FBI Crime Analytics and Visualization: Crime in America

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How to Use TL;DR:

1. Select the visualization style from the left hand tabs
2. Using checklists, sliders or drop down menus, narrow or expand the displayed information
3. Compare differences in crime across geography and time

Full Description:

Our Shiny app gathers data from the FBI's official crime statistics website and presents it in a visual way to see disparities and differences of crime over time and region. Using this data and visualization we can more clearly see how and where crime occurs which can help policymakers identify *why* crime occurs and possibly how to mitigate it.

From the get-go we see 4 tabs on the left hand side of the app: Line Chart, Map, Pie Chart, and University. Each of these portrays different data in different ways.

The first tab, Line Chart, shows how different crimes have fluctuated over the past two decades and offers users two ways to manipulate the line chart. The first is a slider which gives user the ability to narrow the scope of years to see a more narrow interval of time in which crime changed. The second set of options allows users to manipulate which violent crimes appear on the graph, selecting as few as one or as many as four different crime categories to compare change over time. All of the crimes are measured on a rate per 100,000 and we can see that all major violent crime categories have decreased frequency over the past two decades though not at comparable rate. The high frequency of crimes like assault compared to murder means that in a side by side comparison it is hard to see the change in rare crimes like murder compared to more common crimes like assault.

The second tab, Map, shows the varied distribution of crimes across the United States, by state. The user can select a type of violent crime from a drop down menu and see an interactive state map of the US which colored in accordance with the frequency of the crime. The darker the state the higher the crime rate for the crime chosen by the user. The user can also click on the state of his or her choice to see the specific rates of a given crime. An interesting note is how the states which show the highest rates of crime are also states which have larger cities and states with lower rates of crime are more rural states.

The third tab, Pie Chart, shows a drop down menu where users can select the metropolitan area of their choice (ie: New York, Baltimore, etc.) and see a pie chart of the distribution of different categories of crime in that area. Users can then compare how different cities have different distributions of crime, some cities have more property crime as a percentage of the whole while others do not, as an example. The 'slices' of the pie chart are colored differently to visually show the differences in crime prevalence.

The fourth tab, University, shows us a different data on crimes occurring on public universities across the country. Using a drop down menu users can select a state of interest to display a series of barplots which have the categories of crime stacked on top of eachother. Each of the ten types of crime displayed is marked by its own color providing a visual way to tell how some crimes (like property crime) make up a greater portion of the bar than less common crimes (like murder). The y axis consists of occurrences of crime - not rates; as would be expected this means larger universities with higher attendance have a greater quantity of crime than small colleges. It is important to note that this dataset from the FBI does not include all universities and colleges in the country.

Shiny -
http://shiny.rstudio.com/

FBI Data-
https://ucr.fbi.gov/crime-in-the-u.s/2015/crime-in-the-u.s.-2015/offenses-known-to-law-enforcement/violent-crime/violentcrimemain_final

Leaflet -
http://rstudio.github.io/leaflet/

Ggplot2 cheat sheets-
https://www.rstudio.com/wp-content/uploads/2015/03/ggplot2-cheatsheet.pdf

Pie Chart-
http://www.sthda.com/english/wiki/ggplot2-pie-chart-quick-start-guide-r-software-and-data-visualization