“To use AI to analyse data from the stock market or other relative environments to provide a prediction on a specific currency.”

BSc Computer Science

Middlesex University London

Undergraduate Project Proposal for CST 3990

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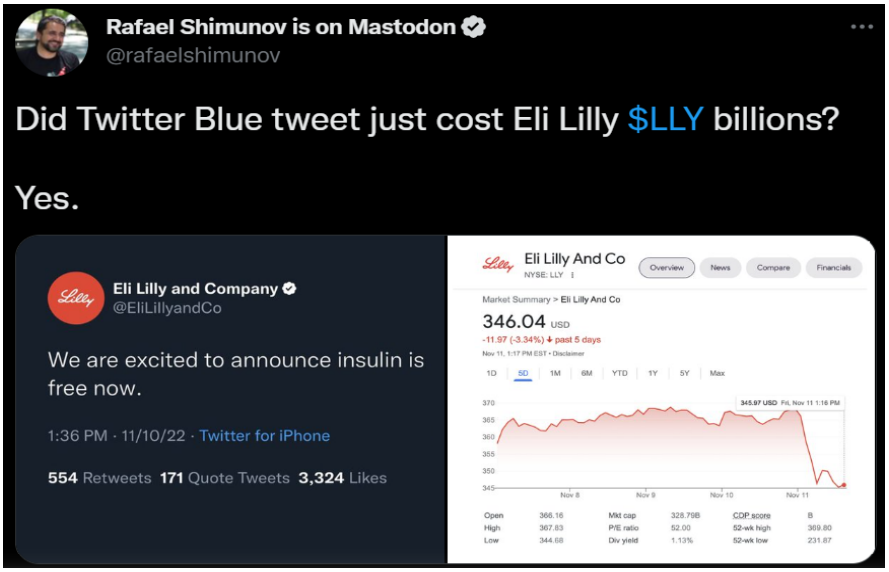
Introduction:

The phrase "stock market" refers to a variety of marketplaces where shares of publicly listed companies can be purchased and sold.

When stocks are sold the value of it decreases causing a dip, and when bought value increases. However, in this case, we are focusing more on the aspect of what we can accomplish with this information. At times, the stock market is affected by certain parameters. These parameters are irregular, and we cannot predict the future based on the data we know about now possibly due to insufficient data incalculable by man. This is visibly evident in an example we can look at.

To summarize a recent event on Twitter, Elon Musk recently changed the verification process to get a checkmark to visualize an account from being official, until they made an immediate change, people could pay 8$ per month and get the verified checkmark on their Twitter account, and with this, came newer problems as you can imagine. Someone had created a fake ***Eli Lilly*** (a pharmaceutical company) account, and tweeted “*We are excited to announce insulin is free now.*” Due to this, everyone started to withdraw their stocks from the company to avoid losing any money and in turn dropped the value of the company by a tremendous amount.



Problem Statement:

Many problems surface with changes such as the ones depicted above. We humans work and making new additions or changes causes newer problems.

But today we are not here to talk about problems, instead; the digital currency, such as bitcoin, stocks in the stock market, crypto, and other currencies relevant.

In this case, we can look at bitcoin e.g., from its history we can see that it had dipped the farthest than its previous stages.

Image from :
https://www.tradingview.com/chart/?symbol=COINBASE%3ABTCGBP

Many people not only in business sectors but also individuals have suffered through the dips. If only there was an application that could have alerted them of the upcoming dips or highs so that they would be able to save their money from loss or gain profits.

Project Description:

My main goal is to create an Artificial Intelligence that can predict the possible dips or highs of the relative market be it the stock market or cryptocurrency upon feeding on data from previous instances. It will be an application that will provide relevant data such as a predicted trajectory on a graph on the task at hand.

I aim to predict the price for Bitcoin specifically; the same method can be further configured to different currencies.
I chose bitcoin specifically as it seems to have left a significant impact with an extensive amount of information for us to analyse as well as being one of the most popular. The project will include a graph of the previous and after to compare the results and to confirm and verify the information.

Project Deliverables:

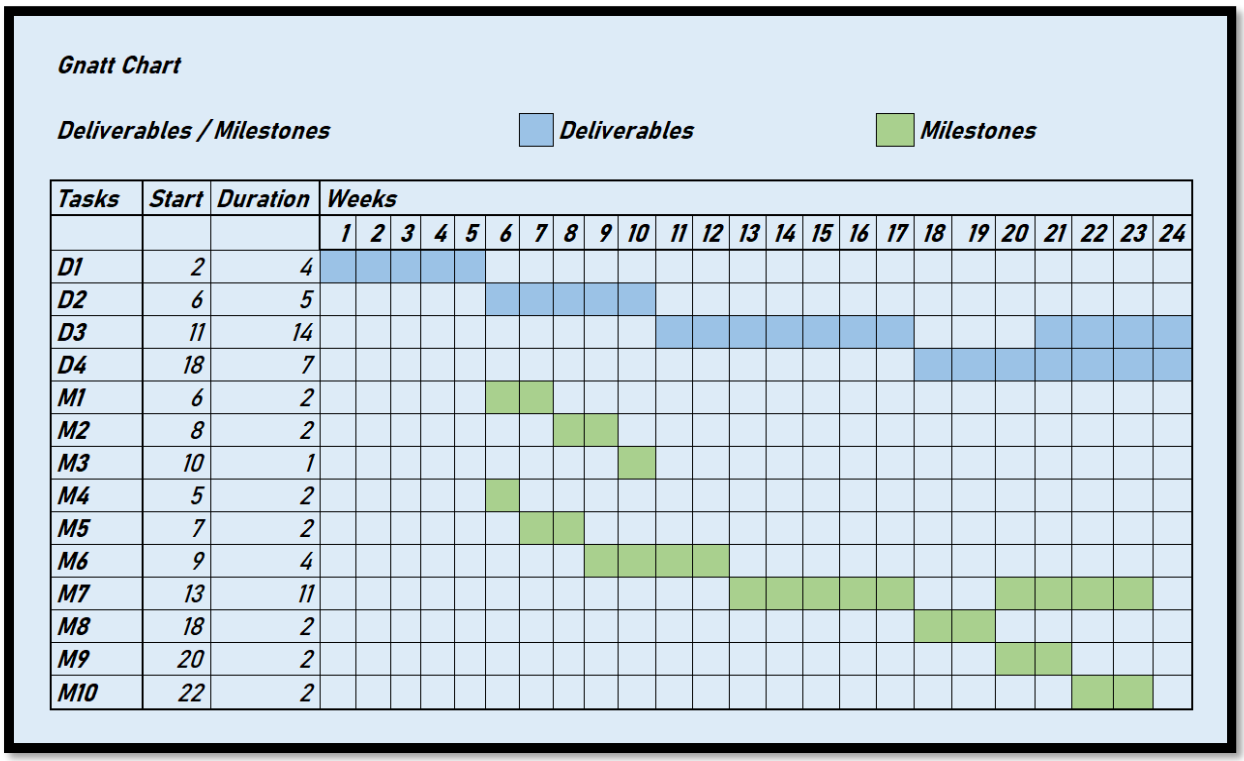
- D1. Project Proposal: A mock-up of my program, what it will look like, and the type of information it might provide (early testing).
- D2. Literature Review: A literature review for the work being legible and to verify the project with its current progress.
- D3. Final Report: A report for the project including all the characteristics such as testing, revisions, and other relevant mods.
- D4. Finalized Product with Results (i.e., After using the application)

Milestones:

- M1. Review of literature report I – The first draft of the literature review is to be presented to the supervisor and is required to be updated and improved upon according to the feedback.
- M2. Review of literature report II – The second draft of the literature review is to be presented to the supervisor and is required to be revised according to the tests.
- M3. Review of literature report III – Final draft of the literature review is to be presented to the supervisor with final changes before finally submitting it.
- M4. Working program – A prototype program using the provided data to learn to get a better understanding of the task for efficiency.
- M5. Build an environment to get evaluated in – An environment to run the machine in, such as Amazon SageMaker, Amazon Rekognition, and other software yet to be discovered.

- M6. Calibrating the scale of intelligence – Update the requirements to suit the needs of the application
- M7. Application with integrated GUI for further analysis – A working software that displays the previous data and a general trajectory to where it may perceive the graph to increase or decrease.
- M8. Concluding Report draft I – Primary draft of the final report to submit to the supervisor and get feedback on.
- M9. Concluding Report draft II – Secondary draft of the final report to submit to the supervisor and get feedback on.
- M10. Concluding Report draft III – Final draft of the report to submit to the supervisor and make any final amendments before submitting.

Gnatt Chart:



Tasks	Start	Duration	Weeks																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
D1	2	4																								
D2	6	5																								
D3	11	14																								
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M6	9	4																								
M7	13	11																								
M8	18	2																								
M9	20	2																								
M10	22	2																								

Evaluation:

To assess the application for the project, I will be selecting the data from; e.g., 2017-2019 for bitcoin and run it to predict the information for 2020 which we already currently possess. Based on the data it produces through trial and error or figuring out how or why the market dipped or there was a high, we can enter parameters for which we might think is responsible for the dip or high further resulting in a more accurate formula. There may be a chance the application will not be successful, but if the tests are performed accordingly, we can evaluate it

on that. In the case we succeed, we will be able to acquire results for the potential future.

Resources:

The resources required for this project are relatively minimal since it is entirely a software-based project. The main requirements would be a laptop or computer with the capacity to run an IDE to begin programming along with the packages for the IDE and access to Office 365 for being able to draft a report and display graphs as required.

References:

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4. *Mehryar Mohri, Afshin Rostamizadeh, Ameet Talwalkar* - ***Foundations of Machine Learning, 2nd Edition***

5. *Richard S. Sutton, Andrew G. Barto* - ***Reinforcement Learning, second edition: An Introduction***

6. *Chen, J.*- ***(2022) What is the stock market and how does it work? Investopedia. Available at: https://www.investopedia.com/terms/s/stockmarket.asp (Accessed: November 13, 2022).***

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(Accessed: November 13, 2022).