SOFTWARE PROJECT - 1

Feasibility Study Report

BY TEAM STOCKERS:

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PART A:

1. Understanding the customer’s perspective:

“The Robinhood craze is moving the Indian Stock market”, this statement summarises the craze the Indian youth is having around the Stock Market. The trend of investing in stocks and crypto’s is steadily increasing the past few years. So, our aim is to predict the trends in stocks to make stock investments to minimise risks and maximise profits. People tend to look for a second opinion while making major decisions and the trends are not immediately apparent to a human. So the AI-ML model based application will solve this problem.

The newbies of the stock market find it difficult to analyse the trends and patterns of the stock, so we aim to make use of the previous patterns and predict the future with a good accuracy.

We also tend to enhance the user experience with a good interface. We are going to give an analysis for the premium stocks in the country. Most of the features of the website would be free but we would ask the user to take a subscription for in-depth analysis which would be at a reasonable cost.

2. General terms and conditions:

* Project location : India
* Project total cost : approximately $2 million
* Project time span : Four months or Sixteen weeks

3. a) Technical feasibility:

* Availability of Data-sets
* Deep learning techniques
* Graph plotting system
* Data cleaning tools
* Data preprocessing tools
* Data manipulation tools
* UI/UX development tools
* Storage management for large datasets and results
* Fitting the data
* ML modules
* Results visualisation using statistical techniques

**Tools (in specific):**

* For user-interface:

1. HTML
2. CSS
3. Javascript

* For backend implementation:

1. Python
2. Javascript

* For database management:

1. MongoDB
2. Python

* For graph plotting:

1. Matplotlib
2. Seaborn

* AI-ML modules:

1. Pandas
2. Numpy
3. Sci-kit
4. Statsmodels.api
5. Plateau
6. Keras
7. Scipy
8. Tensorflow
9. Excel

* For datasets:

1. Kaggle
2. Few API’s

Bandwidth required in this application is initially low and ease of implementation is synchronised. Since most of the tools mentioned above are free or the cost is reasonable, hence the project is technically feasible.

b) Economic Feasibility:

* Budget available: $2 million dollars
* Expenditure: May cost around $50,000 dollars per annum including maintenance. The costs may include:

1. $1500 dollars/month for api subscription of stocks
2. $57 dollars/month for database subscription(upto 4TB storage)
3. $40,000 dollars for salaries
4. $2,500 for miscellaneous costs
5. $2,000 maintenance cost

* Revenue model 3 phases:

1. Tier A: $3 per month: in-depth analysis
2. Tier B: $2 per month: good analysis
3. Tier C: $1 per month: advanced visualisation
4. Tier D: $0: basic visualisation

* Projected revenue:

$40,000 dollars for the first year and it will break even within 15 months.

c) Operational Feasibility:

Staff requirements:

* Data scientists
* Data analysts
* Front-end developers team
* Back-end developers team
* Database engineers

Operational structure:

* Multi-level hierarchical system with a project manager, project leaders and project assigned to a group of people.

Since we have enough staff working with us with more staff to join so the project is operationally feasible.

d) Legal Feasibility:

* The given software is not subject to any plagiarism\*.
* We do not claim rights over the datasets acquired from various api’s
* The organisation must not be held responsible if the user incurs any losses.

The software is not subject to plagiarism and the team will not claim rights over the datasets acquired from various API's. We also abide by all rules and regulations and will not be held responsible if the user incurs any losses. So it is legally feasible.

4. Findings of Feasibility Study:

In the Feasibility Study the aim of the project is outlined as predicting trends in the stock market to minimise risks and maximise profits for investors. The team plans to develop an AI-ML model based application to provide a second opinion for major investment decisions. They also plan to enhance user experience with a good interface and provide analysis for premium stocks in the country. The project location is India and the total cost is approximately $2 million, with a time span of four months or sixteen weeks.

In terms of technical feasibility, the team plans to use various tools and technologies such as Python, MongoDB, Matplotlib, Seaborn, Pandas, Numpy, Sci-kit, Statsmodels.api, Plateau, Keras, Scipy, Tensorflow, Excel, Kaggle and a few API’s. The bandwidth required for the application is low and the cost of implementation is reasonable. Economic feasibility is also outlined, with a budget of $2 million dollars and projected revenue of $40,000 dollars in the first year.From different aspects of feasibility study the project is feasible.

PART B:

1. Introduction:
2. Stakeholders:

The goal of the feasibility study is to evaluate the potential of a software using AI ML model to predict the stock market trends.The project seeks to offer a useful resource for traders and investors to make knowledgeable decisions, as well as a special chance for enterprises to obtain a competitive advantage in the market.

Numerous significant stakeholders who would gain from the suggested application software have been discovered by the investigation. These include small-scale traders and investors, financial institutions, and companies with stock market exposure. The application software's end users would be able to use the AI-driven predictions to decide on investments with greater knowledge, potentially increasing their returns.

1. Business profile:

The target market for this project is investment companies and individual investors who are looking for .The feasibility report has analysed the market demand and technical feasibility of the project and has found that there is significant potential for success.The demand for accurate and reliable stock market prediction tools is high, and the proposed model has the potential to outperform existing models in the market.

1. Problems:

The current systems for predicting stock market trends using Artificial intelligence have several limitations. Firstly, there is a lack of software that provides comprehensive analysis at a reasonable price. This makes it difficult for individuals and small businesses to access valuable market insights. Secondly, the accuracy of these existing systems is often questionable, as they rely heavily on historical data and may not take into account current market conditions and other relevant factors. Additionally, many of these systems are limited in the number of stocks they can analyse and the timeline they cover, which can limit their usefulness for making informed investment decisions.

2. Project Scope:

1. Project objective:

Newcomers in the field of stock marketing always feels difficult to make the right decision.so for decision making they try to take opinions of existing online stock prediction applications. So the objective of this project is to create a trustworthy and accurate stock predictor application which will help newbies to make the right decision with minimum risk.

1. Project goals:
2. To create application with minimum expense
3. Create a user friendly application
4. Create an application within a deadline with maximum precision.
5. Project - deliverables:

A highly precise stock predictor application. Which helps to predict values of stock in future with highest level of precision. Initially for some period application will be free.

But after some time the end user would have to pay some amount to get access to the application.

1. Project milestones:
2. Designing interface of project.
3. Designing logic
4. Integrating our logic with the development framework.
5. Creating first version of app
6. Testing
7. Finalising the app with necessary improvements.

3. Methodology used in study:

**Brainstorming Session**

In the brainstorming session the group was asked to share their ideas and suggestions for the project. One example of an idea that could come out of this brainstorming session is the use of machine learning techniques to predict stock market trends.The discussion included ideas for the methods and techniques to be used for stock market prediction, data sources to be used, and any potential challenges or obstacles that may need to be addressed. The group had discussed the potential benefits and limitations of using such techniques and identified any additional resources or expertise that would be needed to successfully implement this idea.

The initial motive of the session was to make the project profitable with subscriptions being affordable and also free for some users.The outcome is given in the economic feasibility session.

**Surveys**

Survey is also a methodology used in study. A survey questionnaire was released by our technical team which included some questions related to the domain of application which we want to create. And the response was evaluated. To decide the feasibility of our application. Some question in the questionnaire was as follows:

1. Are you interested in the stock market?
2. Have you ever invested in the stock market?
3. Do you like to have a faithful stock predictor to help you gain more profit?
4. How much money do you like to spend to subscribe to our app?

Approximately 1000 responses were collected. Aggregately responses was like following:

| Questions | Response | % of Positive | %Negative |
| --- | --- | --- | --- |
| Are you interested in the stock market ? | Yes/No | 90 | 10 |
| Have you ever invested in the stock market ? | Yes/No | 60 | 40 |
| Do you like to have a faithful stock predictor to help you gain more profit ? | Yes/No | 96 | 4 |

We also have done the survey of various pre-existing stock predictors and tried to understand their limitations and their user reviews. We have gone through a lot of questionnaire applications to understand the ground reality of the people involved in making these predictions and their success rate. From the survey we concluded that there is vast scope for stock predictor apps.

4. Observations from feasibility study:

By Feasibility studies of various sectors we can see that this application is feasible in every aspect. Acquiring legitimate

Datasets are still a challenge .The Stakeholders can invest in us as we are fulfilling most of their requirements at a reasonable cost. Our application is economically affordable to new users.

5. Challenges:

Stock prediction depends on two factors: technical factors and fundamental factors. In our application we are going to consider technical Factors. So there may be a slight possibility that the expected result varies from the original result .

As it is very difficult to consider future events that can affect the stock market, addition of fundamental factors becomes difficult.

6. Project Assumptions:

While creating the project we are assuming that in the near future no significant event is going to happen which can affect stock prices to maintain credibility of our project.

7. Recommendations:

The Stock Market investment is becoming a popular self employed job that people can do. So, to predict the future stock fluctuations by help of past trends there must be a stock prediction application which can predict with maximum accuracy. This application is going to fulfil all these needs.

Similar products are available in the market. We will add more features in the near future. We can extend our subscription plans and we can add an interface to buy, sell and maintain stocks with a relatively low brokerage rate.

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References:

* Kaggle: <https://www.kaggle.com/datasets/>
* Rapid Api: <https://rapidapi.com/blog/best-stock-api/>