**McDonald's Menu Nutritional Analysis – Project**

**DOCUMENTATION**

**Following are the steps that I have followed in the Analysis and Reporting**

**1. Data Collection and Pre Processing:-**

* Downloaded the Nutrical Dataset
* Cleaned the Data and handled the missing values if any.

**2. Exploratory Data Analysis:-**

* Analysed the distribution of calorie counts across menu items.
* Explored the nutritional content (e.g., fat, protein, carbohydrates) of different items.
* Identified trends and patterns in the dataset.

**3. Data Visualization:-**

* Created bar charts, histograms, and box plots to visualize calorie distribution and nutritional content.
* Compared nutritional characteristics of different food categories (e.g., burgers, salads, desserts).
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**4. Nutrition-Based Insights:-**

* Identified menu items with the highest and lowest calorie counts.
* Determined the average nutritional content of popular menu categories.

**5. Documentation and Reporting:-**

* Summarized the findings and insights from the analysis.
* Explained how the nutritional analysis could benefit McDonald's customers and the organization.

Summary of Findings

McDonald's is a global fast-food chain founded in 1940, known for its iconic burgers, fries, and shakes. It is famous for its consistent quality, affordability, and fast service, making it a go-to choice for millions worldwide. Its branding, like the Golden Arches and the Big Mac, has become cultural symbols of fast food.

The McDonald's Nutritional Description Dataset provides detailed information about the nutritional content of various menu items.

Each item includes its name, serving size, and detailed nutritional information, such as calories, fat, carbohydrates, protein, and more. For example, for items like burgers or fries, you can view their calorie content, fat levels, and other essential nutritional facts.

Most menu items contain protein ranging from 0-20 grams, carbohydrates between 30-70 grams, total fat within 0-20 grams, sugar levels from 0-8 grams, and calories between 185-285. This ensures compliance with food regulatory standards.

Nutritional data allows customers to tailor their orders to suit their dietary preferences and needs. Offering detailed nutritional information educates customers about the health benefits of products, fostering better engagement and loyalty. It also aids in developing new products that cater to specific dietary requirements, such as low-calorie, low-sugar, or high-protein options. Clear and comprehensive nutritional details contribute to business growth and serve as a valuable resource for those interested in the nutritional content of McDonald's menu items.

Challenges Faced during Analysis

**Data Quality and Consistency**

* **Inconsistencies and Missing Values**: Nutritional datasets often contain missing or inconsistent values, making it challenging to address these gaps and maintain data consistency across all items.
* **Data Cleaning**: This process involves identifying and rectifying (or eliminating) inaccurate records in the dataset. It is time-intensive and demands meticulous attention.

**Removing Outlier**

* The primary challenge I encountered while analysing the dataset was removing outliers. The dataset contained numerous dimensions essential for analysis, including variables like calories, fat, and protein, many of which had outliers that could skew the analysis.
* Outliers can significantly influence statistical results and visualizations, often distorting them. The decision to remove an outlier must carefully assess its impact on the analysis.
* However, removing outliers can sometimes result in the loss of valuable information, as some may represent valid data points that offer critical insights into extreme dietary patterns or specific menu items.

**Tools & Technology used in the Analysis.**

The tools and technology used for analyzing the McDonald's nutritional dataset are as follows:-

I used Python for analyzing this data and Various Python libraries**.**

* **Jupyter Notebook**

Purpose: Interactive Computing Environment. Jupyter Notebook is a free, open-source web application that enables users to create and share documents incorporating live code, equations, visualizations, and descriptive text.

* **Libraries used:**

1. Pandas

* Purpose: Data manipulation and analysis.

2. Matplotlib:

Purpose: Data visualization

3. Seaborn:

* Purpose: Interactive computing environment.

4. NumPy:

* Purpose: Numerical computing and statistics.