1. **The Problem:** This problem asks you to analyze data in order to recommend environmentally-friendly changes to everyday actions without lessening individuals’ quality of life. The data gives a peak into the lives of 1,000 individuals who rated several everyday activities (taking a long shower, driving a car, etc.) on a scale of 1-100 based on how important those activities are to their daily lives.

You are asked to write computer programs to find quality substitutes for activities that are high carbon emitters without reducing the happiness and utility that the individuals in the data obtain from these activities. This kind of analysis gives individuals an opportunity to hone their analytics skills on an interesting problem and dovetails with Wells Fargo’s commitment to environmental sustainability.

1. **Key Deliverables (“Solution”):**

Deliverable 1

1. Written description of how the data product succeeds mathematically in minimizing an individual’s carbon footprint with minimal negative impact on their utility.
2. Why the data product created is a good example of machine learning in action.

Deliverable 2

1. General idea of how individuals would interface, e.g. a visual representation of how individuals and the organization would interface.

Deliverable 3

1. Documented code that is operational and can be run using the data provided for processing the sample data and generating the output for your concept

**Publicity/Usage Rights:** Work conducted on this problem must be completed externally, only using personal devices (non-Wells Fargo computers, tools, etc.).

**Rubric**

1. **Defining the problem and the target – 25 points**
2. Was the correct problem addressed? **10 points**
3. How well did the target align with the goal of the problem? Extra marks for creating an index vs. using the total pollution variable in the data and for describing the rationale behind the components of the index created. **10 points**
4. Mathematical formulation of the problem. Was the team able to list the function for minimization and all the constraints mathematically? **5 points**
5. **Feature Engineering – 20 points**
   1. What features were excluded and why? **5 points**
   2. How were missing values handled? **5 points**
   3. What features were transformed, why and how? **10 points**
6. **Analysis – 30 points**
   1. What models were tested and why were these chosen? **3** **points**
   2. What was the thought process behind fine tuning each model and what evaluation metrics were used? **9 points**
   3. What evaluation metrics were used to compare across models? **9 points**
   4. What insights were provided? **9 points**
7. **Communications/Visualizations – 25 points**
   1. Description of overall goal and results. **8 points**
   2. Effective use of visuals, including choice of visuals, page layout and use of real estate. **8 points**
   3. Flow of the presentation. Was there a summary and recommendations upfront, did the presentation take the reader through the process? **9 points**