Business Report – Kerrie Mars

With the hopes of encouraging employees to return to office work, the Chief Executive Officer of our company has decided to fully fund the analysis, implementation, and execution of providing Starbucks coffees in office for employees. The goal is to have a variety of drinks readily available in office at no cost to the employee. The Chief Executive Officer strongly believes that people will be willing to return to office if they know they will be provided with the availability of free quality coffee every day. As a business, we are fortunate that the Chief Executive Officer is willing to take on this expenditure personally, so that no expense is passed through to the organization.

At a request from our Human Resources department, they have requested that we complete a thorough analysis to determine what types of coffees are the healthiest options for our employees as to not encourage an unhealthy lifestyle and nutrition habits in the office. Their reasoning is a result of the significant increase in medical premiums that our insurance company is proposing for 2023. As an organization, the number of claims thus far for 2022 has increased year over year, causing our premiums to steeply rise. It is important to both the CEO and HR department that this incentive program does not directly result in a decrease to the overall health and wellness of the employees in our organization.

Critical to this project is also providing coffee options that have a high caffeine content. Sugars, calories, caffeine content, protein, fats, etc. will all be taken into consideration during our analysis on the nutritional value of various Starbucks coffee options. The Chief Executive Officer is working directly with a contact at Starbucks, and they will provide only one type of coffee, so our business analysts were tasked with determining the best overall healthy coffee option based on nutritional value and caffeine content to be served in office.

The business analysts decided to use machine learning techniques for this project since the dataset of available coffee drinks was a medium size. It is too large of a dataset to analyze manually, without any analytics programming. The method that they choice would not have sufficed for an extremely large dataset. There were 242 variations of beverages provided on the nutritional dataset from Starbucks. The specific technique used by the analytics team was Hierarchical Clustering. This algorithm utilizes clustering techniques and dendrograms to group data based on similarities into clusters. This will allow the analysis to have groupings, or clusters of coffee drink options with similar nutritional value and caffeine content. With this knowledge and information, the CEO will be able to determine what ingredients need to be purchased to make different variations of coffee drinks.

The analysis resulted in ten various clusters to choose from. Overall, the sixth cluster has the highest caffeine content per drink, and lowest calories, sodium, fat, trans fat, saturated fat, sodium, carbohydrates, cholesterol, and sugar. That makes this group of Starbucks coffees the overall best choice from a nutritional and caffeine content standpoint. It is recommended that this group of beverages be what is chosen to serve in the office. We hope that this offering has an impact on our employees and encourages return to the office and adaptation to the hybrid structure we have implemented for our team. For those that are interested, the analytics team prepared a brief PowerPoint presentation and has also prepared the details of their analysis to share. Data for this study was derived from real-world data from Kaggle.com <https://www.kaggle.com/datasets/starbucks/starbucks-menu>.