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**STOCK MARKET ANALYSIS**

❖ **INTRODUCTION**

Stock price forecasting is a popular and important topic in financial and academic studies. Share Market is an untidy place for predicting since there are no significant rules to estimate or predict the price of share in the share market. Many methods like technical analysis, fundamental analysis, time series analysis and statistical analysis, etc. are all used to attempt to predict the price in the share market but none of these methods are proved as a consistent acceptable prediction tool.

Stock price data is generated in huge volume and it changes every second. Stock exchange is a complex and challenging system where people will either gain profits or even lose their entire life’s savings. In this work, an attempt is made for the prediction of stock market trend which will provide ideal trading choices and with the help of which investors who cannot afford keeping their own analyst can maximize the profit.

Stock Market prediction and analysis helps in determining the future value of a company’s stock. Stock market plays a vital role in the growth of the industry and commerce of the country and thus eventually affecting the economy of the country. Both investors and industry are involved in stock market and wants to know whether some stock will rise or fall over certain period of time. The stock market is the primary source for any company to raise funds for business expansions. It is based on the concept of demand and supply. If the demand for a company's stock is higher, then the company share price increases and if the demand for company's stock is low then the company share price decrease.

Due to involvement of many number of industries and companies, it contains very large sets of data from which it is difficult to extract information and analyze their trend of work manually. Stock market analysis and prediction will reveal the market patterns and predict the time to purchase stock. The successful prediction of a stock's future price could yield significant profit. This is done using large historic market data to represent varying conditions and confirming that the time series patterns have statistically significant predictive power for high probability of profitable trades and high profitable returns for the competitive business investment.Thus, to support the decisions of the investors, we have presented an approach for stock exchange analysis.

The system combines price prediction based on historical data. It uses the Decision Tree Regressor(DTR) Algorithm. Information about the current trading details as well as technical analysis indicators along with the value of the current volume is used as inputs for DTR. The results of this algorithm is used to give recommendation for future increases.

❖ **PROBLEM DEFINITION**

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❖ **THE ALGORITHM EMPLOYED**

Decision tree builds regression models in the form of a tree structure. It breaks down a dataset into smaller and smaller subsets while at the same time an associated decision tree is incrementally developed. The final result is a tree with decision nodes and leaf nodes. A decision

Node has two or more branches each representing values for the attribute tested. Leaf node represents a decision on the numerical target. The topmost decision node in a tree which corresponds to the best predictor called root node. Decision trees can handle both categorical and numerical data. The core algorithm for building decision trees called ID3 employs a top-down, greedy search through the space of possible branches with no backtracking. The ID3 algorithm can be used to construct a decision tree for regression by replacing Information Gain with Standard Deviation Reduction. A decision tree is built top-down from a root node and involves partitioning the data into subsets that contain instances with similar values (homogenous). We use standard deviation to calculate the homogeneity of a numerical sample. If the numerical sample is completely homogeneous its standard deviation is zero.

❏ **CODE:**

import numpy as np

import pandas as pd

from keras.models import Sequential

dataset = pd.read\_csv('t.csv')

X = dataset.iloc[:,[1,3,4,5,6,7]].values

y = dataset.iloc[:,2].values

from sklearn.model\_selection import train\_test\_split

X\_train, X\_test, Y\_train, Y\_test = train\_test\_split(X, y, test\_size = 0.2, random\_state = 0)

from sklearn.tree import DecisionTreeRegressor

regressor = DecisionTreeRegressor()

regressor.fit(X\_train, Y\_train)

result = regressor.score(X\_test, Y\_test)

print("\nTesting accuracy: ",result)

x\_test=np.array([[2632,2631.2,628560,5,0,0.9876]])

y = regressor.predict(x\_test)

print("\nPredicted High: ",y)

exp=2669

acc=abs(exp-y)/y

print("\nPrediction accuracy: ",1-acc)

❖ **CONCLUSION**

Evaluating the Stock market prediction has at all times been tough work for analysts. Thus, we attempt to make use of vast written data to forecast the stock market indices. If we have used the decision tree regressor algorithm for numeric time series analysis and the accuracy in predictions are achieved. Machine learning techniques and algorithms are used to predict a stock’s upcoming trends. Financial analysts, investors can use this prediction model to take trading decision by observing market behaviour. And use the trading options in order to gain maximum profit.