

## Scenario

Within an international manufacturer, you are part of the new worldwide capacity planning team (WWCP). Historically, products have been shipped based on salesperson input. For example, Brian covering the West region near “Whse\_J” will say he has a customer needing 100 of “Product\_0979” starting in Dec. As a result, 100 units of Product\_0979 will be shipped in November to account for the 30 day shipping time. However, customers may delay purchases or cancel them altogether. Relying on sales person input alone has led to overstock and understock situations throughout the warehouse network.

Since the WWCP team is new it must establish trust with sales personnel to get them to relinquish inventory control. They do not want to have out of stock items for customers and are hesitant to let an outsider team do the inventory planning. As a result, your boss asks you to forecast the most frequently ordered item for each of the warehouses.

**You are asked to examine the data, identify 4 products and construct a forecast for the next 12 months for each. All information for your analysis and your 12-month forecasts, and evaluations should be organized into a presentation. Your team will present to the head of sales who is skeptical of your efforts so you must articulate the chosen method not just dictate forecasts. Your team will need to turn in code and PowerPoint slides.**

**\*\*On the day of the presentation, in addition to emailing electronic slides, print 3 copies for the professor and TAs to take notes\*\***

## Data

Source: <https://www.kaggle.com/felixzhao/productdemandforecasting>

The dataset contains historical product demand for a manufacturing company with footprints globally. The company provides thousands of products within dozens of product categories. There are four central warehouses to ship products within the region it is responsible for. Since the products are manufactured in different locations all over the world, it normally takes more than one month to ship products via ocean to different central warehouses. It would be beneficial to the company if accurate forecasts could be attained.

## Example Data

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Product\_Code | Warehouse | Product\_Category | Date | Order\_Demand |
| Product\_0993 | Whse\_J | Category\_028 | 7/27/2012 | 100 |
| Product\_0979 | Whse\_J | Category\_028 | 1/19/2012 | 500 |
| Product\_0979 | Whse\_J | Category\_028 | 2/3/2012 | 500 |
| Product\_0979 | Whse\_J | Category\_028 | 8/29/2012 | 500 |
| Product\_0979 | Whse\_J | Category\_028 | 9/18/2012 | 500 |
| Product\_0979 | Whse\_J | Category\_028 | 10/11/2012 | 500 |
| Product\_0979 | Whse\_J | Category\_028 | 11/1/2012 | 500 |
| Product\_0979 | Whse\_J | Category\_028 | 11/29/2012 | 500 |
| Product\_0979 | Whse\_J | Category\_028 | 12/26/2012 | 500 |

## Summer Course Supplemental

You will receive an initial script with code examples to get you started since the course is shortened.

## Criteria for Success

The presentation will be evaluated on a 5 pt scale with the following criteria.

* **Organization** – Was the presentation well organized?
* **Delivery** – Was the content delivered clearly and persuasively with the audience in mind?
* **Documentation** – Was the data mined to support the conclusion?
* **Data Mining Proces**s – Did the team approach the problem similar to steps outlined in page 19 of the book?

## Another resource may be public kaggle kernel

*Keep in mind this may not be helpful as the author is examining mean and linear modeling for all items globally. Your task is to examine only 4 and perhaps provide non-naïve forecasting or a linear model as described.*

<https://www.kaggle.com/cgaydon/forecasting-product-demand-with-simple-models>