Week 1-2: Project Initialization and Data Collection

* Define project goals and objectives: Clearly outline what you want to achieve with your stock prediction model and set performance metrics.
* Identify roles and responsibilities within the group. Assign tasks like data collection, preprocessing, model development, and evaluation(Giri).
* Collect historical stock price data, financial news, and other relevant data sources. Ensure data is consistent and of good quality.
* Familiarise yourself with LSTM and EMA concepts. Discuss the role of EMA in stock prediction.
* Set up a version control system (e.g., Git) to manage your code and collaborate effectively.

Week 3-4: Data Preprocessing and Feature Engineering

* Clean and preprocess the data. Handle missing values, outliers, and perform necessary data transformations.
* Calculate EMA indicators for stock prices. Experiment with different EMA window sizes to see what works best.
* Create features from the data - Oliver Pulley
* Split the data into training, validation, and test sets. Consider using a rolling window approach for time series data.

Week 5-6: Model Development and Training

* Develop an LSTM-based neural network architecture for stock prediction. Experiment with different network architectures and hyperparameters.
* Implement a loss function, such as mean squared error (MSE), to optimize the model for predicting stock prices.
* Train the model on the training data and validate it using the validation set.
* Implement a backtesting strategy to assess the model's performance on historical data.

Week 7-8: Model Evaluation and Tuning

* Evaluate the model's performance using metrics like Mean Absolute Error (MAE), Root Mean Squared Error (RMSE), and accuracy.
* Perform hyperparameter tuning to optimize the model's performance.
* Consider implementing regularization techniques to prevent overfitting.
* Create visualizations to better understand the model's predictions and performance.

Week 9-10: Deployment and Documentation

* Once satisfied with the model's performance, deploy it to a test environment.
* Create a user-friendly interface for interacting with the model (if needed).
* Document the entire project, including data sources, preprocessing steps, model architecture, and deployment instructions.

Week 11-12: Final Testing and Presentation

* Perform final testing to ensure the model works as expected.
* Prepare the Deliverables i.e. poster and reports
* Discuss future improvements and areas for further research.