Comprehensive Data Analytics With Tableau

Team information

Team ID : LTVIP2025TMID60433

Team Size : 4

Team Leader : Kamapalli Mani Kanth

Team member : Kolla Vimala

Team member : Boyapati Mounika Jyothi

Team member : Bandi Sai Kishore

Title

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

Objective

To revolutionize dietary data visualization among college students, enabling informed decision-making to enhance health and academic performance through interactive visualizations using Tableau.

Project Flow

1. Data Collection & Extraction

- **Activity**: Gather the dataset from the provided link.
- **Dataset Source**: Kaggle Dataset

2. Data Preparation

- **Activity**: Clean and transform the data for visualization.
- **Tasks**:
    - Remove irrelevant or missing data.
    - Format data for easy visualization.
    - Explore data to identify patterns and trends.

3. Data Visualizations

- **Activity**: Create unique visualizations to analyze dietary habits and health outcomes.
- **Types of Visualizations**:
    - Bar charts
    - Line charts
    - Heat maps

    - Scatter plots
    - Pie charts

4. Dashboard Development

- **Activity**: Design responsive dashboards for data display.
- **Tasks**:
    - Create multiple dashboards focusing on different aspects of dietary habits.
    - Ensure user-friendly interface and accessibility.

5. Story Creation

- **Activity**: Develop a narrative around the data insights.
- **Tasks**:
    - Structure the story with a clear introduction, body, and conclusion.
    - Use visual elements to enhance storytelling.

6. Performance Testing

- **Activity**: Assess the performance of the dashboards.
- **Metrics**:
    - Amount of data loaded.
    - Utilization of data filters.
    - Number of visualizations created.

7. Web Integration

- **Activity**: Embed dashboards and stories using Flask.
- **Tasks**:
    - Publish dashboards to Tableau Public.
    - Integrate with a user interface for easy access.

8. Project Demonstration & Documentation

- **Activity**: Record an explanation video and document the development process.
- **Tasks**:
    - Create a step-by-step guide for project development.
    - Record a video walkthrough of the project.

Data Overview

Key Columns in Dataset

1. **GPA**: Grade Point Average of Students
2. **Gender**: Female, Male
3. **Breakfast**: Cereal, Donut
4. **Calories (various foods)**: Caloric content of specific food items
5. **Cooking_per_week**: Number of times students cook per week
6. **Exercise**: Frequency of exercise per week
7. **Nutritional_check**: Frequency of checking nutritional values
8. **Weight**: Weight of the student
9. **Diet_current_code**: Type of diet being followed

Data Visualization Examples

Unique Visualizations

- **Activity 1.1**: Gender Distribution
- **Activity 1.2**: GPA Distribution
- **Activity 1.3**: Breakfast Consumption
- **Activity 1.4**: Caloric Intake
- **Activity 1.5**: Favorite Comfort Foods
- **Activity 1.6**: Cooking Frequency
- **Activity 1.7**: Exercise Frequency
- **Activity 1.8**: Nutritional Check

Dashboard Links

- **Dashboard 1**: Link
- **Dashboard 2**: [Link to be added]
- **Dashboard 3**: [Link to be added]
- **Dashboard 4**: Link

Performance Testing

Metrics

- **Amount of Data Loaded**: Measure the volume of data processed.
- **Utilization of Filters**: Apply filters to analyze specific data subsets.

- **Number of Visualizations**: Count of visualizations created for analysis.

Web Integration Steps

1. **Publishing Dashboards**:
    - Go to the Dashboard/story and click the share button.
    - Enter Tableau Public credentials to publish visualizations.
2. **Embedding with Flask**:
    - Integrate the published dashboards into a web application using Flask.

Conclusion

This project aims to empower educational institutions with actionable insights into student dietary habits, fostering data-driven decision-making to enhance student well-being through better nutritional strategies. The use of Tableau for visualization and analysis will facilitate a deeper understanding of dietary dynamics among college students.

Appendices

- **Appendix A**: Explanation Video Links
- **Appendix B**: Additional Resources and References