ReCurrency Network Interim Report

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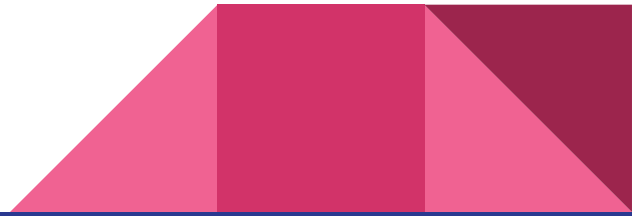
Introduction

Through this project, we wish to be able to predict currency futures, specifically targeting the USD/INR exchange rate.

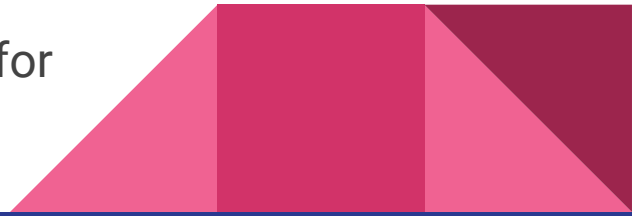
At the end of this project, we will strive to have a weekly forecast.



Dataset

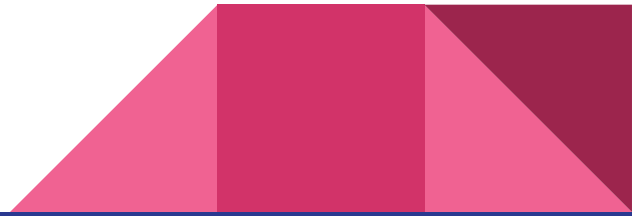
We scraped and created the dataset on our own on reading several papers in this domain. We came up with the following parameters -

Open, High and Low price for a day
Gold price - India
Inflation Rate - USA
Inflation Rate - India
Foreign Direct Investment - India
Foreign Direct Investment - USA
Using the above features, we try to predict the price for the next day.



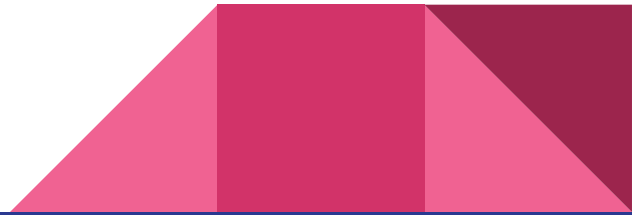
Results

After performing some analysis on the data (we can present during the interaction due to lack of space), we ran some basic regression models.
A basic Linear Regression model gave us an RMSE of 0.2823.
We generated a correlation matrix for the features to look for some linear relationships between the data and found that there were quite a few cases of linear dependence.
We also ran a Polynomial Regression Model which gave us an RMSE of 0.2884.



Results

We ran an SVM classifier to try and determine the direction of movement of the price.
We only achieved an accuracy of 56.7% on the classification accuracy front, and this was done with an RBF kernel. We obtained the hyperparameters required for this accuracy with an extensive grid search.



Next Steps

Implementation of our RNNs to try and reduce our RMSE considerably, and increase our classification accuracy.

We will also analyze a little more, performing PCA/t-sne to determine the features actually contributing to our model and try to finetune to those features / use those features to generate more meaningful data to help improve performance.