OverviewThe BI LSTM (Bidirectional Long Short-Term Memory) predictor is an integral part of our portfolio optimizer. It is designed to forecast the average daily return for each stock over the next 60 days. Accurate predictions of stock returns are crucial for making informed decisions about which stocks to include in the portfolio.Importance of Predicted ReturnPredicting the daily return of stocks helps us evaluate the potential performance of each stock. By understanding future returns, we can:Identify Promising Stocks: Select stocks with higher predicted returns for investment.Mitigate Risks: Avoid stocks with lower or negative predicted returns.Optimize Portfolio: Enhance the overall performance and stability of the portfolio by choosing a balanced mix of high-return and low-risk stocks.How the BI LSTM Predictor WorksThe BI LSTM model leverages the power of bidirectional LSTM networks to capture both past and future trends in stock prices. Unlike traditional LSTM, which processes input in one direction, bidirectional LSTM processes data in both forward and backward directions, providing a more comprehensive understanding of the time series data.Model ArchitectureInput Layer: Takes historical stock price data.LSTM Layers: Two layers of bidirectional LSTM to capture long-term dependencies in the data.Dense Layer: Fully connected layer to output the predicted return.Output Layer: Provides the average daily return prediction for the next 60 days.Training and EvaluationThe model is trained on historical stock price data, using a loss function that emphasizes sensitivity to higher absolute return values. This helps in improving the accuracy of predictions for volatile stocks.ImplementationThe BI LSTM predictor is implemented using popular deep learning frameworks, ensuring scalability and efficiency. The model is integrated into the portfolio optimizer to continuously update predictions based on new data, enabling dynamic portfolio adjustment.ConclusionThe BI LSTM predictor is a powerful tool in our portfolio optimizer, providing critical insights into future stock returns. By leveraging advanced machine learning techniques, it aids in making well-informed investment decisions, ultimately enhancing portfolio performance.