Research Question:

With a thorough understanding of measuring and rating home energy efficiency using this dataset, how well will my models perform when I add real-world data (in this case, all corresponding inputs related to my home)?

The data:

The dataset I am using comes from Kaggle. It was generated by simulating 12 different building shapes in Ecotect. Further simulation based on functions related to glazing area, orientation, surface area, as well as other features expand the dataset to 768 building shapes. The data aims to predict two real-valued outcomes (heating load and cooling load).

The process:

I will first conduct extensive data cleaning and analysis (already in progress) and get to know the dataset completely and how it performs using a variety of models. Next, I will do some independent research on how to measure the corresponding input data on my house.

Expected results:

I can honestly say at this point, I have no idea what to expect. My hope is that I can take this experiment further than I have been able to with the Practical Application assignments. I want to feed real-world data into my models and achieve some measure of verifiable accuracy. There are a fair number of unknowns at this point – namely how to understand and gather the data about my house. But that is a stretch goal. The goal of the assignment is to build a solid and flexible notebook

Why this question is important:

On a micro scale, my house loses heat like crazy. Studying the nature of the heat loss and gathering (historical) data will help me identify areas that can be improved upon to reduce heat loss. I believe there will be correlations to Heating Load in my dataset.

On a macro scale? I’m not thinking about this at large scale at this point. I also lack domain expertise and do not have a lot of domain intuition to bring to this – it is more of a personal interest of mine. But in an ideal situation, a study such as this could have definite benefits to commercial and residential heating and cooling optimization methods.