STOCK MARKET PREDICTION

Problem Definition:

The problem at hand revolves around developing an effective solution for Stock Price Prediction. This involves creating a system or model that can forecast future prices of publicly traded stocks, aiding investors, traders, and financial institutions in making informed decisions. The prediction horizon can vary from short-term (intraday or daily) to long-term (weekly, monthly, or yearly). The accuracy of these predictions is crucial for optimizing investment strategies and financial outcomes.

Design Thinking:

1. Empathize:

* Understand the needs and challenges of our target users, including investors, traders, and financial analysts.
* Gather historical stock price data and related financial information.
* Conduct interviews, surveys, or focus groups to gain insights into user requirements and pain points.

2. Define:

* Clearly define the scope of the problem, specifying the prediction horizon (short-term, long-term).
* Identify key performance metrics for assessing prediction accuracy (e.g., Mean Absolute Error, Root Mean Square Error).
* Establish the target audience and their specific requirements.

3. Ideate:

* Brainstorm potential data sources, such as historical stock prices, company financial reports, news sentiment, and economic indicators.
* Explore a variety of machine learning and statistical models suitable for time series forecasting, such as ARIMA, LSTM, or Prophet.
* Consider feature engineering techniques to extract relevant information from the data.

4. Prototype:

* Develop a prototype or proof-of-concept model for stock price prediction.
* Utilize a subset of historical data to train and validate the model.
* Create a user-friendly interface for inputting stock symbols, date ranges, and desired prediction horizons.

5. Test:

* Evaluate the prototype's accuracy and performance using historical data.
* Gather feedback from potential users to understand the model's strengths and weaknesses.
* Make necessary adjustments to improve prediction quality.

6. Implement:

* Build a production-ready version of the stock price prediction system.
* Incorporate real-time data updates and ensure scalability.
* Deploy the system on a reliable platform accessible to users.

7. Iterate:

* Continuously monitor the model's performance and update it as needed.
* Gather user feedback and make iterative improvements to the user interface and prediction capabilities.
* Stay informed about the latest research and technologies in stock price prediction.