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INTRODUCTION

Statement of Purpose

To create intuitive visualizations that will allow all consumers, including diverse eaters such as vegetarians and health-conscious individuals, to make quick and informative choices about their meals

Methodology

In order to narrate our story, we divide our presentation into two parts and a total of 5 plots and lists:

- 1: Healthiness assessment of each restaurant and their menu items
 - Calorie distribution graph for each restaurant
 - Distribution of macro-nutrient balance scores for each menu item
 - Rankings of menu items with the best and worst balance scores
 - Clustering menu items based on their various features (beyond the macros)
- 2: Providing information for diverse consumers (vegetarians and pescetarians)
 - Key word analysis of menu items using word cloud
 - Finding which restaurant is more vegetarian and or pescetarian friendly

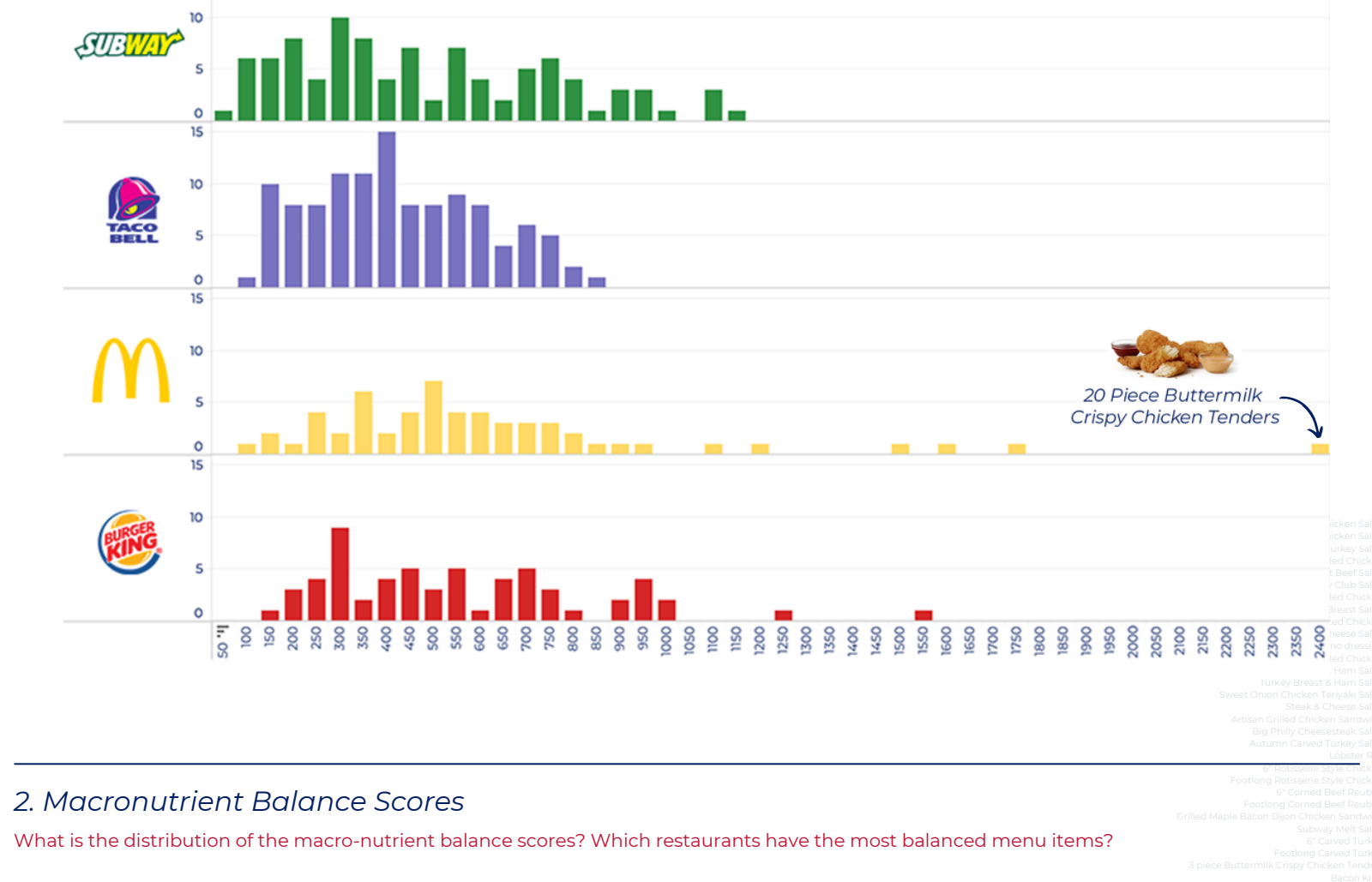
Data Cleaning

We utilized 4 separate data sets to create our visualizations:

- Data set 1: Fast food menu items and their nutritional values from tidyTuesday in 2018 in the United States
 - Data set 2: Fast food restaurants and their locations from Kaggle in 2018 in the United States
 - Data set 3: US State names and their abbreviations**
 - Data set 4: US State population sizes**
- We only focused on top 4 fast-food chains: McDonald's, Subway, Burger King, and Taco Bell. We created a new variable called Balance Score by finding a score based on ideal macronutrient ratios for a meal.

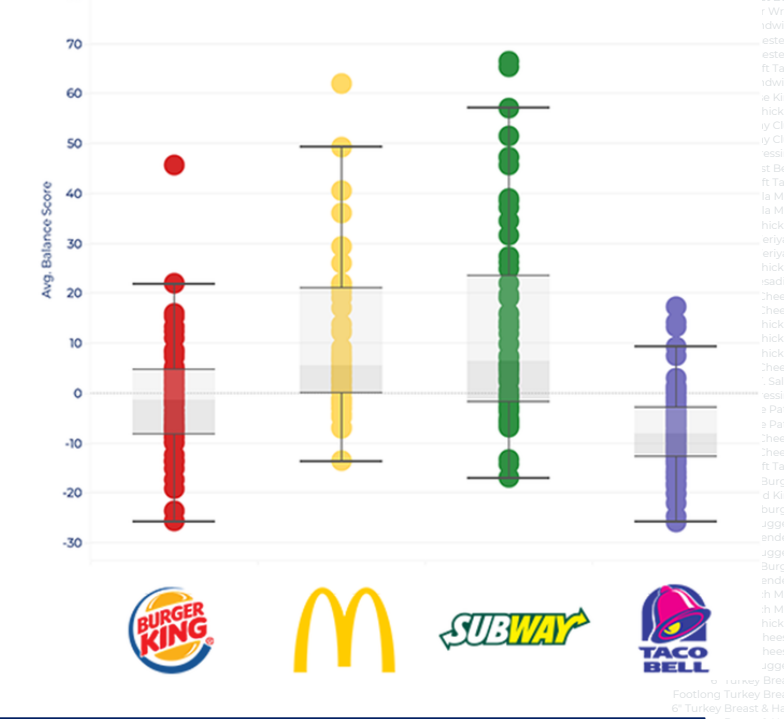
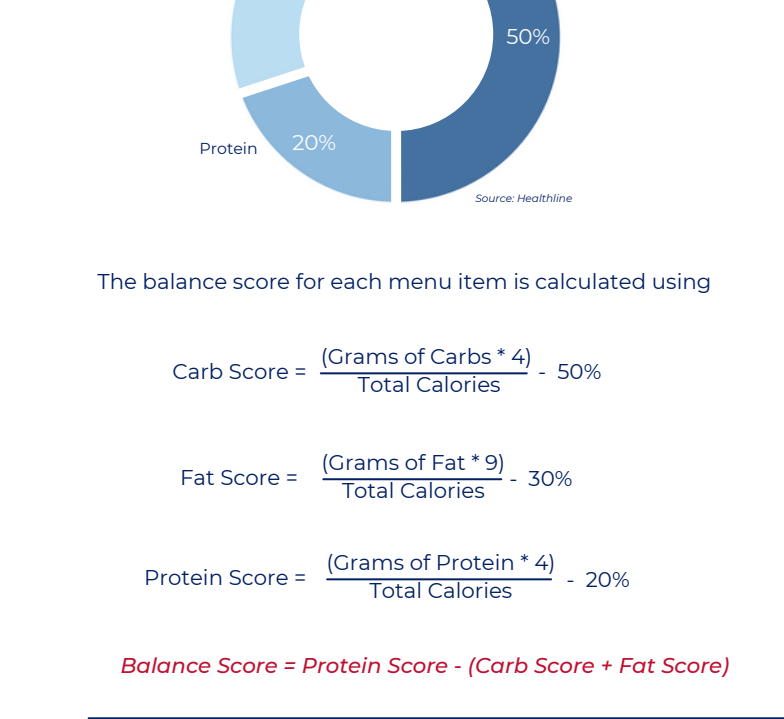
**removed from final report due to limited observations

McDonald's Has the Most Menu Items that Exceed 1000 Calories



2. Macronutrient Balance Scores

What is the distribution of the macro-nutrient balance scores? Which restaurants have the most balanced menu items?



Top 5 Balanced Meals

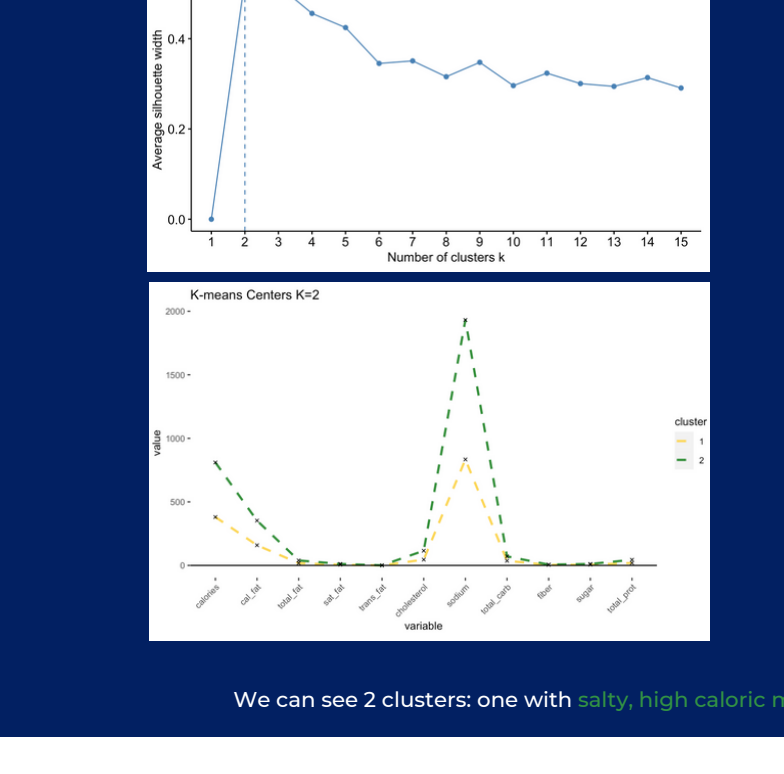
- Subway: Double Chicken Salad
- Subway: Oven Roasted Chicken Salad
- Subway: Carved Turkey Salad
- McDonald's: Premium Bacon Ranch Salad w/ Grilled Chicken
- Subway: Roast Beef Salad

Bottom 5 Balanced Meals

- Burger King: Spicy Potato Soft Taco
- Burger King: Side Caesar Salad with Dressing
- Burger King: Triple Layer Nachos
- Burger King: Side Garden Salad and Avocado Ranch Dressing
- Burger King: Nacho Fries Bellgrande

3. K-Means Cluster Analysis

How can we classify menu items based on various features?



We can see 2 clusters: one with salty, high caloric meals, and the other with healthier low caloric meals.



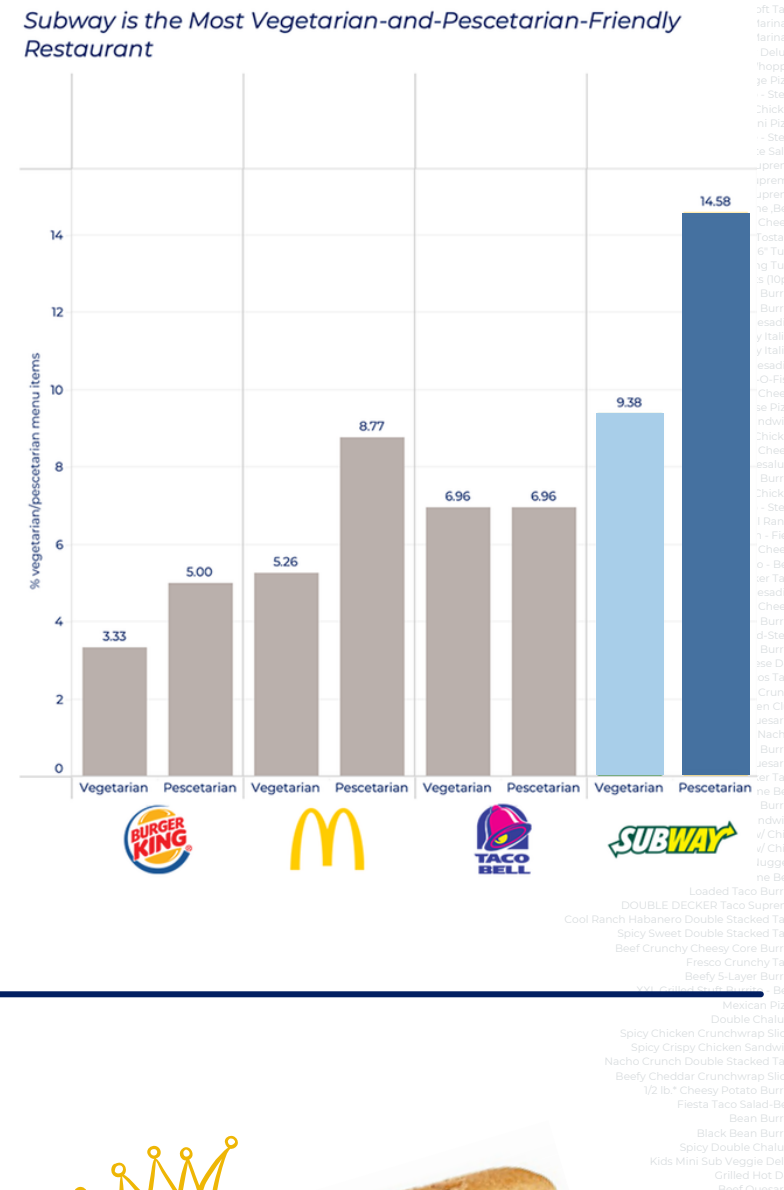
4. WordClouds

What are the major key words found in each restaurants' menus?



5. Vegetarian and Pescetarian Friendliness

Which of the four fast food restaurants is most vegetarian and or pescetarian friendly?



DISCUSSION AND CRITIQUE

Key Findings

- Subway has the most health-conscious menu items
- Machine Learning naturally clumps meals together based on healthy and unhealthy factors (can be used to replace balance scores)
- Chicken is the most common ingredient overall
- Subway is the most inclusive restaurant

Critiques

- Met problems when creating density plots with tableau
- Should include more restaurants and do more analysis
- More updated and comprehensive data
- Dig into the data from more varied perspectives

