



SRM

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18DCO301J - DATA X – APPLIED DATA SCIENCE WITH VENTURE
APPLICATION

Stock Market Analysis

Submitted by **Saurabh Pandey – RA2011003010207**

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1. Introduction

- Stock Market Analysis is the project on technical analysis, visualization and prediction using data provided by kaggle. Stock market plays a pivotal role in financial aspect of the nation's growth, but stock market is highly volatile and complex in nature. Hence, any investor would be interested in understanding the stock market overtime and how the factors mentioned above affect the behavior of the stock market. The objective of this project is to reach the users who are not well-versed in stocks and thereby minimize the risk of loss in every trade hence maximizing the profit. They can look at our predictions and make their decision on which stocks to purchase. We used various machine learning algorithms and integrated it into a website. This project is focused on analyzing a stock of any given company based on statistical technical indicators. Some of these indicators are deterministic in nature and the remaining are probabilistic.

1.1 Need of the Project

- On Every business day, millions of traders invest in the stock market. Most of these investors lose money and others gain. However, considering any trading day, loss or gain is absolutely inconsistent. The demand to predict stock prices is extremely high, hence the need for stock market analysis. Trading will become much more efficient for online traders to make good investment decisions that generate consistent returns. The project would try to provide accurate and evaluated information and save the time spent by the investors studying and examining a certain equity data. This application assists businesses, corporations, investors, and traders in making profitable business decisions which will also contribute to individual asset growth.

1.2 Approach

We started off with the idea by thinking about how some people are hesitant to invest in stocks due to the risks involved. Our primary approach while starting the project was to keep in mind the users and

make our tool user-friendly. We needed to keep the software easy to use. Several new features like chat bots, news feeds were added keeping the user in mind.

Our aim was to analyze multiple data sets so as to attain maximum accuracy possible. Our teammates specialized in different tasks involved and we allotted the tasks and began the creation of our project using various tools.

We started our frontend development using tools like Javascript, HTML, CSS, react. By using machine learning tools for Data Processing, Model Training, Model creation we used Python, numpy, scipy, sklearn, pandas and Matplotlib. We finally integrated our website with the backend. In the end we were able to execute our approach according to the needs or the requirements

1.3 Benefit

- 1) It helps the investors/newbies to identify whether the worth of security is valued in the market.
- 2) By using stock analysis, investors, financial analysts and traders arrive at equity buying and selling decisions.
- 3) Removes investment bias
- 4) Minimizes your losses
- 5) Applying the right stock market prediction helps you to know better about your entry and exit points. So often the traders either enter or exit the market at the wrong times which means they fail to capitalize on the full potential of making profits.

1.4 Competition

- The next best competitor to our project is Screener. Screener was founded by two stock market-loving brothers, Ayush and Pratyush Mittal in 2009. They along with their Dad use to analyze companies and prepare reports. Pratyush had a craze for coding and

- Our project does not only provide analytical tools, it even analyzes the stocks and predicts the future prices.

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- The following is a questionnaire answered by an individual investor:-
- Question: Can you tell me more about the last time you did ?
Answer : Due to the risks involved and my lack of expertise, I recentlybought in Apollo Hospital and Wipro shares after researching them for months.
- Question: How often do you do?
Answer: I do it on monthly basis.
- Question: Which step is the most time-consuming/mostdifficult/most expensive?
Answer: The majority of my time is squandered on gathering, researching, and revising information regarding a stock I want to purchase.
- Question: Did you ever compare alternative solutions to solve problem[X]?
Answer: There are other options, such as dealing the stocks through a stockbroker, who will then charge you a fee in return, leaving you with little to no earnings.
- Question: Can you quantify this? (e.g. “losing 20 min per day”)Answer : Yes, of course.
- Question: What don’t you like about Stock market?
Answer: Stock market has non-stationary, blaring and chaotic data, so sometimes being updated with the new stock is difficult.
- The outcome of the customer validation is that the project has no sizable competition, the result of which is that our project can have immense success as well as public support as something of this type is not really available with devices all available at all times by a modern user. This helps us strengthen our belief that the project will not only be monetarily successful but also have critical acclaim and help with the day to day life of people

Persona

Team T5



About this persona:

Name: Sam

Background: Financial Analyst

Challenges: Data management and communication

1 Pains Fears, frustration and anxieties Information Overload Market volatility Emotional biases Competitiveness Market saturation	2 Gains Wants, needs, hopes and dreams In-depth knowledge of the stock market Career advancement Analytical skills development Networking opportunities:
3 Jobs to be done What are they trying to do and why is it important for them? Conducting fundamental analysis Evaluating market trends Performing technical analysis Creating financial models	4 Reality How do they achieve those goals today? Any barriers in their way? Understand the market Conduct thorough research Use financial modeling Develop a strong network:

5 Stories and observations

Write down quotes or observations that best describe their experience

A financial analyst may observe stock market bubbles, where the price of certain stocks becomes inflated beyond their actual value. This can lead to a sudden drop in stock prices, and a financial analyst must be able to identify these trends to provide sound investment advice.

Financial analysts may observe the impact of behavioral finance , which looks at the psychological factors that impact investor behavior. For example , fear and greed can drive investors to make irrational decisions, which can impact the stock market. Financial analysts may use this knowledge to inform their investment recommendations.

6 Context

Are there other factors that we should take in consideration?

Factors that affects the financial analyst during stock market analysis :-

Technical Factors: Technical factors such as chart patterns and trading volumes can impact stock prices. Financial analysts may use technical analysis to identify trends and patterns in the stock market to inform their investment recommendations.

Investor Sentiment: Investor sentiment can influence stock prices, with fear and greed driving investors to make irrational decisions. Financial analysts must be aware of investor sentiment and how it may impact the stock market.

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3. Project Description

- Based on stock market analyses, this project was created. The gathering of buyers and sellers of stocks, also known as shares, which reflect ownership claims on companies, is known as an equity market, stock market, or share market. It is designed to help stock market enthusiasts and investors comprehend financial and economic trends, enabling the clients to select the greatest investment opportunity for them. To study market patterns and identify the most profitable companies to buy, it will use a variety of datasets. Additionally, we offer news feeds and chatbots to assist individual investors in understanding equities.

3.1 Illustrate the UI/ Input, output

Step 1: Login or sign up

Step2: Redirected to main page if correct credentials

Step 3: Ask if beginner or not

Step 4: If beginner redirect to video link for complete explanation.

Step 5: If not a beginner take to Stock Market page.

Step 6: Various stocks to invest are displayed with their periodic variations

Step 7: When a customer selects a particular stock take his details for our database.

Step 8: Customer feedback.

Step 9:Exit

3.2 Technical Components of the project

1. FrontEnd: Used for UI/UX and the overlook of the project

-->HTML

->CSS

->JavaScript

->React

2. Backend: The part of computer that operates a website which cannot be seen or changed by the user

->MongoDB

->Express.js

->NodeJS

3. Machine Learning: Data Processing, Model Training, Model creation for given no of sets

->Python

->numpy

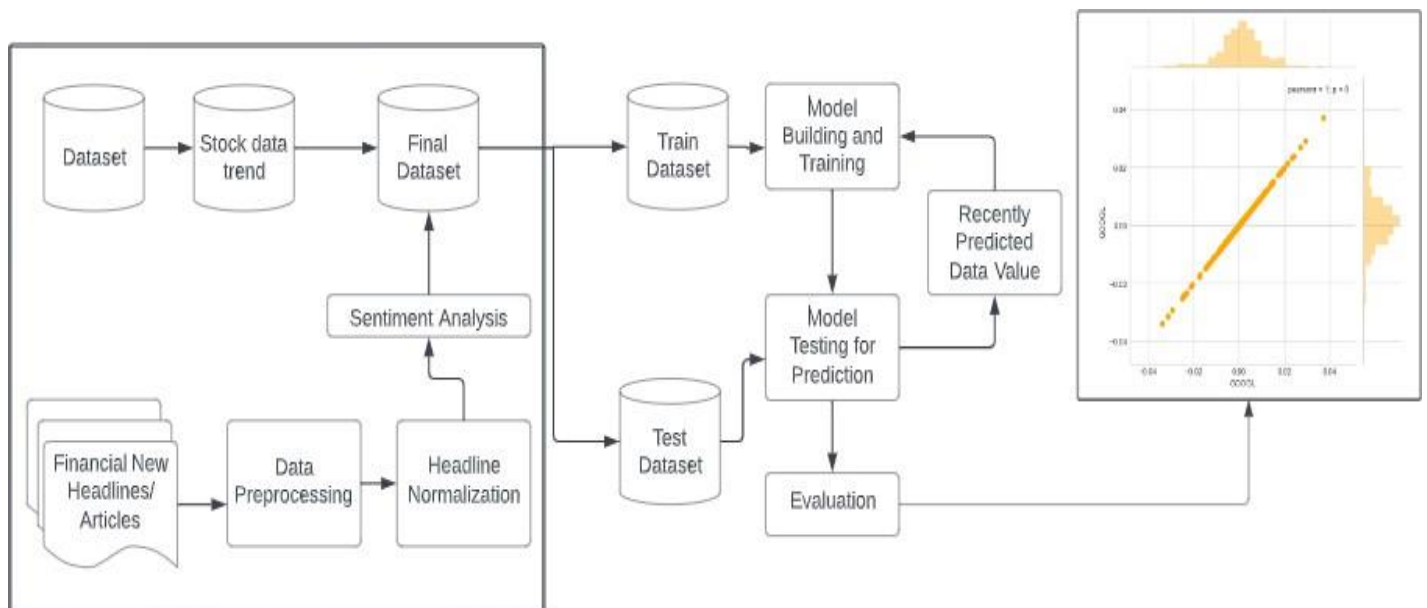
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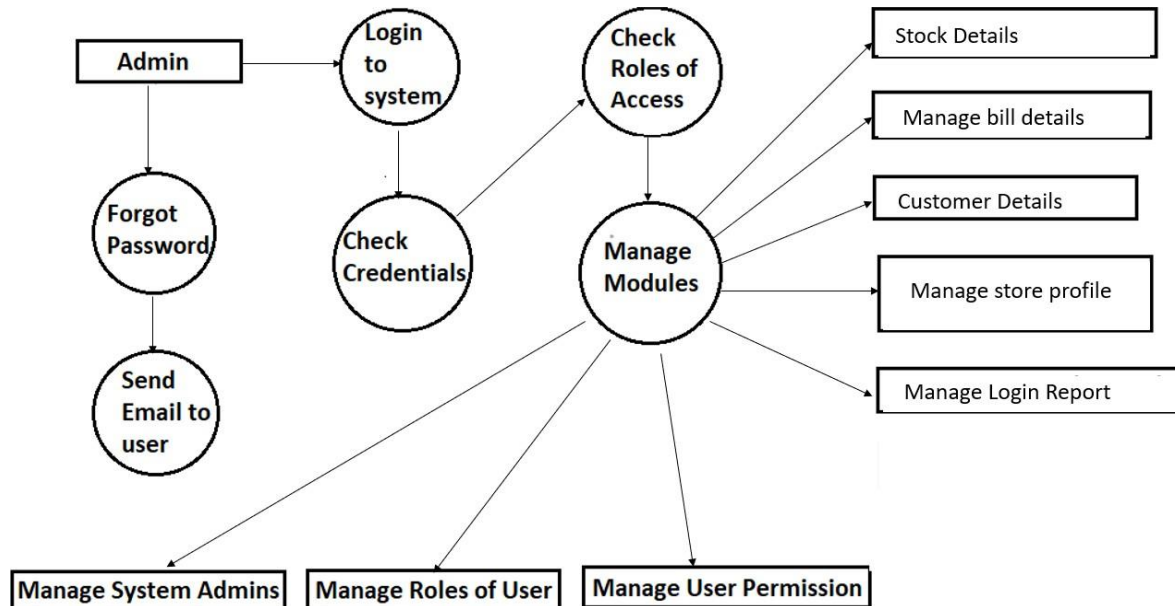
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->Matplotlib

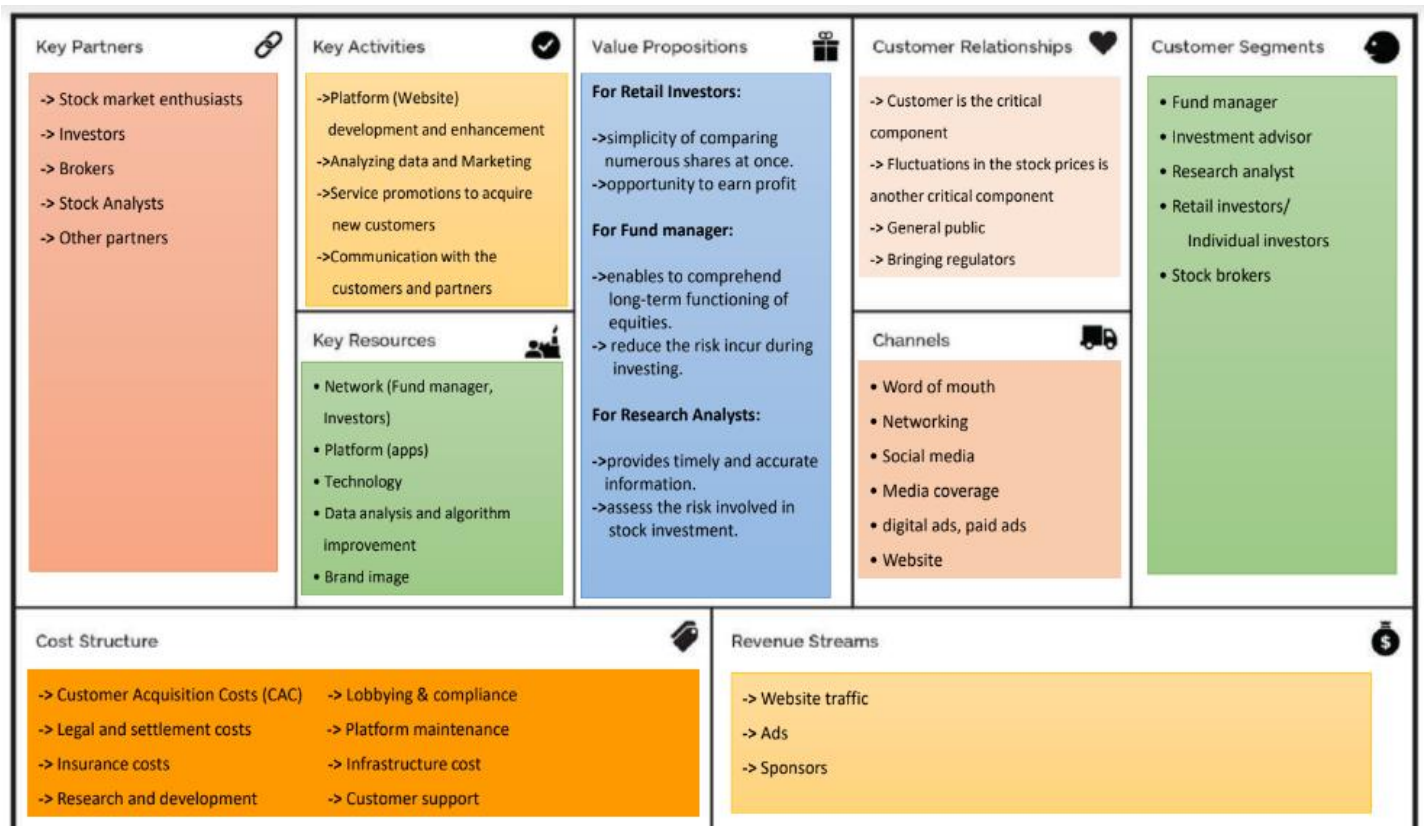
3.3 System Architecture



3.4 Data Flow in the system



4. Business Plan



4.1 Key activities

- Platform (Website) development and enhancement
- Analyzing data
- Marketing
- Service promotions to acquire new customers
- Communication with the customers and partners

4.2 Key Resources

- Network (Fund manager, Investors)
- Platform (apps)
- Technology
- Data analysis and algorithm improvement
- Brand image

4.3 Key Partners

- Stock market enthusiasts
- Investors
- Brokers
- Stock Analysts
- Other Partners

4.4 Value Propositions

For Retail Investors:

- 1) ease to compare multiple shares at one go
- simplicity of comparing numerous shares at once
- easy comparison of numerous shares at once
- 4) opportunity to earn profit

For Fund manager

- 2) enables to comprehend long-term functioning of equities
- 3) reduce the risk incur during investing

For Research Analysts:

- 1) provides timely and accurate information
- 2) provides a competitive edge in the field of market research space
- 3) assess the risk involved in stock investment

4.5 Cost Structure

- Customer Acquisition Costs (CAC)
- Legal and settlement costs
- Insurance costs
- Research and development
- Lobbying & compliance
- Platform maintenance
- Infrastructure cost
- Customer support

4.6 Revenue Streams

- Website traffic
- ADs
- Sponsors

4.7 Customer Segment

- Fund manager
- Investment advisor
- Research analyst
- Retail investors/ individual investors
- Stock brokers

4.8 Customer Relationship

- Customer is the critical component
- Fluctuations in the stock prices is another critical component
- General public
- Bringing regulators

4.9 Channels:

- Word of mouth
- Networking
- Social media
- Media coverage
- digital ads, paid ads
- Website

5. Financial Plan:

5.1 Growth Strategy:

1. Choosing targeted area of growth

- Growth of customer base and consumers
- Revenue/Profit generation
- Expanding in new regions and new dynamics

2. Conduct market and industry research

- Since the project we are working on is based on gathering insights from stocks it is necessary to learn the industry and do a thorough market analysis to reach potential customers. Conducting a thorough research on maximum number of stocks to attain maximum possible accuracy.

3. Setting growth goals

- based on the endgame aspirations of where we ideally want our organization to be we should set goals, but they should also be achievable and realistic – which is why setting a goal based on industry research is so valuable.
- issuing metrics and timelines to keep things up to date

4. Planning the course of action

- list of action items, deadlines, teams or persons responsible, and resources for attaining your growth goal. Our main growth strategy has been assigning work to the members of our team and setting deadlines to keep tabs on the progress.

5. Determine your growth tools and requirements

- Collecting progress reports and frequent meets to make the product development faster.

6. Execute your plan

-Providing an excellent product with excellent customer service.

5.2 Traction:

- Having experienced and renowned professionals in your advisory board gives a really positive signal to your potential investors.

- If your product isn't ready for sale yet, then try to get letters of intent from potential customers. The more the merrier.

- If you're offering a free or a freemium product. You can acquire traction by having a large volume of page views and sign ups on your page.

- A strategic partner is another company that enters into an agreement with you that aims to mutually benefit both their company and yours.

5.3

Financials:

Time Period	Income	Expenditure
2023 Q1-Q2	None(proof of concept phase)	Acquiring Licenses(for web frameworks), Server costs(using AWS)
2023 Q3-Q4	Subscription model	Obtaining Certifications(PAN, TAN, Digital Signature Certificates), Server costs
2023 Q1-Q2	Subscription Model + Sale of additional features	Employee costs(Hiring of developers, accountants, etc), Server Costs

2023 Q3-Q4	Subscription model of attendance monitoring system, New Products	Development of new products, Setting Up of IPO(Legal, Accounting and Marketing costs)
2024 Q1-Q2	Sale of new products + service models, Capital Gains(hopefully)	Development of new Products, Setting up of server farms(for our product ecosystem)
2024 Q3-Q4	Sale of existing products and services, Capital Gains	Development of new technologies, Acquiring new technologies, Investments in other products, startups and technologies

6. Conclusion:

Hence, we have successfully created the project stock market analysis, it helped us learn about data science and machine learning practices in the real world that we hope to implement in future.