INTRODUCTION

The outbreak of COVID-19 in the early 2020 had far-reaching consequences in various aspects of the society especially in the global economy and financial markets. The volatile nature of the stock markets makes it highly open to external effects and the pandemic became one of the most impactful events in the recent history. Understanding the impacts of COVID-19 on stock prices has become an important area of research as it provides valuable insights into the relationship between public health crises and financial markets.

When COVID-19 pandemic emerged, it leads to serious economic uncertainties and disruptions globally. These disruptions included widespread lockdowns, supply chain interruptions, travel restrictions, the decrease in economic activity and rise in unemployment rates which led to a notable decrease in consumer demand. As a result, stock markets experienced volatility, with rapid declines and subsequent recoveries.

This project aims to perform a comprehensive analysis of the impact of COVID-19 on stock price, examining the trends and factors which influenced the stock prices throughout the different phases of the pandemic. Understanding the changes in stock price patterns before, during and after covid is essential for investors and shareholders seeking to reduce risks and make informed decisions. And furthermore, the project utilizes predictive modelling techniques to forecast stock prices with more concentration on identifying companies with lower risk profiles.

The analysis of stock price impacts involves detailed examination of historical stock market data and relevant factors surrounding the pandemic, comparing trends and performance before the pandemic, during its onset and peak time and in the subsequent recovery period. By analysing all these various timeframes, we can understand the specific impacts of covid-19 on stock prices and explore potential patterns and correlations. Other than analysing the historical data and reviewing information on stock prices, this project makes use of predictive modelling technique of Long-Short Term Memory (LSTM) to predict stock prices. By utilizing this deep learning algorithm, we aim to develop a model that can accurately predict stock price in the post-pandemic period. The prediction will be based on identifying companies that has lower risk profile thereby providing help for investors to make informed decisions.

Therefore, through the combination of comprehensive analysis and predictive modelling, the project aims to resolve the stock price differences before during and after covid-19 of different companies and predict the stock price of the company with less risk. By analysing and predicting the stock price with lower risk, this research can help investors, market participants and decision-makers to make informed decisions and also help in navigating the complexities and uncertainties of the post-pandemic stock market.

This study utilises google colab for its execution and Python as the programming language. The analysis part of this study will make use of several visualisations like bar chart, histograms, graphs and so on. The dataset for this project is taken from the public site of Yahoo Finance. 4 datasets of companies Apple, Tesla, Microsoft and Meta platforms are used for the comparison of stock prices. All the datasets are clean and thus does not need any pre-processing tasks. All datasets are in the CSV format.

Aims:

* To analyse and visualise the stock market price before, during and after COVID-19.
* To identify the trends and patterns in stock prices resulting from the pandemic and make informed decisions.
* To evaluate the risks of companies by comparing their stock prices before and after COVID-19.
* To develop a predictive model that uses historical stock price data and relevant factors to forecast the future stock prices of companies with lower risk profiles.

Objectives:

* This study will utilise google colab, a web IDE, and Python as the programming language to analyse and visualise the stock price differences throughout the pandemic.
* This study will be carried out by making use of time series data spanning several years of 4 different companies, covering the period before and after COVID-19 pandemic.
* Perform analysis of the stock prices before, during and after COVID-19 for the selected companies and compare and identify significant patterns or trends within them to explore potential correlations.
* Build predictive models using LSTM technique to forecast future stock prices of the company with lower risk. Train the model and evaluate its performance and find the accuracy.
* Compare the predicted stock prices with actual stock prices to assess the accuracy and reliability of the model.