**Executive Summary**

*The goal for this project is to investigate the relationship between the availability of fast food and obesity rates in different regions of the United States to better understand the factors contributing to the obesity epidemic and explore potential solutions. I will collect and clean data from multiple sources, including the CDC, the USDA Food Access Research Atlas, and Yelp API, to obtain information on obesity rates, fast food restaurant locations, and other relevant factors such as income, education, and race/ethnicity. The project will be presented in a written Canva report intended for public health professionals, policymakers, and anyone interested. There are known issues and challenges to consider. The available data sources may not be comprehensive or up to date, and the relationship between fast food availability and obesity rates may be influenced by factors that are difficult to measure. I do believe this can be overcome. This project can provide insights into the negative impact fast food has had on public health in the U.S. over the years and raise awareness about the health risks of consuming too much fast food.*

**Motivation**

*The aim for my capstone project is to investigate the relationship between the availability of fast food and obesity rates in different regions of the United States. The motivation for this project is to better understand the factors contributing to the obesity epidemic and explore potential solutions to the problem. According to the Centers for Disease Control and Prevention (CDC), obesity affects over 40% of American adults and can lead to a range of health problems, including heart disease, diabetes, and certain cancers. While there are many factors that can contribute to obesity, including genetics, physical activity, and social determinants of health, the availability of fast food has been identified as a major contributing factor. Fast food is often high in calories, fat, sugar, and salt, and can be cheaper and more convenient than healthier options. By examining the relationship between fast food availability and obesity rates in different regions of the United States, this project can provide insights into the impact of fast food on public health and inform potential interventions to reduce obesity rates.*

**Data Question**

*How has the availability of fast food affected obesity rates in different parts of the United States?* *How does the density of fast-food restaurants in different regions of the United States relate to the prevalence of obesity, and what other factors may be influencing the relationship?* *Previous research has suggested a link between the availability of fast food and obesity rates, but the relationship may be complex and influenced by a variety of factors such as socioeconomic status, race/ethnicity, and food marketing. For example, a study published in the American Journal of Preventive Medicine found that proximity to fast food restaurants was associated with higher rates of obesity in low-income areas but not in high-income areas. By exploring the relationship between fast food density and obesity rates at the state and county levels, as well as considering other factors such as income and race/ethnicity, this project can provide a more refined understanding of the impact of fast food on obesity rates in the United States.*

**Minimum Viable Product (MVP)**

*Data Collection and Cleaning: I will collect and clean data from multiple sources, including the CDC, the USDA Food Access Research Atlas, and Yelp API, to obtain information on obesity rates, fast food restaurant locations, and other relevant factors such as income, education, and race/ethnicity.*

*Data Visualization: I will use data visualizations such as choropleth maps, scatter plots, and regression analyses to present my findings. I will also use interactive visualizations such as a Tableau dashboard and folium maps that highlight fast food locations across the U.S. and allow the audience to explore the data on their own.*

*Presentation: I will present my findings in a written Canva report that will include my dashboard material and visualizations. The intended audience for this project includes public health professionals, policymakers, and anyone interested in the factors contributing to the obesity epidemic in the United States.*

**Schedule (through )**

1. Get the Data (5/15/23)
2. Clean & Explore the Data (6/10/23)
3. Create Presentation of your Analysis (6/17/23)

* Should be a presentation, but could include a Jupyter Notebook or dashboard in Excel, Tableau, or PowerBI

1. Internal demos (6/22/2022)
2. Demo Day!! (6/29/2022)

**Data Sources**

[*https://www.countyhealthrankings.org/explore-health-rankings/rankings-data-documentation*](https://www.countyhealthrankings.org/explore-health-rankings/rankings-data-documentation) *csv*

[*https://stacks.cdc.gov/view/cdc/106273*](https://stacks.cdc.gov/view/cdc/106273) *web scraping*

[*https://www.cdc.gov/obesity/data/prevalence-maps.html*](https://www.cdc.gov/obesity/data/prevalence-maps.html) *csv*

[*https://data.world/datafiniti/fast-food-restaurants-across-america*](https://data.world/datafiniti/fast-food-restaurants-across-america) *csv*

[*https://www.ers.usda.gov/data-products/food-environment-atlas/data-access-and-documentation-downloads/*](https://www.ers.usda.gov/data-products/food-environment-atlas/data-access-and-documentation-downloads/) *csv*

[*https://www.ars.usda.gov/ARSUserFiles/80400530/pdf/1718/Key%20Points%20Using%20WWEIA%20NHANES%202017-2018.pdf*](https://www.ars.usda.gov/ARSUserFiles/80400530/pdf/1718/Key%20Points%20Using%20WWEIA%20NHANES%202017-2018.pdf)

[*https://apps.who.int/gho/data/node.main.A900A?lang=en*](https://apps.who.int/gho/data/node.main.A900A?lang=en)

**Known Issues and Challenges**

* *The data sources may not be comprehensive or up to date, which could affect the accuracy of the findings.* *Some regions may have more complete data than others, and some sources may have limitations that make them less reliable for analysis.*
* *The relationship between fast food availability and obesity rates may be influenced by factors that are difficult to measure, such as food advertising and social norms around eating.*
* *It will be a challenge that I am still very limited when it comes to Python skills and do not have any experience with web scraping and APIs, but I am committed to learning and gaining hands-on experience through trial and error.*

*Questions:*

***Is there a correlation between the density of fast-food restaurants in a particular region and the obesity rates in that region?***

***Are there any demographic factors, such as income or education level, that might impact the relationship between fast food availability and obesity rates?***

***How have the obesity rates and fast food availability changed over time, and is there any correlation between these trends?***

*Are there any specific types of fast food restaurants (e.g. fast-casual vs. traditional fast food) that are more strongly correlated with obesity rates?*

*How does the availability of healthy food options (such as grocery stores, farmers' markets, and restaurants with healthier options) impact the relationship between fast food availability and obesity rates?*

*Are there any geographic or cultural factors that might impact the relationship between fast food availability and obesity rates (such as regional differences in cuisine or food culture)?*

*How does the proximity of fast food restaurants to schools and other educational institutions impact obesity rates among students?*

*Is there a difference in the relationship between fast food availability and obesity rates among urban, suburban, and rural areas?*

*Are there any specific fast food chains that are more strongly correlated with obesity rates than others?*

*How does the availability of physical activity options (such as gyms, parks, and sports facilities) impact the relationship between fast food availability and obesity rates?*

Updated data questions:

What are the current obesity rates in the state of Tennessee and how do they compare to the rest of the US?

Are there significant variations in obesity rates between urban and rural areas?

How many fast-food restaurants are there in each region of Tennessee and is there a correlation between the density of fast-food restaurants and obesity rates?

Is there a relationship between socioeconomic factors (e.g., income, education) and obesity rates in Tennessee?

Are there other health factors (e.g., physical activity levels, access to healthcare) that correlate with obesity rates in Tennessee?

Have there been any policy interventions or initiatives in Tennessee aimed at reducing obesity rates? If so, what impact have they had? Are there any notable differences in obesity rates between regions that have implemented specific policies versus those that have not?