**Weekly Report - 6**

**CSE 523 Machine Learning**

Group Name: **Mavericks**

**Store Sales – Time series Forecasting**

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1. **Task Performed in the Sixth week:**

* Adding some new data frame using Zero forecasting.
* Feature Engineering for holiday data.
* Feature Engineering for oil prices data.

1. **Outcome of the task in the Sixth week:**

* Use of Zero forecasting for adding new data frame:

1. We temporarily removed the data of some stores that don’t sell some product families.
2. The products whose forecasts was 0 for the next 15 days were removed from the data.
3. Then we created a new data frame for the product families which never got sold in order to combine with our predictions at last.

* Feature engineering with respect to holiday and event data:

1. After analysing the holiday and event data, we found some national holidays to be transferred.
2. So, we split the data on the scope of the holidays whether it was regional or national or local.
3. For the simplicity, we only kept the national holidays and extracted the duplicate holidays.
4. The holidays with a higher average sale were not dropped as we considered it as more important holidays.
5. We also have set the date as index from the holiday data column.

* Feature Engineering for oil data:

1. Pre-processed the oil data and had taken 7-day average oil price.
2. The null values in the oil data were filled with the previous day oil prices.
3. Discovered the lag prices of the oil and had also set the date as index.
4. **Task to be performed in the next week:**

* In feature engineering, creating Fourier feature for the deterministic process.
* Merging all the datasets in feature engineering.
* Exploring the best fit algorithm for the model.