A Mini Project Report on

Smart Investment Predictor (MoneyCanny)

T.E. - I.T Engineering

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CERTIFICATE

This to certify that the Mini Project report on Smart **Investment Predictor (MoneyCanny)** has been submitted by Atharv Joshi (19104036), Siddhesh Puranik (19104014) and Niranjan Ram (19104025) who are a Bonafede students of A. P. Shah Institute of Technology, Thane, Mumbai, as a partial fulfillment of the requirement for the degree in **Information Technology**, during the academic year **2021-2022** in the satisfactory manner as per the curriculum laid down by University of Mumbai.

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Acknowledgement

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Chapter 1

Introduction

Money is important to everyone and saving money is more so. The idea of your "money making money" is very fascinating, but for an average person the idea of investing their money in the stock market or crypto market is daunting. They tend to choose the simpler route of just keeping the money in the bank or putting it in a fixed deposit. Predicting the future in all the areas using machine learning techniques was the recent research in the current scenario. Stock market is one among them which needs the prediction future market to invest in the new enterprise or to invest their money in different schemes to get profit. This needs the efficient prediction technique which studies the previous exchanges of stock market and gives the future prediction based on that. The person may figure out how to invest but it takes time to figure out what to invest in. Thus, we come to the purpose of our project.

The first thing that we had to figure out was if we could predict the stock market. We came to a very interesting conclusion- Yes and No. One can never predict the stock market correctly as it depends on a slew of different factors. The closest thing to predicting the stock market is just fitting the line on the graph which is essentially linear regression. After reading "Artificial Intelligence Applied to Stock Market Trading: A Review" [1], we came to the conclusion that we can in fact use artificial intelligence algorithms like linear regression to somewhat predict the general trajectory of the market. Then from "Causal Relationship Between Macro-Economic Variables and Stock Market: A Case Study for India" [2], we came to a revelation that the market trends in the Indian subcontinent and more importantly the Indian Stock exchange is more or less dependent on the Singapore Stock exchange.

We also discovered that even Cryptocurrency trends can be predicted by using machine learning in the article "Cryptocurrency Price Analysis with Artificial Intelligence"[3]

1.1. **Purpose:**

The purpose of our project is simple and that is to help a new investor pick an investment option based on their age, amount they want to invest and what risk profile they have. They will be given a wide array of options and based on their profile our algorithm will suggest the best option for them to invest in.

1.2. **Objectives:**

- To help user make the right investment choice.
- To display the different markets.
- To educate the user about different investment options.
- To predict the change in market in terms of percentages.
- To provide the user with a personalized user experience.
- To train the data from the closing market and use it to predict the change in market.

1.3. Scope:

- Can be useful to any beginner in Investment field
- Can be used by students to learn about different investment options for the future.
- Can be used to store the user profile and suggest the investment options based on that.
- Can be used to get suggestions based on your user profile.

Chapter 2

Problem Definition

The user is inexperienced with investing their money so they have to find a reliable source of information. The user is also confused in which type of investment he would get better returns. The user knows how much they want to invest as well as how aggressively or passively they want to invest their money. Thus, the solution is to come up an app which can predict returns on different Investment options and compare them.

Chapter 3

Proposed System

3.1 Features and Functionality

Our project is the perfect example of just enough features that carry the user experience. This includes the following functionalities and features:

1. **User Login and Profile**
   The app begins on the login and signup page which authenticates the user and also takes in the preferences from user like, amount the user wants to invest and what is the user mentality.

2. **Display of Change in Percentage**
   The user is shown the change in the market in terms of percentages. It is shown in terms of a grid pattern and all the relevant market options are displayed to the user.

3. **Quick Display in the App Bar**
   The top 3 investment options which are- SENSEX, IC15 and Gold are shown in the App Bar and when the user clicks on it, they display the change in rate in terms of percentages.

4. **Dynamic Data**
   Our project uses dynamic data for training the model. The data of the market when it closes is taken to train the model and predict the changes for the next day in terms of percentages.

5. **Individual Training**
   We employ the use of SVR (Support Vector Regression) to train each element individually from the data in the spreadsheet.

Chapter 4

Project Outcome

Our project is the culmination of all the courses we have taken this semester and to showcase that further, we have created the front-end in Flutter. This project has taken a different shape from how it began. The outcome of the project is to predict the trends in the stock market along with the crypto market and based on that information, provide the user with the most suitable investment option. Thus, we have made a system that studies the closing market and predicts the change in market for the next day. The system studies the diverging effect of market price of product in a particular time gap and analyze its future trend whether it's loss or gain. During the system of thinking about diverse strategies and variables that should be taken into account, we observed out that strategies like random forest, Support vector machine and regression algorithm. Support vector regression is a beneficial and effective gadget gaining knowledge of approach to apprehend sample of time collection dataset. The data collected for the five years duration (2 years for crypto) which was accumulated to get the expecting prices of the share of the firm. It can produce true prediction end result if the fee of essential parameters may be decided properly.

The outcome that we are looking for is the satisfaction of the user but more important than that is to provide the user with a suitable investment option. We take into consideration, the risk profile of the user and based on that our system filters the investment options based on the rate of change. The investment options with higher changes may it be positive or negative are associated with high risk while the options like PPF and FD which are essentially static are associated with low risk.

Chapter 5

Software Requirements

The software requirement for the project are as follows:

Flutter

Flutter is needed for the development of the frontend of this project. Flutter has some great advantages that made us pick a PWA over a Web App, i.e., made us pick Flutter over HTML CSS.

Flutter is cross-platform, you can use the same code base for your iOS and Android app. This can definitely save you both time and resources.

Google Sheets

We are using Google sheets as a connecting tool between our frontend and the backend. The data is collected in the spreadsheet and that is fed into the backend. The predictions which are made in the backend are then stored in the spreadsheet which allows us to display this rate of change on the frontend of the app.

Python

Python is a high-level, general-purpose programming language. Its design philosophy emphasizes code readability with the use of significant indentation. Its language constructs and object-oriented approach aim to help programmers write clear, logical code for small- and large-scale projects. Python is dynamically-typed and garbage-collected. It supports multiple programming paradigms, including structured(particularly procedural), object-oriented and functional programming. It is often described as a "batteries included" language due to its comprehensive standard library.

Python is an amazing versatile language to use for many reasons but especially useful for Data Science and Predictions. We make use of Python scripts in Python notebook format. We take the data from the spreadsheet and train it. The trained data is then used to make predictions which are again stored in the spreadsheet.

Firebase

We make use of Firebase for Authentication and Authorization of the user profile. The integration between Firebase and Flutter is seamless making it very useful for our cause.

Chapter 6

Project Design

This will explain the basic as well as the overall working of our project and how it works and how it runs. This diagram explains the inner working of the database and how it connects with the frontend.

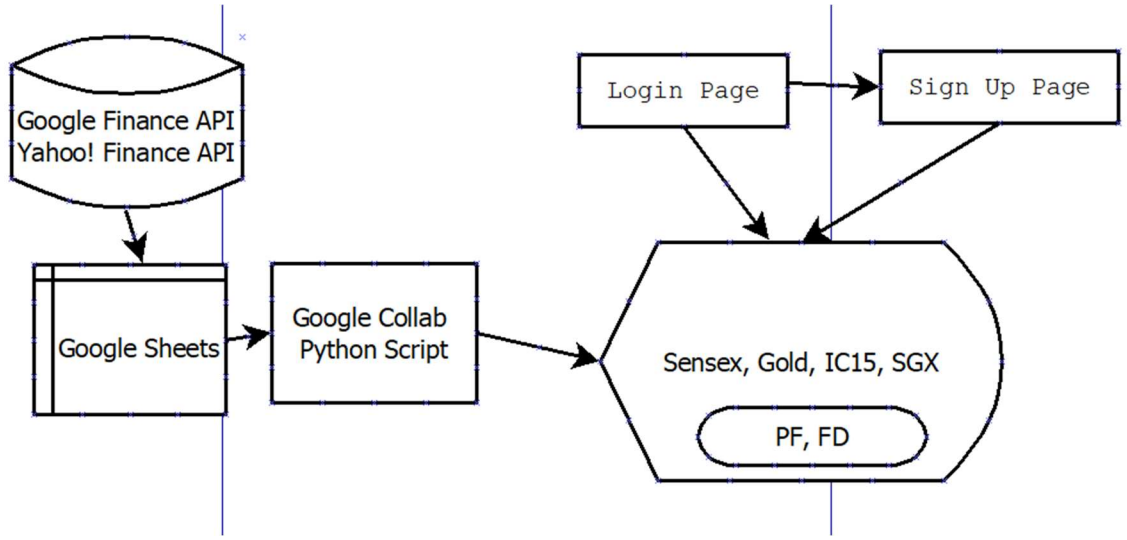


Fig. This is the basic outline of the system in place in the app.

The Data for the training purposes is taken from the APIs like Google Finance and Yahoo! Finance API.

It is stored in the Google Sheets which allows us to store the data on the cloud and thus enabling us to use it anywhere.

The data collected in the spreadsheet is then fed into a training model. We use SVR or Support Vector Regression for training the data and then predict the market based on that data.

After the data is trained, we predict the market and store the results again in the spreadsheet. For the training we use Python as it is the most effective and efficient way to do this task.

The results stored in the spreadsheet are used to display the data in the frontend which is Flutter app. The app displays different investments options like stocks which we predict and various government schemes which are highlighted and can be seen in the screenshots below.

Chapter 7

Project Scheduling

Sr. No	Group Member	Time Duration	Work to be done
1.	Atharv Joshi	2nd week of March	Literature Review
2.	Atharv Joshi	2nd week of April	Implementation of training model on Cryptocurrency
3.	Siddhesh Puranik	2nd week of March	Implementation of prediction model on SENSEX using linear regression
4.	Siddhesh Puranik	2nd week of April	Revision of the training model on Stocks using SVR and UI implementation
5.	Niranjan Ram	2nd week of March	Implementation of Flutter Login Sign-Up
6.	Niranjan Ram	2nd week of April	UI design and Implementation of training model on Gold

Chapter 8

Screenshots of the application

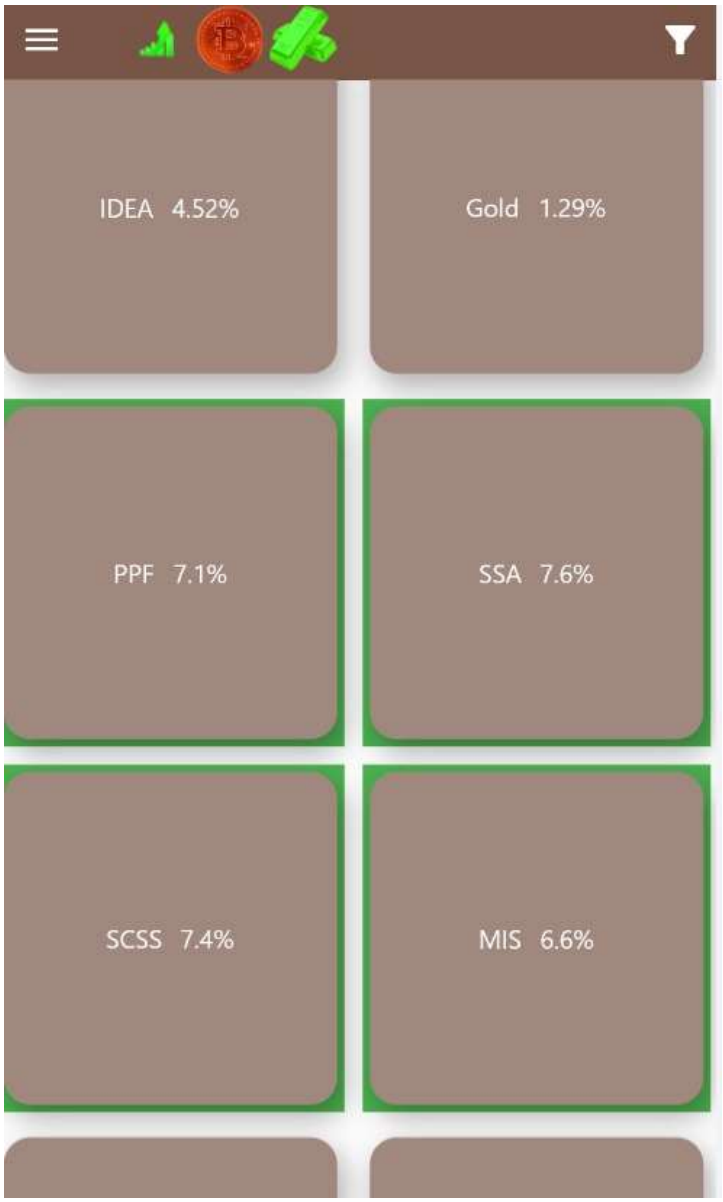
This is the login Page of the Application, which is the first thing the user sees. It has the fields email and Password. If the user does not have an account, they can click in the Sign-Up text at the bottom to go to the Sign-Up page.

This is the Sign-Up page of the Application

It has the fields like Username, email, Password and Confirm Password along with the Level of Risk the User is willing to take in their investment journey.

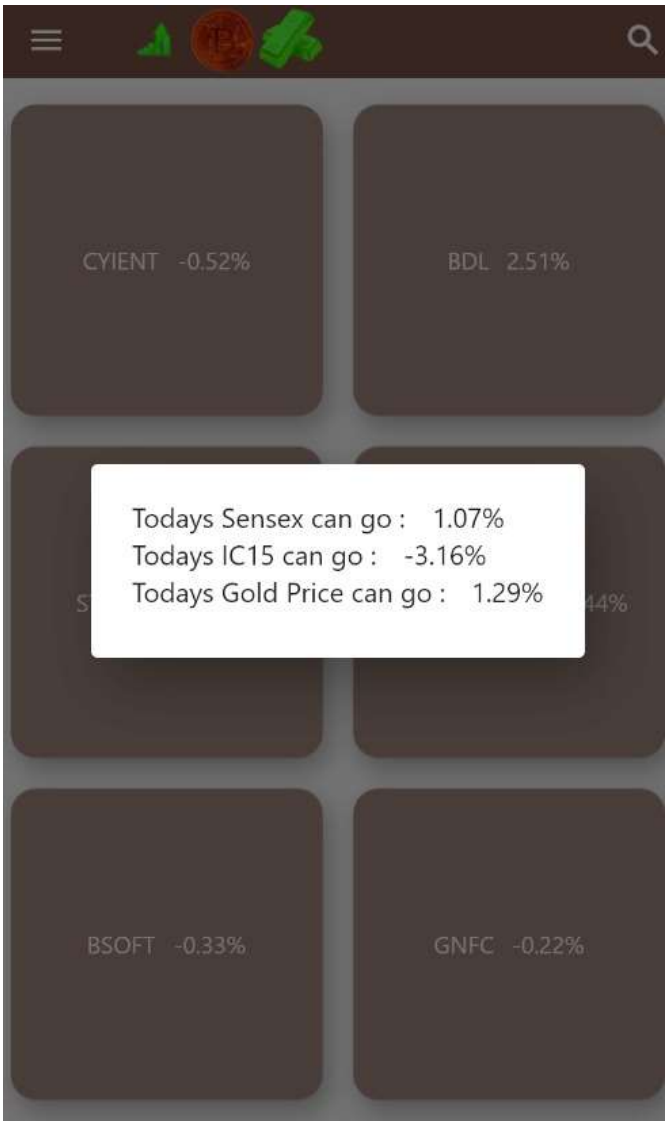
This is the Display page of the application

It shows the rate of change in terms of percentages in the market based on the data from the previous day.



This is the Display Screen

The government schemes are highlighted



These are the Top 3 investment options which are displayed in the App Bar and on clicked show this pop up.

Chapter 9

Conclusion

Money is important to everyone and saving money is more so. The idea of your "money making money" is very fascinating. We were successful in conveying this idea and how a normal person can make better choices using our app. In this project, we achieved the prediction of stock market along with the cryptocurrency market and different government schemes using SVR. This is still a work in progress and the stock market can never truly be predicted but we can get a close estimation. We have achieved that close estimation which can make the difference between never investing in the stock market and being a new entry to the endless stock market.

We hope that this app helps new users to dip their toes in the stock market and help them to find the best suitable stocks, cryptocurrencies and various other schemes based on the user risk preference.

References

[1] “Artificial Intelligence Applied to Stock Market Trading: A Review” by F. G. D. C. Ferreira, A. H. Gandomi and R. T. N. Cardoso published in *IEEE Access*, vol. 9, pp. 30898-30917, 2021

[2] “Causal Relationship Between Macro-Economic Variables and Stock Market: A Case Study for India” by Dharmendra Singh published in Pakistan Journal of Social Sciences (PJSS) Vol. 30, No. 2 (December 2010), pp. 263-274

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