

McDonald's Menu Nutritional Analysis

Submitted by:

Jasmine Fernandes

**INTRODUCTION**

* Business Problem Framing

With increasing health consciousness among the consumers, McDonald is trying to bring improvements to the menu. Fast food chains have faced a lot of flak for keeping unhealthy items on their menu and Mc Donalds does not want to lose on its market share

* Conceptual Background of the Domain Problem

The company is finding a new perspective to improve their menu. The aim is to analyse data and find insights on how McDonald's could improve the nutritional profile of their menu.

* Motivation for the Problem Undertaken

The motive behind this analysis to focusing on areas that can help incrementally improve the overall nutritional quality of McDonald's expansive menu. Some of them include promoting items with high nutritive value, using alternative sweeteners, simplifying ingredients, add items with healthy fats, introducing low sodium items on the menu. It will help customers make informed choices, highlights lower calorie options for McDonald's, allows customers to balance higher sodium items and shows McDonald's nutrition transparency.

**Analytical Problem Framing**

* Mathematical/ Analytical Modelling of the Problem
* The serving size column as data in different measurements oz as well as gm. For liquids, it is ml and fl oz and carton. The data had to be streamlined to one unit of measurement – ml(for liquids) and gms.
* There are many outliers , hence median was taken for visualizations instead of average to capture this type of data better, which had a range.
* Capping is the ideal method to remove outliers. I have used it for Calorie column
* There is no gender mentioned. According to the health organizations males consume more calories than females, females should consume 2000 calories whereas, males consume 2500 calories, because of the gender not mentioned. the thresholds is taken to be 2500 calories as an average, which can impact accuracy, especially when determining thresholds(for example dividing data into high sodium levels and low sodium levels), especially for bad nutrients such as cholesterol, sodium, saturated fat, etc.
* Data Sources and their formats

Following formats are used:

* Scatter plots
* Correlation plot
* Bokeh plots
* Joint plots
* Skewness table
* Box plots
* Reset index
* Used histogram to view distribution of all the numeric variables

Libraries Used:

* Data Processing

Following steps are used for data cleaning:

1. All units were centralised for serving size columns. The column data type was changed from object to float. Another numeric serving size column was created and the old one was discarded.

**2. Used groupby function to get top 10 items for all nutrients**

2.1 These are the top 10 items with **most saturated fat** in the menu

|  |  |
| --- | --- |
| McFlurry with M&M’s Candies (Medium) | 20.0 |
| Big Breakfast with Hotcakes (Large Biscuit) | 20.0 |
| Chicken McNuggets (40 piece) | 20.0 |
| Frappé Chocolate Chip (Large) | 20.0 |
| Double Quarter Pounder with Cheese | 19.0 |
| Big Breakfast with Hotcakes (Regular Biscuit) | 19.0 |
| Big Breakfast (Large Biscuit) | 18.0 |
| Frappé Mocha (Large) | 17.0 |
| Frappé Chocolate Chip (Medium) | 17.0 |
| Big Breakfast (Regular Biscuit) | 17.0 |

These are the top 10 items with **least saturated fat in** the menu

|  |  |
| --- | --- |
| Coca-Cola Classic (Large) | 0.0 |
| Nonfat Hazelnut Latte (Medium) | 0.0 |
| Nonfat Hazelnut Latte (Large) | 0.0 |
| Nonfat French Vanilla Latte (Small) | 0.0 |
| Nonfat French Vanilla Latte (Medium) | 0.0 |
| Nonfat French Vanilla Latte (Large) | 0.0 |
| Mango Pineapple Smoothie (Small) | 0.0 |
| Fat Free Chocolate Milk Jug | 0.0 |
| Minute Maid 100% Apple Juice Box | 0.0 |
| Dr Pepper (Small) | 0.0 |

2.2. Top 10 items with **most Trans fat**

|  |  |
| --- | --- |
| Double Quarter Pounder with Cheese | 2.5 |
| Quarter Pounder Deluxe | 1.5 |
| Quarter Pounder with Bacon & Cheese | 1.5 |
| Bacon Clubhouse Burger | 1.5 |
| Quarter Pounder with Bacon Habanero Ranch | 1.5 |
| Quarter Pounder with Cheese | 1.5 |
| Steak, Egg & Cheese Bagel | 1.5 |
| Frappé Caramel (Large) | 1.5 |
| Frappé Chocolate Chip (Large) | 1.5 |
| Vanilla Shake (Small) | 1.0 |

Top 10 items with **least Trans fat**

|  |  |
| --- | --- |
| 1% Low Fat Milk Jug | 0.0 |
| McFlurry with Oreo Cookies (Snack) | 0.0 |
| McFlurry with Reese's Peanut Butter Cups (Snack) | 0.0 |
| McRib | 0.0 |
| Medium French Fries | 0.0 |
| Minute Maid 100% Apple Juice Box | 0.0 |
| Minute Maid Orange Juice (Large) | 0.0 |
| Minute Maid Orange Juice (Medium) | 0.0 |
| Minute Maid Orange Juice (Small) | 0.0 |
| Mocha (Medium) | 0.0 |

2.3. Top 10 items with **maximum calories**

|  |  |
| --- | --- |
| Chicken McNuggets (40 piece) | 1880 |
| Big Breakfast with Hotcakes (Large Biscuit) | 1150 |
| Big Breakfast with Hotcakes (Regular Biscuit) | 1090 |
| Big Breakfast with Hotcakes and Egg Whites (Large Biscuit) | 1050 |
| Big Breakfast with Hotcakes and Egg Whites (Regular Biscuit) | 990 |
| Chicken McNuggets (20 piece) | 940 |
| McFlurry with M&M’s Candies (Medium) | 930 |
| Chocolate Shake (Large) | 850 |
| Strawberry Shake (Large) | 850 |
| Shamrock Shake (Large) | 820 |

Top 10 items with **least calories**

|  |  |
| --- | --- |
| Diet Dr Pepper (Child) | 0 |
| Diet Dr Pepper (Small) | 0 |
| Diet Dr Pepper (Medium) | 0 |
| Iced Tea (Child) | 0 |
| Iced Tea (Large) | 0 |
| Iced Tea (Medium) | 0 |
| Diet Coke (Small) | 0 |
| Coffee (Large) | 0 |
| Iced Tea (Small) | 0 |
| Diet Dr Pepper (Large) | 0 |

2.4. Top 10 items with most cholesterol

|  |  |
| --- | --- |
| Big Breakfast with Hotcakes (Regular Biscuit) | 575 |
| Big Breakfast with Hotcakes (Large Biscuit) | 575 |
| Big Breakfast (Large Biscuit) | 555 |
| Big Breakfast (Regular Biscuit) | 555 |
| Steak & Egg McMuffin | 300 |
| Steak, Egg & Cheese Bagel | 295 |
| Sausage McMuffin with Egg | 285 |
| Steak & Egg Biscuit (Regular Biscuit) | 280 |
| Bacon, Egg & Cheese Bagel | 275 |
| Chicken McNuggets (40 piece) | 265 |

Top 10 items with least cholesterol

|  |  |
| --- | --- |
| Coca-Cola Classic (Child) | 0 |
| Diet Dr Pepper (Large) | 0 |
| Large French Fries | 0 |
| Dr Pepper (Small) | 0 |
| Dr Pepper (Medium) | 0 |
| Dr Pepper (Large) | 0 |
| Dr Pepper (Child) | 0 |
| Minute Maid Orange Juice (Small) | 0 |
| Minute Maid Orange Juice (Medium) | 0 |
| Minute Maid Orange Juice (Large) | 0 |

2.5 Top 10 items **with most Sodium**

|  |  |
| --- | --- |
| Chicken McNuggets (40 piece) | 3600 |
| Big Breakfast with Hotcakes and Egg Whites (Large Biscuit) | 2290 |
| Big Breakfast with Hotcakes (Large Biscuit) | 2260 |
| Big Breakfast with Hotcakes and Egg Whites (Regular Biscuit) | 2170 |
| Big Breakfast with Hotcakes (Regular Biscuit) | 2150 |
| Chicken McNuggets (20 piece) | 1800 |
| Bacon Clubhouse Crispy Chicken Sandwich | 1720 |
| Big Breakfast with Egg Whites (Large Biscuit) | 1700 |
| Big Breakfast (Large Biscuit) | 1680 |
| Big Breakfast with Egg Whites (Regular Biscuit) | 1590 |

Top 10 items with least Sodium

|  |  |
| --- | --- |
| Coca-Cola Classic (Child) | 0 |
| Minute Maid Orange Juice (Small) | 0 |
| Minute Maid Orange Juice (Medium) | 0 |
| Coca-Cola Classic (Small) | 0 |
| Coffee (Medium) | 0 |
| Coffee (Small) | 0 |
| Dasani Water Bottle | 0 |
| Coffee (Large) | 0 |
| Apple Slices | 0 |
| Iced Tea (Child) | 5 |

2.6 Top 10 items with most Carbohydrates.

|  |  |
| --- | --- |
| Chocolate Shake (Large) | 141 |
| Strawberry Shake (Large) | 140 |
| McFlurry with M&M’s Candies (Medium) | 139 |
| Vanilla Shake (Large) | 135 |
| Shamrock Shake (Large) | 135 |
| Chicken McNuggets (40 piece) | 118 |
| Big Breakfast with Hotcakes (Large Biscuit) | 116 |
| Big Breakfast with Hotcakes and Egg Whites (Large Biscuit) | 115 |
| McFlurry with Reese's Peanut Butter Cups (Medium) | 114 |
| Chocolate Shake (Medium) | 114 |

Top 10 items with least Carbohydrates.

|  |  |
| --- | --- |
| Iced Tea (Child) | 0 |
| Coffee (Large) | 0 |
| Diet Dr Pepper (Small) | 0 |
| Diet Dr Pepper (Medium) | 0 |
| Diet Dr Pepper (Large) | 0 |
| Diet Dr Pepper (Child) | 0 |
| Iced Tea (Large) | 0 |
| Iced Tea (Small) | 0 |
| Diet Coke (Medium) | 0 |
| Diet Coke (Small) | 0 |

2.7 Top 10 items with most Dietary Fiber

|  |  |
| --- | --- |
| Premium Southwest Salad with Grilled Chicken | 7 |
| Big Breakfast with Hotcakes (Large Biscuit) | 7 |
| Premium Southwest Salad with Crispy Chicken | 7 |
| Big Breakfast with Hotcakes and Egg Whites (Large Biscuit) | 7 |
| Big Breakfast with Hotcakes and Egg Whites (Regular Biscuit) | 6 |
| Chicken McNuggets (40 piece) | 6 |
| Premium Southwest Salad (without Chicken) | 6 |
| Big Breakfast with Hotcakes (Regular Biscuit) | 6 |
| Premium McWrap Southwest Chicken (Crispy Chicken) | 5 |
| Blueberry Pomegranate Smoothie (Large) | 5 |

Top 10 items with least Dietary Fiber

|  |  |
| --- | --- |
| 1% Low Fat Milk Jug | 0 |
| Iced Coffee with Sugar Free French Vanilla Syrup (Medium) | 0 |
| Iced Coffee with Sugar Free French Vanilla Syrup (Large) | 0 |
| Iced Caramel Mocha (Small) | 0 |
| Hot Caramel Sundae | 0 |
| Hazelnut Iced Coffee (Small) | 0 |
| Hazelnut Iced Coffee (Medium) | 0 |
| Hazelnut Iced Coffee (Large) | 0 |
| French Vanilla Iced Coffee (Small) | 0 |
| French Vanilla Iced Coffee (Medium) | 0 |

2.8 Top 10 items with most Sugar

|  |  |
| --- | --- |
| McFlurry with M&M’s Candies (Medium) | 128 |
| Strawberry Shake (Large) | 123 |
| Chocolate Shake (Large) | 120 |
| Shamrock Shake (Large) | 115 |
| McFlurry with Reese's Peanut Butter Cups (Medium) | 103 |
| Vanilla Shake (Large) | 101 |
| Strawberry Shake (Medium) | 100 |
| Frappé Chocolate Chip (Large) | 99 |
| Chocolate Shake (Medium) | 97 |
| Shamrock Shake (Medium) | 93 |

Top 10 items with least Sugar

|  |  |
| --- | --- |
| Medium French Fries | 0 |
| Coffee (Large) | 0 |
| Coffee (Medium) | 0 |
| Coffee (Small) | 0 |
| Dasani Water Bottle | 0 |
| Diet Coke (Child) | 0 |
| Diet Coke (Large) | 0 |
| Diet Coke (Medium) | 0 |
| Diet Coke (Small) | 0 |
| Diet Dr Pepper (Child) | 0 |

2.9 Top 10 items with **most protein**

|  |  |
| --- | --- |
| McFlurry with M&M’s Candies (Medium) | 128 |
| Strawberry Shake (Large) | 123 |
| Chocolate Shake (Large) | 120 |
| Shamrock Shake (Large) | 115 |
| McFlurry with Reese's Peanut Butter Cups (Medium) | 103 |
| Vanilla Shake (Large) | 101 |
| Strawberry Shake (Medium) | 100 |
| Frappé Chocolate Chip (Large) | 99 |
| Chocolate Shake (Medium) | 97 |
| Shamrock Shake (Medium) | 93 |

Top 10 items with **least protein**

|  |  |
| --- | --- |
| Coca-Cola Classic (Small) | 0 |
| Dr Pepper (Medium) | 0 |
| Dr Pepper (Large) | 0 |
| Dr Pepper (Child) | 0 |
| Iced Tea (Child) | 0 |
| Iced Tea (Large) | 0 |
| Iced Tea (Medium) | 0 |
| Minute Maid 100% Apple Juice Box | 0 |
| Coca-Cola Classic (Child) | 0 |
| Coca-Cola Classic (Large) | 0 |

2.10 Top 10 items with most Vitamin\_C

|  |  |
| --- | --- |
| Minute Maid Orange Juice (Large) | 240 |
| Minute Maid Orange Juice (Medium) | 160 |
| Apple Slices | 160 |
| Fruit & Maple Oatmeal without Brown Sugar | 130 |
| Fruit & Maple Oatmeal | 130 |
| Minute Maid Orange Juice (Small) | 130 |
| Minute Maid 100% Apple Juice Box | 100 |
| Large French Fries | 70 |
| Strawberry Banana Smoothie (Large) | 45 |
| Medium French Fries | 45 |

Top 10 items with least Vitamin\_C

|  |  |
| --- | --- |
| Iced Nonfat Caramel Mocha (Large) | 0 |
| Iced Tea (Child) | 0 |
| Iced Tea (Large) | 0 |
| Iced Tea (Medium) | 0 |
| Iced Tea (Small) | 0 |
| Kids Ice Cream Cone | 0 |
| Latte (Large) | 0 |
| Latte (Medium) | 0 |
| Latte (Small) | 0 |
| Latte with Sugar Free French Vanilla Syrup (Large) | 0 |

2.10 Top 10 items with most Vitamin A %

|  |  |
| --- | --- |
| Premium Southwest Salad with Crispy Chicken | 170 |
| Premium Southwest Salad with Grilled Chicken | 170 |
| Premium Bacon Ranch Salad (without Chicken) | 170 |
| Premium Southwest Salad (without Chicken) | 160 |
| Premium Bacon Ranch Salad with Grilled Chicken | 110 |
| Premium Bacon Ranch Salad with Crispy Chicken | 100 |
| Premium McWrap Southwest Chicken (Grilled Chicken) | 70 |
| Premium McWrap Chicken & Bacon (Crispy Chicken) | 60 |
| Premium McWrap Chicken & Bacon (Grilled Chicken) | 60 |
| Premium McWrap Chicken & Ranch (Crispy Chicken) | 60 |

Top 10 items with least Vitamin A %

|  |  |
| --- | --- |
| 1% Low Fat Milk Jug | 0 |
| Latte (Small) | 0 |
| Latte (Medium) | 0 |
| Kids Ice Cream Cone | 0 |
| Iced Tea (Small) | 0 |
| Iced Tea (Medium) | 0 |
| Iced Tea (Large) | 0 |
| Iced Tea (Child) | 0 |
| Vanilla Shake (Medium) | 0 |
| Iced Coffee with Sugar Free French Vanilla Syrup (Small) | 0 |

EDA

1. **Smoothies & Shakes category** has the highest calories - 550 calories, whereas **Beverages** has about 100 calories

A bar graph with blue and white bars

Description automatically generated

2. Beverages category has the lowest saturated fat, whereas Breakfast category has the highest saturated fat

A bar graph with blue and white text

Description automatically generated

3. Beverages category has the lowest cholesterol, whereas Beef and Pork category has the highest cholesterol content

A bar graph with blue bars

Description automatically generated

4. Beef and Pork category as well as the Breakfast categories has the highest fat content, whereas coffee & Tea category has the lowest fat content (high protein diet) Chicken & Fish category has the highest protein content whereas desserts has the lowest protein content (keto diet) Smoothies & shakes category has the highest carb content whereas salads category has the least carb among other categories

A graph of food items

Description automatically generated

5. **Good Nutrients (Iron, Calcium, Vitamin A, Vitamin C, Dietary Fibre):** Salads category has the most dietary fibre content. Smoothies & shakes category has the highest calcium content whereas desserts has the least calcium content

Beef & Pork has the highest iron category whereas desserts category and Smoothies & Shakes has the lowest

A graph of food items

Description automatically generated

**6. Bad Nutrients group: (Calories', 'Cholesterol', 'Sugars', 'Trans Fat', 'Saturated Fat', 'Sodium', 'Carbohydrates')**

A graph of blue rectangular bars

Description automatically generated with medium confidence

The unhealthiest category is Smoothies and Shakes, while beverage is the healthiest.

**IDENTIFYING RELATIONS**

**1.** The maximum sodium intake should not exceed 1500 mg as per However, the American Heart Association (AHA). so we will find the high sodium intake items that exceed 1500 mg

**The query function is used to set low and high sodium categories.(above and below the 1500 mg threshold**

A screenshot of a computer program

Description automatically generated

**Used the Bokeh feature for visualization**

**Tooltips: Item, Category, Numeric Serving Size, Iron**

**A screenshot of a computer screen

Description automatically generated**

* There is a clear linear relationship between high sodium intake (above 1500 mg) and calories. As the sodium intake increases, so does the calories.
* However, we can see a disruption between low sodium levels (140 mg - 400mg), we suddenly see a spike in calories. Let us investigate further.
* We can also observe there seems to be a relation between iron and sodium as well as Sodium and Protein/Total fat.
* This disruption is for items in the Smoothies and Shakes category and Tea/Coffee category. Items in these two categories seem to have low sodium, but high calories. The spike is only for these two categories. Also, most items are large.
* Hence, after examining the serving size, we can see most of these items have a serving size of above 350 ml and all of them are beverages in these 3 categories.

A graph of calories and fat

Description automatically generated

A graph of a number of blue and white bars

Description automatically generated with medium confidence,

A graph of different sizes of blue and white squares

Description automatically generated with medium confidence

As we can see Sodium also has a relationship with protein and Calories from fat

2. ANALYSING sugar content

American Heart Association (AHA) and the World Health Organization (WHO), it's generally advised to limit added sugar intake to no more than 25 grams (6 teaspoons) per day for women and 36 grams (9 teaspoons) per day for men. So, as gender is not mentioned, we will take anything above 36 gm as high sugar intake

A computer screen shot of text

Description automatically generated

**Note: Same method to cap for high sugar level**

**Used the Bokeh feature for data visualization**

**Tooltips:** Item, Category, Calories from fat, Carbohydrates

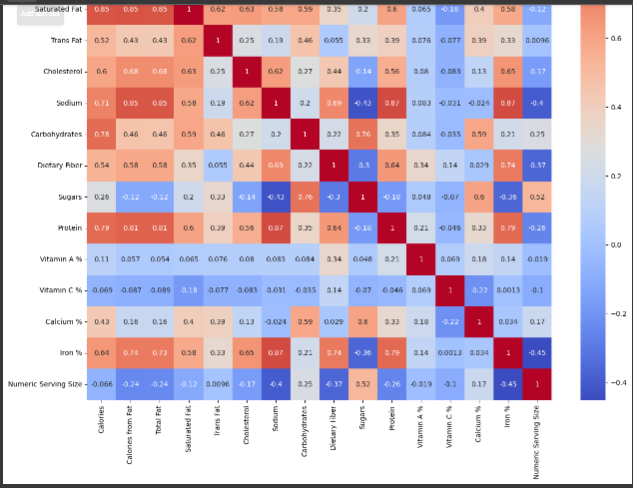
**A screenshot of a graph

Description automatically generated**

A graph of sugar and carbohydrates

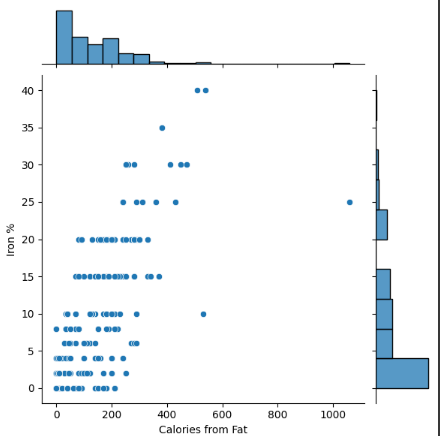
Description automatically generated

**3. Correlation Matrix**



Calories from fat & Iron, Calories from fat & Sodium, Total fat & Iron, Sodium & Iron, Protein & Iron, Protein & Calories, Protein & Sodium, Protein & Total fat, Protein & Calories from fat, Sugar & Carbs, Dietary fibre and Iron, Carbs & Calories, Sodium & Calories, Sodium & Total Fat, Total fat & calories, Saturated fat & calories, saturated fat & Total Fat, Saturated fat & calories from fat, Calories from fat and Calories

i. There is not a very strong relation between Calories from fat and Iron



**ii. There is not a strong relation between Iron % and Total Fat**

A graph of a number of blue and white bars

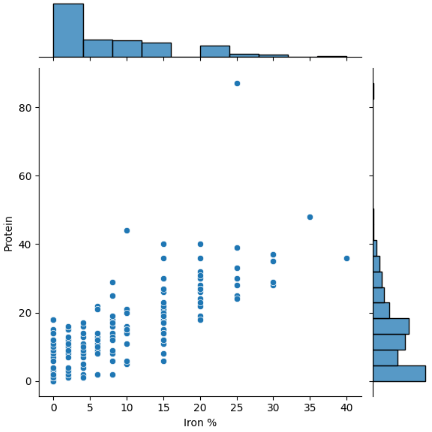
Description automatically generated with medium confidence

**iii. There is a correlation between Calories in Fat and sodium**

A graph of calories and fat

Description automatically generated

**iv. There is a relationship between Protein and Iron %**



**v. There is a correlation between Calories and Protein**

A graph of calories and protein

Description automatically generated

**vi. There is a relationship between Protein and Total fat**

A graph of fat and protein

Description automatically generated

**Vii. There is a relationship between Protein and Calories from fat**

A graph of calories and protein

Description automatically generated

**viii. There is a correlation between Protein and calories form fat**

A graph of calories and fat

Description automatically generated

**ix. There is a correlation between Calories and Carbohydrates**

A graph of a number of blue and white bars

Description automatically generated with medium confidence

**x. There is a relationship between Sodium and Calories**

A graph of different sizes and colors

Description automatically generated with medium confidence

**xi. There is a relationship between Calories and Total fat**

A graph of fats and calories

Description automatically generated

**xi. There is a relationship between Calories and Saturated fat**

A graph of calories and fat

Description automatically generated

**Xiii. There is a relationship between Saturated Fat and Calories from fat**

A graph of calories from fat

Description automatically generated

**xiv. There is a relationship between Calories and Calories from fat**

A graph of calories and calories

Description automatically generated

**Analysing Total fat % and calories**

According to the Dietary Guidelines for Americans, it is recommended that adults get 20% to 35% of their daily calories from fat.

A threshold for anything above 35% is considered to be high fat %. I have created a threshold for low and high fat levels

**Note: Taken median as outliers in the dataset and median would work better instead of mean**

Also as we have seen in the correlation plot, following columns have a correlation with Total Fat %, which will be rechecked with joint plot and included as tool tip in boke plots:

**Calories and Total fat %, Iron % and Total fat %, Protein and Total fat %, Sodium and Total fat %, Saturated Fat and Total fat %**

A screenshot of a computer program

Description automatically generated

A screenshot of a computer code

Description automatically generated

**A graph with blue dots

Description automatically generated**

There is a strong relation between calories and Total fat %. Saturated fat, Calories from fat, Cholesterol(to some extent) increases as the total fat % increases with calories. The serving size of the item also has an impact on the increase in total fat % and calories.

The Chicken McNuggets(40 piece) has the largest Total fat %. It has 1060 calorie from fat, 20 % saturated fat and 265 cholesterol, whereas the lowest is Coffee(small, medium, large) , apple slices and side salad with zero saturate fat, total fat, trans fat, cholesterol and calories

There is also a positive relation between Total Fat% and sodium. As the Total Fat % increases so does the sodium and calories. There is also a positive correlation between sodium and Calories as seen in the correlation plot. Hence this must also be taken into consideration.

OULIERS

***Following columns have outliers, hence have used median instead of mean throughout the dataset.***

Calories, Calories from fat, Total fat %, Total fat, Cholesterol, Cholesterol %, Sodium, Sodium %, Carbohydrates, carbohydrate %, Sugars, Pritein, Vitamin A %, Vitamin C %, Calcium %, Iron % and Numeric serving size

A group of blue rectangular bars

Description automatically generated

A group of blue rectangular objects

Description automatically generated with medium confidence

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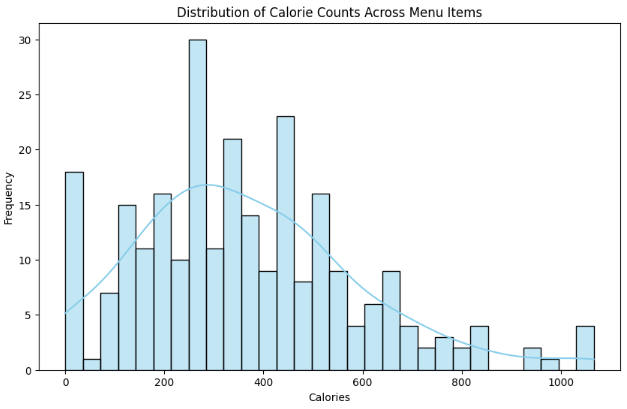
**Have used capping method for Calories column to view the distribution.**

**Before capping for outliers**

A graph of calorie count

Description automatically generated

**After capping for 99 percentile**



**Correlation matrix for Calories**

Following columns were highly correlated (used df.skew())

**Calories\_Capped 1.000000**

**Calories 0.978566**

**Saturated Fat % 0.867074**

**Saturated Fat 0.865395**

**Calories from Fat 0.862180**

**Total Fat 0.861818**

**Total Fat % 0.861317**

**Carbohydrates % 0.799012**

**Carbohydrates 0.798879**

**Protein 0.751058**

**INSIGHTS**

1. The category with most calories is Smoothies and shakes, whereas the category with least calories is Beverage

2. Following items in **the lunch/dinner/main course category (which is Beef and Pork & Chicken & fish** with high sodium and high calories as well as low sodium and low calorie

**Top 3 High calorie and high sodium items in Beef & category:**

- Bacon Clubhouse Burger: 720 Calories, 1470 mg Sodium

- Quarter Pounder with Bacon & Cheese: 600 Calories, 1440 mg Sodium

- Double Quarter Pounder with Cheese: 750 Calories, 1280 mg Sodium

**Low calorie and low sodium item option in Beef & category:**

- Hamburger: 240 Calories, 480 mg Sodium

**Top 2 High calorie and high sodium items in Chicken & Fish category:**

- Chicken McNuggets (40 piece): 1880 Calories, 3600 mg Sodium

- Chicken McNuggets (20 piece): 940 Calories, 1800 mg Sodium

**Low calorie and low sodium item options in Chicken & Fish category:**

Chicken McNuggets (4 piece): 190 Calories, 360 mg Sodium

Chicken McNuggets (6 piece): 280 Calories, 540 mg Sodium

**Top 5 Low calorie and low carbohydrate options in Chicken (main course/lunch):**

McChicken: 360 Calories, 40 g Carbohydrates

Filet-O-Fish: 390 Calories, 39 g Carbohydrates

Chicken McNuggets (10 piece): 470 Calories, 30 g Carbohydrates

Chicken McNuggets (6 piece): 280 Calories, 18 g Carbohydrates

Chicken McNuggets (4 piece): 190 Calories, 12 g Carbohydrates

**Top 5 Low calorie and low carbohydrate options in Beef & Pork category (main course/**

**Lunch/dinner)**

Jalapeño Double: 430 Calories, 35 g Carbohydrates

McDouble: 380 Calories, 34 g Carbohydrates

Daily Double: 430 Calories, 34 g Carbohydrates

Cheeseburger: 290 Calories, 33 g Carbohydrate

Hamburger: 240 Calories, 32 g Carbohydrates

**3. Proportion of saturated fat to high sodium**

A graph of different types of food

Description automatically generated with medium confidence

**4. High calorie items in breakfast and Milkshake and Smoothies categories**

|  |  |  |
| --- | --- | --- |
| Breakfast | Big Breakfast with Hotcakes (Large Biscuit) | 1150 |
| Breakfast | Big Breakfast with Hotcakes (Regular Biscuit) | 1090 |
| Breakfast | Big Breakfast with Hotcakes and Egg Whites (Large) | 1050 |
| Breakfast | Big Breakfast with Hotcakes and Egg Whites | 990 |
| Smoothies & Shakes | McFlurry with M&M’s Candies (Medium) | 930 |
| Smoothies & Shakes | Strawberry Shake (Large) | 850 |
| Smoothies & Shakes | Chocolate Shake (Large) | 850 |
| Smoothies & Shakes | Shamrock Shake (Large) | 820 |

**Low calorie items in breakfast and Milkshake and Smoothies categories**

|  |  |  |
| --- | --- | --- |
| Smoothies & Shakes | Blueberry Pomegranate Smoothie (Medium) | 260 |
| Breakfast | Fruit & Maple Oatmeal without Brown Sugar | 260 |
| Smoothies & Shakes | Strawberry Banana Smoothie (Medium) | 250 |
| Breakfast | Egg White Delight | 250 |
| Smoothies & Shakes | Blueberry Pomegranate Smoothie (Small) | 220 |
| Smoothies & Shakes | Mango Pineapple Smoothie (Small) | 210 |

**5. Top 10 Low calorie desserts category (under 250 calories and low sugar)**

Sugar and Calorie Content for 'Desserts' Items (Sorted by Sugars):

- Chocolate Chip Cookie: 160 Calories, 15 g Sugars

- Baked Apple Pie: 250 Calories, 13 g Sugars

- Oatmeal Raisin Cookie: 150 Calories, 13 g Sugars

- Kids Ice Cream Cone: 45 Calories, 6 g Sugars

**6. Top 10 Beverages category - low cal and low sugar**

Diet Dr Pepper (Medium): 0 Calories, 0 g Sugars

- Diet Dr Pepper (Child): 0 Calories, 0 g Sugars

- Diet Dr Pepper (Large): 0 Calories, 0 g Sugars

- Diet Dr Pepper (Small): 0 Calories, 0 g Sugars

- Diet Coke (Child): 0 Calories, 0 g Sugars

- Diet Coke (Large): 0 Calories, 0 g Sugars

- Dasani Water Bottle: 0 Calories, 0 g Sugars

- Diet Coke (Small): 0 Calories, 0 g Sugars

- Diet Coke (Medium): 0 Calories, 0 g Sugars

-- 1% Low Fat Milk Jug: 100 Calories, 12 g Sugars

**7. Top 3 Smoothies and Shakes low cal (under 250 )**

- Blueberry Pomegranate Smoothie (Small): 220 Calories, 44 g Sugars

- Strawberry Banana Smoothie (Small): 210 Calories, 44 g Sugars

- Mango Pineapple Smoothie (Small): 210 Calories, 46 g Sugars

8. Chicken McNuggets (40 piece) has the most calories from Fat and Nonfat Latte (Medium) , Nonfat Latte (Small), Diet Coke (Child) , Dr Pepper (Small) , Coca-Cola Classic (Medium) has the lowest

**9. Top 5 breakfast menu items with the highest carbohydrate content:**

Big Breakfast with Hotcakes (Large Biscuit)

Big Breakfast with Hotcakes and Egg Whites

Big Breakfast with Hotcakes (Regular Biscuit)

Big Breakfast with Hotcakes and Egg Whites

Cinnamon Melts

**10. Low-calorie options within the Smoothies & Shakes category (under 300 cal)**

Blueberry Pomegranate Smoothie (Small) 220

Blueberry Pomegranate Smoothie (Medium) 260

Strawberry Banana Smoothie (Small) 210

Strawberry Banana Smoothie (Medium) 250

Mango Pineapple Smoothie (Small) 210

Mango Pineapple Smoothie (Medium) 260

**11. Items under 500 calories (Breakfast category)**

Egg McMuffin 300

Egg White Delight 250

Sausage McMuffin 370

Sausage McMuffin with Egg 450

Sausage McMuffin with Egg Whites 400

12. Non-carbonated healthier drink options under 20 gm sugar:

Minute Maid 100% Apple Juice Box 19 gm

**13. Unsweetened tea options**

Iced Tea (Small)

Iced Tea (Medium)

Iced Tea (Large)

Iced Tea (Child)

**14. Unsweetened coffee options**

Coffee (Small)

Coffee (Medium)

Coffee (Large)

**Summary & Recommendations**

* The menu has all items that mostly have carbohydrates under the threshold of 60% of the total calorie intake or 281 to 406 grams.
* Items that have high protein, low carbs and low fat are only 2 and under the salad category only. There is total 260 items on the menu. Items with such profiles should be increased under all categories.

|  |  |  |  |
| --- | --- | --- | --- |
| **Item(Category)** | **Protein** | **Fat** | **Carbohydrates** |
| Premium Bacon Ranch Salad with Grilled Chicken (Salad) | **29** | **8** | **8** |
| Premium Southwest Salad with Grilled Chicken (Salad) | **27** | **8** | **28** |

* The most popular category is Coffee & tea followed by breakfast. The least popular are the salads and desserts, hence there is a room for improvement in these categories.

**Coffee & Tea 95**

**Breakfast 42**

**Smoothies & Shakes 28**

**Beverages 27**

**Chicken & Fish 27**

**Beef & Pork 15**

**Snacks & Sides 13**

**Desserts 7**

**Salads 6**

* **Most Nutritive category**

Beverage category has the lowest calorie out of all categories. Salads category have the highest Vitamin A%, Vitamin C % and dietary fibre. Chicken & Fish as well as Beef and Pork have the highest iron % in spite of having the most calories.

Smoothies and Shakes category have the highest calcium.

Chicken and Fish has the highest protein.

Thus, we can conclude that Salads is one of the healthiest categories as it has a more balanced nutrients as compared to other categories – Vitamin A, Vitamin C and dietary fibre. Even though beverage has the lowest calories, it is one of the least healthy categories as it does not have much nutritive value.

**Note: Salads is the healthiest, but the least popular category on the menu.**

* Breakfast category has the highest sodium levels among all categories, whereas beverages has the lowest. Beef and Pork as well as the Breakfast categories have the highest fat content, the lowest being beverages. The highest calories is from the milkshake and smoothies category, the lowest being beverages.

**Note: It is to be noted that beverage is a fairly popular category with healthy options for consumers.**

* Breakfast category has the highest sodium levels among all categories, whereas beverages has the lowest. Beef and Pork as well as the Breakfast categories have the highest fat content, the lowest being beverages. The highest calories is from the milkshake and smoothies category, the lowest being beverages.

It is to be noted that beverage is a popular category with healthy options for consumers.

* **Zero Value Items**

i. There are 44 (out of 260 items) zero cholesterol items, most of them being from the beverage category followed by Coffee and Tea section. Most cholesterol items are in Breakfast and dessert category

A pie chart of food items

Description automatically generated

ii. There are 49 items (out of 260 items) with zero total fat, mainly in the Beverages, followed by Coffee & Tea. The other categories have no zero Total Fat items. Tea and Coffee has a good balance of low fat options and is the top performing category. One can categorize these items in Tea & Coffee as low fat – Tea & Coffee items separately to offer clear choices.

A pie chart with text on it

Description automatically generated

iii. There are 25 items (out of 260 items) with zero sugar, mainly in the Beverages, followed by Coffee & Tea. These items are found least in the breakfast category. Tea and Coffee has a good balance of low fat options and is the top performing category. One can categorize these items in Tea & Coffee as low fat /low sugar – Tea & Coffee items separately to offer clear choices. Same goes for beverage Category.

A pie chart with different colored circles

Description automatically generated

iv. There are 60 items (out of 260 items) with zero saturated fat, mainly in the Beverages, followed by Coffee & Tea. These items are found least in the snacks and sides category. However, there are no other categories that have items that are completely free of saturated fat.

A pie chart with text on it

Description automatically generated

v. There are 204 items (out of 260 items) with zero Coffee & Tea, mainly in the Beverages, followed by Breakfast. These items are found least in the Beef & Pork categories.

Note: Most items in the menu are Trans fat free, which is an upside.

A pie chart with text on it

Description automatically generated

* The smallest serve is the Kids Ice Cream Cone with 29 gm serving portion, whereas the highest is French Vanilla Iced Coffee (Large) , French Vanilla Iced Coffee (Large), Iced Coffee with Sugar Free French Vanilla Syrup, Hazelnut Iced Coffee (Large), Caramel Iced Coffee (Large) and Regular Iced Coffee (Large). All of these have 946.352 gm serving portion.
* There are 60 low-calorie, low sugar, low sodium, low fat options (below 200 calories). The total items are 260. The number of these items are 26% of the total menu items. Such items can be increased in the menu.