Tutorial 3 of Assignment: eXplainable Artificial Intelligence (XAI) for the Maintenance of a Turbofan Engine

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Introduction

This is a coding tutorial (03) to support the 2024 assignment. This tutorial is meant to help develop the assignment in an easy and reproducible manner.

Goal

The overall goal of this tutorial is to implement some explainability method on the project.

Data

You can find the assignment data at: https://www.nasa.gov/content/prognostics-center-of-excellence-data-set-repository (Turbofan Engine Degradation Simulation - 6)

You should download the "train_FD001.txt" dataset. This is a dataset of engines that exhibit only one fault mode and one operational condition. The other datasets, which you can also use, are more complex. The "test_FD001.txt" file and the other test files have smaller trajectories and should **not** preferably be used.

Instructions

1. We assume that we have completed tutorial 1 and 2.

2. Implement t-SNE. Please check Sklearn T-SNE.

Extra Instructions

1. Implement SHAP

2. Implement LIME