Capstone 2 - Project Proposal

Energy Facility Predictive Maintenance

1. What is the problem you want to solve?
    a. Explore and model the inspection history and operational data of an energy facility
    b. Determine how process events have impacted maintenance activities
    c. Create a predictive model that can help engineering and maintenance determine when a part needs to be replaced or how much life is left in an existing component of the facility.
2. Who is your client and why do they care about this problem? In other words, what will your client DO or DECIDE based on your analysis that they wouldn't have otherwise?
    a. An energy company
    b. Parts are currently being replaced with appreciable life left in them, wasted money on materials, labour and lost production
    c. Improve maintenance practices to save money and generate more production
3. What data are you going to use for this? How will you acquire this data?
    a. Inspection history (run hours, measurements, replacement events, materials changes)
    b. Operating data (density, flow, pressure, particle size distribution)
4. In brief, outline your approach to solving this problem (knowing that this might change later).
    a. Explore the inspection data for trends
    b. Explore the operating data for trends
    c. Pair the data sets based upon date
    d. Model the data for features that impact a replacement
    e. Pca, XGBoost, clustering of operational data
    f. Model to predict %likelihood of failure in X number of hours
5. What are your deliverables? Typically, this would include code, along with a paper and/or a slide deck.
    a. Code, paper, slide deck
    b. Model that can be used and sustained by the business