STOCK PRICE PREDICTION

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ABSTRACT

Informal description

The fluctuations in the stock market are erratic as it depends on supply versus demand. The goal is to employ machine learning to create a program to predict the future value of a stock based on current market indices by training on the previous patterns.

Formal description

• **Task (T):** To produce a forecast on the fluctuation in the economic value of stocks of a company.

• **Experience (E):** Aggregation of data on the prior performance of the particular stock which includes the following: book value, market capitalization, change of stock net price over the one month, margins, dividend yield, sales revenue turnover, etc.

• **Performance (P):** Prediction accuracy: the no stocks whose values are forecasted precisely (prediction rate) out of the total no. of stocks taken into consideration.

Assumptions

We presume an absence of occurrence of any volatile(unprecedented political) events that might cause an abrupt change.

1. INTRODUCTION

Motivation:

There's a podcast by the CEO of CRED, Kunal Shah, in which he anxiously states that merely 40 Million people of the 1.38 Billion population of our country invest in the Stock Market (i.e., 3% of the total population which is far behind countries like the US). So basically, the people of our own country do not invest in it due to various obtuse reasons. Hence, we decided to make a tool to predict stock prices using Machine Learning.

Machine Learning has various important applications in stock price prediction. We will be talking about predicting the returns on various stocks. Stock Price Prediction is considered one of the most complex tasks with many uncertainties as just the prediction can lead to a big amount of profits for the seller and the broker. Machine Learning is considered to be an efficient way to represent such processes as it predicts the market value close to the tangible value, hence increasing the accuracy. Two parts in which we will develop our project are:

1. We will learn how to predict Stock prices using the LSTM neural network.
2. Next, We will build a dashboard using Plotly dash for the Stock Analysis.

Benefits of Solution:

1. Removes The Investment Bias

When various investors plan their investments, it is not easy to follow behavioral bias as an investor. You often fall into the trap of choosing your favorite stocks instead of choosing a stock that has the potential for giving you better outcomes based on your analysis. If there we can use Machine Learning for Stock Prediction, you can get rid of this bias as it makes sure that you take decisions analytically instead of going on your gut feelings or investing in your preferred stocks.

2. Minimizes Your Losses:

Another advantage of Stock price prediction is that it minimizes your losses to a great extent. Before knowing how to predict, the investors often make mistakes of not doing their homework properly which means they often make the mistake of not using the correct prediction method.

3. Assures Consistency

One of the best advantages of Stock price prediction is the consistency you can achieve in the results. Since we all know that the stock market is highly volatile, there is no guarantee that even after making the prediction call using various strategies, you are going to be on the right path of trade for profits.

4. Gives a better idea about entry and exit points

Applying the correct stock price prediction methods helps you know better about your entry and exit points. So often the traders either enter or exit the market at inappropriate times, which means that they have failed to capitalize on the full potential of making profits.

Solution Use:

Due to a lack of awareness of the correct methods of prediction of Stock Prices, the Youth of our country as well as most of the population of our country are not that interested to invest in the stock market. So, having Stock Market Prediction with a good amount of efficiency can prove to be very helpful and can create more awareness among the population of our country.

2. DATASET FINALIZATION

1. Apple Stock Price Prediction

About:

This is a Dataset for Stock Prediction on Apple Inc.
This dataset starts from 1980 to 2021. It was collected from Yahoo Finance. You can perform Time Series Analysis and EDA on data.

Features:

There Are 7 Features in this dataset, and they are:

1. Date: Date
2. Open: It is the price at which the financial security opens in the market when trading begins.
3. High: The high is the highest price at which a stock is traded during a period.
4. Low: The low is the lowest price at which a stock is traded during a period.
5. Close: Closing price generally refers to the last price at which a stock trades during a regular trading session.
6. Adj Close: The adjusted closing price amends a stock's closing price to reflect that stock's value after accounting.
7. Volume: Volume measures the number of shares traded in a stock or contracts traded in futures or options.

Applications:

The Apple Dataset applications are extensively used in the fields of

1. Business
2. Investing
3. Electronics
4. Exploratory Data Analysis
5. Time Series Analysis
6. Statistical Analysis

2. Google Stock Price Prediction

About:

The art of forecasting stock prices has been a difficult task for many researchers and analysts. Investors are highly interested in the research area of stock price prediction. For a good and successful investment, many investors are keen on knowing the future situation of the stock market. Good and effective prediction systems for the stock market help traders, investors, and analysts by providing supportive information on the future direction of the stock market. In this work, we present a recurrent neural network (RNN) and Long Short-Term Memory (LSTM) approach to predict stock market indices.

Features:

There Are 6 Features in this dataset, and they are:

1. Date: Date
2. Open: It is the price at which the financial security opens in the market when trading begins.
3. High: The high is the highest price at which a stock is traded during a period.
4. Low: The low is the lowest price at which a stock is traded during a period.
5. Close: Closing price generally refers to the last price at which a stock trades during a regular trading session.
6. Volume: Volume measures the number of shares traded in a stock or contracts traded in futures or options.

Applications:

The Apple Dataset applications are extensively used in the fields of

1. Deep Learning
2. RNN

3. Netflix Stock Price Prediction

The Dataset contains data for 5 years i.e., from 5th Feb 2018 to 5th Feb 2022
The art of forecasting stock prices has been a difficult task for many researchers and analysts. Investors are highly interested in the research area of stock price prediction. For a good and successful investment, many investors are keen on knowing the future situation of the stock market. Good and effective prediction systems for the stock market help traders, investors, and analysts by providing supportive information on the future direction of the stock market.

Features:

There Are 7 Features in this dataset, and they are:

1. Date: Everyday price
2. Open: Price at which stock opened
3. High: Today's High
4. Low: Today's Low
5. Close: Close price adjusted for splits
6. Adj Close: Adjusted close price adjusted for splits and dividend and/or capital gain distributions.
7. Volume: Volume of stocks

Applications:

1. Business
2. Investing
3. Intermediate
4. Time Series Analysis
5. Python
6. LSTM

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