**Synopsis**

**Under the Supervision of: Submitted By: Palak Gupta**

**(169108099)**

**Ankit Mundra Jai Shanker Srivastava (169108065)**

**Associate Professor**



IT Department MANIPAL UNIVERSITY JAIPUR JAIPUR-303007

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1. **Objective**

The objective of this project is to analyze the stock market and give us the idea of the position of the stocks in future and also help us to plan as in where one should invest in stocks to get maximum profit. Also, with the help of this project, we get a hands on idea about the stock market as well as machine learning.

1. **Motivation**

The world is becoming more technologically advanced every day. Each day we are coming up with new technology or ideas related to it. Technology is spreading into almost every domain there is like medicine, law, finance, agriculture and so much more. So the motivation behind this project is to make the analysis of the stock market more easy. Earlier we used to make predictions of the stock based on its past data, and those readings turned out to be false sometimes, many a times due to human error. The stock market is very volatile and it tends to keep on changing. With the help of machine learning we can make this analysis more accurate and precise. This would help us to understand the stock market at a much better scale since we would be training the machine ourselves. And we hope to make investing in stocks easy and reliable.

1. **Target specifications if any**

On the completion of the project, we expect it to give output for the following:

* Help us analyze the stock market.
* Make stock predictions easier for us.
* Help us understand as to which stock would be beneficial to invest in.

1. **Functional partitioning of project**

The project has been divided into 2 sections:

**4.1 The stock market**

Here we study the stock market, its ups and downs, make predictions for the future stock and hence decide in which stock to invest.

**4.2 The machine learning**

Here we train the machine to analyze the stock market based on the past data and the data sets acquired.

By combining these 2 sections, we train the machine to analyze the stock market. The work which was needed to be done by the human brain alone will now be made easier since it will be getting help from the machine and the data will be made available to it.

1. **Methodology**

The approach to this project has been broken down to a number of steps:

1. Studying about the domains used in the project which are – Stock Market and Machine Learning. Also, data sets will be collected during this time.
2. Apply the learnt knowledge practically on the technical platform using appropriate programming language and algorithms.
3. Test running the said project for accurate results and making the changes, if required.

**6. Tools required**

* Python 3.7.2
* Support Vector Machine (SVM)
* RAM – 2GB
* Internet Connection
* i5 processor computer
* Around 50GB storage space

1. **Work schedule *(month wise)***

(a) Jan 2017

The objective of this month is to learn about the domains required – Machine Learning, Stock Market and Basic Trading. This will be done through some online courses and research papers. The data sets will also be required during this time.

(b) Feb 2017

Further learning and applying the learnt knowledge practically using Python Programming and appropriate algorithms.

(c) Mar 2017

Further, working on the project and adding features.

(d) Apr 2017

We will be test running the project. Will check for accurate results and will make the changes required. Aim for achieving accurate and precise results.

(e) May 2017

In this month, we will do the final touches and prepare the presentation.

1. **References**

***Journal / Conference Papers***

[1] Huseyin Ince & Theodore B. Trafalis (2007) Kernel principal component

analysis and support vector machines for stock price prediction, IIE Transactions, 39:6, 629-637

# [2] Jigar Patel, Sahil Shah, Priyank Thakkar, K Kotecha – Predicting Stock and Stock Price Indexing Movement using Trend Deterministic Data Preparation and Machine Learning Techniques

[3] Bo Qian, Khaled Rasheed – Stock Market Prediction with Multiple Classifiers

***Reference / Hand Books***

[1] Sumita Arora, “Computer Science with Python”, Dhanpat Rai & Co., 8th Edition, ISBN 978-81-7700-052-8

***Web***

[1]www.coursera.com