

Nutritional Analysis for McDonald's Menu Dataset

Introduction:

The task involves analyzing the nutritional content of McDonald's menu items using the given dataset. The primary objectives are to preprocess the data, derive insights through visualization, and propose strategies to promote healthier choices.

Data Preprocessing:

Techniques Used:

- **Interquartile Range (IQR):** Used to detect and manage outliers in the dataset.

```
Q1 = mcd_df['Calories'].quantile(0.25)
Q3 = mcd_df['Calories'].quantile(0.75)
IQR = Q3 - Q1
```

```
lower_bound = Q1 - 1.5 * IQR
upper_bound = Q3 + 1.5 * IQR
```

- **Capping Method:** Applied to handle extreme outlier values and normalize the dataset.

```
Mcd_df['Calories'] = np.where(df['Calories'] > upper_bound, upper_bound,
mcd_df['Calories'])
Mcd_df['Calories'] = np.where(df['Calories'] < lower_bound, lower_bound,
mcd_df['Calories'])
```

Dataset Context:

The dataset provides a nutrition breakdown of the US McDonald's menu, including items like breakfast options, beef burgers, chicken and fish sandwiches, fries, salads, beverages, milkshakes, and desserts.

Key Attributes:

- Nutritional content such as calories, protein, carbohydrates, fat, sodium, etc.
- Categories spanning sandwiches, beverages, and desserts.

Purpose:

To inform both the franchise and its customers about nutritional values while promoting uniform food quality and healthier choices.

Visualizations Using Power BI:

1. Overview Dashboard

- Total number of menu items.
-
- Summary of key nutritional statistics.

2. Caloric Analysis

- **Charts Used:** Bar charts, pie charts, heat maps.
- Highlights calorie distribution across different menu categories.

3. Beverage Contribution

- Comparative visualizations for sodas, coffees, and other beverages.
- Analyzes their contribution to total caloric intake.

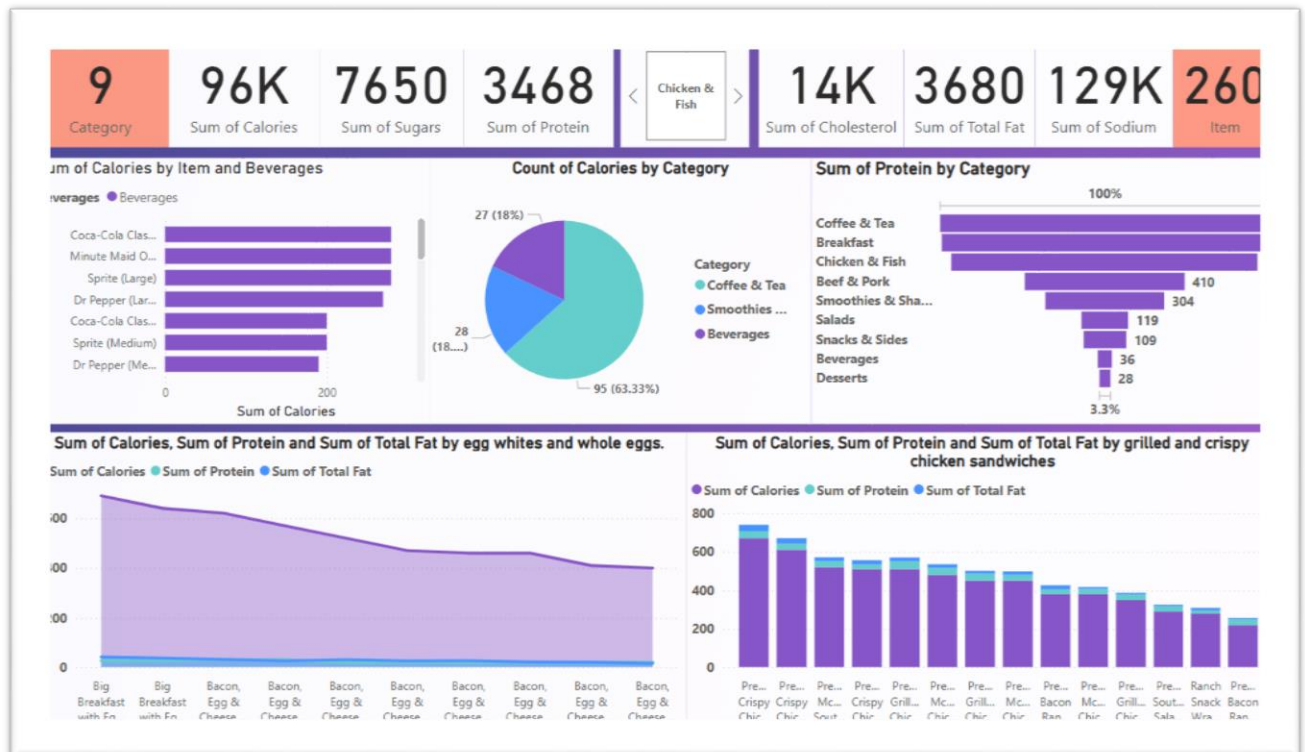
4. Nutritional Comparisons

- Evaluations between:
 - Grilled vs. crispy chicken sandwiches.

- Egg whites vs. whole eggs.

5. Optimal Menu Selection

- Developed an interactive dashboard identifying the least number of items required to meet one day's nutritional requirements.



Strategic Recommendations:

Customer Awareness:

- 1) Develop informative menu labeling to highlight calories, sodium, and other key nutrients.
- 2) Use visual aids like traffic light indicators (Green: Healthy, Yellow: Moderate, Red: High) for better decision-making.
- 3) Launch health-focused initiatives, such as meal recommendations based on dietary preferences (low-carb, high-protein, etc.)

Menu Optimization:

- a) Introduce healthier alternatives, such as grilled over fried items and lower-calorie beverages.
- b) Adjust portion sizes for high-calorie items to promote balanced consumption. Optimize combo meals to offer nutrient-rich yet calorie-controlled options.

Marketing Campaigns:

- a) Promote health-conscious meals through targeted advertising and loyalty programs.
- b) Highlight seasonal or limited-time healthy menu items to encourage customer engagement.
- c) Leverage social media and influencer marketing to emphasize nutrition-driven choices.

These strategies can enhance customer satisfaction, promote healthier choices, and align McDonald's offerings with evolving consumer preferences.