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Project methods: Covid Food Security Data Set

**Introduction:** For this project, food insecurity estimates will be used as response variables to build a predictive model and a classification model to create groups of food insecure locations. To build both the predictive model and classification model I will be using python’s numpy, pandas, scipy and scikit learn libraries. An exploratory data analysis will be conducted to try and establish a more clear direction for model development and this will be done initially in Microsoft Excel and then Python libraries pyplot and seaborn will be used for report visualizations.

**Analytical Methods:** The proposed methodology for the predictive analysis will be to establish a baseline model using OLS and then building a series of models including penalized regression, random forests and neural net models. This will allow for a diversity of models and give us options to prevent overfitting our data. For my classification model I want to design a few different model types and try to find some common characteristics among the locations within each subgroup. I will be using K means clustering, hierarchical clustering and tree based models like a random forest. The total scope and breadth of models used has been touched on but may be expanded or contracted based on the development of the project.

**Potential Issues:** Some potential issues that may arise during this model development may be overfitting of data and difficulty establishing the cutoff point for food secure vs food insecure individuals. Consulting with online resources and my available faculty will likely provide any and all answers to detail based issues that might come up.

**Conclusion:** Overall this will be a fairly in depth look at food insecurity using a variety of basic demographic and other categorical data to predict the number of food insecure individuals as well as create groups of states that have similar needs and concerns around food insecurity.