Method 3

Introduction of the model

In this method are predicting the last 25 days stock prices on the Netflix company or any companies one-year data using Machine learning models called Linear Regression and Decision Tree Regressor. We are doing this method using python language for that we have to install the dependencies like NumPy, Matplotlib and Pandas, we are using Decision Tree Regressor and Linear Regression from the sklearn libraries. In the Matplotlib, we are using the 'bmh' called Bayesian Methods to plot the graphs for the predicted, valid and original price values. We are using train_test_split function to train the data in the training dataset and testing dataset.

Importing the dataset

Now we will load the database which we got from the Historical Quotes from the Yahoo Finance website, in this method we are using the Netflix Inc. one-year Stock price data which is saved in NFLX which is saved in the Comma-Separated Values (CSV) file, it is the format of the file in which we can store the numbers and text in tabular form. The CSV can be also converted into a plain-text form which can easily accessible to read and write the data in the text editor, and commonly used to import and export for spreadsheets and databases.

We will store the data into the data frame so that we can able to get the columns we want to predict on and will store it in the new variable. In the dataset, we have the seven columns in which we have Date, Open, High, Low, Close, Adj. Close, Volume and these have Date and Volume are data types object and integer respectively and rest are float values data type. When we have all database, we will shape the dataset then we will get the number of rows and columns from the dataset. Now we have the datasets we have plotted the Close Stock price on the graph, that is shown in the following figure, in this figure we can see the graph between Days and Close Price in USD.

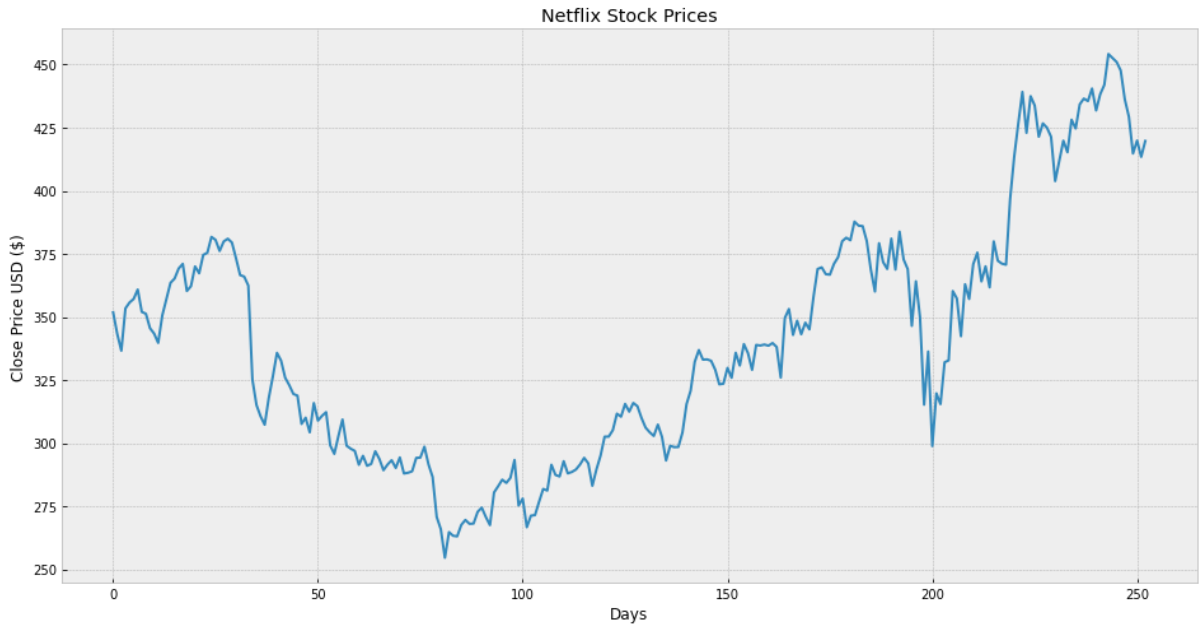

Figure – Netflix Stock Prices concerning Days and Close Price.

Model implementation

Now from the dataset, we will just get the Close price to get the predicted prices for the stocks and store it in the new variable, show the first five rows to get the information about the Close price. We will create another variable to predict the 'x' units/days for the future values, in this example, we are using 25 days data to predict. We will create a new column as target values are to be stored for the given predictions, target data is trying to predict price with given data's it is shifted to 'x' units/days. In we can see the Close Price values and Prediction tables, in our case we will get the last 25 units values as NaN values in which we are predicting our values, these values are all in the float data types. After we have Close and Prediction values, we will create the feature dataset "X" and we will convert it into the NumPy array, and we will remove the last 'x' rows/days and print the rest of the data. We have the feature data set now we will create the target dataset "Y" and we will also convert this into the NumPy array and we will get the all the target values except the last 'x' rows/days, in our case, we have to predict for 25 days.

Splitting Data into training and testing dataset

In our example we have the feature dataset and the target dataset, we will split the data of X and Y values into a training dataset and testing dataset as 70% and 25% respectively. We have explained the train_test_split with sklearn in method one. Now we have the training and testing dataset, so we will create the model for the decision tree regressor and linear regressor, for that we will create the variable for both the regressor with a training dataset of x and y plots and fit it in the model. In the next procedure we will get the last 'x' rows in our example it is 25 rows/days from the feature dataset and will store it in a new variable, for that we will get all the column of the prediction except last 'x' rows, and store it in the tails of the new variable, convert all the new variable in NumPy array and print it.

Visualisation of the Predicted values.

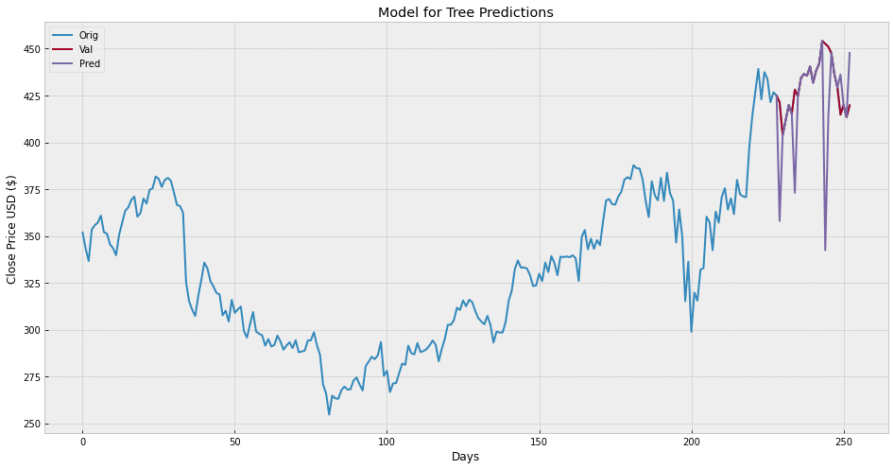

Figure - The Predicted values on graph Decision Tree Model

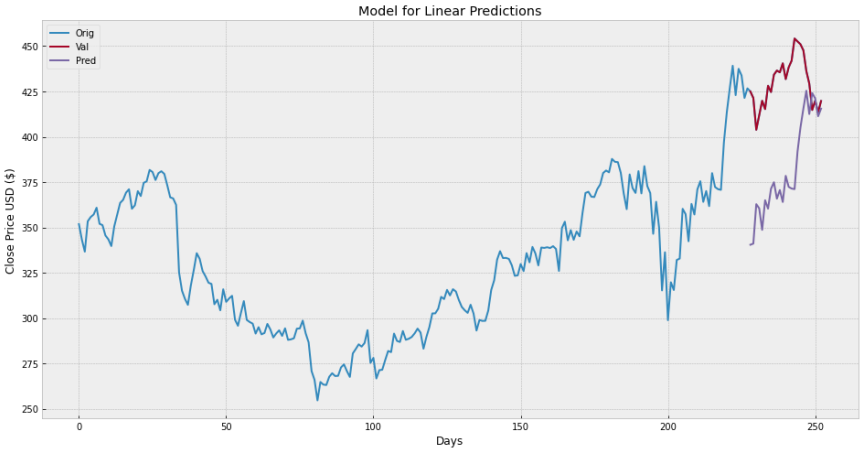

Figure - The Predicted values on graph Linear Regression Model

The figure above shows that the predicted values of the Netflix Stock closing prices of 25 days data on the plot of one-year values using the Decision Tree Regressor and Linear Regressor. We also have the validation data and the original data printed on the graph so that we can compare between them how much is the difference is between the original and predicted values. By looking at the graph the decision tree gives the up trading values as predicted values following the trend of the previous values but in the linear regressor model the predicted values have the different trend and it copies the almost same trend of last month with our one-year data.

http://www.futurile.net/2016/02/27/matplotlib-beautiful-plots-with-style/