Money Manager
Chatbot Integration and Stock Price prediction ML Model.

1st Mitrajeet J. Golsangi
Department of Engineering Science and Humanity(DESH)
Vishwakrama Institute of Technology
Pune, India
mitrajeet.golsangi20@vit.edu

2nd Vedant M. Gokhale
Department of Engineering Science and Humanity(DESH)
Vishwakrama Institute of Technology
Pune, India
vedant.gokhale20@vit.edu

3rd Shriram P. Gole
Department of Engineering Science and Humanity(DESH)
Vishwakrama Institute of Technology
Pune, India
shriram.gole20@vit.edu

4th Aayush A. Gore
Department of Engineering Science and Humanity(DESH)
Vishwakrama Institute of Technology
Pune, India
aaysh.gore20@vit.edu

5th Ashutosh S. Gore
Department of Engineering Science and Humanity(DESH)
name of organization (of Aff.)
Pune, India
ashutosh.gore20@vit.edu

6th Kaushal K. Gore
Department of Engineering Science and Humanity(DESH)
name of organization (of Aff.)
Pune, India
kaushal.gore20@vit.edu

Abstract—**Managing Money and improve literacy among the community is main focus of paper. As today's youth and many servants from government and private limitations have insufficient knowledge of managing and investing money. This paper provides prior knowledge and outputs for such problems mostly seen among people. Also, stock prediction and expense managing system imbedded inside it which will helpful and user-friendly. Advantages, doubts and more included in this paper. Relevant points mentioned above are deeply explained in paper**

I. INTRODUCTION

Financial Literacy is actually a group of investment, saving, debt that self-trust. At the moment we are facing too many problems based on like How to save more, how handle my income, how to invest, how to spend gained by month . . . . More like wise. Money Manager Web Application(MMWA) includes all the answers of these which help to improve the your previous knowledge about investment , schemes of banking ,about to manage your monthly income and more . . . . . . .MMWA literate in you in financial most of things , help to m anagen expenses , predict stocks investments for you and lastly gives your answers of short questions based on managing money .Whatever you have today a best job earning is more than sufficient but you have to save money for your retirement which is necessary . for such savings MMWA include various banks and schemes and their current rates which you can see. With these all MMWA gives final amount of invested in specific scheme. that helps you to judge which scheme is better. By using MMWA you are able to understand how much you earn and spend which is basic point to become a financial literacy, as using blogs added in MMWA. Increase your retirement saving, improve your stock earing, manage your daily expenses, save and invest more for future and emergency for those all MMWA definitely helps you and improve your literacy of about money managing. MMWA feels you comfort, simple and handy about all invest, save and manage your income. Management internet Application helps the person to grasp regarding investments and their wants and facilitate them to properly manage their Expenses and teach them the way to maintain a balance between Expenses and investments. It additionally provides the simulations to induce thorough information about the theme and previous information to investment. It additionally provides you information of varied terms and vary of investments and monetary connected terms

II. Literature Review

A. Introduction

The rapid changes between economy sector and financial development area everyone should have to knowledge regarding basic information of new inducing things, and what actually developing in previous system. As we required knowledge to understand new things, we need previous system literacy which provides MMWA. Regarding stocks, whatever predictions and previous situations all visible at one place. As we think this literature points helps you to understand feasibility importance of MMWA.

B. Need for Financial Literacy

According surveys from some some research papers we noticed that very few people are well literate and being full of knowledge regarding investments ,savings ,loan and other schemes regarding banking and stocks etc [1]. According to cross countries comparisons and who knows the least we conclude that very much necessity of financial literacy.
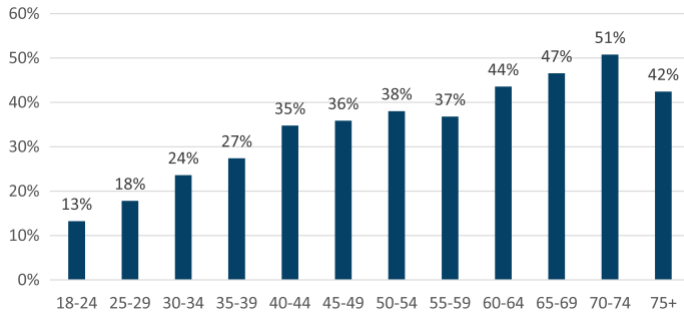

Fig. 1. Financial Literacy in People

As per Fig: 1 data is totally clear and showing the literacy among the people. So being good in financial side also giving fresh inspiration to wealth management MMAW had included many blogs. The issue of in inflation [2] makes the money illiteracy a bigger foe for achieving money independence at a younger age. Complicated money product, low level of awareness and lack of information regarding money matters makes the need of financial acquisition noteworthy. Define abbreviations and acronyms the primary time they're used in the text, even after they need been defined within the abstract. Abbreviations like IEEE, SI, MKS, CGS, sc, dc, and rms do not have to be defined. Do not use abbreviations within the title or heads unless they are unavoidable.

C. Solutions for improving Financial Illiteracy

Reading business newspapers or magazines. Make a habit of reading about sections of finance in newspapers and magazines from where you get ample information. These are some independent solutions for improving knowledge [2] With help of MMWA people can read blogs availability of links of sites and own content of financial schemes which helpful for user and all at single place .User get information by interacting between chatbot user will get immediate available information

that's main user friendly technique introduce in MMWA Introduction of Currency [2] and the daily usage of electronic gadgets has played a major role in reducing the condition of financial illiteracy. Due to an explosive growth in social media platforms various financial podcasts, videos , informative newsletters will have helped in reducing financial illiteracy to great extent [1].

D. Concept Of Chatbot

A chatbot, also referred to as a conversational agent, is a computer software capable of taking a tongue input and providing a conversational output in real time [3]. This human-chatbot interaction is usually administered through a graphical user interface based on human-computer interaction (HCI) principles. The development of ML as a branch of AI is now very fast. Its usage has spread to varied fields, such as learning machines, which are currently used in smart manufacturing, medical science, pharmacology, agriculture, archeology, games, business, and so forth. [3]A chatbot is Artificial intelligence computer program that impersonates human communication in its natural format including text or speech employing a technique like NLP, image processing or video processing along side the top task completion as instructed by the user. A chatbot is a new platform for the customer to form the intelligence way of the communicator [4]. Implementation of Chatbot have gained in popularity since the discharge of Alexa and Siri Chatbot has replaced to a greater extent the 24/7 executives in the business operations. However, all the request cannot be handled entirely by Chabot. Such type of chat bot facility provided by MMWA

E. Machine Learning And Airtificial Intelliginace

A correct prediction of stocks can lead to huge profits for the seller and the broker. Frequently, it is brought out that prediction is chaotic rather than random, which means it can be predicted by carefully analyzing the history of respective stock market. Machine learning is an efficient way to represent such processes. It predicts a market value close to the tangible value, thereby increasing the accuracy. Introduction of machine learning to the area of stock prediction has appealed to many researches because of its efficient and accurate measurements [5]. Using machine learning we

had developed a stock prediction model which helps to user understand and invest money in specific stock. It will help for all and its user friendly also.

F. Actual Stock Prediction

In stock prediction a deep learning method for event driven stock exchange prediction. First, events are extracted from news text, and represented as dense vectors, trained employing a completely unique neural tensor network. Second, a deep convolutional neural network is employed to model both short-term and long-term influences of events on stock price movements. Experimental results show that our model are able to do nearly6% improvements on S&P 500 index prediction and individual stock prediction, respectively, compared to state-of-the-art baseline methods. additionally, market simulation results show that our system is more capable of creating profits than previously reported systems trained on S&P 500 stock historical data
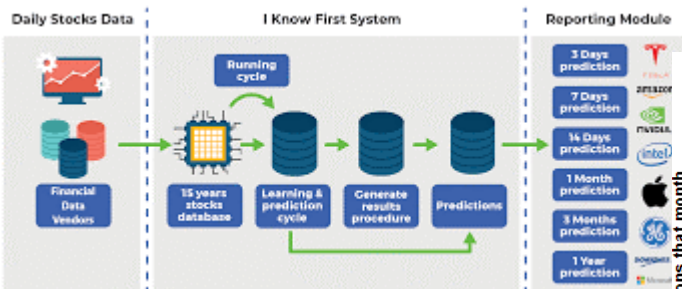

Fig. 2. System of stock prediction

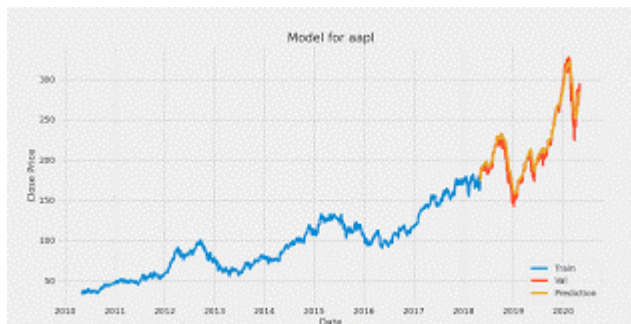Fig taken from web source providing idea of stock prediction. Such model integrated in our project

Fig. 3. Stock prediction

The above figure represents the stock price prediction and forcasting

G. FLASK VS DJANGO

Django	Flask
Django could be a Python-based free, open source system which takes after the MVT(model view Template) approach of structural design	Flask could be a Python-based smaller scale system without any set of specific instruments or outside libraries. It too doesn't have a database layer or arrangements for shape approval and makes utilize of expansions.
Urls.py is utilized to set the association properties and demands are handled by the primary coordinating see of regex list	URI is most regularly than not set by the see decorator and centralized setup is additionally conceivable. Some time recently the designs are coordinated with the URIs, the last mentioned is sorted in a default arrange
Doesn't exclude setting flexibility	It is accepted that all the conceivable stages to organize a Flask code rises to the applications number show in flask as of now

Fig. 4. Djange v/s Flask Popularity

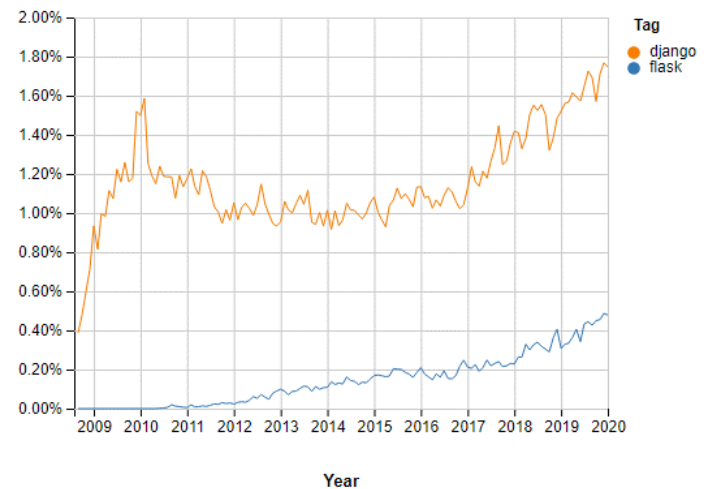## H. Conclusion

Thus, we can conclude from this literature review that there is a need for financial literacy and a platform where the knowledge and required tools are available in one place might be one of the most feasible and practical solution to this problem

1) Mistakes are more common for less educated households; thus, they will gain more benefit from the web application developed by us.

2) Being financially educated will help to plan a better future, will also help in retirement planning, savings and credit use.
3) Financial Literacy leads to complete knowledge of factors such as investment, expenses, taxation, mutual funds, SIP, Government and non-government schemes, etc. leading to a global increase in cash flow and boosting the GDP of nation
4) Stock prediction helps and it will mostly beneficial for user
5) Using Chatbot user will get help 24/7 and provides actual information what user need.

III. METHODOLOGY

A. Initial Working

1) Identification of sources of funds and alternatives
   - Like different types of mutual funds and schemes as well as capital resources.
2) Investigation of possibilities of short-term financial fluctuations
   - Changes lead to periods of expansion and recession.
3) Examination of the economic environment
4) Development of financial analysis tools and figure out techniques
   - Important techniques include horizontal analysis, vertical analysis, and ratio analysis.
5) Evaluation of contractual requirements
6) Evaluation of the most suitable legal entity
   - Like different types of mutual funds and schemes as well as capital resources
7) Examination of financial impact risk factors
   - Some common and distinct financial risks include credit risk, liquidity risk, and operational risk.
8) This is explained better in the following figure

Fig. 5. Methodology

B. Project Workflow

- The project is done in Django which uses the modular type of programming
- The basic workflow of the project is given below
- A user clicks on a specific element on the webapp
- The query is handled by JavaScript and sent to the server using ajax call
- The server checks the query for existing paths/URLs
- If the query exists then the respective associated functions are called to perform their delegated tasks
- If the function contains certain data storage or fetching operations then the server generates a SQL query with the respective database table
- Then the Data is passed to the frontend and displayed to the user

C. Flowchart
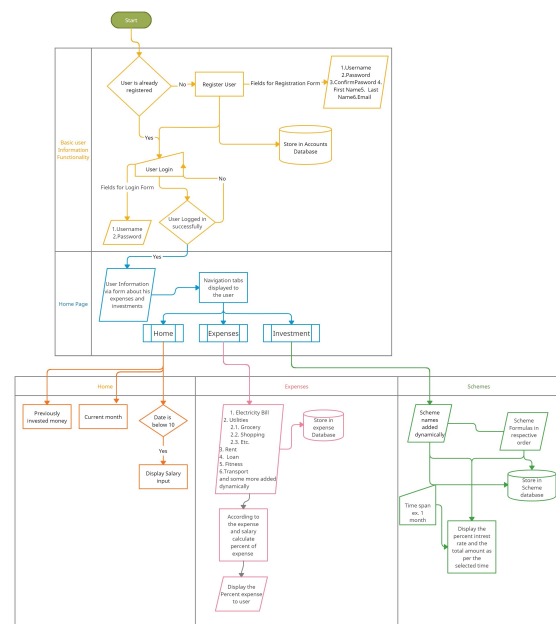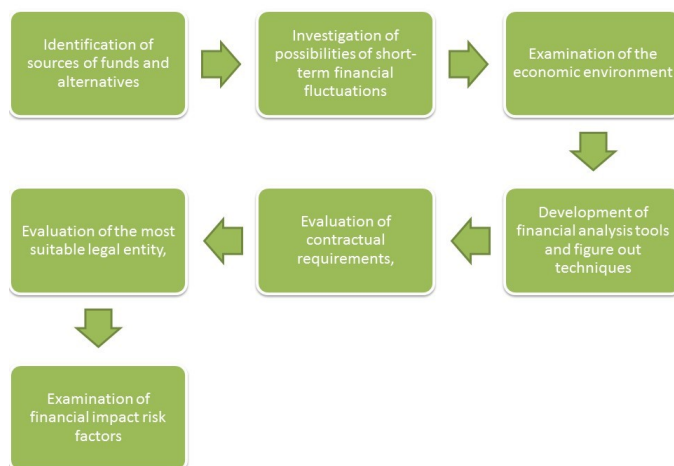

Fig. 6. Flowchart

D. Team Workflow

- The project work was divided among all the tea members as follows
  - Vedant - 11: Chatbot Development
  - Shriram - 12: Chatbot intents data creation, action creation
  - Mitrajeet - 13: Chatbot backend, Stock price prediction model, prediction UI
  - Aayush - 14: Responsiveness of website
  - Ashutosh - 15: Powerpoint Presentation
  - Kaushal - 16: Literature review and Project paper
- Each team member worked in tandem with the other in order to complete the task at hand in the most efficient manner

IV. Some Common Mistakes

A. *Excessive Spending*

It may not appear to be a giant deal after you devour that double-mocha cappuccino, have dinner out or order that pay-per-view motion picture, however each very little item adds up. simply 1750 Rs per week spent on eating out prices you ninety one, 91,000 Rs each year, that might go toward an extra mortgage payment. If you're enduring Financial hardship, avoiding this error very matters - in any case, if you are solely a number of steps away from bankruptcy, each penny can count over ever.

B. *Never-Ending Payments:*

Ask yourself if you actually want things that keep you paying monthly, year when year. Things like cable tv, music services or fancy gymnasium memberships can force you to pay incessantly however leave you owning nothing. once cash is tight, or you just need to save lots of additional, making a throw style can go a protracted thanks to finished your savings and cushioning yourself from monetary hardship.

C. *Living on Borrowed Money:*

Using credit cards to shop for necessities has become somewhat traditional. mastercard interest rates build the price of the charged things an excellent deal additional expensive. looking on credit conjointly makes it additional likely that you're going to pay quite you earn.

D. *Buying a New Car:*

Millions of new cars square measure oversubscribed annually, although few consumers will afford to get them in money. However, the inability to pay for a replacement automobile suggests that an inability to afford the automobile. After all, being able to afford the payment isn't a similar as being able to afford the automobile. what is more, by borrowing money to shop for a automobile, the patron pays interest on a depreciatory quality, that amplifies the distinction between the worth of the automobile and therefore the value got it.

E. *Spending Too Much on Your House:*

When it involves shopping for a house, larger isn't necessarily higher. Unless you've got an outsized family, choosing a half dozen,000-square-foot home can solely mean more expensive taxes, maintenance, and utilities. Do you actually need to place such a major, long-term dent in your monthly budget?

F. *Not Investing:*

If you are doing not get your cash operating for you in the markets or through different income-producing investments, you cannot pack up - ever. Making monthly contributions to selected retirement accounts is important for a cushty retirement. Take advantage of tax-deferred retirement accounts and/or your employer-sponsored arrange. Understand the time your investments can need to grow and how much risk you'll tolerate. Consult a professional financial authority to match this along with your goals if attainable.

G. *Paying Off Debt with Savings:*

You may be thinking that if your debt is cost accounting 19% and your retirement plan is creating 7%, swapping the retirement for the debt suggests that you will be pocketing the distinction. however it isn't that straightforward. additionally to losing the ability of compounding, it is very exhausting to pay back those retirement funds, and you may be hit with hefty fees. With the right mind-set, borrowing from your retirement plan can be a viable possibility, however even the foremost disciplined planners have a tricky time putting cash aside to rebuild these accounts. once the debt gets paid off, the urgency to pay it back typically goes away. It will be terribly tempting to continue outlay at the same pace, which suggests you may return into debt again. If you're aiming to pay off debt with savings, you will need to live such as you still have a debt to pay - to your retirement benefit.

H. *Not Having a Plan:*

Your financial future depends on what's occurring right now. Individuals pay countless hours watching TV or scrolling through their social media feeds, keeping aside 2 hours every week for his or her finances is out of the question. You would like to understand where you are going. Make spending some time planning your finances a priority

V. Result

Many of people which were used our MMAW had managed their expenses as adding their income with providing their expense category. Those who are interested to invest their money in different banking schemes were invested freely in as MMAW provides them an output for their amount with providing specific time span. Also, newly commers in stocks have no idea they got predicted stocks, previous history and related blogs using MMAW. Students who are not known much deep in money managing, banking and investments learnt these all things from blogs added in MMAW.

- **Implementation of chat bot:** We are successfully implemented chat bot. Developed as possible as user-friendly. Chatbot databases and indentations implemented successfully.
- **Stock Prediction:** Model using machine learning, deep learning and LSTM algorithm implemented successfully that is great achievement and its user friendly. Easy to understand and appear on home page
- **Expense Management:** User handling his income easily by managing expenses and return some amount for saving to further invest and more
- **Investment Management:** User have facilities to check different banking schemes after selecting specific term its output amount will displayed successfully

REFERENCES

[1] A. Lusardi, "Financial literacy and the need for financial education evidence and implications," *Lusardi Swiss Journal of Economics and Statistics*, 2019.

[2] A. Shyam and N. Mukesh, "A Django Based Educational Resource Sharing Website: Shreic," *Journal of Scientific Research*, 2020.

[3] J. Shen and M. Omair Shafq, "Short-term stock market price trend prediction using a comprehensive deep learning system," *Journal of Big Data*, 2020.

[4] L. Chouhan and N. Agarwal, "Stock Market Prediction Using Machine Learning," *Research Gate*, 2018.

[5] A. MOGHAR and M. HAMICHE, "Stock Market Prediction Using LSTM Recurrent Neural Network," *IWSMAI*, 2020.