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:

1. Data Collection: Collect historical stock market data, including features like date, open price, close price, volume, and other relevant indicators.
2. Data Preprocessing: Clean and preprocess the data, handle missing values, and convert categorical features into numerical representations.
3. Feature Engineering: Create additional features that could enhance the predictive power of the model, such as moving averages, technical indicators, and lagged variables.
4. Model Selection: Choose suitable algorithms for time series forecasting (e.g., ARIMA, LSTM) to predict stock prices.
5. Model Training: Train the selected model using the preprocessed data.
6. Evaluation: Evaluate the model's performance using appropriate time series forecasting metrics (e.g., Mean Absolute Error, Root Mean Squared Error).