Technical Problem Presentation

The purpose of this assessment is to evaluate your ability to execute an analysis process given a new dataset and present results. Please spend no more than 3-4 hours completing this analysis and presentation.

The business partner has two primary objectives to get from this analysis:

1. Obtain a model that will estimate shipping cost (column “Cost”) for new selections of input variables.  Assume we could change route class and priority if desired.  The data provided includes all possible shipment origins but not all future shipment destinations as we regularly get new customers.
2. Determine if there are any outliers in the historical data suggesting a higher-than-expected shipping cost that would warrant a follow-up with transportation suppliers regarding their rates.

Use R or Python and any modeling technique(s) that you are comfortable with to create a model of cost that you feel captures most of the signal present in the dataset and rejects most of the noise.  See below on how to obtain the data.  As a check, the dataset should be comprised of 306 rows and 8 columns.

To obtain the data in R:

shipment\_data = read.csv('<https://raw.githubusercontent.com/bmewing/technical_assessment/master/data.csv>')

To obtain the data in Python:

import pandas as pd

shipment\_data = pd.read\_csv('<https://raw.githubusercontent.com/bmewing/technical_assessment/master/data.csv>')

Prepare a presentation for the business partner that communicates your ability to meet the stated objectives and any other follow-up issues that may need to be addressed.  Keep in mind the business partner is generally a non-technical person.  You should target 20-30 minutes for the business partner presentation.

As a part of your presentation, please begin by telling us about you.  It would be good to at least include your education and some of your relevant course work.  Anything else you want to share such as how you became interested in mathematics, statistics, machine learning, fields of interest, or even hobbies would be fine.  This should no more than 5 minutes of the targeted 20-30 minutes mentioned above.

Following your presentation there will be time for questions.  You should be prepared to discuss, explain, and justify the technical details of your approach to members of the AI/ML Technology team.