

**A Mini Project Report**

**on**

**“****Stock Price Prediction using LSTM and Technical indicators”**

**Submitted in partial fulfilment for the award of the degree of**

**BACHELOR OF TECHNOLOGY (HONOURS)**

**IN**

**COMPUTER SCIENCE (DATA SCIENCE)**

**Submitted by**

**M R Naveen Kumar**

**19BTRCR005**

**A Rishab Vanigotha**

**19BTRCR018**

**Sushil Bokade**

**19BTRCR017**

**Chethan S Pandit**

**19BTRCR002**

**Under the guidance of**

**Dr. John Basha**

**Designation**

**Faculty of Engineering & Technology**

**Jain (Deemed-To-Be University)**

**B. Tech (Honours) in Computer Science (Data Science)**

Jain Global Campus, Kanakapura Taluk - 562112

Ramanagara District, Karnataka, India

2021-2022.



**B. Tech (Honours) in Computer Science (Data Science)**

Jain Global Campus, Kanakapura Taluk - 562112

Ramanagara District, Karnataka, India

# **CERTIFICATE**

This is to certify that the project work titled **“Stock Price Prediction using LSTM and Technical indicators”** is carried out by **M.R.Naveen Kumar (19BTRCR005), A.Rishab Vanigotha (19BTRCR018), Sushil Bokade (19BTRCR017), Chethan S Pandit (19BTRCR002),** a bonafide students of Bachelor of Technology at the Faculty of Engineering & Technology, Jain (Deemed-to-be University), Bangalore in partial fulfilment for the award of degree, Bachelor of Technology (Honours) in Computer Science (Data Science), during the Academic year **2020-2021**.

|  |  |  |
| --- | --- | --- |
| **Guide Name****Designation** Faculty of Engineering & Technology,  Jain (Deemed-to-be University)  Date:  Signature: | **Prof. Mohammed Zabeeulla A N**  **Assistant Professor and Programme Coordinator,**  **Dept. of CSE**  Faculty of Engineering & Technology,  Jain (Deemed-to-be University)  Date:  Signature: | **Dr. Devaraj Verma,**  **Professor and Dy. HoD,**  **Dept. of CSE**  Faculty of Engineering & Technology,  Jain (Deemed-to-be University)  Date:  Signature: |

Name of the Examiner Signature of Examiner

1.

2.

# **DECLARATION**

We, **M.R.Naveen Kumar (19BTRCR005), A.Rishab Vanigotha (19BTRCR018), Sushil Bokade (19BTRCR017), Chethan S Pandit (19BTRCR002),** are students of sixth semester B. Tech (Honours) in **Computer Science (Data Science)**, at Faculty of Engineering & Technology, **Jain (Deemed-To-Be University)**, hereby declare that the project work titled **“Project Title”** has been carried out by us and submitted in partial fulfilment for the award of degree in **Bachelor of Technology (Honours) in** **Computer Science (Data Science)** during the academic year **2020-2021**. Further, the matter presented in the project has not been submitted previously by anybody for the award of any degree or any diploma to any other University, to the best of our knowledge and faith.

Student name : M R Naveen Kumar Signature

USN : 19BTRCR005

Student name : A Rishab Vanigotha Signature

USN : 19BTRCR018

Student name : Sushil Bokade Signature

USN : 19BTRCR017

Student name : Chethan S Pandit Signature

USN : 19BTRCR002

Place: Bengaluru

Date:

# **ACKNOWLEDGEMENT**

*It is a great pleasure for us to acknowledge the assistance and support ofa large number of individuals who have been responsible for the successful completion of this project work.*

*First, we take this opportunity to express our sincere gratitude to* ***Faculty of Engineering & Technology, Jain (Deemed-to-be University),*** *for providing us with a great opportunity to pursue our Bachelor’s Degree (Honours) in this institution.*

*In particular we would like to thank* ***Dr. Hari prasad S A****,* ***Director****,* ***Faculty of Engineering & Technology****,* ***Jain (Deemed-to-be University),*** *for his constant encouragement and expert advice.*

*It is a matter of immense pleasure to express our sincere thanks to* ***Dr. Devaraj Verma****,* ***Professor and Deputy******Head****,* ***Department of Computer Science & Engineering****,* ***Jain (Deemed-to-be University),*** *for providing right academic guidance that made our task possible.*

*It is a matter of immense pleasure to express our sincere thanks to* ***Prof. Mohammed Zabeeulla, Program Coordinator of Data Science****,* ***Dept. of Computer Science & Engineering****,* ***Jain (Deemed-to-be University),*** *for providing right academic guidance that made our task possible.*

*We would like to thank our guide* ***Dr. John Basha, Designation****,* ***Dept. of Computer Science & Engineering****,* ***Jain (Deemed-to-be University),*** *for sparing his valuable time to extend help in every step of our project work, which paved the way for smooth progress and fruitful culmination of the project.*

*We would like to thank our Project Coordinator* ***Dr. S. Vijayakumar*** *and all the staff members of Computer Science & Engineering for their support.*

*We are also grateful to our family and friends who provided us with every requirement throughout the course.*

*We would like to thank one and all who directly or indirectly helped us in completing the Project work successfully.*

*Signature of Students*

# **TABLE OF CONTENTS**

|  |  |  |
| --- | --- | --- |
|  | | Page No |
| **CERTIFICATE** | | ii |
| **DECLARATION** | | iii |
| **ACKNOWLEDGEMENT** | | iv |
| **TABLE OF CONTENT** | | v |
| **ABSTRACT** | | vi |
| **LIST OF FIGURES** | | vii |
| **LIST OF TABLES** | | viii |
| **NOMENCLATURE USED** | | viii |
| **Chapter 1** | | 1 |
| 1. **INTRODUCTION** | | 1 |
|  | * 1. Overview | 1 |
|  | * 1. Problem Definition | 1 |
|  | * 1. Objectives | 1 |
|  | * 1. Methodology | 1 |
|  | * 1. Hardware and Software Tools Used | 1 |
| **Chapter 2** | | 2 |
| 1. **LITERATURE SURVEY** | | 2 |
|  | * 1. Related Work | 2 |
|  | * 1. Existing System | 2 |
|  | * 1. Limitation of Existing System | 2 |
|  | * 1. Proposed System | 2 |
| **Chapter 3** | | 3 |
| 1. **METHODOLOGY** | | 3 |

|  |  |  |
| --- | --- | --- |
|  | * 1. Dataset | 3 |
|  | * 1. Architecture | 3 |
|  | * 1. Sequence Diagram | 3 |
| **Chapter 4** | | 4 |
| 1. **TOOL DESCRIPTION** | | 4 |
|  | * 1. Hardware Requirements | 4 |
|  | * 1. Software Requirements | 4 |
| **Chapter 5** | | 5 |
| 1. **IMPLEMENTATION** | | 5 |
| **Chapter 6** | | 6 |
| 1. **RESULTS AND ANALYSIS** | | 6 |
|  | * 1. Result Discussion | 6 |
|  | * 1. Comparison with Previous Studies | 6 |
|  | * 1. Analysis | 6 |
| **Chapter 7** | | 7 |
| 1. **CONCLUSIONS AND FUTURE SCOPE** | | 7 |
| **REFERENCES** | | 8 |
| **APPENDIX** | | 9 |

# **ABSTRACT**

Stock value prediction is a complex task that necessitates a solid algorithm foundation in order to compute longer-term share prices. Stock prices are correlated within the market, making it difficult to forecast costs. The proposed algorithm predicts share price using market data and machine learning techniques such as recurrent neural network named Long Short Term Memory, and weights are corrected for each data point using stochastic gradient descent. In comparison to currently available stock price predictor algorithms, this system will produce more accurate results. To influence the graphical outcomes, the network is trained and evaluated using various sizes of input data.

# **LIST OF FIGURES**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | **Fig. No.** |  |  | | **Description of the Figure** | **Page No.** | |  |  |  | |  |  |  | |  |  |  | |  |  |  | |  |  |  | |  |  |  |  **NOMENCLATURE USED**  |  |  | | --- | --- | | Example |  | | ML | Machine Learning | | NN | Neural Network | | ANN | Artificial Neural Network | | RNN | Recurrent Neural Network | | LSTM | Long Short Term Memory | | NSE | National Stock Exchange | |  |  | |  |  | |  |  | |  |  | |  |  | |  |  |

# **Chapter 1**

**INTRODUCTION**

* 1. **Overview**

The share market is a marketplace where public company shares are traded. As previously discussed, the volatile nature of the stock market necessitates a great deal of analysis based on old data. Previous stock trend prediction algorithms make use of historical time series stock data. The statistical analysis of stock data is central to most scientific stock price forecasting procedures. The paper will develop a stock data predictor program that requires previous stock prices and data as training sets for the training program to predict the stock prices of a specific share. This model will develop a procedure.

This model takes into account a company's historical equity share price and employs an RNN (Recurrent) technique known as Long Short Term Memory (LSTM). The proposed approach takes into account a share's available historical data and predicts a specific feature. Shares have the following characteristics: opening price, day high, day low, previous day o price, close price, date of trading, total trade quantity, and turnover. The proposed model employs time series analysis to forecast a share price over a specified time period. The proposed will take into account an Indian stock exchange company called The National Stock Exchange of India Limited (NSE). The National Stock Exchange (NSE) is the Indian stock exchange entity. The NSE was the first exchange in India to provide a modern, up-to-date facility to investors spread across the country.

It is completely modern and equipped with all of the latest amenities, allowing investors to trade from anywhere in India. This is critical in reforming the Indian equity market in order to increase transparency, convergence, and efficiency in the capital market. The NSE's Common Index, The CNX NIFTY, is widely used by investors both in India and around the world. It facilitates the exchange, settlement, and clearing of equity and debt market transactions, as well as derivatives. This is one of India's most massive mazuma, currency, and index options trading exchanges in the world. A large number of domestic and ecumenical businesses are interested in the exchange. TATA, WIPRO, HDFC, and YES BANK LTD are among the regional companies. Among the pilgrim investors are only a few strategic holdings of the city party Mauritius Limited, five ecumenical holdings of Tigre. As suggested by , long-term memory networks (LSTM) are a type of recurrent neural network (RNN) capable of tackling linear problems. LSTM is a deep learning technique. Long term memory units (LSTM) are used to learn very long sequences. This is a more general version of the closed recursive system.

* 1. **Problem Definition**

Define a Problem

* 1. **Objectives**
* Write objective of project
  1. **Methodology**
* Write the methodology od project briefly
  1. **Hardware and Software Tools Used**

**Software:**

* REQUIREMENTS

**Hardware:**

* Specifications of Hardware

# **Chapter 2**

**LITERATURE SURVEY**

* 1. **Related Work**
  2. **Existing System**

1. **User-based approach**
2. **Item-based approach** 
   1. **Limitation of Existing System**

**Data Sparsity:**

**Data Scalability:**

* 1. **Proposed System**

# **Chapter 3**

**METHODOLOGY**

* 1. **Dataset**
  2. **Architecture**

Explain about method of project detailed manner

* 1. **Sequence Diagram**

Explain with diagram

# **Chapter 4**

**TOOL DESCRIPTION**

This section gives a detailed description about the hardware tools and software tools involved in developing this system and how they are used.

* 1. **Hardware Requirements**

Explain about hardware requirements

* 1. **Software Requirements**

Software requirements explanation

# **Chapter 5**

**IMPLEMENTATION**

* Explain about the development model with algorithm steps

STEPS TO RUN THE PROGRAM:

* With execution steps also

# **Chapter 6**

**RESULTS AND ANALYSIS**

This section is containing a description about the main findings of this proposed system with the figures, detailed explanation by comparing with previous studies and analysis.

* 1. **Result Discussion**

Explain with output pictures

* 1. **Comparison with Previous Studies**
  2. **Analysis**

# **Chapter 7**

**CONCLUSIONS AND FUTURE SCOPE**

Explain the project work with respect to future work.

# **REFERENCES**

APPENDIX - I

**Example**

**SOURCE CODE**

**GitHub**: (link will be uploaded shortly, after implementing all the censorship and privacy measures.)

**Note**: This web application is still in development phase and shall be proprietary and may be

commercialized of the creators wish to do it.