Introduction to Data Analysis (DATA 1200)
Assignment #2 – Predictive Modeling (15% of Final Grade)
Professor: Sam Plati

John Hughes just concluded collecting data regarding weather metrics and placed them in the **weatherconditions.csv** dataset.

The variables are as follows:

Independent Variables:

Humidity – Relative Humidity % (in decimal form)
Wind Speed (km/h) – Average wind speed in km/h
Visibility (km) – Average visibility in km
Pressure (millibars) – Average pressure in millibars

Dependent Variable:

Temperature (C) – Actual Temperature in Celsius

The Ask:

1. Python Code – *2%*
   a) Using Python develop a **Multivariate/Multiple Regression Algorithm** script to predict Temperature (C). Attach a separate HTML copy of your Python Code with your submission

Note: All steps need to be annotated (i.e. As per the Wk4b-MLRExample)

2. Create a PowerPoint (PPT) presentation that includes the following:
   a) Cover Page (Title, Name (1st and last) and Student Number)
   b) Present and Explain **three (3) insights** from the Dataset (i.e. Mean, Std Dev., etc.) – *3%*
   c) Present and Explain the Regression Model (i.e. full model and explain coefficient meanings) – *4%*
   d) Present and Explain **three (3) insights** from the Model metrics (i.e. Adj. R^2, MAE and RMSE) – *3%*
   e) Present and Explain **three (3) ways** to help improve the performance of the Regression model. Please justify each of your answers. – *3%*

Hint: Leverage Wk4b-MLRExample

Please post your PowerPoint (.ppt or .pptx) and HTML Python Code via assignments under Assignment #2 by

Friday, February 11th, 2022 @ 11:59 p.m.

Grading Rubric

	Exemplary (14-15)	Proficient (10-13)	Incomplete (7-9)	Needs Improvement (0-6)
Python Code ***(2%)***	Python HTML file is complete	Python HTML file is mostly complete. Missing headings or structure.	Python HTML file is incomplete. Incorrect use of heading or code.	Python HTML file is missing or incorrect.
PPT ***(13%)***	Cover Page Complete Three (3) Dataset insights presented with explanation/ justification Regression Model (i.e. coefficient meanings) presented and explained in detail Regression Model metrics (i.e. Adj. R^2, MAE and RMSE) presented and fully evaluated Three (3) ways to improve the model have been identified with detailed explanations.	Cover Page Complete Three (3) Dataset insights with high-level explanation/ justification Regression Model (i.e. coefficient meanings) presented and with high-level explanations Regression Model metrics (i.e. Adj. R^2, MAE and RMSE) presented and with high-level evaluations Three (3) ways to improve the model have been identified with only high-level explanations.	Cover Page missing a least one element Less than three (3) insights and/or Missing explanation/ justification Regression Model (i.e. coefficient meanings) not presented and/or missing detailed explanations Regression Model missing some metrics (i.e. Adj. R^2, MAE and RMSE) presented and/or evaluations Less than Three (3) ways to improve the model have been identified and/or incomplete explanations.	Cover Page Missing Answer is missing or incorrect. Missing Regression Model or incorrect Regression Model missing metrics (i.e. Adj. R^2, MAE and RMSE) missing or incorrect Missing ways to improve the model and/or incorrect.