Project 1: Crime Rate vs. Household Income

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Team 9

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Hypothesis

- We are looking to investigate a correlation between crime rate and socioeconomic status.

- Our hypothesis is that lower socioeconomic status states have higher crime rates.

Research Question 1

Question:

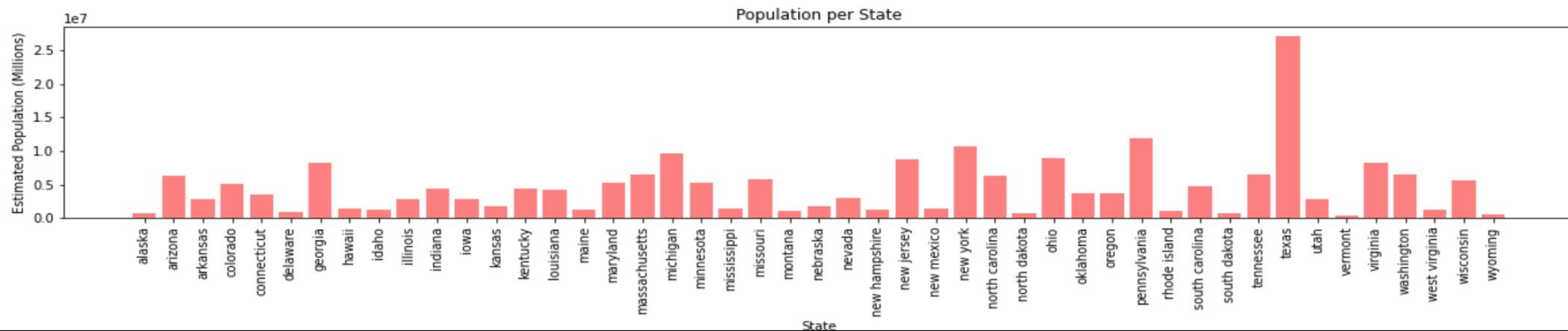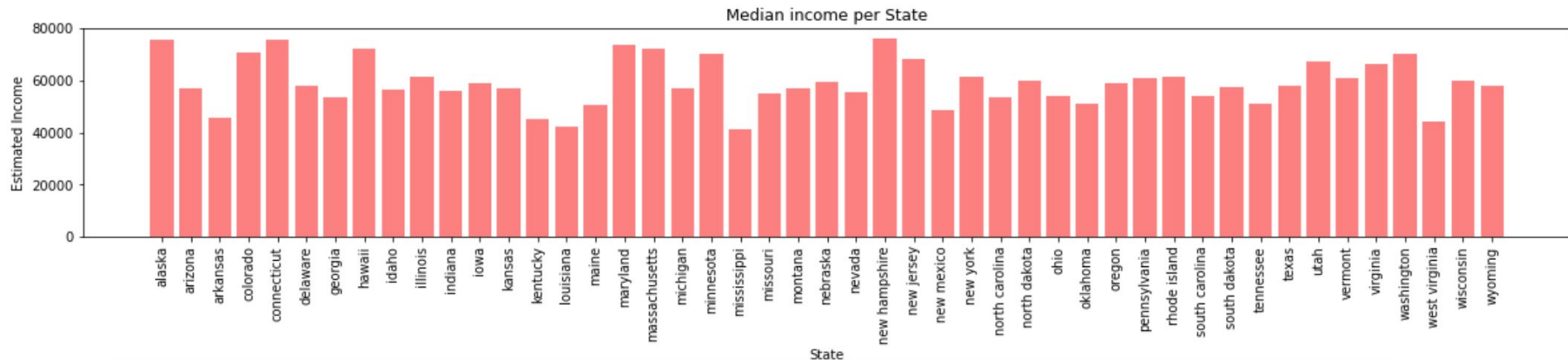- Is the household income higher in more populated states?

Methods:

- We utilized bar plots to visualize the DataFrames for population, median household income, and combined both DataFrames into one larger pandas bar plot.
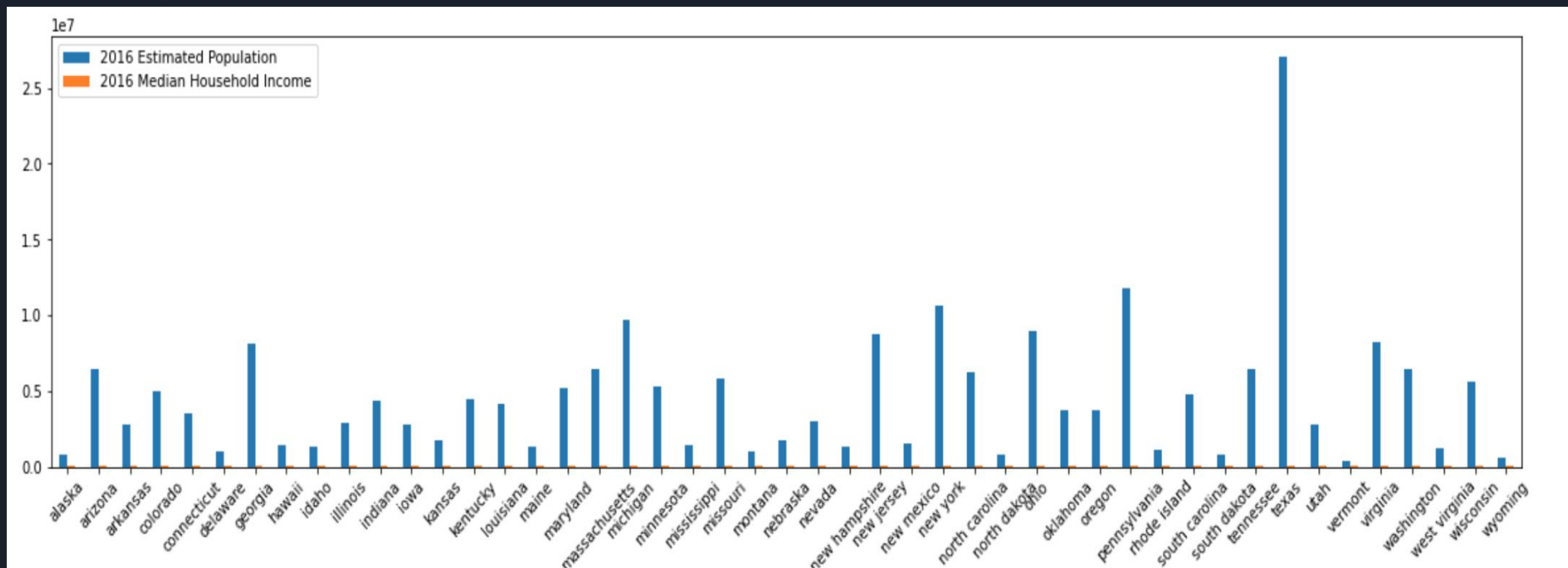
Findings:

- The higher the income per state, the higher the state's population is.

Household Income vs. Population

Household Income vs. Population

There is not a strong correlation between household income and population.

Research Question 2

Question:

- What crimes (if any) have any correlation to the household income?
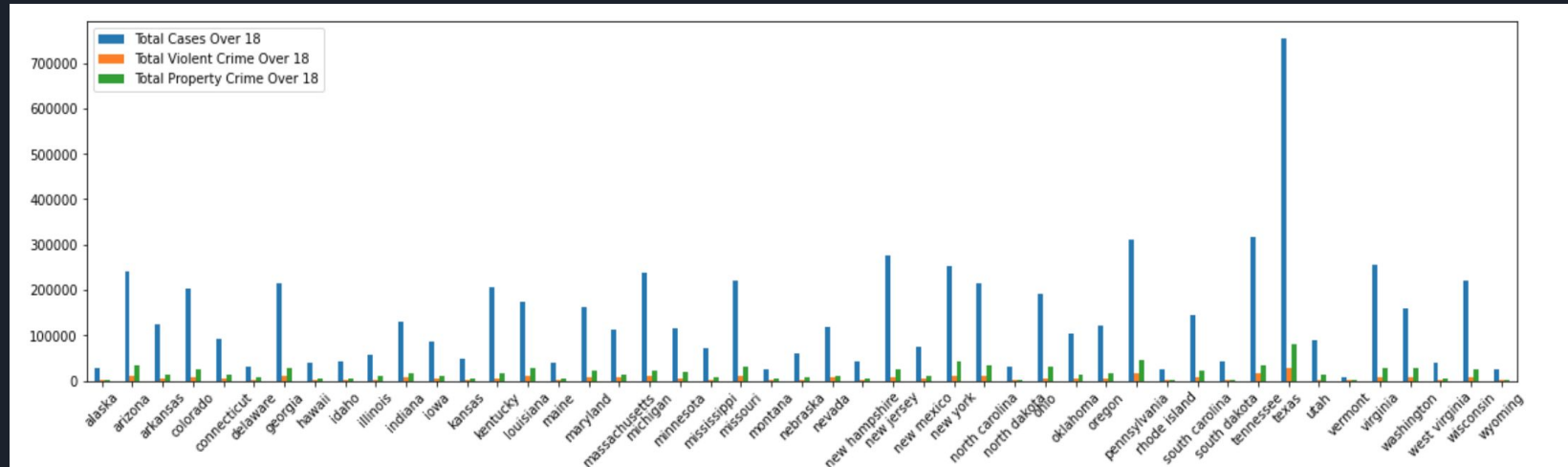
Methods:

- Household income does not have any correlation on any crimes.

Findings:

- Violent crimes are more common when household incomes are lower.

Household Income vs. Crime Rate

- As we suspected, property crime is higher than violent crime.
- We can also see that there are a lot more crimes to match the total cases over the age of 18 besides property and violent crime.

Household Income vs. Crime Rate
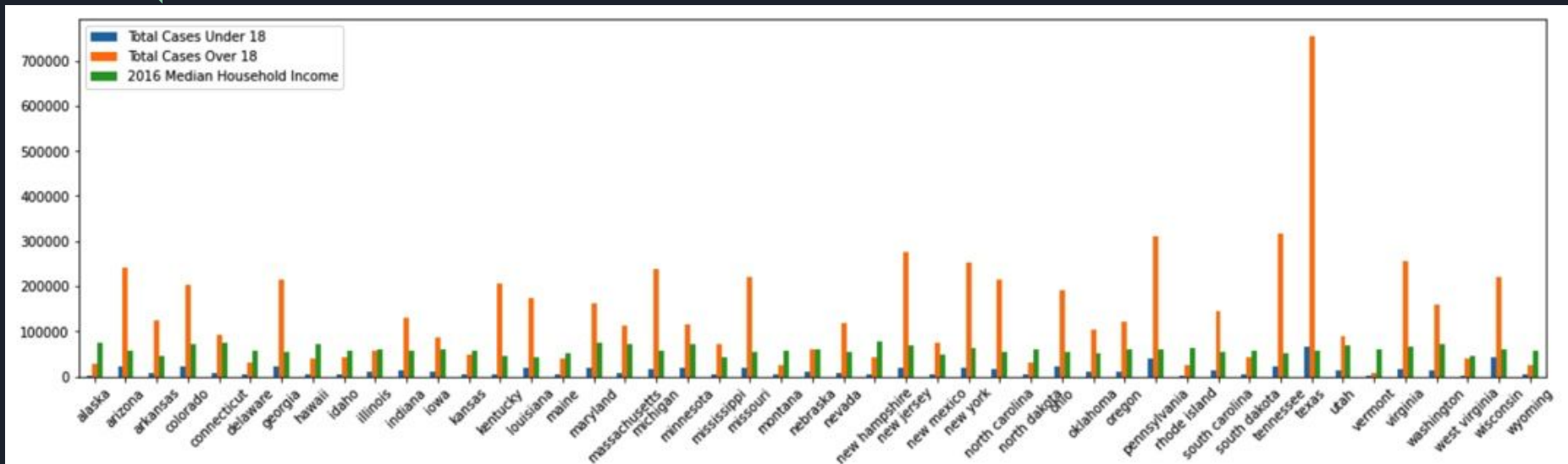
- There is no correlation between household income and crime cases under 18 or over 18.

All Crime vs. Household Income
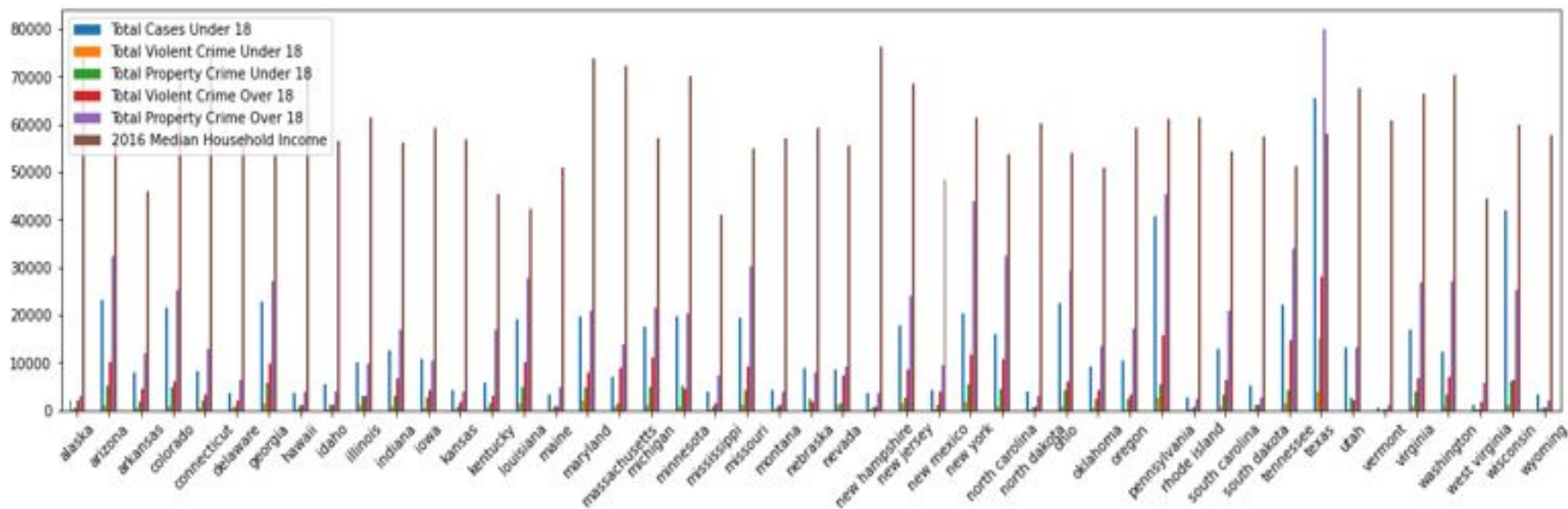
Research Question 3

Question:

●   Is there any relation between rate of crime by under 18 compared to household income?

Method:

● Utilized scatterplots to find a relation between two measures: *median household income and age group population*

Under 18 Crime Rate vs. Median Household income

- No correlation between rate of crime under 18 and household income.

- This indicates there isn't a positive or negative increase. The two have no relation.
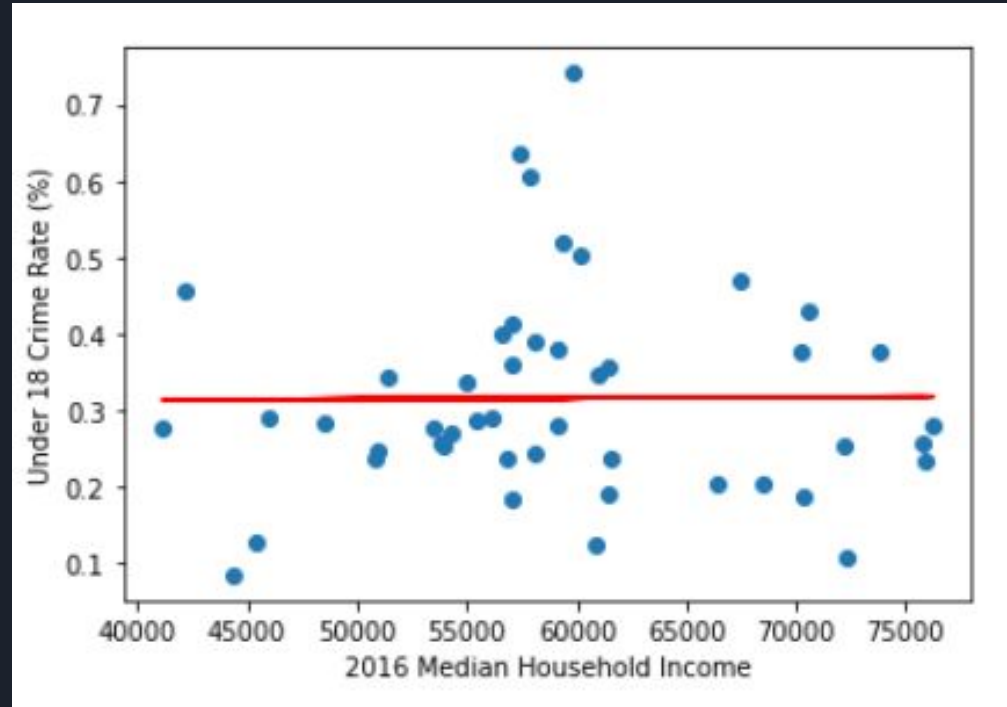
Total Crime(Over-Age - 18) vs. Household Income Analysis

- There is a negative correlation between crime rate over ages 18 and income.

- Higher the median income, less crime is committed.
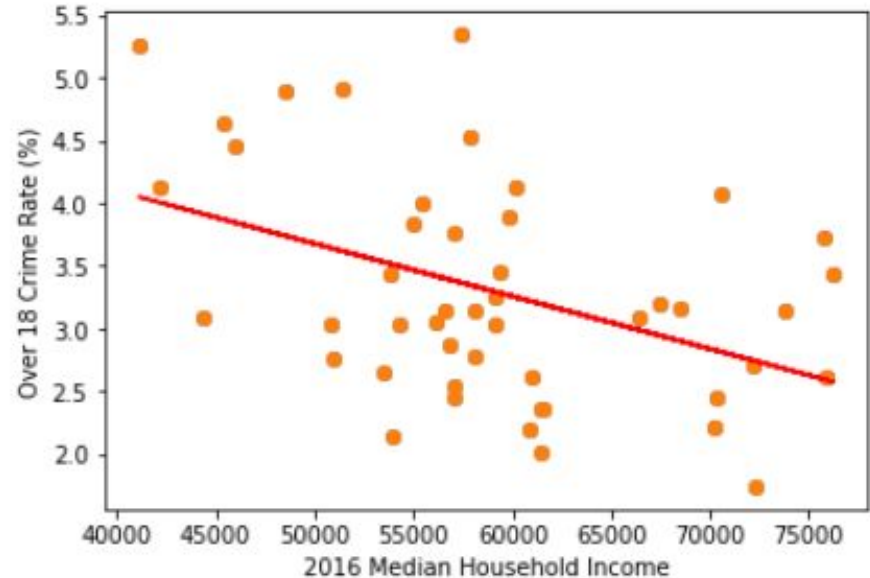
Total Crime Cases vs. Household Income

- There is a negative correlation ages overall and median household income.

- Based on total population, the rate of crime is committed less as income increases
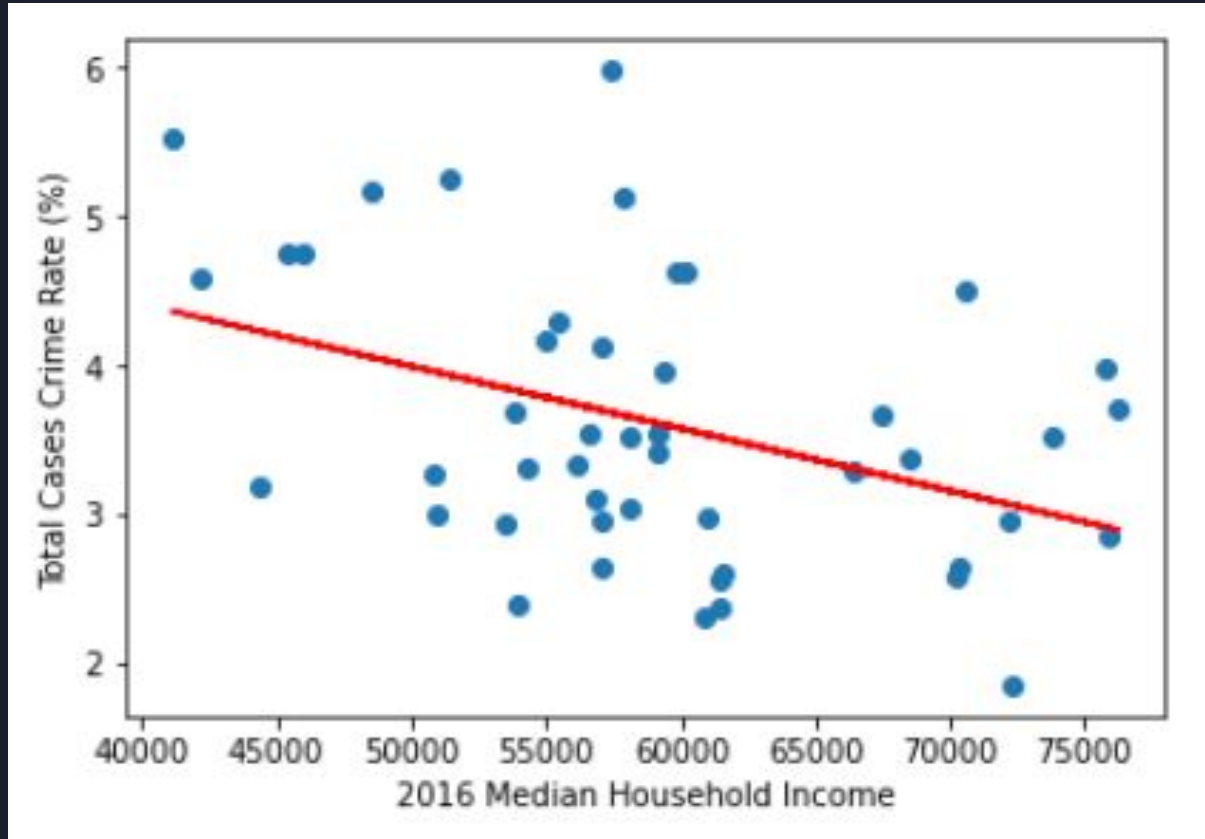
Conclusion

During our analysis, we did find the socioeconomic does correlate in a higher crime rate. We did see that the in some states although they had a lower income, base on the state median salary; they did not have a very straightforward correlation. In the areas of higher population, we did see that the crime rate was higher but did not have any correlation between low or high income. We did see multiple negative correlations between crime rate and the median household income overall. As the income increase the crime rate does decrease.

Arrests by State (2016)

Arrests by State, 2016

State		Total all classes[1]	Violent crime[2]	Property crime[2]	Murder and nonnegligent manslaughter	Rape[3]	Robbery	Aggravated assault	Burglary	Larceny-theft	Motor vehicle theft	Arson	Other assaults	Forgery and counterfeiting	Fraud	Embezzlement	Stolen property; buying, receiving, possessing	Vandalism	Weapons; carrying, possessing, etc.	Prostitution and commercialized vice	Sex offenses (except rape and prostitution)	Drug abuse violations	Gambling	Offenses against the family and children	Driving under the influence	Liquor laws	Drunkenness[4]	Disorderly conduct	Vagrancy	All other offenses (except traffic)	Suspicion	Curfew and loitering law violations	Number of agencies	2016 estimated population
ALABAMA	Under 18	4,800	321	1,229	15	32	109	165	318	833	72	6	777	20	24	1	121	190	93	0	29	191	0	44	28	225	31	378	2	1,096	0	0	240	3,800,629
	Total all ages	154,482	6,187	18,479	312	384	1,177	4,314	3,004	14,495	880	100	18,151	1,382	3,774	190	2,020	1,583	1,681	1	706	10,193	0	982	8,126	2,496	7,283	2,129	67	69,052	0	0		
ALASKA	Under 18	1,893	216	494	8	21	35	152	104	300	62	28	297	1	10	8	5	135	24	0	33	207	0	1	31	121	18	11	0	269	0	12	32	738,566
	Total all ages	29,462	2,298	3,495	41	130	282	1,845	538	2,401	505	51	4,300	96	236	81	82	1,024	311	13	281	1,006	0	195	3,063	775	112	738	4	11,340	0	12		
ARIZONA	Under 18	22,997	1,020	5,113	15	53	336	616	759	3,968	341	45	3,667	13	80	19	126	1,761	221	2	259	3,090	0	177	211	1,668	84	1,436	65	2,924	0	1,061	90	6,391,343
	Total all ages	263,699	11,145	37,592	242	344	1,849	8,710	3,957	31,907	1,551	177	26,150	1,098	2,005	352	1,341	10,031	2,878	387	1,388	30,309	3	2,520	23,498	9,745	14,100	15,874	351	71,741	130	1,061		
ARKANSAS	Under 18	8,045	424	1,801	10	44	91	279	414	1,308	74	5	1,433	8	31	1	163	298	123	0	35	770	0	10	44	219	87	470	0	1,765	0	363	271	2,786,173
	Total all ages	132,165	4,860	13,791	143	289	561	3,867	2,174	11,084	488	45	11,849	813	1,114	64	1,437	1,460	1,040	277	119	15,736	8	354	6,703	1,769	6,589	2,425	890	60,504	0	363		
CALIFORNIA	Under 18	58,758	7,015	12,519	92	275	2,601	4,047	4,583	6,169	1,508	259	8,977	62	180	15	982	3,050	3,379	112	1,123	6,291	3	3	493	1,210	880	1,264	101	9,645	0	1,454	613	39,012,007
	Total all ages	1,118,712	106,828	115,354	1,437	2,560	15,866	86,965	40,808	54,720	18,521	1,305	80,835	5,000	6,324	955	16,500	17,202	27,707	7,601	9,222	219,016	266	236	129,752	8,857	69,869	3,906	6,597	285,231	0	1,454		

Median Household Income

State	2018		2017 (40)		2017		2016	
	Median income	Standard error	Median income	Standard error	Median income	Standard error	Median income	Standard error
United States	63,179	420	61,136	322	61,372	335	59,039	436
Alabama	49,936	2,423	50,865	1,094	51,113	845	47,221	2,301
Alaska	68,734	3,390	77,987	3,718	72,231	2,719	75,723	4,086
Arizona	62,283	2,291	59,700	2,689	61,125	2,642	57,100	1,971
Arkansas	49,781	2,108	49,751	2,491	48,829	2,642	45,907	2,165
California	70,489	1,233	70,038	1,576	69,759	1,452	66,637	1,075

Data Sources


```
# import depend
import matplotlib.pyplot as plt
import pandas as pd
import numpy as np
import requests
import time
import json
import csv
from scipy import stats
from scipy.stats import linregress
from datetime import date
import scipy.stats as st
# output_data = ""
# import
arrest_by_state = "Resources/Table_22_Arrest_by_State_2016.csv"
income_by_state = "Resources/h08.csv"
```

- Base - URL:
  https://data.world/ucr/crime-in-us-2016-persons-arrested/workspace/file?filename=Table_22_Arrest_by_State_2016.xls

- Median Household Income by US State in 2016 - dataset by skunkybeer2000

Post Mortem

- Github pushing and pulling errors
- Finding proper datasets
- Utilizing other visualizations

Questions ?