Stock Price Prediction

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).

Algorithm:

- 1. Start
- Data collection
- 3. Data preprocessing
- 4. Feature Selection
- Model selection
- 6. Model training
- 7. Model evaluation
- 8. Hyperparameter tuning
- 9. Deployment and monitoring
- 10. stop