Week 2 - Check In 3/24/19

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**Assignment:**

This assignment is composed of two parts from Week 1 and 2. You will need to complete the tasks provided on the pages below, and submit both in Canvas by the end of this week:

* [**Step 1: Plan Project by Asking Questions**](https://maryville.instructure.com/courses/35609/pages/step-1-plan-project-by-asking-questions) and
* [**Step 2: Loading the Dataset**](https://maryville.instructure.com/courses/35609/pages/step-2-loading-the-dataset)

**Questions:**

What is the story of WWI? How does is operate? What’s its business structure?

How does WWI make money? Or lose money?

What data is in the warehouse? Sales, orders, customers, products and product categories…

What is demand trend?

What is replenishment rate? Back-order rates?

How is ROI calculated?

What charts, tools, prediction methods to use?

What are the business goals of various departments? Sales, Inventory, Accounts

What are the best-selling products and how to keep them in stock? Where is sales underperforming?

Do prices change over time? Are they consistent?

Where does WWI hope to expand, improve, make changes?

How can WWI maximize revenue and sales?

What is the impact of items on backorder?

Information links about WWI:

**Weeks 1 - 2:**

There are 2 business concerns that are going to be of interest to the company.

* It will be important for the company to predict sales and order volume and to this end minimize the back ordering of items as this could impact ROI.
* It will be essential to predict if new products are successful and adding chilled items that need special handling.

**Project Plan**

* **State** why these factors are important to the business?
  + It’s important for the company to predict sales and ordering. Having items on back order may negatively impact sales. Knowing customer preferences could be useful in this. In addition, sales in one area or category could help increase sales in others. Ultimately, the business needs to look at areas that could affect product demand and provide accurate predictions.
  + Secondly, any addition of new products needs to be analyzed for metrics of success to see if new products are developing the business and not hindering it.
* **Describe** the step-by-step your plan over all eight weeks, what steps you will perform and how these steps are helpful towards the next step and the overall goal of the project.
  + **Step 1:** Generate questions. Ongoing.
  + **Step 2:** Ensure data is uploaded to SSMS. Completed. Installed on my own personal computer and have also accessed the VM as a back-up.

**Step 3:** Perform ETL process for WWI DW sample and run preliminary SQL queries. Create data tables for running R code. Any pre-processing of data, formats, types, etc. This may be where we see if our predictions are on track, as we load new data over time.

* + **Step 4:** Perform EDA. Charts, plots, trends, models, algorithms. Assess plan. Update plan as needed.
  + **Step 5:** Develop prediction model, training and test set design, assessing and visualizing results, design.
  + **Step 6:** Write-up of previous 2 steps. Look for novel approaches to visualization. Pros and cons of each.
  + **Step 7:** Identify key findings, problem and how handled. Develop as part of the data story for final presentation. Did we answer initial questions? What changed?
  + **Step 8:** Presentation details. Slides and a recorded screen flow. Graphs and visualizations to include that best tell the WWI story. Self-reflection and the project process. Lessons learned.
* **Choose** at the minimum two factors to study throughout the project. (For example, how the replenishment rate affects the ROI.)

1. How back-ordering can impact the sales of certain items.
2. Is there a relationship between product sales of similar products?
3. If there are new products how to determine the benefit to the business of these new items.

* What trends can be detected in a dataset of products sales? Predict sales of product by adjusting for certain features. Predict sales of similar products, assess how to optimally price products.
* **Example :** What should be the replenishment rate for next couple of weeks based upon the demand or sales to yield optimal ROI?  (**NOTE:** *You may not actually build the Prescriptive Analytics (Optimization) in this project; however, the question helps you to work your plan towards it. You will find the sales/demand trend from the data and predict future demands and then adjust the replenishment rate to increase the ROI.*)