Chapter 1 – Introduction and Literature Review (around 3 pages)

- Overview of financial time series forecasting
- Challenges in financial machine learning (noise, non-stationarity, overfitting)
- Literature review on:
    - Traditional quantitative strategies: momentum and value
    - The evolution toward machine learning and deep learning in trading
- Motivation and scope of the project
- Outline of the report structure

Chapter 2 – Momentum-Based Strategies (10 pages)

- Description of technical indicators used
- Design of rule-based strategies:
    - Moving average crossovers
    - RSI threshold signals
- Description of the backtester and implementation
- Performance metrics (P&L (average/variance), Sharpe ratio, drawdown)
- Machine Learning enhancement
- Discussion of robustness, interpretability, and limitation

Chapter 3 – Value-Based Strategies (10 pages)

- Definition and rationale for fundamental metrics: Price-to-Earnings, Price-to-Book
- Construction of value portfolios using quantile-based rules
- Data limitations/sources for metrics
- Implementation of rule-based strategies on the backtester
- Machine Learning enhancement
- Backtesting results and comparison with momentum strategies
- Discussion of robustness, interpretability, and limitations

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Chapter 4 – Neural Network Strategies (10 pages)

- Overview of neural networks for time series forecasting
- Implementation of:
    - Artificial Neural Networks (ANNs)
    - Recurrent Neural Networks (RNNs), including LSTM
    - Convolutional Neural Networks (CNNs) and hybrid architectures

- Comparison of one-step vs multi-step forecasting
- Architecture choices, hyperparameter tuning, and validation methodology
- Performance evaluation using the backtester
- Insights on predictive power and practical applicability

Chapter 5 – Conclusion (around 2–3 pages)

- Summary of strategy performance across all models
- Comparative table of risk-adjusted returns and other key metrics
- Trade-offs between complexity, performance, and interpretability
- Final reflections on overfitting, robustness, and real-world viability
- Suggestions for future improvements or extensions