Project 3 - Manufacture - Enterprise Asset Maintenance

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https://github.com/rahulgupta271/DSC680_Project_3_Enterprise_Asset_Maintenance

Which Domain?

This project will concentrate on the patterns in industrial domain. I do have background in the banking industry, I'm fascinated in how Industrial and manufacturing companies predicts the upcoming maintenance of their assets and equipment.

Reference For this project are mentioned below:

1. https://gallery.azure.ai/Experiment/Predictive-Maintenance-Implementation-Guide-Data-Sets-1

2. https://limblecmms.com/blog/predictive-maintenance/3. Jake Huneycutt, May 18 2018, "Implementing a Random Forest Classification Model in Python",

3.https://docs.oracle.com/cd/E39583_01/fscm92pbr0/eng/fscm/fwkm/task_PerforminganAssetMaintenanceCostAnalysis-677feb.html

4. https://www.ni.com/en-us/landing/condition-monitoring.html?cid=Paid_Search-a243q000004k8S4AAI-Consideration-Google_ConditionMonitoring_AssetMonitoring&gclid=CjwKCAiAsaOBBhA4EiwAo0_AnPwcLs0xrsTgJeuPwrubCod9gCey2feY79sGWi5qBlSaXSyn7J6d1xoCRaQQAvD_BwE

5. cognizant.com/whitepapers/using-predictive-analytics-to-optimize-asset-maintenance-in-the-utilities-industry-codex964.pdf

6. https://www.g3pconsulting.com/en/reliability-maintenance-management/asset-criticality-analysis

7. https://www.fiixsoftware.com/blog/evaluating-maintenance-strategies-select-model-asset-management/

Which Data?

This is the experiment that has the data sets used in the collection "Predictive Maintenance Modelling Guide". Created by a Microsoft Employee.

Data set is available at the link –

https://gallery.azure.ai/Experiment/Predictive-Maintenance-Implementation-Guide-Data-Sets-1

Research Questions? Benefits? Why analyzes these data?

In the industrial industry, downtime for heavy equipment costs a lot of dollars, both in terms of time spent due to maintenance work and in terms of repair costs.

If companies would be diligent to conduct routine maintenance activities proactively along with anticipating problems prior to the use of historical records, it can be a major boost to their bottom line.

My motivation in this area is to chat to a friend who works for an analytics company focused specifically on Industrial analytics.

What Method?

Feature engineering and labelling is done in the R Notebook of the collection. Before going through the R notebook. I'm more inclined to use R to discover correlations, as I've always found it easier to use than Python.

Potential Issues?

For me, one of the greatest problems I see would be that I could not identify any real meaningful associations, as my intuition would be that there are actually a variety of correlating characteristics. This is going to go off track if I concentrate more on one thing than the others and lose sight of time control.

Concluding Remarks

I'm interested in getting a career in analytics, and as analyses on Enterprise Asset Maintenance appears to be a growing focus in the world of data science, I decided to discuss this field in order to gain more insight in learning how we can predict the future maintenance and save the operational costs at Enterprise level.