**Capstone Ideas**Kyle Sanchez

1. **Residential Building Energy Efficiency**

Future development in architecture and civil engineering houses will have to consider making energy efficient homes in efforts to become more green. Data sets provided by a building design simulator containing different parameters of building design, what specs optimize an energy efficient house, based on heating and cooling? Can we predict to a certain confidence, if a given set of building measurements, how efficient a building is?

1. **Windfarm Power Prediction**

Windfarms across the US provide a very small fraction of electricity generation. Utilized government and industry research as well as meteorological wind data to study trends across different sites. Build a predictive model for hourly wind generation rate of wind farms using historical energy generation and weather data.

1. **Predicting Airplane Delay**

Air traffic around the world is subject to delays due to a number of reasons. Using data provided by government research, as well as third party organizations, can we find trends in what the biggest reasons are for airplane delay and cancellation? Use data to predict if and how long an airplane will be late given a number a variables.

1. **Energy Generation in the U.S. by Source and State**

Each state in the US has a number of ways it produces power using either renewable or natural resources. Use government data sets to show trends in types of power produced, time periods it produces it, and regions of the US that it is produced.

1. **Telecom Customer Service Turnover**

Telecommunication companies are notorious for having poor customer service. Given a data set containing a number of factors that customers look at such as bill price, tier of service, etc., can we model an algorithm to predict whether or not a customer will drop the service?