Weekly Progress Report

Submitted by:

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Project Title: INTP22-ML-2 Remaining Usable Life Estimation (NASA Turbine dataset)

Objectives:

1. Understand the components and working of Turbo Engine.
2. Understand the dataset and analyze dataset
3. To learn about different Python libraries and their implementation.
4. To develop model for remaining usable life estimation

Task done in this week:

1. Plotted graph for health index and cycles for all engines.
2. Implemented stationarity test on dataset.
3. Processed data for training regression model.

Plotted graph for health index and cycles for all engines
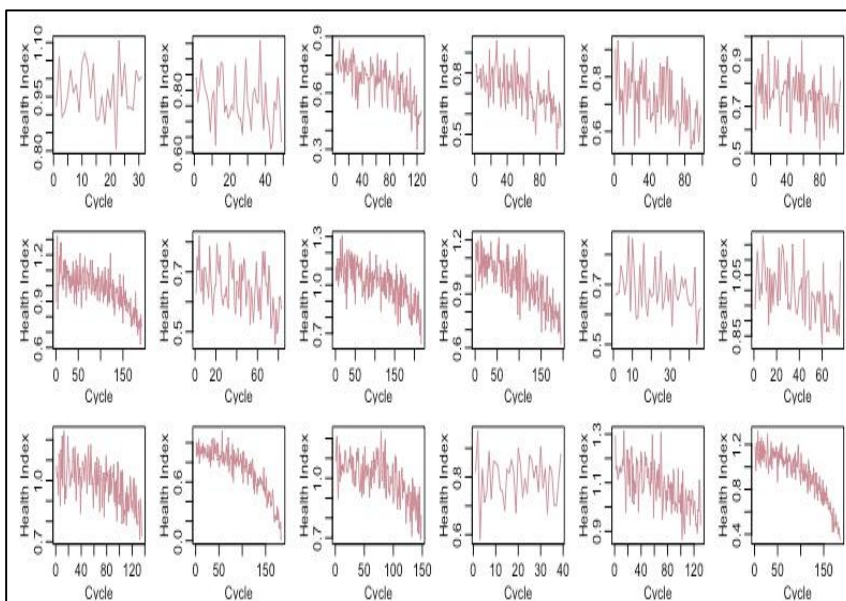
To understand the degradation pattern of each engine calculated health index using health index function and plotted graph for health index of all engines.

Above picture shows the graph of some engine data.

Implemented stationarity test on dataset.

watched some videos on YouTube about what is stationarity, how to find and remove stationarity. Got to know about rolling statistics test and ADCF test for checking stationarity and tryied to implement these tests given dataset.

Processed data for training regression model.

to select features for training the regression model plotted a heatmap between features and RUL. I got results as shown below.

After observing the heatmap I deleted the features which were having coefficient of correlation less than 0.5. features which were having coefficient of correlation less than 0.5 were not contributing much to the RUL column so deleted those features.

 Following features were having coefficient of correlation less than 0.5:

'OpSet1',

 'OpSet2',

 'OpSet3',

 'SensorMeasure1',

 'SensorMeasure5',

 'SensorMeasure6',

 'SensorMeasure9',

 'SensorMeasure10',

 'SensorMeasure14',

'SensorMeasure16',

'SensorMeasure18',

'SensorMeasure19'