**Weekly Report - 4**

**CSE 523 Machine Learning**

Group Name: **Mavericks**

**Store Sales – Time series Forecasting**

| **Group Members** | **Roll No.** |
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1. **Task Performed in the Fourth week:**

* Researched on the Ecuador’s economy by reading an article from IMF.
* Found a simple solution for the missing data points in the daily oil data.
* Understood the correlation between sales and transactions through its value.

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

* Article about the Ecuador’s economy from IMF:

1. In 2014, because of the increase in the oil prices, Ecuador’s economy was found to be weak and this led the public debt to be doubled over last five years.
2. Ecuador has committed to a new economic program that seeks to put public debt firmly on a downward path and it is based on the key pillars like fortifying the institutional foundations of Ecuador’s dollarization, to boost the competitiveness and create jobs and to improve transparency and strengthen the fight against corruption.
3. Apart from this found how plan address this challenge, how program will support jobs and more workers in the formal labour market and lastly how the government protect social spending under the plan.

* Solution for the missing data points in the daily oil data:

1. As we can treat the data by using various imputation methods, we choose the simple solution for that is linear interpolation which is suitable for this time series.
2. We observe the trend and predicted the missing data points by looking at the time series plot of oil price.

* Correlation between the sales and transaction using its values:

1. Found that the correlation values were not strong but the sign of the sale was negative.
2. Using that we found the negative relationship that if the daily oil price is high than we expect the Ecuador’s economy is bad and it means the price of the product increases and sales decreases.
3. **Task to be performed in the next week:**

* Drawing a scatter plot for the product family to analyse deeply for daily oil products price and sales.
* Examine the store sales as it is the main objective for prediction in the model.
* Exploring the best fit algorithm for the model.