**Project Proposal**

2/3/21

**Project title:** Population density versus crime rates

**Team members**

* Melinda Eudy
* Cameron Farquhar
* Markita Francis
* Luis Rojas
* Kelly Rose

**Project description/outline**

* Testing for correlation between population density and crime rates.

**Research questions**

1. Which types of crimes are most prevalent based on population density?
2. Is there a correlation between population density and the following types of crimes?
   1. Murder rate
   2. Violent crime
   3. Domestic violence
   4. Statutory offenses
   5. Burglary
   6. Fraud/white collar
3. Are there any trends regarding demographics and crime rates?

**Datasets**

* [Census data](https://www.census.gov/data/developers/data-sets.html) - Demographic and economic data from the U.S. Census Bureau
* [Bureau of Justice Statistics](https://www.bjs.gov/developer/ncvs/index.cfm) - demographic and economic data from the U.S. Census Bureau

**Timeline**

Wed 2/3/21 (Day 2) - Project Proposal

* Responsible: Kelly
* Project Idea: Determining any correlation between population density and crime rates.
* Pre-meeting task: Each member will review the draft proposal and come up with a proposal with core message/hypothesis/questions.
* Action (during class): The team will review and approve one of the proposals or most likely a mix of the best proposals.
* Post-meeting task: Once approved, Kelly will describe on a Jupyter Notebook the core message / hypothesis, the specific questions we ask, and why we ask them.

Wed 2/3/21 (Day 2) - Finding Data Sources

* Responsible: All
* Pre-meeting task: Each member will propose a dataset or combination of datasets.
* Action (during class): The team will review and approve one of the proposals. At least one API.
* Post-meeting task: Once approved, Kelly will describe on a Jupyter Notebook what kinds of data we need to answer the questions we ask, and where we found the dataset(s).

Process Data:

Sat 2/6/21 (Day 3) - Data Exploration & Cleanup

* Responsible: Melinda
* Pre-meeting: Each member will describe -on a separate branch- datasets, drop rows with null values, create DataFrame fitting proper criteria, plot with matplolib - 2 per "question".
* Action (during class): Present and discuss interesting figures developed during exploration. Here we will decide which branches should be merged to the main branch.
* Post-meeting: Once the team has reviewed, Melinda will describe the exploration and cleanup process and the insights we had while exploring the data that we did not anticipate.

Mon 2/8/21 (Day 4) - Data Analysis

* Responsible: Luis and Cameron
* Pre-meeting: Each member will use, on a separate branch, techniques such as aggregation, correlation, comparison, summary statistics, sentiment analysis, and time series analysis, plot with matplolib and/or review previous visualizations.
* Action (during class): Present and discuss interesting figures developed during analysis. Here we will decide which branches should be merged to the main branch.
* Post-meeting: Once the team has reviewed, Luis will describe the steps we took to analyze the data and answer each question we asked in our proposal.

Wed 2/10/21 (Day 5) - Conclusions

* Responsible: Markita
* Pre-meeting: Each member will describe our findings which include a numerical summary and visualizations of that summary. Did we find what you expected to find? If not, why not? What inferences or general conclusions can we draw from our analysis? Also, each member will come up with a presentation draft.
* Action (during class): Present and get to have an open-ended discussion about what our findings "mean", as well as any difficulties that arose, and how we dealt with them. What would we research next if we had two more weeks? Finally, discuss the final presentation layout.
* Post-meeting: Once the team has discussed and agreed, Markita will tell a good story! Find our narrative and use our analysis and visualization skills to highlight conflict and resolution in our data. Prepare the PowerPoint presentation.

Sat 2/13/21 (Day 5) – Presentation

* Responsible: All
* Pre-meeting: Each member will make comments on the PowerPoint presentation.
* Action (during class): Each member will present within 2 minutes, showing the presentation and the Jupyter Notebook (if applicable).