The Chosen One Outline

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Executive Summary:

For our project, we decided to focus on two major problems facing the Red Cross in their current efforts: incident prevention and volunteer selection.

- Identify areas that are of high fire risk to focus community outreach
- Identify areas that are likely to have impactful volunteers to recruit for the future

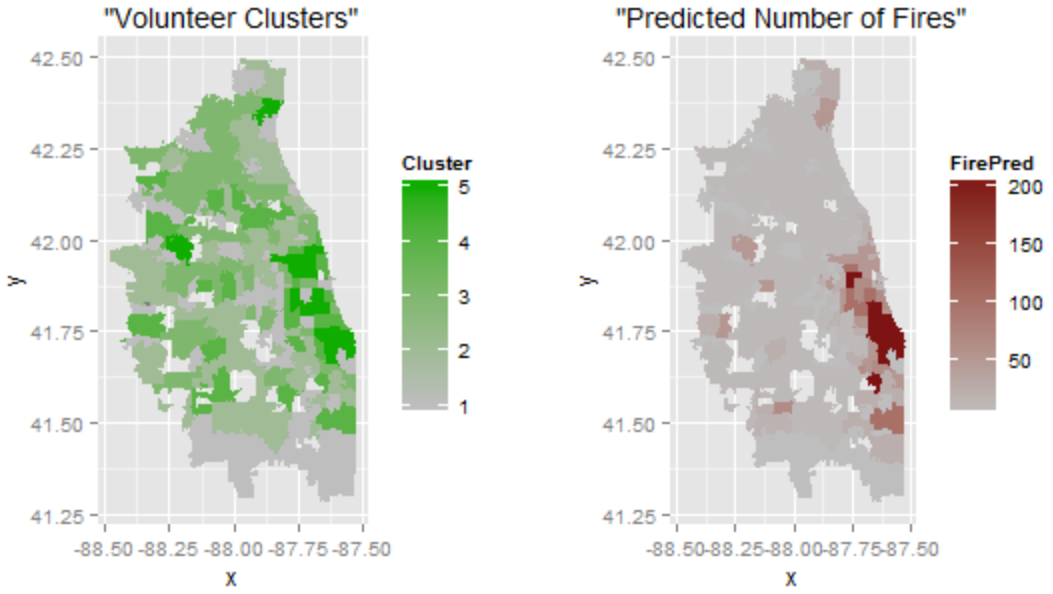
Data:

- Pulled demographic information using a zip code scraper in Python ~ 1600 web pages
- Attributes: income, race, gender, education, marriage, unemployment, and poverty
- Volunteer performance = average response rate across all incidents
- Zip code volunteer score: average volunteer performance * sum of all volunteer performances
- Zip code fire score: number of incidents using predictor model

Analysis:

- Used k-means clustering with volunteer scores; verified need with Jaccard similarity index
- Cross-validated decision trees, boosted trees, neural networks, and random forests for predicting fires - decision trees were the best

Solution:



Impact:

From our solution, the Red Cross now can do the following:

1) Proactively prevent house fires by identifying areas that are at the highest risk and strengthen preparedness programs such as Team FireStopper in those areas to increase awareness.
2) Target areas for recruitment of volunteers that are close to at risk areas to cut down response time to incidents and improve volunteer impact.
3) Target recruitment in areas with populations that share similar characteristics to those of current high-performing volunteers in order to find more impactful and responsive volunteers.