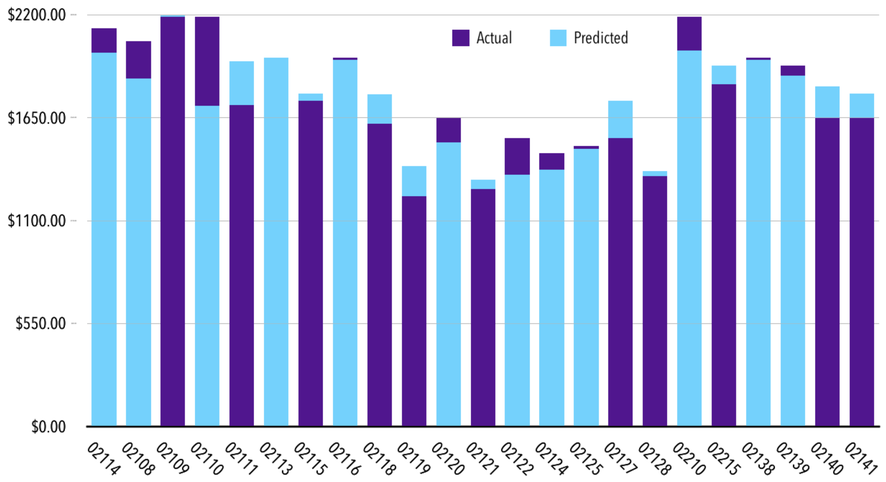
Impact of Socioeconomic Factors on Rental Prices in Boston

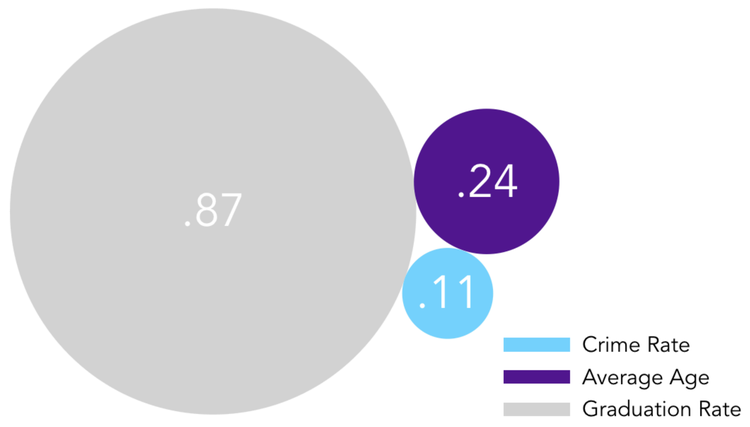
Introduction

In our project we determined whether housing prices correlate to crime rates, college graduation rates, and the average age of the population. Using linear regression we predicted prices of houses in a given area to determine in a given area in Boston are overpriced, underpriced or priced accordingly. This data is used to advise families that are looking into buying a house in Boston. The algorithm will tell whether or not the house they are looking at is a good buy for the asking price.

Method

We obtained data from multiple online sources that included housing rates, crime rates, populations by age, corresponding neighborhoods to zip codes and education information that included graduation rates and cost of living.





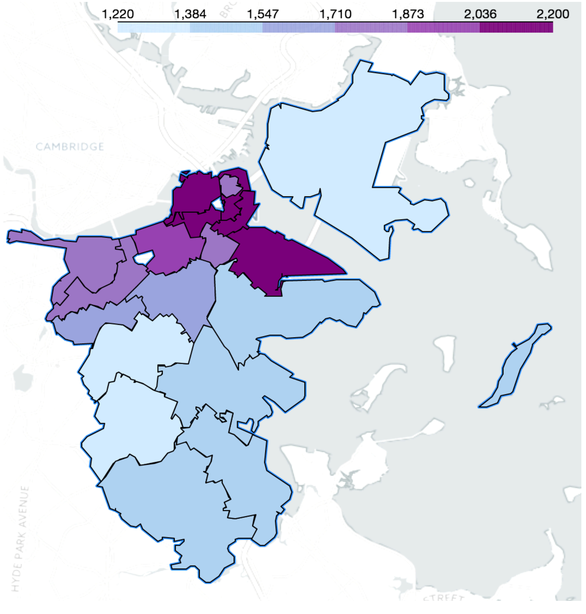
Statistical Analysis

Using linear regression we determined the regression correlation between crime rates, population by age, graduation rates and housing rates. We used our model to calculate the predicted value of houses per zip-code given the crime rate, population age, and graduation rates of that area. Finally, we compared our results for the value of the houses against the actual prices of the houses to determine whether or not the price reflected the value of the house.

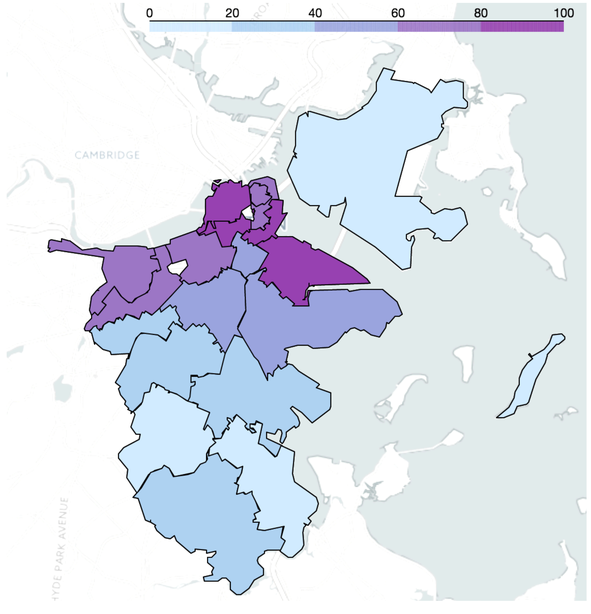
The correlation coefficient of crime rates and housing prices was surprisingly low (-0.11), as well as the age population and housing prices (0.24). The college graduation strongly correlates positively to the housing prices (0.87). The predicted housing prices are slightly different then the actual housing prices.

$$P(c,a,g) = 113.19c + 4.39a + 10.37g$$

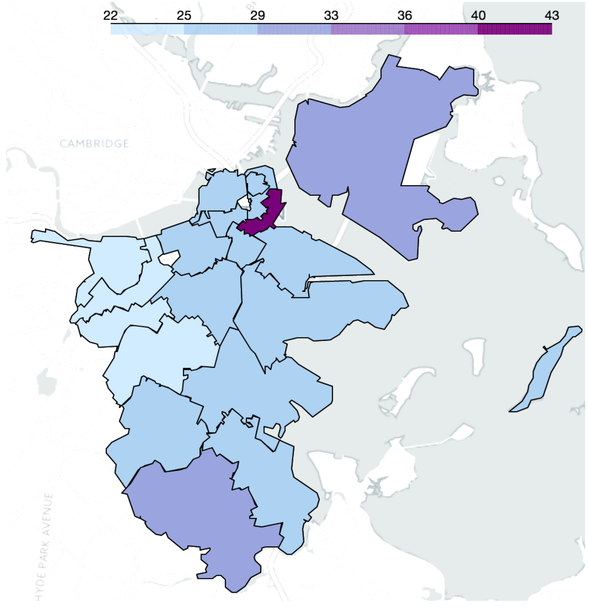
Rental Prices



Graduation Rate



Average Age



Crime Rate