

Capstone Project 1

Boston Fire Alarm Type Prediction



Background

Boston fire department receives various alarms every day. Some alarms are urgent and might lead to disastrous incidents, which require more firefighters. However, more reports are minor, even false or unwanted, and fewer firefighters are needed. So types of fire incidents has a great impact on Boston fire department's resource distribution and operational efficiency.

Problem

Prediction on the daily types of fire incident would become beneficial. It will pre-filter those incidents report on phone or fire alarm first. Then the departments would benefit from higher operational efficiency and more optimized labor distribution.

Client

Boston Fire Departments wants to improve their operating system efficiency to deal with fire incident reporting. As a data scientist in a consulting company, I will analyze data,

gain insights from data, build an algorithm to predict daily fire alarm type for Boston fire department to improve their operations.

Approach

I will extract data mainly from monthly Boston fire incident [reports from 2012-2018](#). Meanwhile, data from [daily historical weather](#), [community population density](#) and [local events](#) would be useful. (So far, The entire incidents would be about 350,000). Based on zip code and address, these data would be merged in one. The main features in merged data would contain incidents reporting time, location(zip code, district, address etc.), alarm type, property owners information, property assessment results, daily weather information, local population density and nearby events. Through EDA, those data would be visualized and more stories would be discovered. Finally, a predictive model will be built to predict the type.

Deliverables

Source code will be displayed in Github A report and powerpoint slides would be delivered. And I will post the results in Medium (Hopefully, I can try to deploy the model in AWS or Google Cloud or build an API for the dataset etc.)