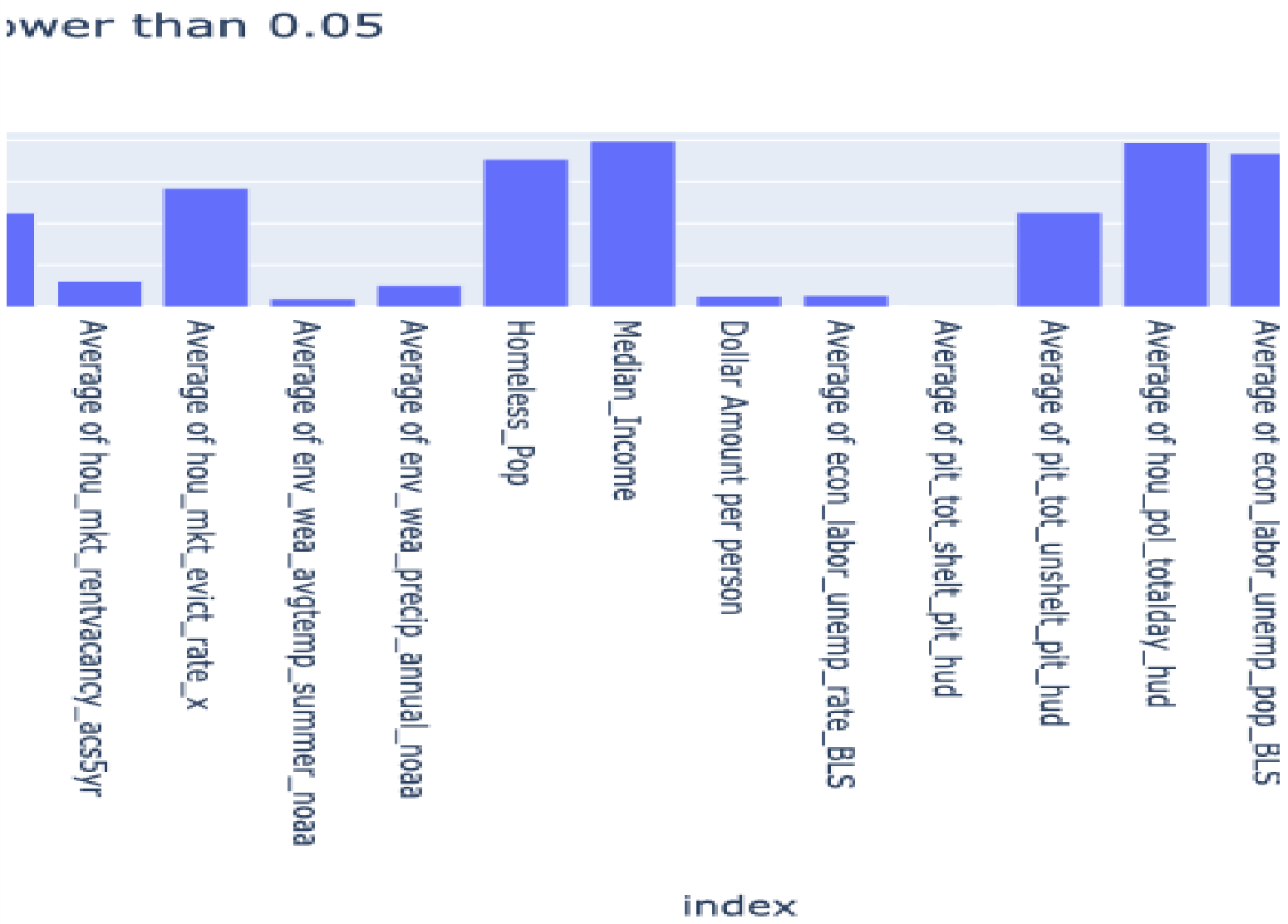
Homeless Population

Edwin Brown UMBC Data
690 Science Capstone

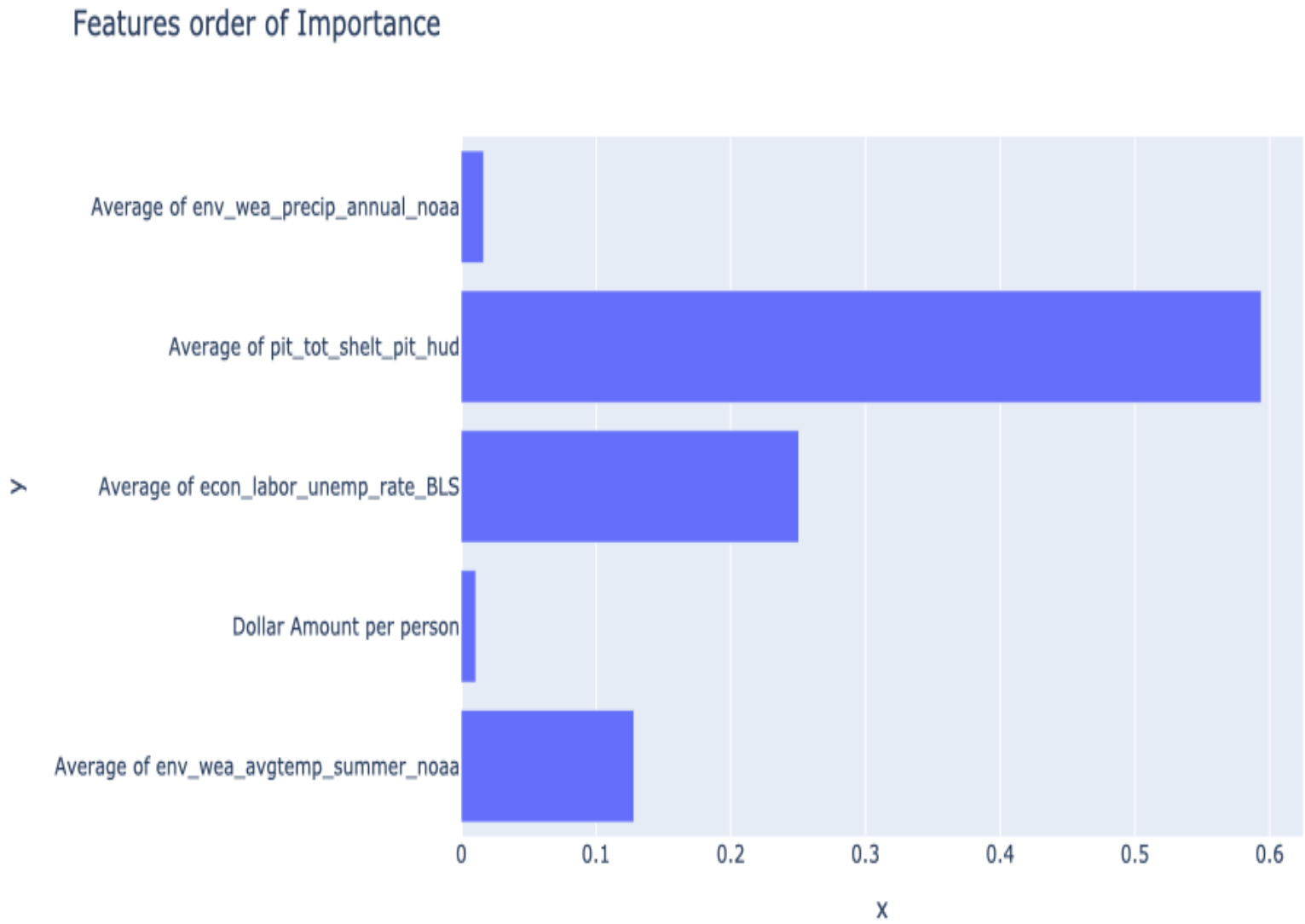
Features

- An unsheltered homeless person resides in: In a place not meant for human habitation, such as cars, parks, sidewalks, abandoned buildings (on the street).
- A sheltered homeless person resides in: • In an emergency shelter.
- 19 Features
- 5 independent Features
- 1 dependent Feature

Feature P-Value less than 0.05



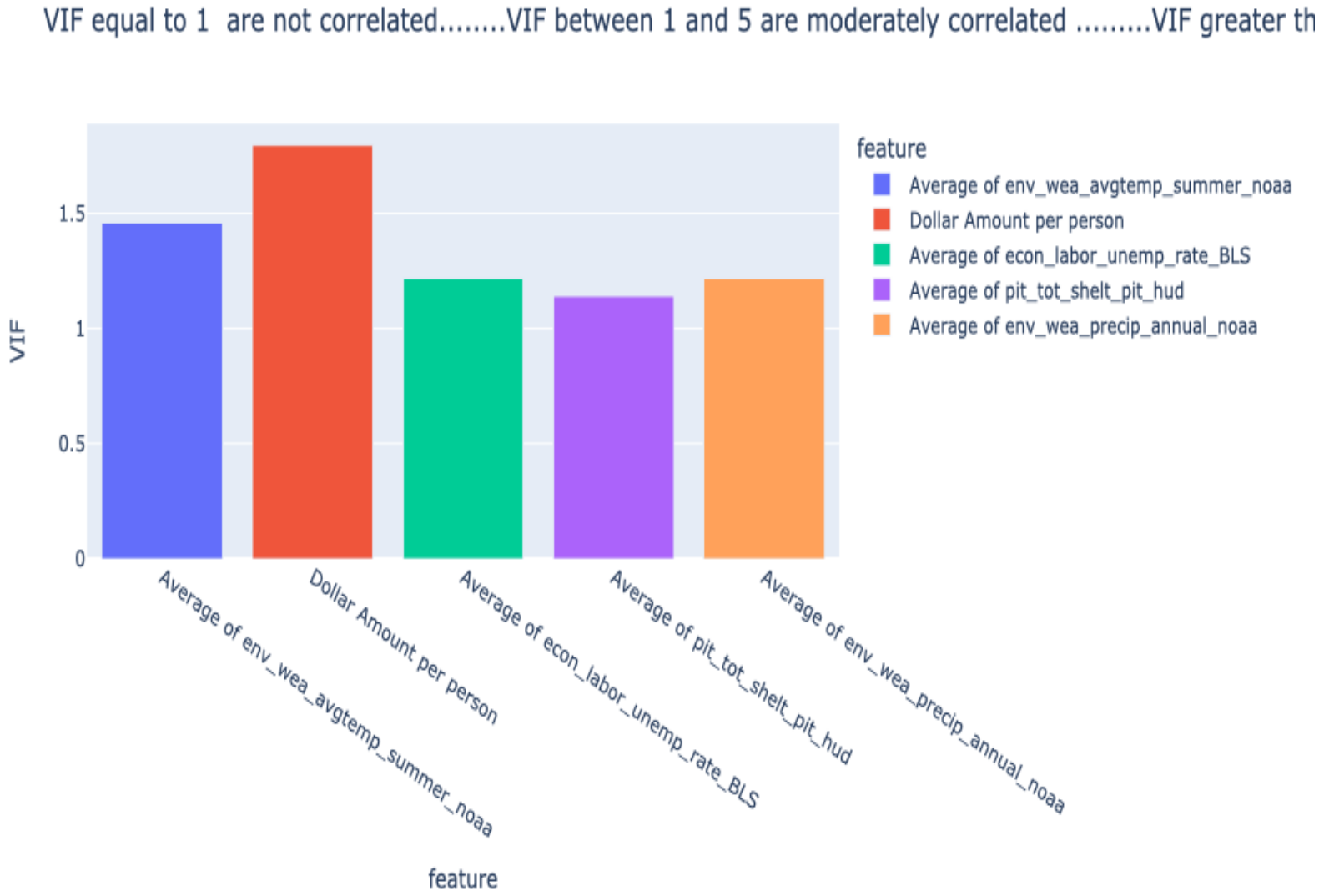
Features order of importance



Vif = not correlated

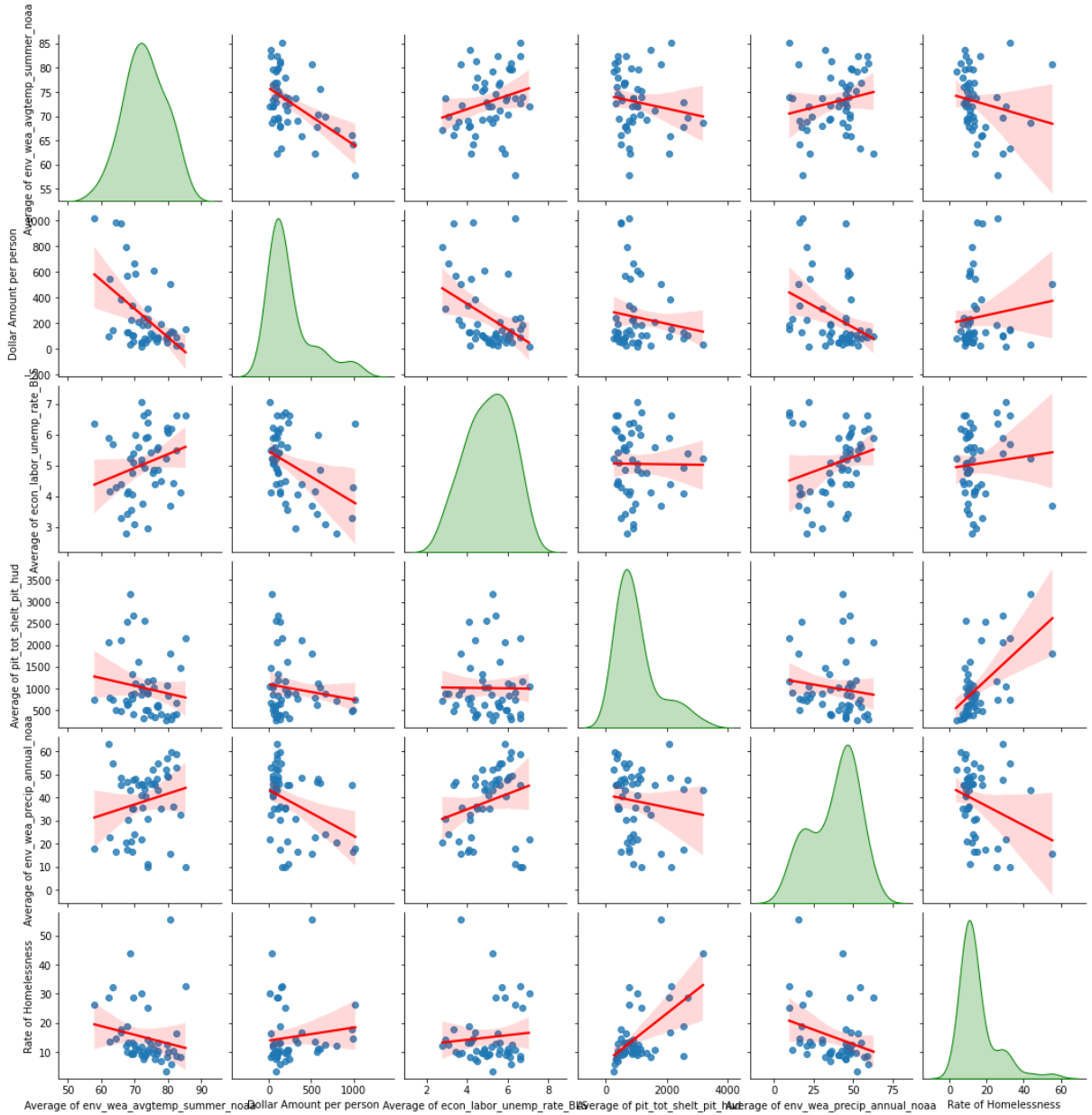
Vif 1 < 5 moderately correlated

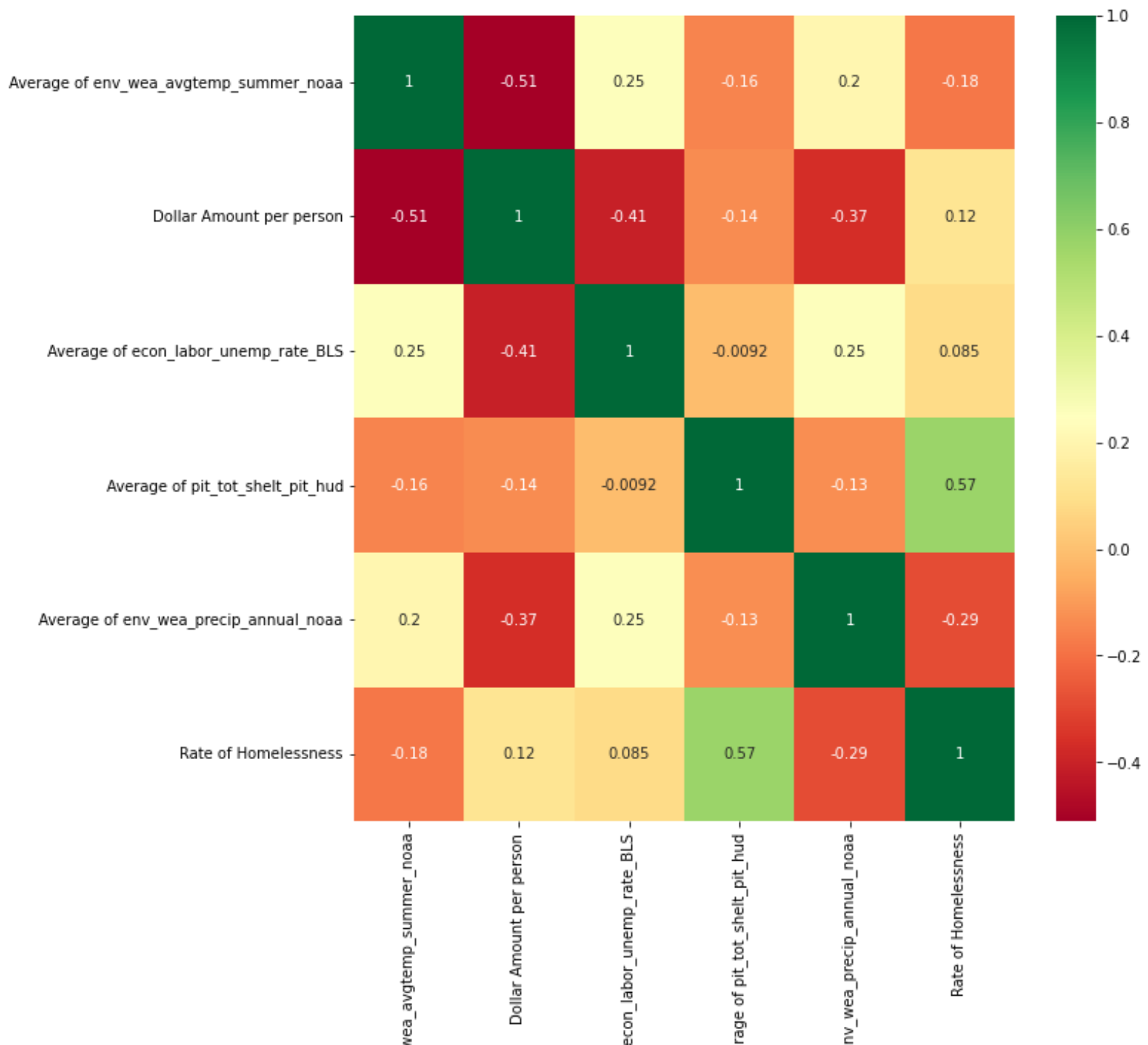
Vif 5 > correlated



Positive:
Dollar Amount,
Unemployment,
Sheltered

Negative:
Weather,
Precipitation

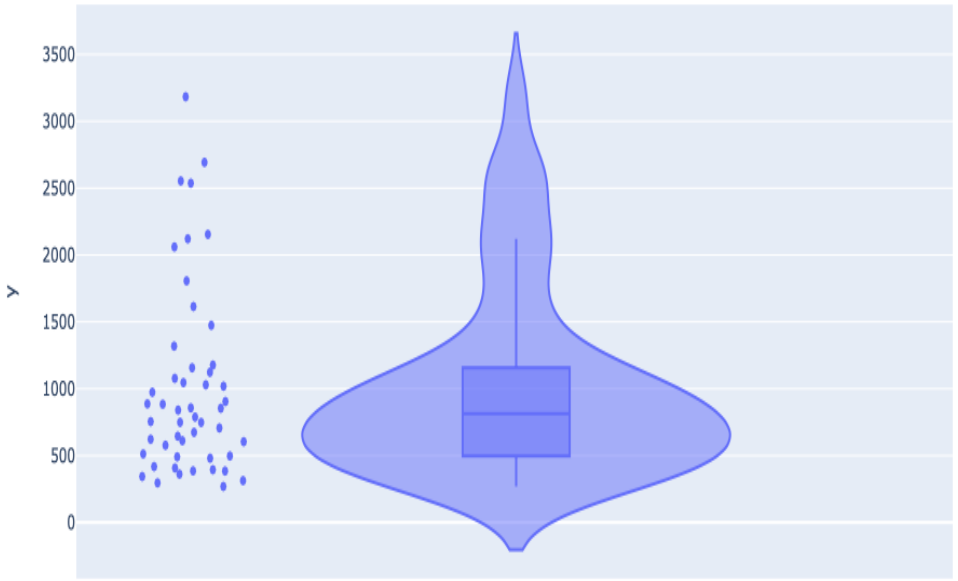




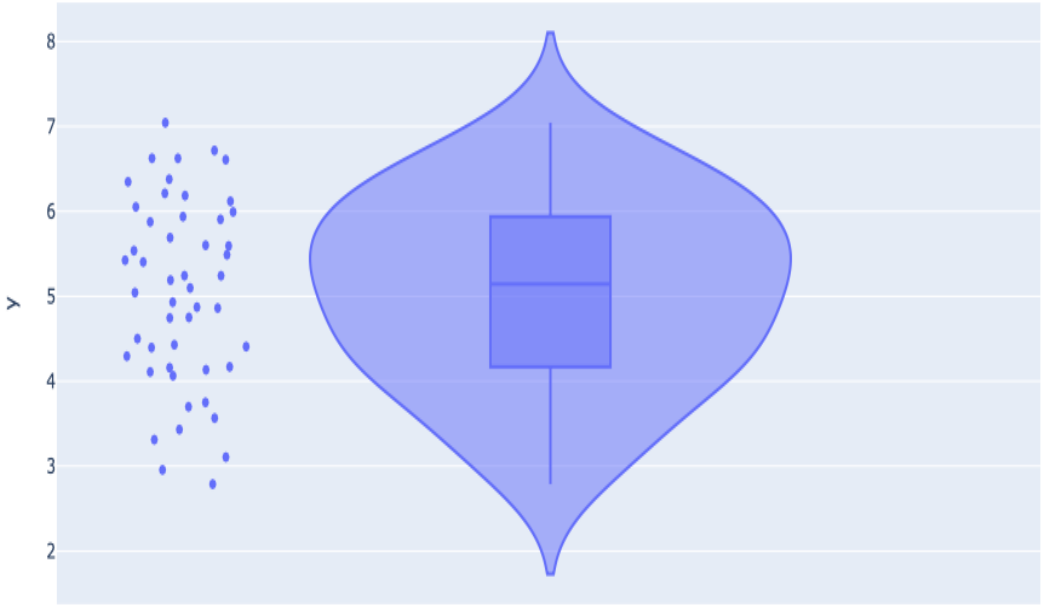
Numeric Correlation

- Weather
- Accessibility
- Economic

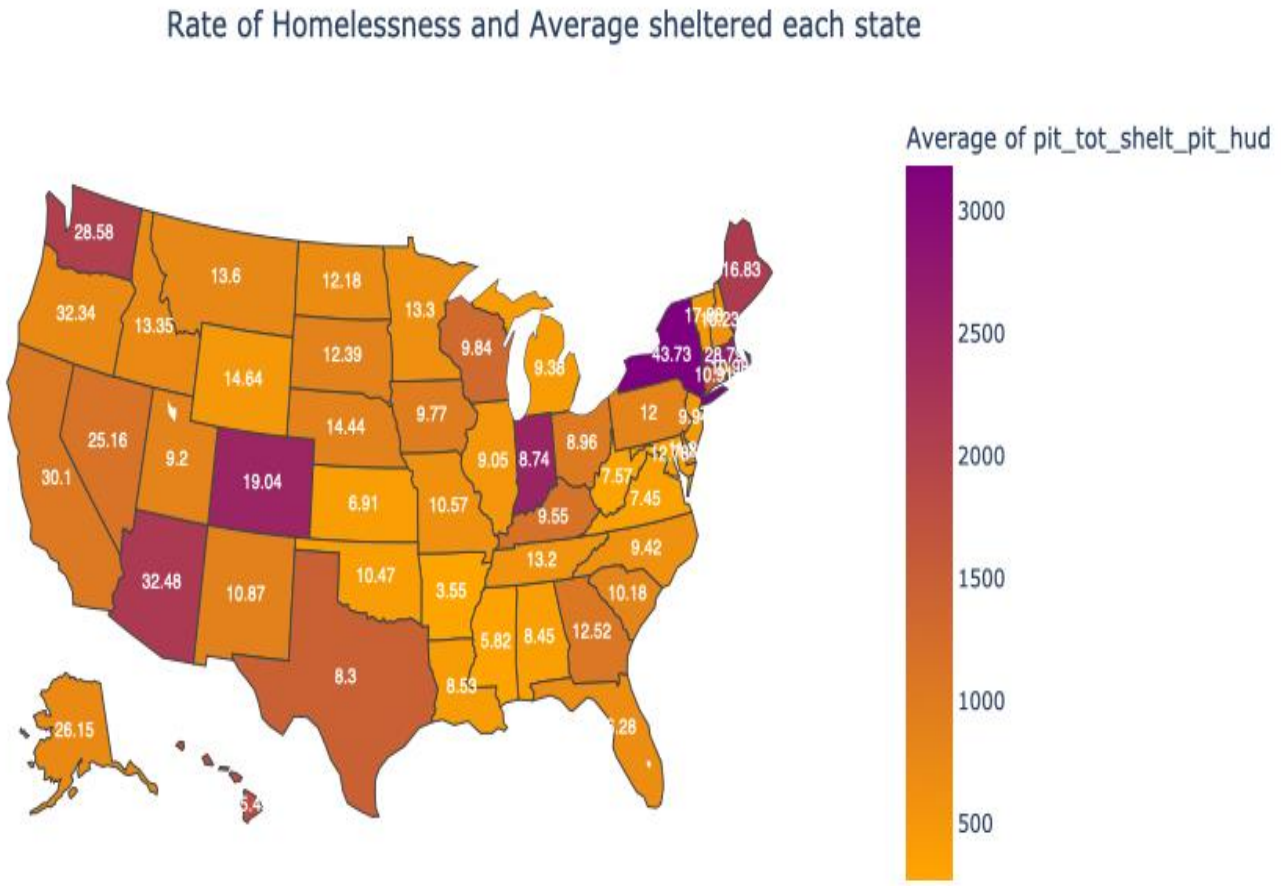
Most of Homelessness occurs in low Sheltered access areas



Homelessness in relationship to higher unemployment Rate

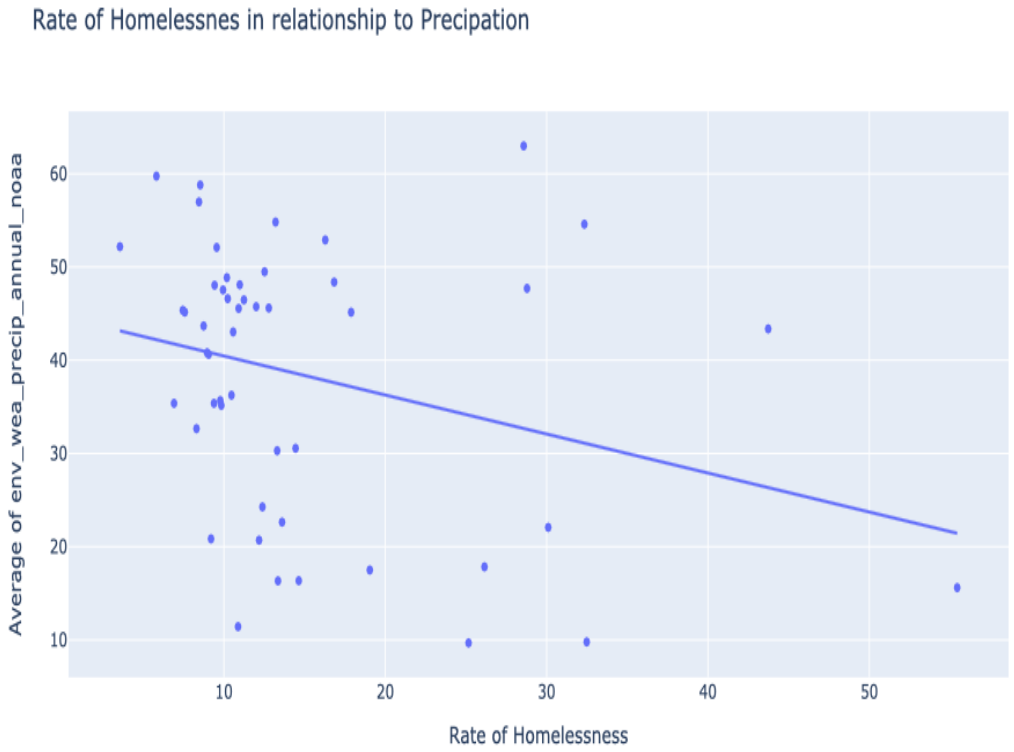


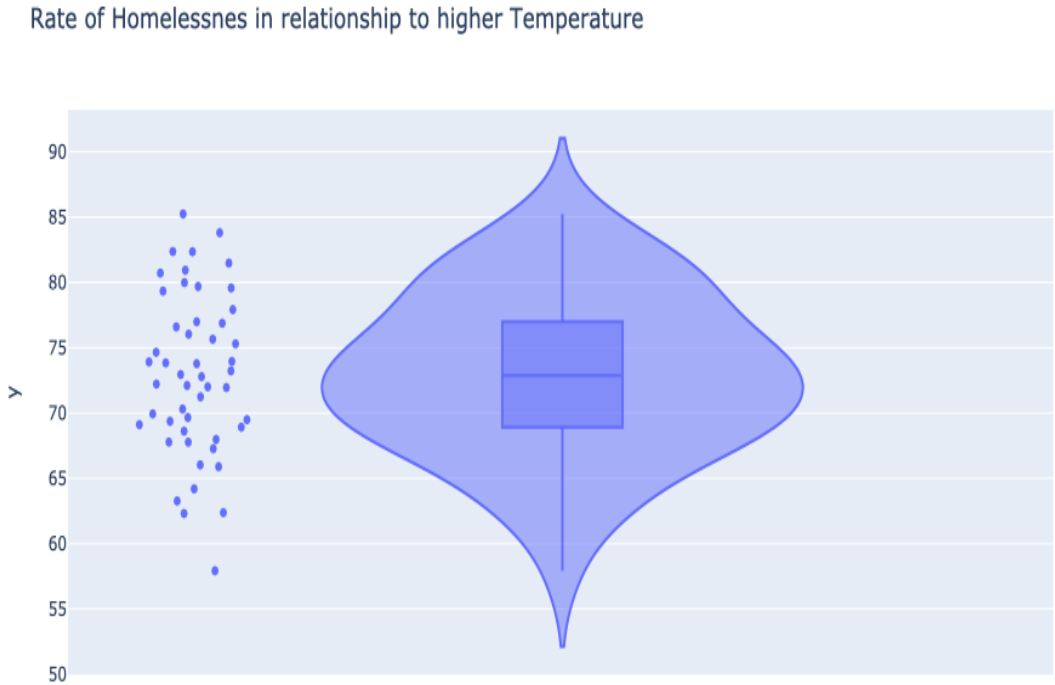
Not enough Shelters & Higher unemployment, Higher Homelessness



In 2016, 119,000 Homelessness people in California

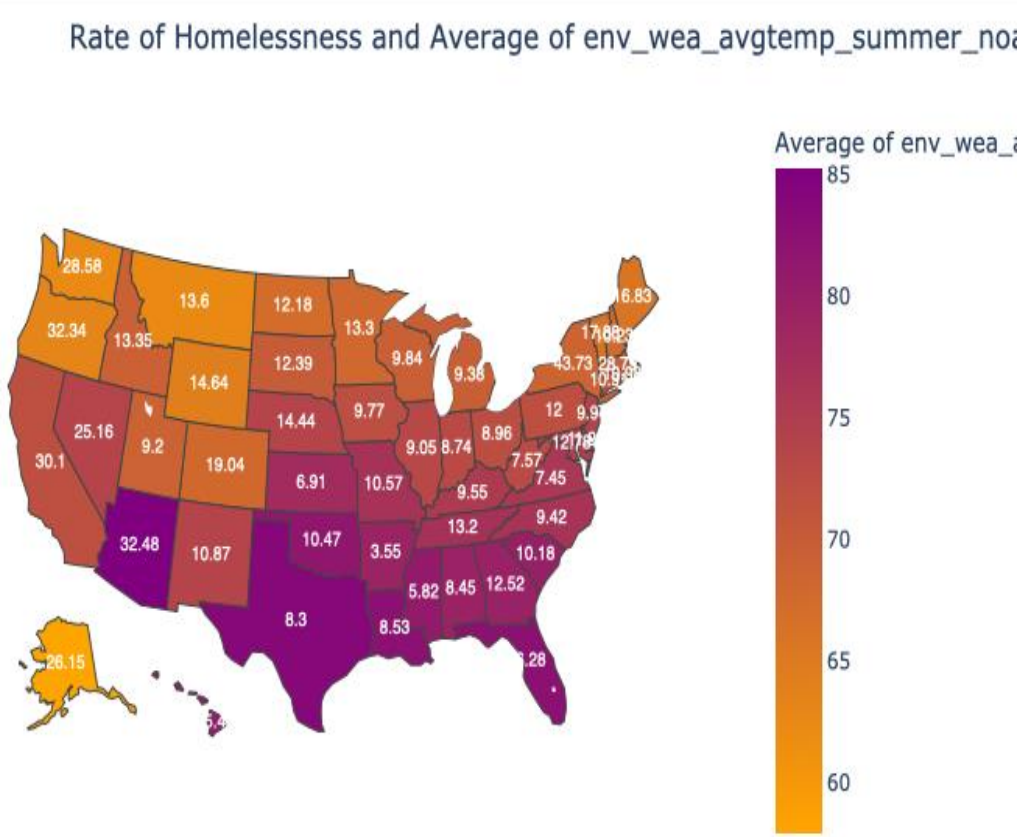
Need for 1049 shelters , California has an average of 3%

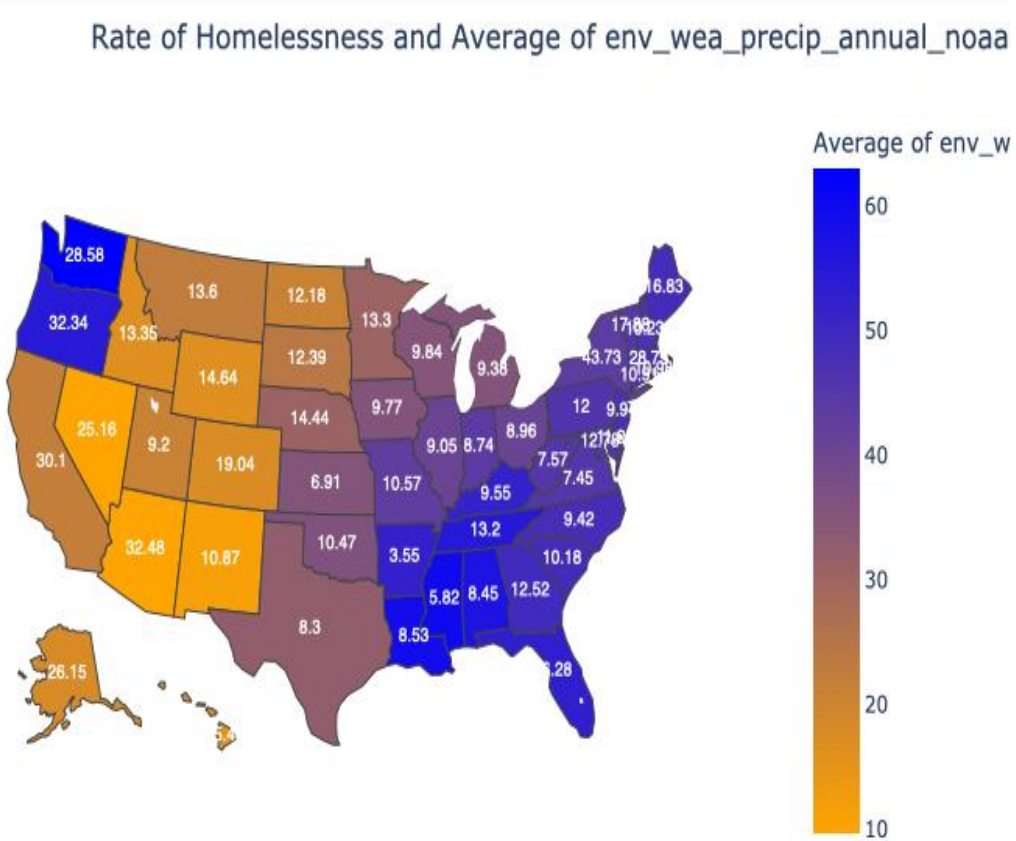


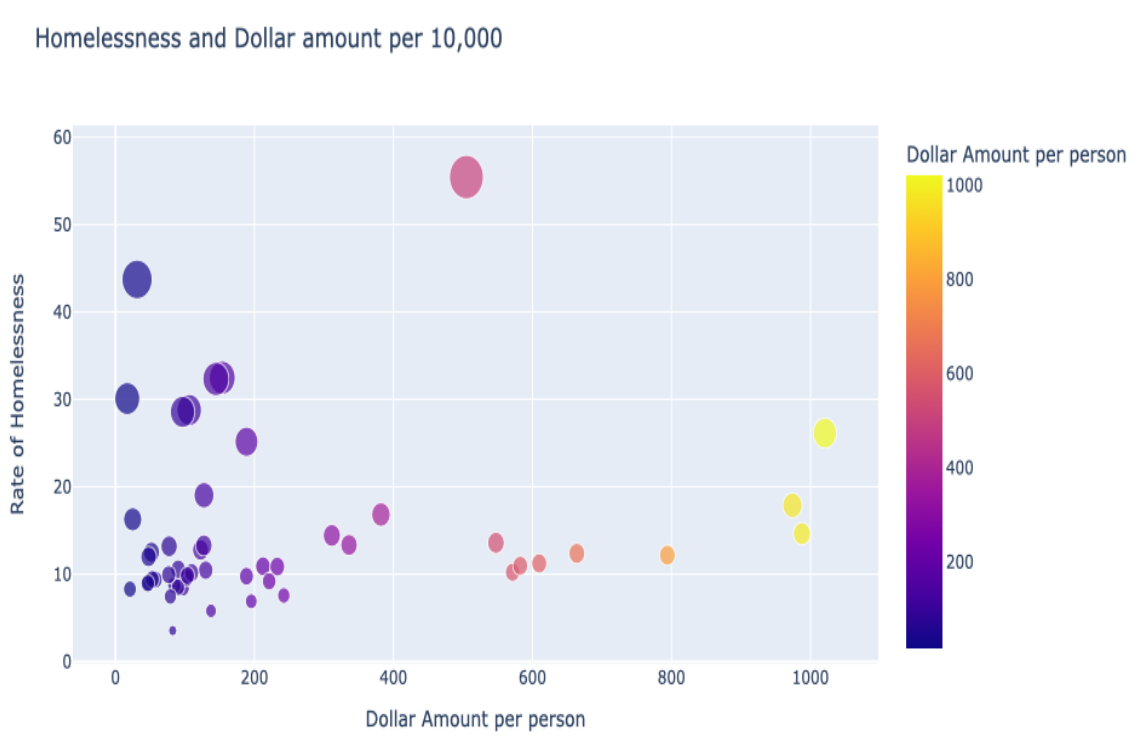


Climate Change Impact

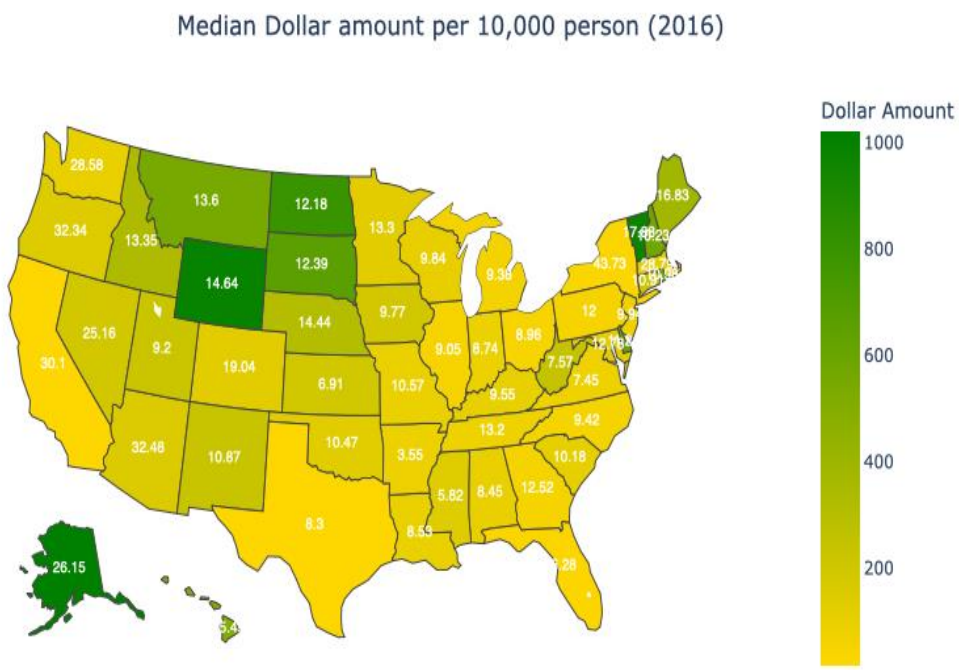
Climate Impact

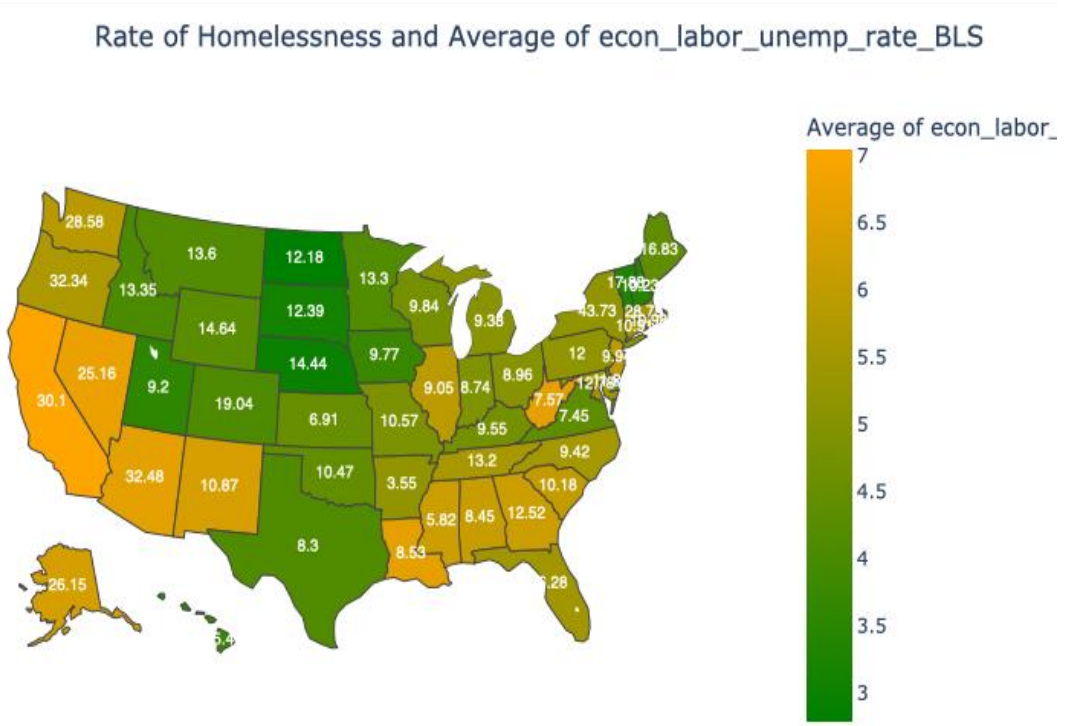






Economic Impact



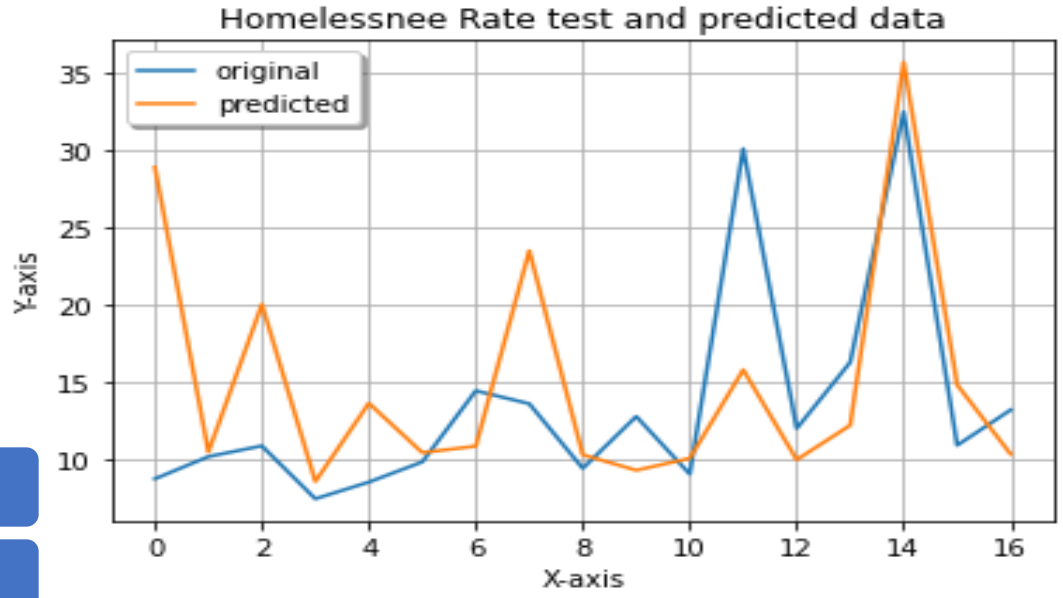


Economic Impact

Best Model

SGDRegressor ,

```
R-squared: 0.42798600017979627
MSE:  53.04453210617563
RMSE:  7.283167724704383
```

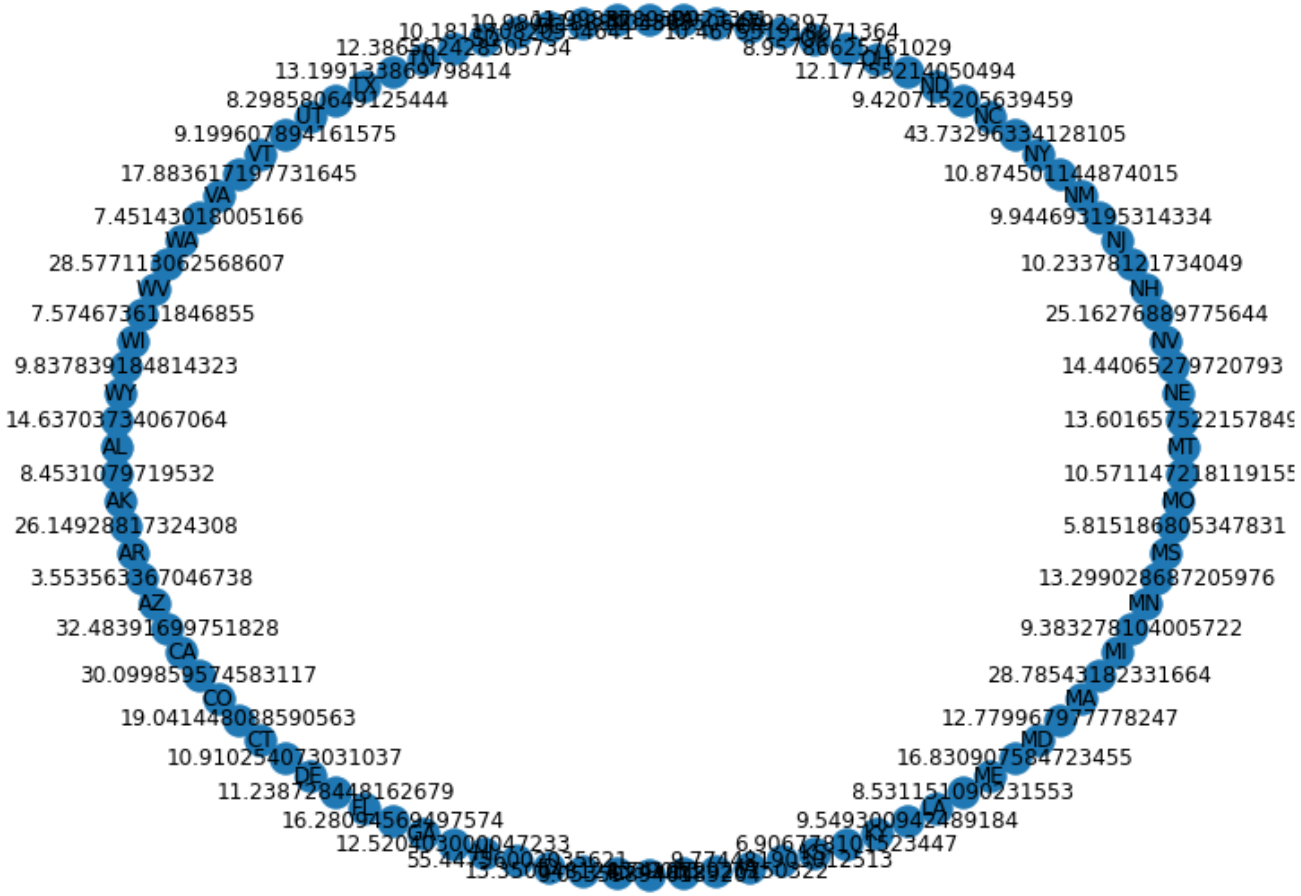


- Lasso,
- SGDRegressor ,
- LinearRegression,
- Ridge,
- BayesianRidge
- XGBRegressor
- DecisionTreeRegressor
- RandomForestRegressor

	Model	R-squared	CV mean score	Mean_Sq Error	Root Mean Square
0	(StandardScaler(), DecisionTreeRegressor())	1.00	-0.18	88.94	9.43
4	(StandardScaler(), XGBRegressor(alpha=0.4, bas...	1.00	0.19	94.79	9.74
1	(StandardScaler(), (DecisionTreeRegressor(max_...	0.89	0.33	54.69	7.40
5	(StandardScaler(), LinearRegression())	0.51	0.01	54.39	7.38
3	(StandardScaler(), Ridge())	0.51	0.08	52.33	7.23
6	(StandardScaler(), Lasso(alpha=0.4))	0.50	0.16	50.47	7.10
2	(StandardScaler(), BayesianRidge())	0.49	0.19	46.22	6.80
7	(StandardScaler(), SGDRegressor(alpha=0.4))	0.46	0.26	42.68	6.53

Insights and Factors

- Some of highest rate of Homelessness occurs in tourist states
  - Hawalli
  - New York
  - Arkansas
  - Oregan
  - California
- Some of lowest rate of Homelessness per state(high precipitation, Mild Temp.)
  - Arizona
  - Mississippi
  - Kansas
  - Virginia
  - West Virginia
- The less precipitation (snow, rain, etc) and more temperature raise
- High unemployment



What is next?

Graph Analysis

Revise based on comments

Add features impact homelessness base on access to drinking water

Question and Comments