**Project 6**: Stock Price Prediction

**Project Title:** Stock Price Prediction

**Problem Statement:** TBuild a predictive model to forecast stock prices based on historical market data, assisting investors in making well-informed decisions and optimizing their investment strategies.

**Phase 1:** Problem Definition and Design Thinking

**Problem Definition:** The problem is to build a predictive model that forecasts stock prices based on historical market data. The goal is to create a tool that assists investors in making well-informed decisions and optimizing their investment strategies. This project involves data collection, data preprocessing, feature engineering, model selection, training, and evaluation.

**Design Thinking:**

**Data Collection:** Collect historical stock market data, including features like date, open price, close price, volume, and other relevant indicators.

**Data Preprocessing:** Clean and preprocess the data, handle missing values, and convert categorical features into numerical representations.

**Feature Engineering:** Create additional features that could enhance the predictive power of the model, such as moving averages, technical indicators, and lagged variables.

**Model Selection:** Choose suitable algorithms for time series forecasting (e.g., ARIMA, LSTM) to predict stock prices.

**Model Training:** Train the selected model using the preprocessed data.

**Evaluation:** Evaluate the model's performance using appropriate time series forecasting metrics (e.g., Mean Absolute Error, Root Mean Squared Error).