Forecasting Stocks Using Machine learning

Mamidi Phanindhar Reddy
Student
Department of Information Technology
B.V. Raju Institute of Technology
Affiliated to JNTUH
Vishnupur, Narsapur, Medak,
Telangana State, India
19211a1265@bvrit.ac.in

Nadimpalli Akhil Varma
Student
Department of Information Technology
B.V. Raju Institute of Technology
Affiliated to JNTUH
Vishnupur, Narsapur, Medak,
Telangana State, India
19211a1279@bvrit.ac.in

Dr. K Bhima
Associate professor
Department of Information Technology
B.V. Raju Institute of Technology
Affiliated to JNTUH
Vishnupur, Narsapur, Medak,
Telangana State, India
bhima.k@bvrit.ac.in

Abstract

Many people wish to invest their money in the Stock Market but it's not an easy job to be able to predict if the stock's price is going to increase or decrease. The aim of this project is to use Machine Learning to predict the price of a stock. A machine learning model is to be built and trained for this purpose. The data of the previous prices of the stock and the current price is given to the model and the user specifies a particular date at which the price is to be predicted and the model predicts what the price of the stock could be on that date. The project also involves visualizing the stock's share price to show its trend. This allows users to make informed decisions while investing. Various training methods are used to train the machine learning model to accurately predict the price of a stock

Keywords: *Machine Learning, Stock Market, Stock Prices*

I.INTRODUCTION

MODELS USED

Machine learning is programming computers to optimize a performance criterion using example data or experience. We have a model defined up to some parameters, and learning is the execution of a computer program to optimize the parameters of the model using the training data or experience.The model may be predictive to make predictions in the future, or descriptive to gain knowledge from data.

The field of study known as machine learning is concerned with the question of how to construct computer programs that automatically improve with experience.

Our proposed system is the single point of contact for freshers and regular students to get all the information about the college.The enhanced version of our application I,e chatbot using machine learning algorithms and DIALOGFLOW.It uses the NATURAL LANGUAGE PROCESSING To train the data.Our CHATBOT has been trained with few very frequent

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Support vector machines (SVMs) are a set of supervised learning methods used for classification, regression and outliers detection.

The advantages of support vector machines are: • Effective in high dimensional spaces. • Effective when number of dimensions is more than the number of samples. • Uses a subset of training points in the decision function (called supportvectors), so it is also memory efficient. • Versatile: different Kernel functions can be specified for the decision function. Common kernels are provided, but it is also possible to specifycustom kernels

II.IMPLEMENTATION

MODELS USED

Quandl: Quandl is a platform that provides users with financial, financial, and alternative datasets.

Sklearn: Provides a variety of efficient tools for machine learning and statistical modelling, including classification, regression, clustering, and dimensionality reduction through Python's integrity interface.

Numpy: Numpy is a Python library used to manipulate arrays. There are functions for working in the fields of linear algebra, Fourier transforms, and matrices

Matplotlib: Matplotlib is a cross-platform data visualization and graphical plot library for Python and its numeric extension numpy.

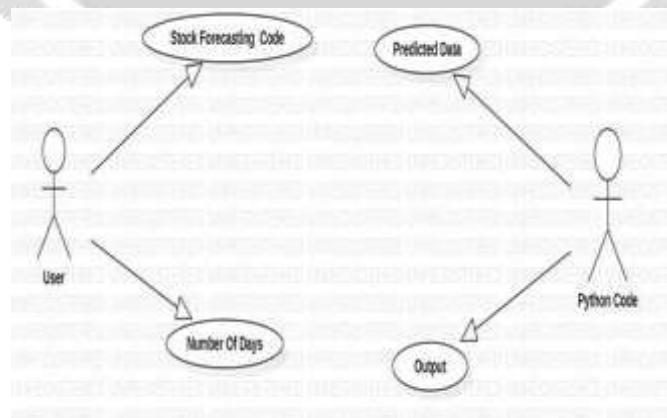The UML DIAGRAMS are as follows

FIG-1:USECASE DIAGRAM

The above usecase diagram represents the enhanced application flow.Usecases diagram are one of the five diagrams in UML Diagrams.It shows a set of Usecases,Actors and their Relationship.It also contains notes and constraints.
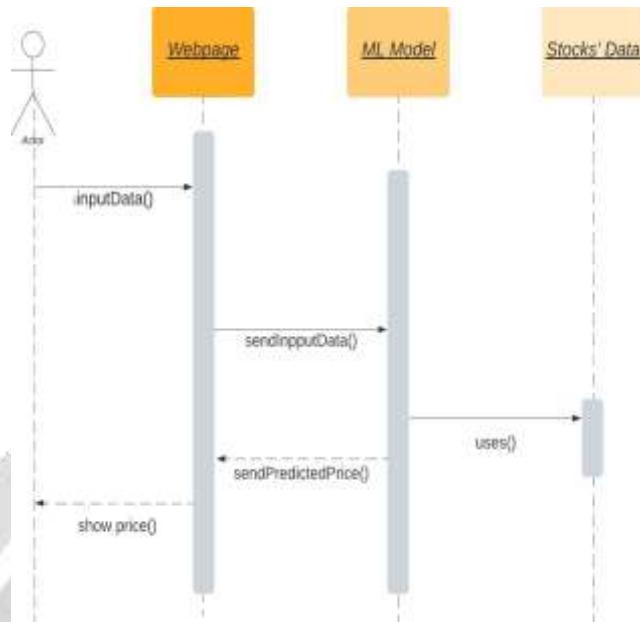

FIG-2:SEQUENCE DIAGRAM

Above figure shows the Sequence diagram of our system which is an interaction diagram in which some sequence of information flow from one object to another object in a specified order to represent the time order of a process. It aims at a specific functionality of a model.
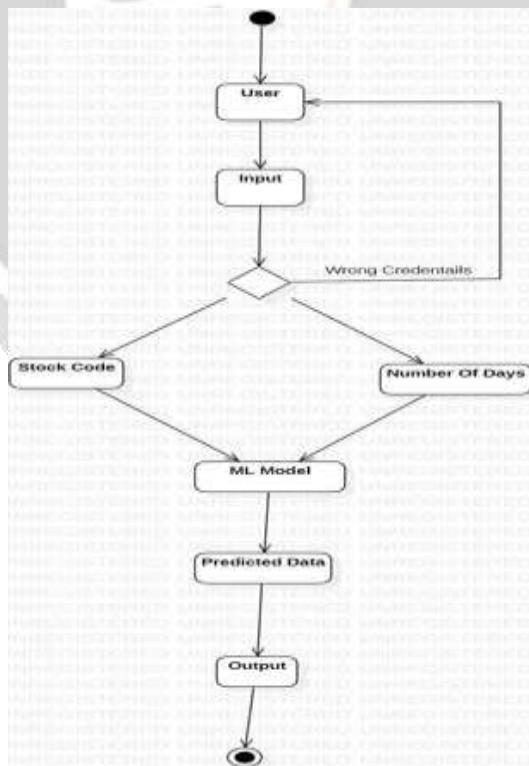

FIG -3 ACTIVITY DIAGRAM

Above figure shows the Activity diagram of our system which helps the model the workflow of a system from one activity to another involving different components or states like initial, final & activity states, etc. It represents the execution of the system.

III.RELATED WORK

To create a machine learning model, import libraries like pandas, scikit learn. Then import the dataset to train a model. Use Random Forest classifier to create the ML model. The imported dataset is used to test the ML model created.

An architecture diagram is a graphical representation of a set of concepts, which   .

An architecture diagram is a visual representation of all the elements that make up part, or all, of a system.
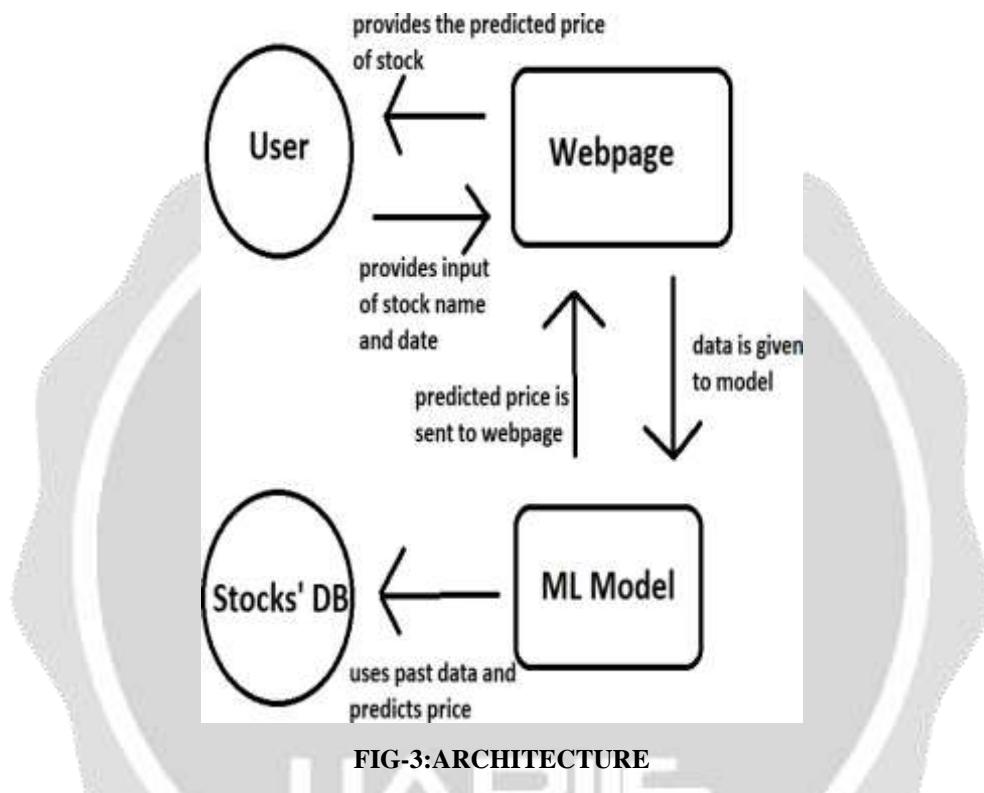

FIG-3:ARCHITECTURE

CODE

STOCK.PY

import quandl import numpy as np import pandas as

pd from sklearn.linear_model import LinearRegression from sklearn.svm import SVR

from sklearn.model_selection import train_test_split

import matplotlib.pyplot as plt

def predict(code,days):   temp = str(code)   addr = "WIKI/" + temp   df = quandl.get(addr) forecast_out=days   df = df[['Adj. Close']]   df=df[-60:]   df['Prediction'] = df[['Adj. Close']].shift(-forecast_out) X = np.array(df.drop(['Prediction'],1))

   X=X[:-forecast_out]

  y = np.array(df['Prediction'])   y=y[:-forecast_out]

```
x_train,x_test,y_train,y_test = train_test_split(X,y,test_size=0.1)

svr_rbf = SVR(kernel='rbf', C=1e3, gamma=0.1)      svr_rbf.fit(x_train,y_train)

svm_confidence = svr_rbf.score(x_test,y_test)
#print("SVR Confidence: ",svm_confidence)

lr = LinearRegression()     lr.fit(x_train,y_train)

lr_confidence = lr.score(x_test,y_test)     x_forecast = np.array(df.drop(['Prediction'],1))[-forecast_out:]

svm_prediction = svr_rbf.predict(x_forecast)      lr_prediction = lr.predict(x_forecast)
#print(svm_prediction)

return svm_prediction, lr_prediction

dates = [i for i in range(1,31)] svm_x,lr_x = predict("FB",30) plt.plot(dates,lr_x,label='SVR')

plt.plot(dates,svm_x,label='LR') plt.xlabel('Day') plt.ylabel('Stock Price') plt.title('Stock Predictor') plt.legend()
plt.show()
```
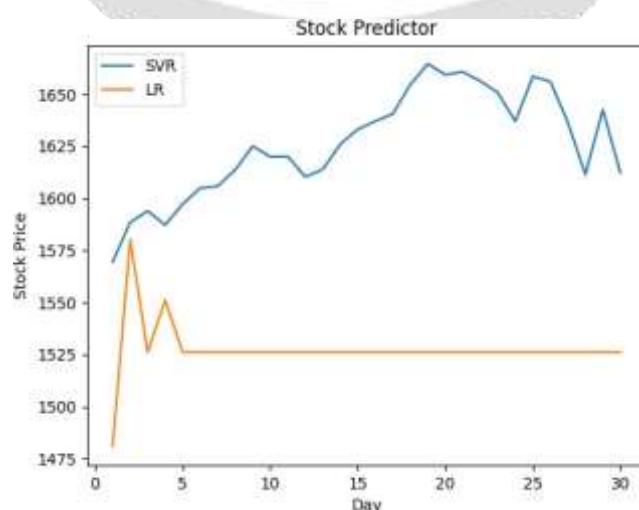
IV. RESULTS

Input:

AMZN(Amazon), 30

V.CONCLUSION

Stock price predictor helps to predict the price of a stock. Using

python, we can make a machine learning model (Artificial Intelligence) to predict future price of stocks. People can make an informed decision while investing in the stock market. Not all people have complete knowledge of the stock market, and they can't predict how a stock performs. So, instead of investing without much knowledge people can make a better decision. We can conclude that this might help make better investments.

Future Work Enhancements:-

There are a huge number of factors that influence a stock's performance, and, in this project, the machine learning model doesn't take all those factors into account. So, better predictions could be made if the model can consider other factors that influence a stock's price like economy and others. Huge amount of data must be processed to predict the data, but python makes the task easier by the help of many libraries and built-in functions.

VI.REFERENCES

[1]   https://www.crio.do/projects/python-forecasting-stocks-dash/

[2]   https://scikitlearn.org/stable/modules/generated/sklearn.linear_model.LinearRegres sion.html

[3]   https://en.wikipedia.org/wiki/Machine_learning

[4]   https://stats.stackexchange.com/questions/254574/svm-number-of-dimensions- greater-than-number-of-samples-would-give-good-or-bad

[5]   https://randerson112358.medium.com/predict-stock-prices-using-python- machine-learning-53aa024da20a

[6]   https://analyticsindiamag.com/understanding-the-basics-of-svm-with-example- and-python-implementation/

[7]   https://www.youtube.com/watch?v=EYnC4ACIt2g

[8]   https://scikit-learn.org/stable/modules/svm.html