**MCD LOG REPORT**

## **DATA EXPLORATION**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column name | Description | Data type | units | Potential value | Significance | Precautions |
| Category | Type of food | String | Text | Beef & Pork, Beverages, Breakfast  … Snacks & Sides | To decide which type of food product it is. | NA |
| Item | Food product name | String | Text | Apple Slice, Baked Apple Pie … Vanilla Shake (Small) | Name of the food product | NA |
| Total Calories | Calories per serving | int | Cal | 0 – 1880 C | Tells how much calorie intake a person has for each food item | Weight gain & obesity |
| Calories from fat | Calories which come from Fats | int | Cal | 0 – 1060 C | Tells energy contribution of fat in food item | Weight gain & obesity |
| Total fat | indicates how much fat is in single serving of food | int | Gram | 0 – 118 | To decide the level of the amount of fat taken | imbalanced nutrition and health risks. |
| Total fat %DV | Total amount of fat in relation to the recommended daily intake | int | Percent | 0 – 182 | indicates fat content's contribution to daily dietary goals. | imbalanced nutrition and health risks. |
| Saturated fat | Quantity of saturated fats in the food item. | int | Gram | 0 – 575 | Saturated fats are needed in moderation for cell structure and hormone production. | High intake can raise LDL cholesterol levels and increase heart disease risk |
| Saturated fat %DV | Proportion of saturated fats relative to daily recommended intake. | Int | Percent | 0 – 20 | Assesses saturated fat's impact on overall dietary intake. | High intake can raise LDL cholesterol levels and increase heart disease risk |
| Trans fat | Amount of trans fats present | Int | Gram | 0 – 3 | Indicates the presence of unhealthy trans fats, which should be limited. | can raise LDL cholesterol and increase heart disease risk. |
| Cholesterol | Content of cholesterol in the food item. | Int | Gram | 0 – 0.575 | Provides insight into cholesterol intake from diet. | High dietary cholesterol intake can contribute to heart disease risk |
| Cholesterol %DV | Cholesterol's contribution to daily recommended intake. | Int | Percent | 0 – 192 | Cholesterol is important for cell membranes and hormone production. | High dietary cholesterol intake can contribute to heart disease risk |
| Sodium | Sodium content in the food. | Int | Gram | 0 – 3.6 | Reveals salt content's impact on overall sodium intake. | High intake can contribute to elevated blood pressure and related health issues. |
| Sodium %DV | Sodium's proportion relative to daily recommendations. | int | percent | 0 – 150 | Sodium is essential for fluid balance and nerve function. | High intake can contribute to elevated blood pressure and related health issues. |
| Carbohydrates | total carbohydrates in the food. | Int | Gram | 0 – 141 | Key energy source and relevant for carbohydrate-sensitive diets. | Excessive carb intake, especially from refined sources, can lead to weight gain and blood sugar spikes. |
| Carbohydrates %DV | Carbohydrates' contribution to recommended daily intake | Int | % | 0 – 47 | Balanced intake supports energy needs. | Overconsumption can contribute to obesity and disrupted blood sugar levels |
| Dietary fibre | Amount of dietary fibre present. | Int | Gram | 0 – 7 | Fiber aids digestion, regulates blood sugar, and supports heart health. | Excessive fiber intake may cause digestive issues. |
| Dietary fibre %DV | Dietary fibre’s contribution to daily recommendations | Int | % | 0 – 28 | Adequate fiber intake supports digestive health. | Excessive fiber intake may cause digestive issues. |
| Sugars | Quantity of sugars | Int | Gram | 0 – 128 | Natural sugars in whole foods provide energy. | can contribute to obesity, diabetes, and heart disease. |
| Protein | Protein content | Int | Gram | 0 – 87 | Protein is essential for building tissues and enzymes | High protein intake, can strain kidneys and liver. |
| Vit A %DV | Proportion of Vitamin A relative to daily recommendations. | Int | % | 0 – 170 | Vitamin A supports vision, immune function, and skin health. | Toxicity |
| Vit C %DV | Vitamin C's contribution to daily recommended intake. | Int | % | 0 – 240 | Vitamin C supports immune system and antioxidant functions. | Digestive discomfort |
| Calcium %DV | Calcium's contribution to daily recommended intake. | Int | % | 0 – 70 | Calcium is vital for bone health and muscle function. | Kidney stones |
| Iron %DV | Iron's contribution to daily recommended intake. | Int | % | 0 – 40 | crucial for oxygen transport and energy production. | digestive upset and toxicity |

## **ASSUMPTIONS**

* The serving size closely aligns with McDonald's standard portions.
* The recommended daily intake adheres to the guidelines set forth by the **Australia New Zealand Food Standards Code (FSC)**, ensuring a well-informed and health-conscious approach to nutrition.
* Beware of the nutritional culprits: *Sodium, Trans Fat, Saturated Fat, Sugar, Cholesterol, and Total Fat*, which can tip the scales in the wrong direction.
* Embrace the goodness of: *Dietary Fiber, Calcium, Protein, Vitamins A and C, Iron*, and more, for a nourishing and balanced dining experience.

## **DATA CLEANING**

* No NAs
* No duplicates

## **DATA ANALYSIS**

OBJECTIVE

* With the increasing emphasis on health-conscious dining, consumers are seeking healthier options when dining out. In this exploratory data analysis project, the goal was to analyse McDonald's menu nutritional data to identify menu items that align with dietary guidelines and provide recommendations for individuals aiming to make nutritious choices.

GOALS

* Empowering customers to make health-conscious choices while enjoying a variety of delicacies.

QUESTIONS

* **Which of the item is the least & most harmful to health from each category?**
  + Food items with higher amount of trans fat, saturated fat, sodium, sugar, cholesterol and total fat are considered to be harmful to health
  + Least
    - Breakfast – hash brown
    - Beef and pork – hamburger 🍔
    - Beverage – water & diet soda drinks
    - Chicken and fish – Chicken McNuggets (4pcs)
    - Coffee and Tea – medium Iced tea and Coffee
    - Desserts – kids ice cream cone/ oatmeal raisin cookie
    - Salads – premium southwest salad without chicken
    - Smoothies & Shakes – blueberry pomegranate (small) / strawberry banana (small) smoothie
    - Snacks and sides – side salad 🥗 / apple slices
  + Most
    - Breakfast – Big Breakfast (With Hotcakes)
    - Beef and pork – double quarter pounder with cheese
    - Beverages – large soda drinks
    - Chicken and fish – Chicken McNuggets ( 40 pcs)
    - Coffee and Tea – Large Frappe
    - Desserts – hot fudge sundae
    - Salads – Premium Southwest Salad with Crispy Chicken
    - Smoothies & Shakes – McFlurry with M&M’s candies (medium)
    - Snacks and sides – ranch snack wrap/ chipotle BBQ snack wrap
* **Which of the item should be avoided or should be taken rarely from each category?**
  + Beef and pork: (double) quarter pounder (with cheese/bacon), bacon clubhouse burger
  + Beverages: Large sodas
  + Breakfast: big breakfast with hotcakes (&egg whites) (large/regular biscuits),
  + Chicken and fish: chicken McNuggets (40/20 pcs), bacon clubhouse crispy chicken sandwich, premium McWrap southwest chicken
  + Coffee and tea: frappe chocolate chip/caramel/mocha (large & medium)
  + Deserts: sundaes
  + Salads: premium southwest salad (with chicken), premium bacon ranch salad🥗
  + Smoothies and shakes: McFlurry with M&M candies (medium), large shakes
  + Snacks and sides: ranch snack/chipotle BBQ snack wrap (crispy chicken)
* **Which Menu Item Offers the Highest Nutrient Density in Each Category?**
  + Beef and pork: hamburger, cheeseburger, McDouble 🍔
  + Beverages: diet Dr Pepper
  + Breakfast: fruit & maple oatmeal w/o brown sugar
  + Chicken and fish: premium McWrap chicken sweet chilli (grilled chicken)
  + Coffee and tea: non-fat latte
  + Deserts: baked apple pie
  + Salads: premium southwest salad (without chicken), premium bacon ranch salad🥗
  + Smoothies and shakes: mango pineapple smoothie/ strawberry banana smoothie
  + Snacks and sides: apple slices, side salad, French Fries
* **What Are the Top Choices for Low-Calorie Options in Each Category?**
  + Beef and pork: hamburger 🍔
  + Beverages: water and diet soda
  + Breakfast: hashbrown
  + Chicken and fish: chicken McNuggets (4/6 pcs)
  + Coffee and tea: coffee and iced tea
  + Deserts: kids ice cream cone/ oatmeal raisin cookie
  + Salads: premium bacon ranch salad 🥗
  + Smoothies and shakes: mango pineapple smoothie/ strawberry banana smoothie
  + Snacks and sides: apple slices
* **Which Items Are Good Sources of Dietary Fiber in Each Category?**
  + Beef and pork: bacon clubhouse burger 🍔
  + Beverages: fat free chocolate milk jug
  + Breakfast: big breakfast with hotcakes (and egg whites)
  + Chicken and fish: chicken McNuggets
  + Coffee and tea: Mocha, Iced Mocha & Latte with sugar free French vanilla syrup
  + Deserts: baked apple pie
  + Salads: premium southwest salad 🥗 (with chicken)
  + Smoothies and shakes: blueberry pomegranate smoothie
  + Snacks and sides: French fries
* **What Are the Lean Protein Options Available in Each Category?**
  + Beef and pork: hamburger 🍔
  + Beverages: minute maid orange juice (all sizes)
  + Breakfast: egg white delight
  + Chicken and fish: premium grilled chicken classic sandwich 🥪
  + Coffee and tea: non-fat latte
  + Deserts: hot caramel sundae
  + Salads: premium southwest salad with grilled chicken
  + Smoothies and shakes: McFlurry with Reese's Peanut Butter Cups (Medium)
  + Snacks and sides: side salad 🥗
* **Which Beverages Offer Hydration with Minimal Added Sugars?**
  + Dasani water bottle and diet beverages/ sodas
* **What Snack or Side Items Provide a Balanced Nutritional Profile?**
  + Side salad
  + Apple slices
  + Kids/ small French fries
  + Honey mustard snack wrap (grilled chicken)

## **FINDINGS**

* **Sodium Compliance:** A commendable 98.1% of the food items analysed adhere to recommended sodium intake levels, showcasing McDonald's commitment to providing balanced options.
* **Nutritional Balance:** A mere 0.4% of the menu items surpass recommended limits for protein and fat intake, underscoring the establishment's dedication to offering a diverse range of nutritious choices**.**
* **Sugar Moderation:** Approximately 96.2% of the menu items align with recommended sugar intake guidelines, indicating the availability of health-conscious selections for customers.
* **Caloric Insight:** The average caloric content of McDonald's menu items stands at 368 Calories, enabling diners to make informed decisions that align with their dietary goals.
* **Sodium Awareness:** With an average sodium content of 495.8 mg, customers gain valuable awareness of their salt intake, fostering mindful eating habits.
* **Fat Consideration:** The average fat content per serving is 14 grams, providing individuals with essential information to make balanced meal choices.
* **Sugar Awareness:** Averaging 29 grams of sugar, the menu empowers patrons with the data needed to make sugar-conscious selections.
* **Protein Provision:** On average, menu items offer 13 grams of protein, supporting dietary needs for tissue repair and overall well-being.

## **CONCLUSION**

Through this insightful analysis, it's clear that McDonald's is mindful of its menu choices. However, the power ultimately lies with you, the discerning diner, to make conscious and healthful decisions. While tempting treats like the 40-piece Chicken McNuggets may beckon, wiser choices beckon even louder. Sweet indulgences, too, demand your scrutiny, favouring options with less artificial sweetness. Amidst the protein-packed options, a prudent path awaits, steering clear of hidden pitfalls. Embrace the treasures of healthier nutrient combinations. 🌟💪🥗

Remember, each visit to the Golden Arches is an opportunity for culinary exploration. Make choices that resonate with your well-being and elevate your McDonald's experience. Together, we embark on a delectable journey, where flavour and nutrition harmoniously unite. Welcome to the brighter side of health-conscious dining! 🚀🍔🥦