Below are three early ideas for potential capstone projects.

Framingham Heart Study

Problem:

This project would aim to develop a statistical model that can predict the likelihood of patients developing heart disease in the future.

Data:

This study is a long-term cohort cardiovascular epidemiological study of the citizens of Framingham, Massachusetts. It is now on its 3rd generation of patients. The first generation of participants, along with their children and grandchildren, undergo medical history, physical examination, and medical tests every 2 years. Effects of diet, exercise, and aspirin, among many other factors, have been studied with regards to their relationship to the development of heart disease. Recent studies have focused on genetic markers for heart disease; a capstone project could focus on predicting the development of heart disease with both older commonly known explanatory variables, such as diet, exercise, and blood pressure, and newer more recently studied explanatory variables such as genetic markers.

2016 Presidential Election

Problem:

This project would aim to develop a predictive model for the Republican and Democrat vote shares in presidential elections, using the data collected from the 2016 U.S. presidential election.

Data:

The New York Times has election night polling data from each of the over 3000 counties in the United States, with the percentage share of Republican and Democrat votes in both the 2012 and 2016 presidential elections. Explanatory demographic variables for each county, including average age, average income, unemployment rate, uninsured rate, percentage of individuals with an educational degree, and percentage of individuals in the county who are white, can be found in publicly available data sources.

Opiate Abuse

Problem:

This project would aim to develop a predictive model for opiate-abused related morbidity and mortality on a state-by-state basis for the 50 states in the Uni

Data:

The CDC has annual data on opiate overdoses for each state. Basic demographic information for each state can be fund from the U.S Census Bureau.