STOCK PRICE PREDICTION

(SYNOPSIS)

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INTRODUCTION

Stock market is a place where people buy and sell shares of publicly listed companies. It facilitates smooth exchange of shares by helping the buyers and sellers meet each other.

The prices of these shares vary everyday and thus predicting them is a challenging task. But if these are predicted, it would help the investors to invest money and maximize their gain.

The prediction of these prices can be achieved through Machine Learning technique where the machine is trained based on the previous data available and can thus predict the future values of a company stock or other financial instrument traded on a financial exchange.

This project uses Linear Regression Algorithm of Machine Learning to predict the stock prices.

DATASET USED

The dataset used in this project has been taken from the Metastock software.

It contains the stock prices for the Reliance shares from 6 June 1995 to 20 August 2020.

The columns in the data set are:

* **DATE**: The date for which the prices are given.
* **OPEN**: The opening price of exchange for the given date
* **HIGH**:The highest price of exchange for the given date
* **LOW**:The lowest price of exchange for the given date
* **CLOSE**:The closing price of exchange for the given date
* **VOLUME**:The amount of trade done on the given date

LIBRARIES USED

The following python libraries are used in this project:

* **Pandas**- It is an open source library. It helps in reading, manipulating and analyzing data.
* **Numpy**- It is a library for working with arrays.
* **Matplotlib**- It is used to plot different types of graphs.
* **Scikit learn**- It is a free machine learning library with various machine learning algorithms in it.
* **Tkinter**- It is a library used to create a GUI interface.

WORKING

**#Reading the dataset**

First the dataset used in the project which is saved as a csv file is read using the pandas library.

**#Data Preprocessing**

Then the data is preprocessed. The dates are converted to a uniform format and labels are corrected according to use.

The missing values, if any, are replaced by the mean of the particular column using SimpleImputer.

The dataset is divided into independent or input variables(x) and dependent or target variables(y). x contains dates as index and open price. y contains the high, low and closing prices.

**#Splitting, Training and Testing Data**

Then the dataset is splitted into training and testing data using sklearn. The machine is trained using the training data and then asked to predict the values by giving the x testing data.

**#Determine Accuracy and Plot Graph**

The predicted values are then compared with the y testing values and the accuracy is determined.

The tested and predicted values in y are then plotted against the dates to visulaise the difference.

**#Creating a GUI Interface**

Tkinter is used to take input i.e. date and open price from the user and then predict and display the corresponding high,low and closing prices.

FUTURE SCOPE

The investors often fear investing money in share market due to loses it may lead to. A prior prediction of these prices may attract more investors to trade freely and confidently in order to gain maximum profit.

