ISE 3230 Project Proposal, Group 17 – Jaden Thomas, Catherine Ling, Benjamin Strong

Project: LinkNYC Location Optimization

With the dramatic increase of personal device usage and the reliance on internet availability, public access to Wi-Fi and charging stations has outgrown many cities and regions infrastructure and ability to provide these services to residents. One program that has been trying to provide access to residents and visitors is the LinkNYC communication network in New York City. This program which is brought to residents by the City of New York and CityBridge gives access to free public Wi-Fi, phone calls, device charging, and a tablet to access city services, maps, and directions. The program costs roughly $200 million through funds acquired through advertising. The kiosks are continuing to being added in the 5 boroughs, but one major problem that arises with this project is site selection to make sure the services are equitable for NYC residents and visitors that would need them.

This project will be framed as an integer programming facility location problem that takes into account current locations of kiosks, population, and the locations of points of interest, and assumes a constant costs of kiosk installation. The population can be used to determine the amount of people serviced per kiosk in each census tract, and also a constraint on the minimum number of points of interest in the census tract to determine the most effective location for new kiosks.

Data from the LinkNYC location dataset from data.gov, census tract population from the ACS 5-year survey, and points of interest data from the NYC open data. will be used to model this problem as a mathematical model using CVXPY.

https://data.cityofnewyork.us/City-Government/Points-Of-Interest/rxuy-2muj

https://catalog.data.gov/dataset/linknyc-locations

https://www.census.gov/programs-surveys/acs