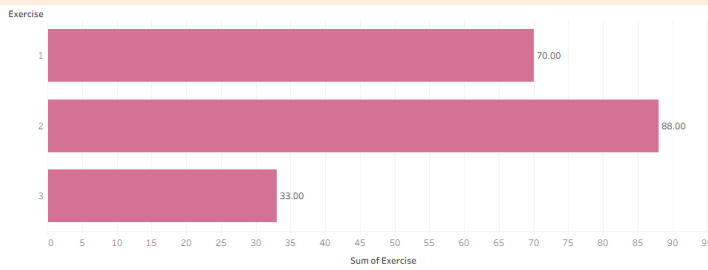
7.1 Output Screenshots

Links for Dashboards and Stories:

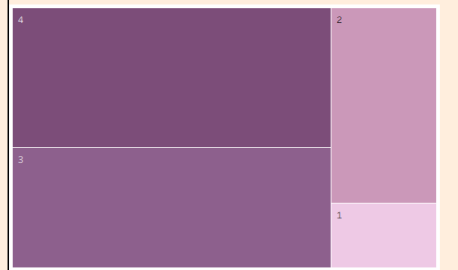


Health and Nutrition

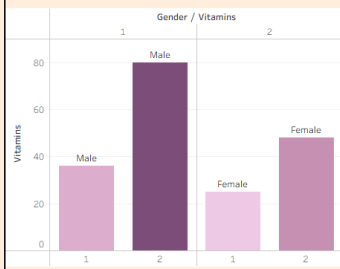
Exercise Frequency



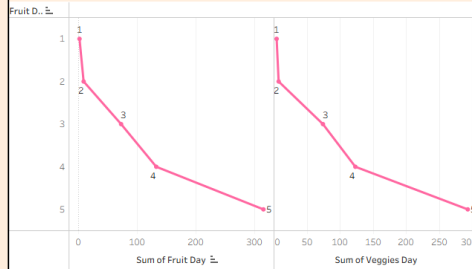
Healthy Feeling



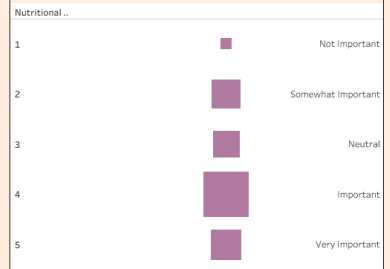
Vitamin Intake



Veggieandfruit_Consumption

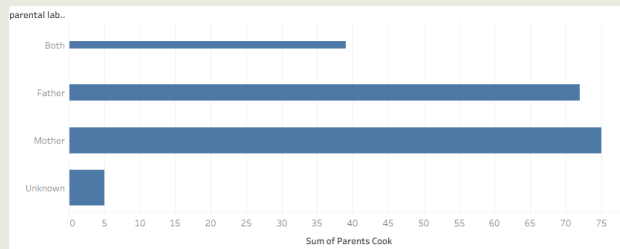


Nutritional Check

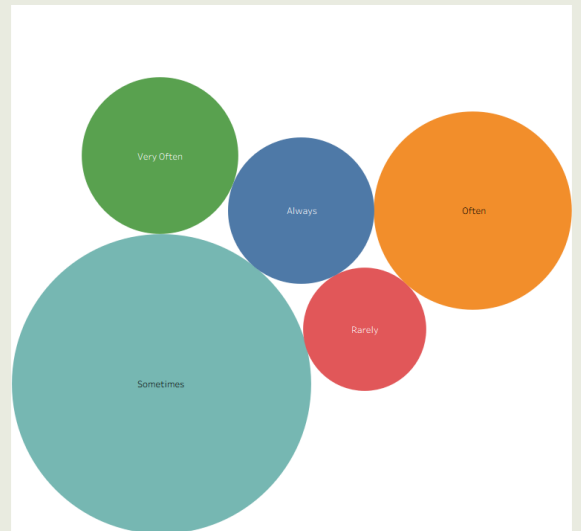


PARENTAL INFLUENCE AND EATING OUT

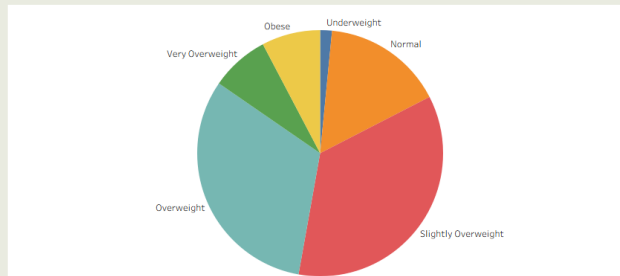
ParentalCookingHabits



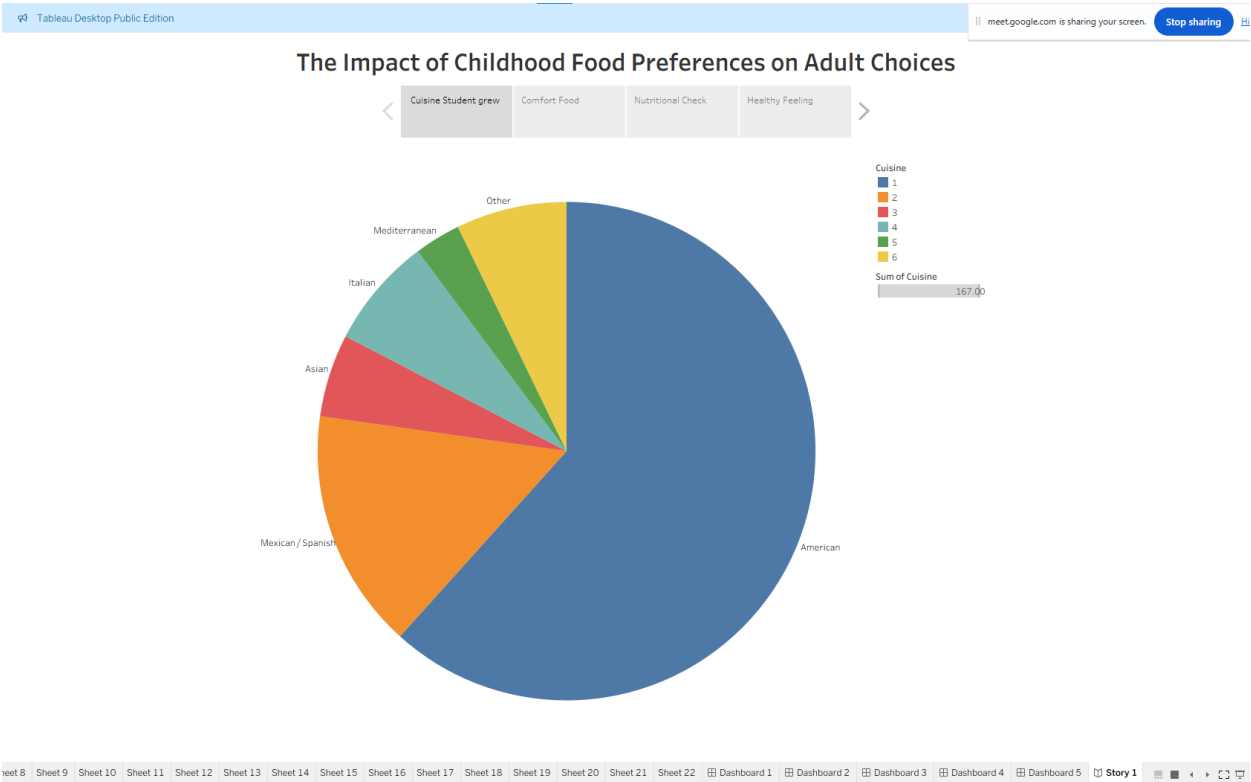
Meal Payment Habits



WeightSelfPerception



Story Screenshort:



8. Advantages and Disadvantages

Advantages:

1. **Data-Driven Insights:** Helps colleges understand student food habits through interactive visualizations, supporting informed health and wellness strategies.
2. **Improved Decision-Making:** Enables administrators to analyse trends like cooking frequency, food preferences, and health awareness to plan relevant programs.
3. **Student-Centric Approach:** Provides visibility into the dietary patterns of students, helping to align canteen services or nutrition campaigns with their needs.
4. **Interactive Visualizations:** Tableau dashboards allow users to filter and explore data based on year, gender, or preferences—making the analysis more personalized.
5. **Easy Accessibility:** Hosted on Tableau Public and embedded into a website, the dashboard is accessible to a wide range of stakeholders at any time.
6. **Efficient Storytelling:** The Tableau story feature helps narrate the survey data effectively—showing progression and correlation between habits and health.
7. **Scalability for Future Use:** The dashboard can be extended with more data from other colleges or future semesters, ensuring long-term usefulness and adaptability.

Disadvantages:

1. **Limited Sample Size:** If the survey responses are from a small group of students, the insights may not represent the entire college population accurately.
2. **Data Bias:** Self-reported survey data may be biased or inconsistent, leading to misleading conclusions in visualizations.
3. **No Real-Time Data:** Tableau dashboards are static unless refreshed manually, so they don't reflect live changes in student behaviour or preferences.
4. **Limited Depth in Analysis:** While Tableau is excellent for visualizations, it may lack the deep analytical capabilities needed for complex statistical modelling.
5. **Accessibility Constraints:** Students or stakeholders with limited internet access or unfamiliarity with dashboards might face challenges in using the insights effectively.

9. CONCLUSION

The College Food Choices Tableau Project successfully leverages data visualization to uncover patterns and preferences in students' dietary habits. By collecting and analysing survey data, the project offers actionable insights into how students choose between home-cooked meals and store-bought food, their cooking frequency, and their awareness of healthy eating.

Through the use of interactive dashboards and storytelling in Tableau, stakeholders can easily interpret key metrics, compare food behaviours across categories, and make informed decisions to enhance student well-being. The project not only highlights current trends but also lays a scalable foundation for future analysis, fostering a culture of data-driven decision-making in educational institutions.

10. PROJECT SCOPE

The scope of this project is to collect, process, and visualize dietary habit data of college students to better understand their food preferences, eating patterns, and awareness about nutrition. It involves data collection through surveys, preprocessing using Tableau Prep, and building interactive dashboards and stories using Tableau Public.

The project focuses on identifying trends such as preference for home-cooked vs. store-bought food, cooking frequency, cuisine choices, and health consciousness among students. The insights are shared via a user-friendly web interface that embeds Tableau dashboards and stories. The scope includes data exploration, KPI reporting, visualization, and public sharing — but excludes predictive modelling or real-time data analysis.

11. APPENDIX