



# JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)

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## Money Heaven The Complete Financial Analyzer

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**Abstract** - "Money Heaven" is a one-stop destination for financial services and forecasting the future. It assists customers in managing their stock, cryptocurrency, and other investments. Our goal is to empower customers to manage, save, and earn more by combining their complete financial life into one application, including investments, health insurance, asset insurance, and so on. Money Heaven's main goal is to forecast future prices for the user's investments. Predicting price movements in the stock market and cryptocurrencies with accuracy is a major economic benefit. Because of the volatility and non-linear character of the global stock markets, accurately predicting stock and cryptocurrency market returns is a difficult endeavor. Machine learning makes use of a variety of models to create

accurate predictions. Given the high number of newcomers to the stock market, it is critical to provide a one-stop destination for managing all of an individual investor's funds. Managing several investments across many platforms can be hectic and time-consuming. Before investing their hard-earned money in the stock market, a novice must understand the previous trends of each share and make predictions about future prices. Our goal is to assist investors in investing in the appropriate companies and growing their money, because the capacity or skill to transform earned income into passive income is the key to financial freedom and enormous wealth.

**Keywords** - Cryptocurrency, Stock Market, LSTM, Random Forest Regression.

## I. Introduction

India's economy is rapidly expanding. This development is occurring as a result of the financial system's expansion. People who want to invest but don't know where or how to begin have a difficulty as financial markets become more sophisticated and complex. There are numerous investing choices available, each promising more than the last. Investing also comes with a number of risks, such as market risk, credit risk, and so on. So, know your investing goal, time range, risk tolerance, asset allocation, and most importantly, "know which product to invest in." Because a lack of information about these topics can be detrimental and lead to financial difficulties.

The most prevalent investing products are stocks, cryptocurrencies, bonds, debts and mutual funds. All these products have very high risks and possible returns than savings accounts or FDs. Stocks have consistently given the higher average rate of return over several years. However, when you acquire stock, there is no assurance of profit, making stock one of the riskiest investments. If a firm performs poorly, its stock price can drop, causing investors to lose money.

The underlying risk factors of the stocks, bonds, debts, cryptocurrencies and other investments held by the fund determine the risk of investing in mutual funds. There is no way to guarantee a mutual fund's returns, and no mutual fund is risk-free. The risk is proportional to the possible profit. The stock market prices might increase or decrease on any given day. It might go down for months or even years at a time. Over time, however, investors who take a "buy and hold" approach to investing have tended to outperform those who try to time the market.

## II. Problem Statement

Money Heaven aspires to assist every individual investor in making the best investment decisions possible. Currently, investors use a variety of platforms to invest in the stock market, cryptocurrency, and mutual funds. Money Heaven will give a single platform for investors to track all of their investments and assist them in forecasting future investment prices more accurately. A successful stock forecast can result in large gains for both the seller and the broker. It is frequently stated that prediction is chaotic rather than random, implying that it can be predicted by carefully examining the history of the relevant stock market. Machine learning is a good technique to express these types of operations. It forecasts a market value that is near to

the tangible worth, improving accuracy. Machine learning's introduction to the field of stock prediction has piqued the interest of many scholars due to its efficient and accurate measures.

## III. Proposed Method

We have developed a full-fledged website where users will be able to manage their all investments, they can track their profit and loss in respective stocks, cryptocurrencies, etc. Money Heaven will be able to predict the future prices of all the investments made by them with more accuracy using a regression model in machine learning and LSTM which is an advanced version of RNN algorithm.

Accuracy is a very important aspect in stock price prediction, cryptocurrencies price prediction. In Spite of many algorithms available for these predictions, Choosing the most accurate one is very fundamental and important for getting better accuracy.

The following shows the LSTM architecture we are using or our system. We will be using two layers of LSTM modules, and a dropout layer in-between to avoid overfitting. Stock price prediction is a complex problem because there are many elements that have yet to be addressed and it doesn't seem statistical initially. But by appropriate use of machine learning and deep learning techniques, we can relate historical prices to the current prices and train the model to learn from it and make appropriate assumptions. Although machine learning has many models, money heaven will focus on the Long short-term Memory(LSTM) algorithm.

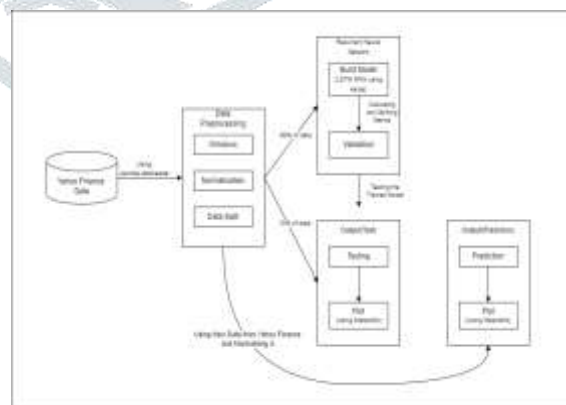


Fig 1 - Modular Diagram

### A. Long Short-Term Memory (LSTM) Network Based Model

Long Short-Term Memory (LSTM) is the advanced version of Recurrent-Neural Networks (RNN), a sequential network where the information from previous state persists. These are different from RNNs as they involve long term dependencies and RNNs work on finding the relationship between the recent and the current information. This indicates that the interval of information is relatively smaller than that of LSTM. The main purpose behind using this model in stock market prediction is that the predictions depend on large amounts of data and are generally dependent on the long-term history of the market. Therefore, LSTM minimizes the error by giving an aid to the RNNs through persisting information for previous stages to increase the accuracy of the prediction model. Hence LSTM is a very reliable algorithm compared to other methods.

#### IV. Results

The Primary Goal of our project is to provide a system for investors which acts as a one stop destination for all kinds of investments and also guide the investor regarding various investment services and predict the future prices of various investments. We also aim to create an individual portfolio for the investors where they can manage their investments. We have implemented three services in our application – Stock Price Prediction, Cryptocurrencies price prediction Insurance Cost Prediction, In Stock Price Prediction we are using LSTM Architecture for Stock Price Prediction which is a type of Recurrent Neural Network. We plotted a graph of statistics of the company's previous stock prices and predicted the future prices as well.

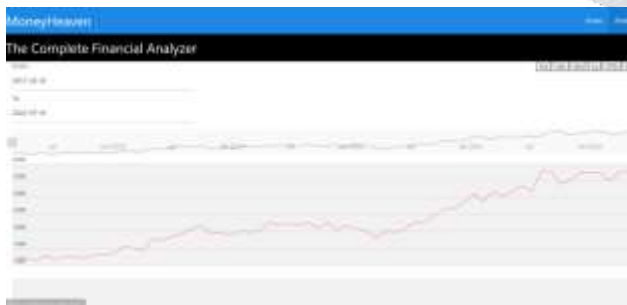


Fig 2 graph of statistics of the company's previous stock prices.

In cryptocurrencies price prediction model too we have used LSTM model to predict the future prices based on historical data. We have plotted the graph of previous prices and the future prices as well.

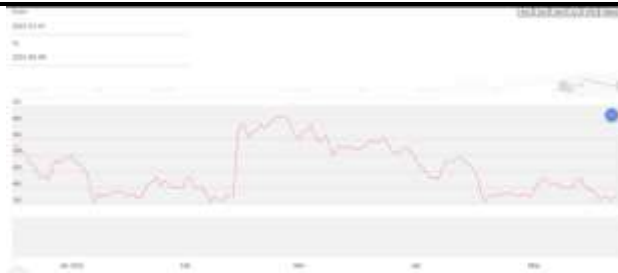


Fig 3 - Future Price Prediction for Cryptocurrency

In Insurance Cost Prediction we applied two Machine Learning Algorithms – Random Forest Regression and Multiple Linear Regression and we got the maximum accuracy of 87.45% in Random Forest Regression Algorithm.

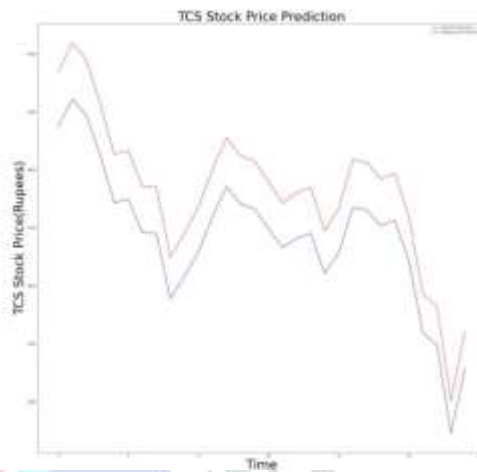


Fig 4 - Analysis of Real Stock Values vs Predicted Values

## MSE, RMSE and R squared error to check efficiency

```
In [16]: import sklearn.metrics as met
mse = met.mean_squared_error(y_te,y_pr)
print('MSE : ',mse)
r2 = met.r2_score(y_te,y_pr)
print('R-square_score : ',r2)
rmse = np.sqrt(mse)
print('RMSE : ',rmse)

MSE : 32236653.881724652
R-square_score : 0.7952376940081072
RMSE : 5677.733164012258
```

Fig 5 - Accuracy form M LR model

```
In [34]: import sklearn.metrics as met
mse = met.mean_squared_error(y_test_r,y_pred1)
print('MSE : ',mse)
r2 = met.r2_score(y_test_r,y_pred1)
print('R-square_score : ',r2)
rmse = np.sqrt(mse)
print('RMSE : ',rmse)

MSE : 19962120.67323132
R-square_score : 0.8745546069267449
RMSE : 4467.898910363944
```

Fig 6 - Accuracy for RFR model.

## V. Conclusion

Investment can give you an extra source of income, provide you retirement fund and also can get you out of a financial crisis. Above all, investing money grows your wealth and it helps you meet your financial goals and increases your purchasing power. There may be some risks involved but with good planning and sufficient knowledge one can get good returns on their investments. This is where our products come in and can provide you with what's necessary for you to start your financial planning and can make you better in the art of financing. Many people face problems related to investing money because they are not sure will their money be safe if they invest somewhere, so we are trying to create an application such that people could find all the solutions related to investing their money at a proper place. We would create all this under one application and also give advice where they should invest so their money is safe and secured.

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