Project 1 Q&A

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https://nestingen.github.io/DSC-680-MRO-Inventory/

1. You state that holding too little inventory can cause downtime. Can the cost of downtime be quantified?
    a. The cost of downtime is dependent on what machine is down. If a paper machine is down at a mill, it is estimated that one hour of down time costs $100,000. This is significant especially if the machine is down for multiple hours. This number will be less if a machine was down at a plant because of the volume flowing through the machine.
2. Why are there two systems to pull inventory from for one company?
    a. The company I analyzed has had many mergers in the last 10 years. They are working to combine to one SAP system but in the meantime, we must pull our data from various systems to understand the entire network.
3. How did you combine the transactional data set and the inventory data set together?
    a. I grouped the transactional data set by plant and material and kept only the first time that material was received. I then used a left join to combine the inventory data with the transactional data. I wanted to keep all the inventory data even if there was not transactional data to pair with it.
4. How many rows of data were in your data set and how long did it take to run?
    a. There are 10 million rows of data in my data set. It took 20 minutes to combine it all and add new measures. Qlik Sense stores files in a QVD format which are more compressed files.
5. How do you bucket the change in inventory for a part that has a price increase and a quantity decrease?
    a. The price change is measured by the current price minus the previous price times the current inventory. The on-hand quantity change is measured by the current on hand balance minus the previous on hand balance times the current price. This normalizes one aspect while calculating the other.
6. How did you flag Capital Spares?
    a. Capital spares had specific valuation classes or material grouping. I used an if statement in the load script to create the capital spares flag.
7. Could the transaction history be used in another piece of the analysis?
    a. The transaction history could be used to determine usage. This may be helpful when people are determining a safety stock level.
8. Can this tool be used to detect obsolete parts?
    a. By using the transaction history, there could be a list of possible obsolete parts to review that have no usage in the last 3 years. People must be carful when determining obsolete parts because some parts are used very infrequently but are still needed.
9. Did the 100 unit threshold work for the Quantity flag? Did you need to adjust it?

    a. When I looked at the distribution of quantity for the materials, I originally determined that 200 units should be the threshold. After further investigation, I went with 100 units because there were still outliers when I used 200.
10. What are the next steps from the findings in this analysis?
    a. I would want to talk with the storeroom managers at the plants and mills and understand how best to tackle price inflation. I think getting parts quoted across multiple facilities could help gain better prices per part. Alongside that initiative, I would like to set up a review of low usage parts to determine if they are obsolete and can be removed from the storeroom.