# Literature Review

## Feedback & Evaluation

The project Retail Store Inventory Forecasting was assessed based on its ability to leverage historical sales data to predict future sales accurately. The evaluation considered key aspects such as data collection, preprocessing, exploratory data analysis (EDA), model development, and deployment. The lecturer’s assessment highlighted the thoroughness of the data exploration phase, the use of various forecasting models—such as ARIMA, Prophet, and machine learning approaches—and the structured workflow. The implementation of MLOps for model monitoring and deployment was also noted as a strong aspect of the project.

## Suggested Improvements

- Data Enhancement: The dataset could incorporate additional features such as customer footfall data, economic indicators, and competitor pricing to improve predictive accuracy.

- Advanced Model Optimization: More rigorous hyperparameter tuning and experimentation with deep learning models (e.g., LSTM, Transformer models) could enhance forecasting precision.

- Feature Engineering: The inclusion of engineered features like moving averages, lag features, and trend components could provide additional insights for better predictions.

- Deployment Scalability: While the model deployment was successful, implementing real-time data pipelines and cloud-based solutions could improve scalability and real-world application.

- User Interface Improvement: Enhancing visualization dashboards with interactive components for stakeholders would provide better insights into forecasted trends and business impact.

## Final Grading Criteria

- Documentation (30%): Quality of documentation, clarity of methodology, completeness of analysis, and structure of the final report.

- Implementation (30%): Correct execution of data preprocessing, model selection, training, optimization, and deployment.

- Testing & Evaluation (20%): Thorough evaluation using error metrics (e.g., RMSE, MAE), validation techniques, and comparative analysis of different models.

- Presentation (20%): Clarity and effectiveness of the final presentation, ability to communicate key insights, business value, and demonstration of the working forecasting model.

## Conclusion

The overall assessment recognized the project’s strong methodological framework while identifying areas for enhancement in model complexity and real-world deployment capabilities. By refining model optimization techniques, expanding data features, and improving deployment strategies, future iterations of the project could achieve even greater accuracy and business impact.