Comprehensive Analysis and Dietary Strategies with Tableau: A College Food Choices Case Study

1. INTRODUCTION

1.1 Project Overview

This project analyses college students' food choices to identify dietary patterns and propose strategies for healthier eating. Leveraging Tableau, the project visualizes insights from a dataset containing information on students' meals, nutritional intake, and preferences.

1.2 Purpose

The purpose is to understand college students' nutritional habits, highlight potential dietary risks, and suggest improvements through data-driven recommendations and engaging dashboards.
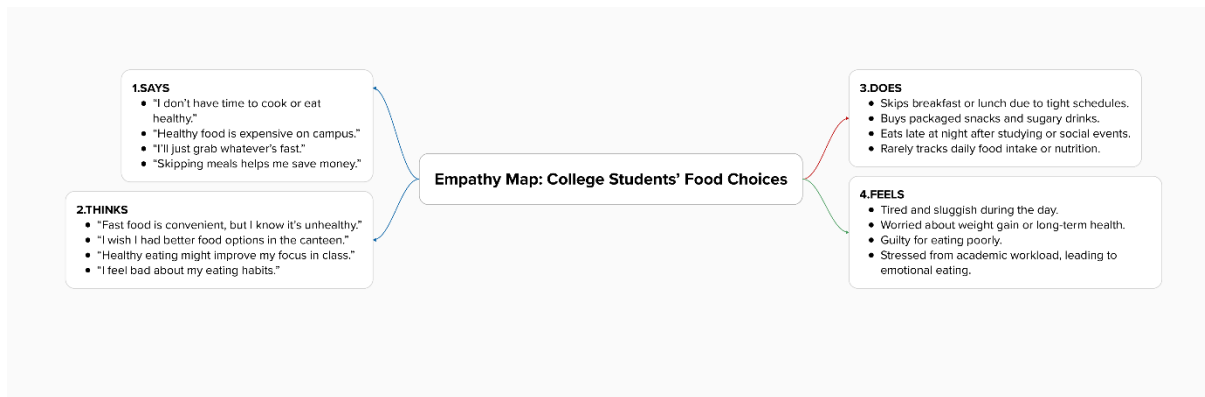
2. IDEATION PHASE

2.1 Problem Statement

Many college students consume unbalanced diets due to time constraints, lack of awareness, or unavailability of healthy food options on campus. This project aims to analyse students' food choices and suggest dietary strategies for better nutrition.

2.2 Empathy Map Canvas

- Says: "I don't have time to think about healthy meals."

- Thinks: "I wish I could eat healthier but it's too expensive or inconvenient."

- Does: Skips breakfast, consumes fast food, prefers sugary drinks.

- Feels: Tired, stressed, worried about weight or health.

Empathy Map: College Students' Food Choices

1.SAYS
- "I don't have time to cook or eat healthy."
- "Healthy food is expensive on campus."
- "I'll just grab whatever's fast."
- "Skipping meals helps me save money."

2.THINKS
- "Fast food is convenient, but I know it's unhealthy."
- "I wish I had better food options in the canteen."
- "Healthy eating might improve my focus in class."
- "I feel bad about my eating habits."

3.DOES
- Skips breakfast or lunch due to tight schedules.
- Buys packaged snacks and sugary drinks.
- Eats late at night after studying or social events.
- Rarely tracks daily food intake or nutrition.

4.FEELS
- Tired and sluggish during the day.
- Worried about weight gain or long-term health.
- Guilty for eating poorly.
- Stressed from academic workload, leading to emotional eating.

2.3 Brainstorming

Ideas generated:

- Collect anonymized food choice data.

- Visualize nutritional intake patterns.

- Correlate health indicators (e.g., GPA, energy levels) with diet.

- Provide easy-to-understand dashboards with actionable insights.

3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

Phase	Action	Experience	Improvement
Pre-purchase	Choosing meals	Limited healthy choices	Introduce diverse healthy meals
Purchase	Buying food on campus	Fast but unhealthy	Healthier grab-and-go options
Post-purchase	Eating and performance	Energy crashes	Promote balanced meals

3.2 Solution Requirement

- Collect reliable, anonymized data on college food choices.

- Analyse data to find patterns in unhealthy habits.

- Use Tableau to build dashboards

- Provide recommendations.

3.3 Data Flow Diagram

High-level DFD:

[Student Food Data] → [Data Cleaning & Preprocessing] → [Data Analysis in Tableau] → [Dashboards & Reports]

3.4 Technology Stack

- **Data Cleaning:** Microsoft Excel, Python (optional).
- **Data Analysis & Visualization:** Tableau Public.
- **Documentation & Reporting:** MS Word, PDF.

## 4. PROJECT DESIGN

4.1 Problem Solution Fit

The proposed solution aligns with the problem by providing clear visual insights into students' eating patterns and offering targeted dietary strategies.

4.2 Proposed Solution

- Collect data on food choices.
- Clean and preprocess the dataset.
- Visualize calorie intake, macronutrient distribution, and meal frequency.
- Build interactive dashboards.

4.3 Solution Architecture

Technical Architecture:
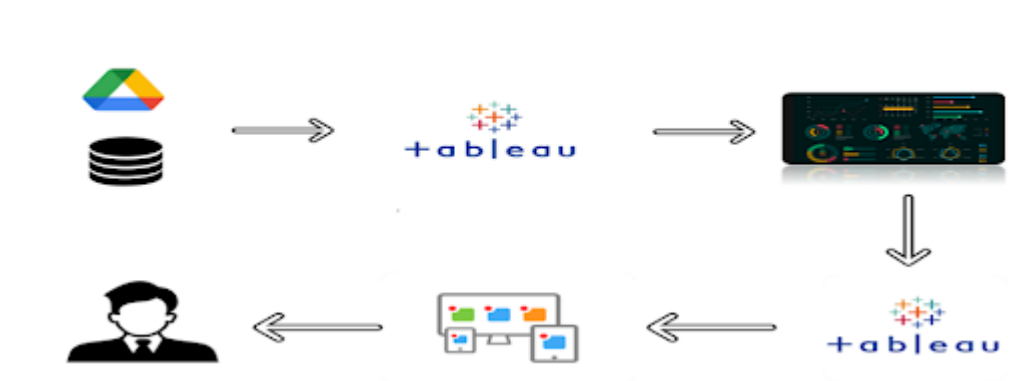
5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

- **Week 1-2:** Data collection and preprocessing.
- **Week 3:** Data analysis.
- **Week 4:** Build dashboards.
- **Week 5:** Testing and documentation.
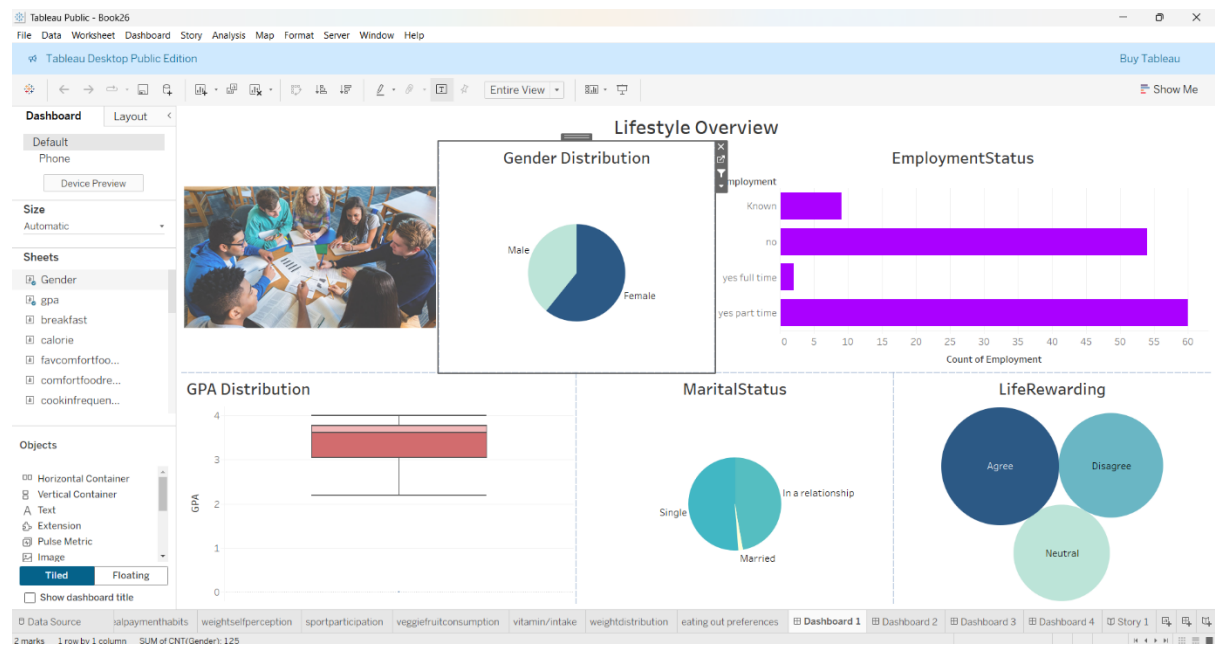- **Week 6:** Final report submission.

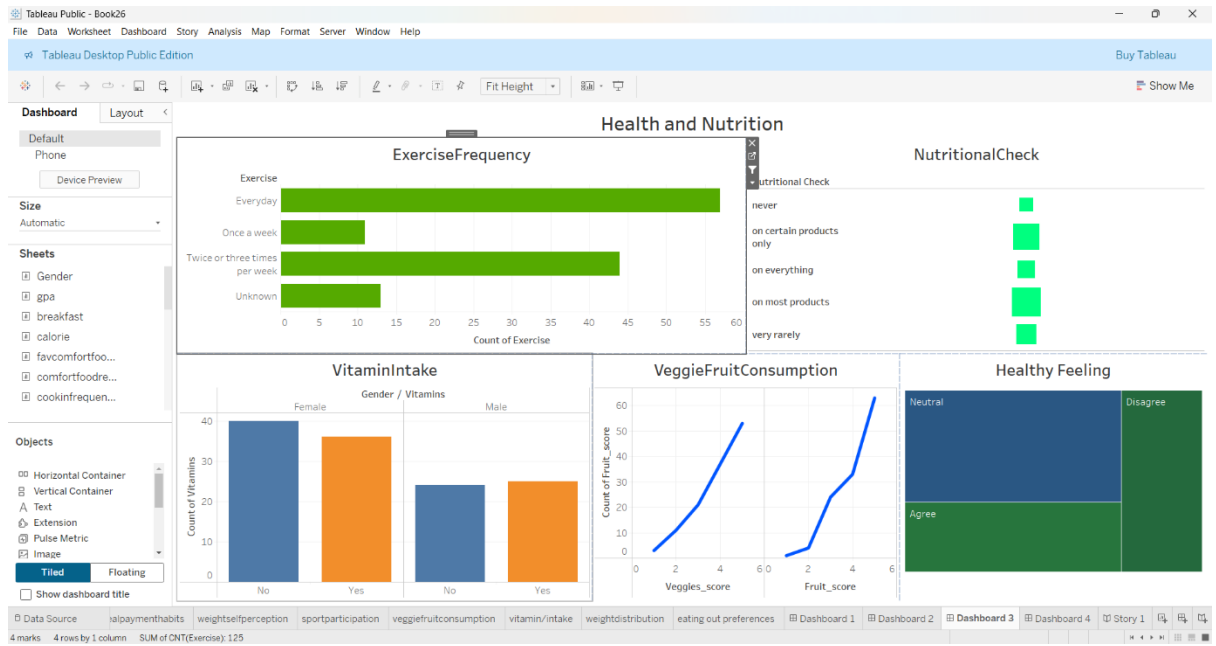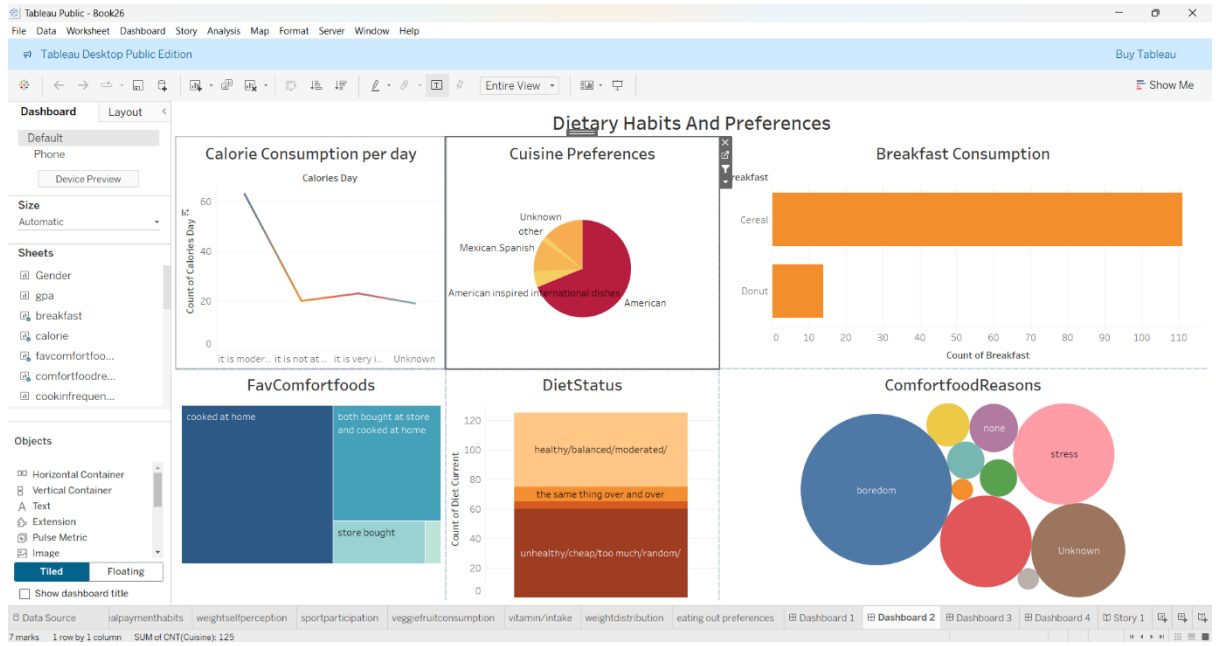## 6. FUNCTIONAL AND PERFORMANCE TESTING
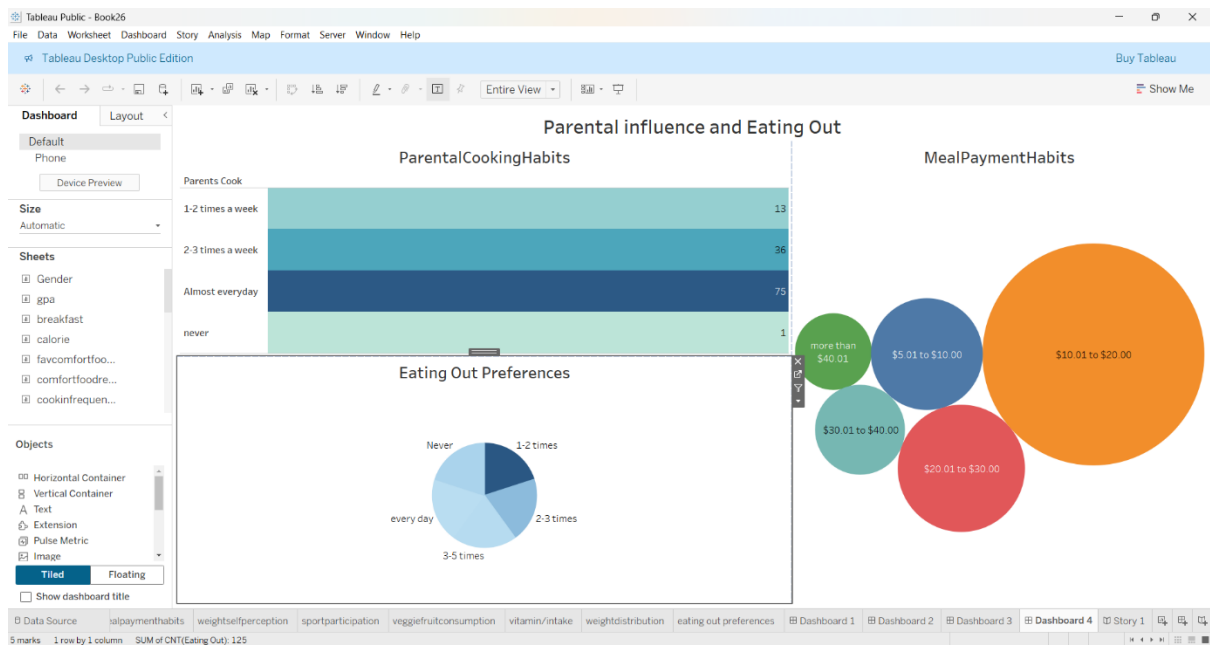
6.1 Performance Testing

- Verified dashboard loading time (<5 seconds on Tableau Public).
- Checked responsiveness across devices (laptop, tablet).
- Confirmed accuracy of visualizations by comparing with sample data calculations.

7. RESULTS

7.1 Output Screenshots

Dietary Habits And Preferences

Calorie Consumption per day — Calories Day

Cuisine Preferences
- Unknown
- other
- Mexican.Spanish
- American inspired international dishes
- American

Breakfast Consumption — Count of Breakfast (Breakfast, Cereal, Donut)

FavComfortfoods
- cooked at home
- both bought at store and cooked at home
- store bought

DietStatus
- healthy/balanced/moderated/
- the same thing over and over
- unhealthy/cheap/too much/random/

ComfortfoodReasons
- boredom
- none
- stress
- Unknown

7 marks   1 row by 1 column   SUM of CNT(Cuisine): 125

Health and Nutrition

ExerciseFrequency — Count of Exercise
- Everyday
- Once a week
- Twice or three times per week
- Unknown

NutritionalCheck
- never
- on certain products only
- on everything
- on most products
- very rarely

VitaminIntake — Gender / Vitamins (Female, Male; No, Yes)

VeggieFruitConsumption — Veggies_score, Fruit_score

Healthy Feeling
- Neutral
- Disagree
- Agree

4 marks   4 rows by 1 column   SUM of CNT(Exercise): 125

8. ADVANTAGES & DISADVANTAGES

Advantages:

- Interactive and easy-to-understand dashboards.
- Identifies unhealthy patterns for actionable intervention.
- Supports data-driven decisions for campus dining services.

Disadvantages:

- Relies on self-reported data, which may contain biases.
- Limited to one college's data; generalizability may be low.

9. CONCLUSION

This project successfully identified key issues in college students' dietary habits and proposed strategies to improve nutrition. The Tableau dashboards provide valuable insights to students, college administrations, and food service providers.

10. FUTURE SCOPE

- Extend analysis to multiple colleges for broader insights.
- Integrate physical activity data for comprehensive health profiles.
- Develop a mobile app to provide personalized dietary recommendations.

11. APPENDIX

- **Dataset Link:** https://www.kaggle.com/datasets/borapajo/food-choices?select=food_coded.csv
- **GitHub & Project Demo Link:** https://github.com/muralikrishna4526/college-food-analysis