

**SCHOOL OF COMPUTER SCIENCE**

**AND INFORMATION TECHNOLOGY**



**Form for Assignment of a Graduation Thesis Topic**

**Generation: 2023/2024**

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**Title: Predicting stock market trends using Deep Learning**

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**Student’s signature approved/verified by**

Coordinator of Graduation Thesis

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\*A copy of this form shall be submitted to the record officer for SCSIT.

**Graduation Thesis Proposal:**

1. Introduction *Subject Area*, *the topic, and the scope of your project*

The stock market is an essential part of the financial world, drawing investors and researchers who want to grasp its complexities. Traditional methods for studying stock market trends frequently fail, demanding the development of new approaches. There is a growing trend in trying out new methodologies, such as deep learning, to deliver more precise insights into stock market behaviour. The prediction process of stock values is always a challenging problem because of its long-term unpredictable nature.

Deep learning is particularly suitable for financial prediction because of its abilities to handle large datasets, identify patterns, and learn from sequential data. In the era of big data, deep learning for predicting stock market prices and trends has become even more popular than before. It can find links in stock market data that are not immediately obvious by using layers of neural networks. These findings have the potential to greatly improve prediction accuracy.

1. Aim

This capstone project's goal is to create and apply a deep learning-based model that can accurately predict stock market trends. The project aims to develop a tool that can help investors, financial analysts, and policy makers make informed investment decisions, which will lead to more efficient financial markets. It does this by combining historical stock price data with neural network algorithms.

1. Objectives

Developing a deep-learning model to predict stock market trends involves creating a neural network that learns from past data, recognizing patterns in stock prices to predict future movements. Once developed, the model goes into training, where it's fed past data to improve its predictive capabilities. This phase is crucial for the model to adapt and improve, ensuring it can predict with accuracy. After training, the model is tested to evaluate how well it predicts new data, ensuring it's learning effectively and not just memorizing. Based on the test results, the model is adjusted to improve its accuracy and reliability in predicting stock trends. The final goal is to assess the model's predicting ability, making sure that it can be a dependable tool for predicting market trends, supporting informed investment decisions and strategic financial planning. The entire process is designed towards creating a model that helps investors and analysts navigate the complexities of the stock market with confidence.

1. *Resources*

The dataset includes the S&P 500 companies with data about them like, symbol, name, sector, price, earning, dividend yield, share and more. This dataset is needed for training and testing our models. In order to develop models and analyse data, we also require software, such as Python with the pandas  as well as the VSCode environment. The project spans ten weeks, broken down into phases. Initially, two weeks are dedicated to gathering data and exploring previous studies. Then, we have three weeks to develop the predictive models. After that, another three weeks are allocated for data analysis and compiling our final report. The project concludes with two weeks focused on finalizing and our presentation, making sure all key points are included.

1. *References*

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