Additional Information

Datasets Used:

Walmart Sales Forecasting (Kaggle), M5 Forecasting Competition dataset, and synthetic pricing datasets generated to model demand-price elasticity and simulate real-world pricing scenarios.

Tools & Technologies:

Python libraries such as NumPy, Pandas, Scikit-learn, TensorFlow, PyTorch, Prophet, XGBoost, and LightGBM for forecasting and price modeling.

Streamlit for dashboard development and Matplotlib/Plotly for data visualization.

Challenges Addressed:

Handling noisy and incomplete data, forecasting in seasonal and high-variance sales environments, lack of real-time pricing data, and the difficulty of aligning forecasts with pricing strategies in dynamic markets.

Future Scope:

Integration with real-time IoT data pipelines, deployment on cloud platforms with full MLOps, and use of reinforcement learning for fully automated pricing.

The system can be scaled for retail, e-commerce, manufacturing, and supply chain management.