

Currency Exchange Rate prediction

Introduction:

It is generally defined as the price of one currency expressed in unit terms of another currency is known as the exchange rate. The exchange makes it possible to determine the relationship between a domestic - foreign currency.

Now, how can we use the concept of Machine Learning in predicting the future values of the currency?

Predicting the currency exchange rates is the regression problem in Machine Learning.

Regression Problem: Regression is a type of problem that use machine learning algorithms to learn the continuous mapping function.

Factors affecting Exchange Rate:

1. Inflation
2. Interest rates
3. Country's current Account deficit
4. Terms of Trade
5. Political stability and Economic
6. Performance
7. Public debts

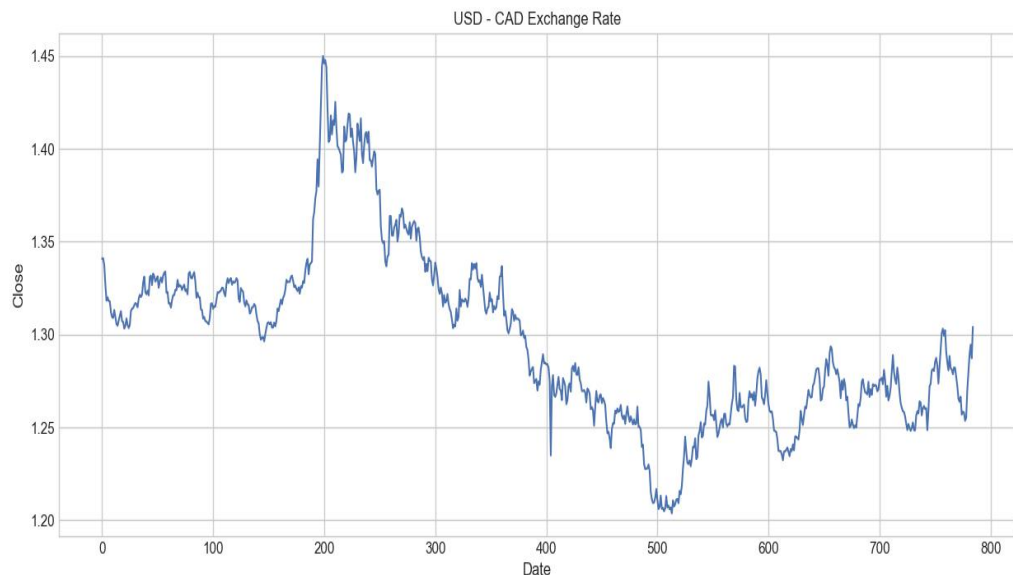
Let us consider the example dataset to explain in a easy way.

Date	open	High	Low	Close	Adj Close	Volume
2020-05-22	1.2948	1.3046	1.2936	1.3043	1.3043	NA
2020-05-21	1.2873	1.2968	1.2860	1.2945	1.2945	NA

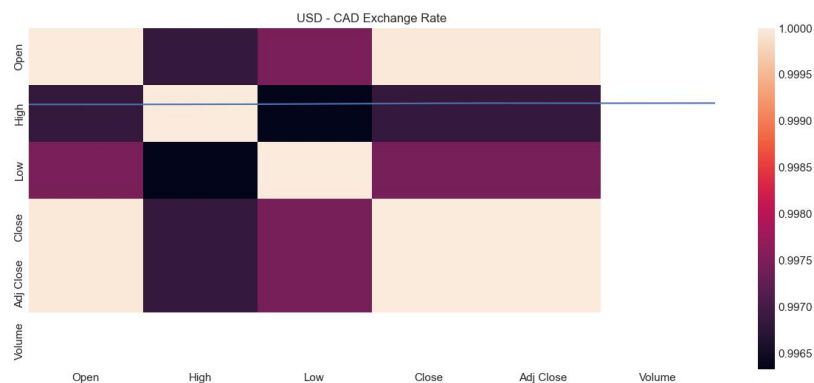
Values from the "Close" coloumn are considered to be the target values which are to be predicted.

After predicting the values we use the corelation between the features before training the currency exchange rate prediction model

USD-CAD Exchange rate since June 2019:



- I. After making the correlation we use a Heatmap which will be more easy to visualize the data
- II. For predicting the future values of the data, now we are going to use the past data to split it into 2 columns X and Y.
- III. Where variable X is storing the relevant dataset and the target column is stored in variable Y.
- IV. We are going to use the Decision Tree Regression algorithm in python because it can work both categorical and continuous dependent variables.
- V. In this algorithm we are going to split the dataset and train a currency exchange model.



Algorithms used: Decision Tree Regression

Packages used: numpy~= 1.22.4
pandas`= 1.4.2
matplotlib~= 3.5.2
seaborn~= 0.11.2
scikit-learn~= 1.1.1