The stock market is a financial marketplace where publicly traded companies' stocks (shares) are bought and sold. It is an important part of the global economy, as it allows companies to raise capital by selling shares of ownership to the public and provides investors with the opportunity to earn financial returns through stock appreciation or dividends.

Forecasting stock prices is important for a variety of reasons. For individual investors, accurate stock price forecasts can help them make informed decisions about when to buy and sell stocks, potentially leading to better investment returns. For companies, forecasting stock prices can be useful for making strategic decisions, such as determining the best time to issue new shares or repurchase existing ones. In addition, forecasting stock prices can be important for financial analysts, who use stock price forecasts to make recommendations to clients and for asset managers, who use them to make decisions about which stocks to buy and sell for their clients. Finally, accurate stock price forecasts can help policymakers and regulators understand and potentially mitigate financial market risks.

The pandas datareader library and Yahoo Finance databases are used to access publicly available historical stock price information for the S&P 500 index. The closing price data from the dataset will be primarily used, but other data such as opening price and adjusted closing price is also available. To make it easier to extract this data, we will create a utility function called getraw_data() that takes the ticker name of the index (in this case, "^GSPC") as input and returns the relevant information in a pandas dataframe.

The objective of this project is to develop deep learning algorithms using Recurrent Neural Network (RNN) techniques for Time-Series Forecasting in order to optimize prediction accuracy of Yahoo’s Stock Prices. The work will be divided into the following stages: data exploration, assessment of stationarity, modeling, selection of optimal model, and prediction of future values.