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## ECE 143 Project Proposal: Food Insecurity

### Problem:

Food security is a measure of an individual's ability to access healthy and nutritious food; food insecurity or the lack of access to healthy food is a persistent issue around the globe. Society recognizes the problem of food insecurity yet it is unclear what are the significant factors. The cause of food insecurity is manifold. Social, political, and economical reasons are easy to identify, but the order of importance is often debated. With the unprecedented strike of COVID-19, food insecurity has become relevant now more than ever when lack of access to nutritional food has skyrocketed. With the bloom of big data, our ability to better understand the reasons behind food insecurity has been greatly enhanced. In our work, we wish to analyze and rank different factors that potentially contribute to food insecurity in order to strongly correlate food insecurity to relevant factors, and even offer possible solutions to some of the challenges.

### Dataset:

We wish to use a combination of multiple datasets studying aspects of food insecurity. One such example is the United States Census Bureau's Pulse Survey. These datasets contain racial, ethnic, and geographical and socioeconomic status of respondents which can be correlated to their level of food security. There are also recent datasets regarding the impact of COVID-19 on food insecurity.

### Planned Solutions:

Using a collection of various datasets we will create geographic data visualizations that illustrate how demographic trends relate to nutrition deficits across the country. We will also be ranking the importance of different factors with different mathematical algorithms such as principal component analysis. With different analysis techniques, we might also train a machine learning model to give predictions on food insecurity trends or an importance score.

### Timeline:

