**Work to Submit: Three ideas Capstone Project 1**

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**IDEA 1: DEMAND FORECASTING FOR A RETAIL STORE**

*What is Demand Forecasting?*

Demand forecasting serves as the starting point for many other activities, such as warehousing, shipping, price forecasting, and, especially, supply planning that aims at fulfilling the demand and requires data on the anticipated needs of customers. It refers to predicting the future demand of a product or service based on external and internal factors.

*Why it is important?*

Demand is volatile and depends on factors like geography, competitor sales, new product launch, marketing, customers, weather conditions etc. This volatility in demand can lead to at times to lost sales if demand overshoots or build up in lot of inventories if demand goes down. So it becomes imperative for companies to forecast demand to reduce inventory costs and increase sales.

Demand planning *Current method used and available Data Sets:*

Currently companies use traditional statistical forecasting like linear regression and time series models. But as markets become more volatile and uncertainly increases, predicting becomes difficult and this where machine learning can help us. This problem is very frequently solved and data sets are available in Kaggle. Grupo Bimbo and Big mart dataset are few examples of the same.

**IDEA 2: PREDICTING CARDIOVASCULAR DISEASE RISK BASED ON PATIENT DATA**

*What is a cardiovascular disease?*

All conditions affecting related to hear and blood vessels comes under cardiovascular disease. Some of the examples include heart attack, High blood pressure, etc.

*Why it is important?*

Cardiovascular disease is the leading cause of death worldwide and a major public health concern. Therefore, its risk assessment is crucial to many existing treatment guidelines. With the current lifestyle, people are more prone to heart diseases. By predicting the heart diseases before it actually happens, we can save many lives. Also we can suggest people to change their lifestyle and take precautions. Hospitals and many Healthcare companies are beneficiary of this. Government and Policy makers can also use to provide good quality healthcare to its citizens.

*Current method used and available Data Sets:*

Earlier there wasn’t any attempt to predict cardiovascular disease. It was just based on few symptoms and doctor experience. Now with healthcare data becoming public and machine learning techniques coming into play, data scientist around the word have jumped to solve this problem. Kaggle has a data set which was created by 3 institutes from Clevaland, Switzerland and Hungary. This data set has been used worldwide by ML engineers and so its proven data.

**IDEA 3: PREDICT BACK ORDER FOR ANY PRODUCT IN A SUPPLY CHAIN**

What is Back order?

Back order is part of reverse logistics. So whenever a customer returns back the product due to issues like defect, size not proper, delay etc. can be referred to as “Back or Return order”.

Why it is important?

This return products directly affects the supply chain in terms of costs and speed. At times a separate supply chain needs to be created to cater to return orders. Also predicting return orders help companies identify customer behaviour. This problem is vital for online sales company like flipkart, amazon etc to solve for.

*Current method used and available Data Sets:*

The volume of returns have increased with onset of online sales and so predicting this is still a new phenomenon. I found one data set relating to return order which I believe can be used.