SALES FORECASTING PROPOSAL

Prepared by

Mohamed Mahrous Mohamed Mahmoud

Sahar Mohamed AbdElmonem Mahmoud Oransa

Ahlam Reda Almetwally Abdelkarim

Hams Mohamed Hassan Ali

Mohamed Ali Hassan Rehan

Afnan Mohamed Ibrahim Elsenosy

Prepared for:

Eng. Sherif Mohamed

PROJECT OVERVIEW

The Sales Forecasting project aims to predict future sales for a retail or e-commerce business by using historical sales data. The project involves data collection, cleaning, exploration, time series forecasting model development, optimization, and deployment.

PROBLEM STATEMENT

Businesses in Egypt's retail sector struggle to predict sales accurately due to fluctuating demand and limited analytical tools. This project aims to develop a web-based forecasting system that uses machine learning to generate accurate sales predictions and support better inventory and marketing decisions.
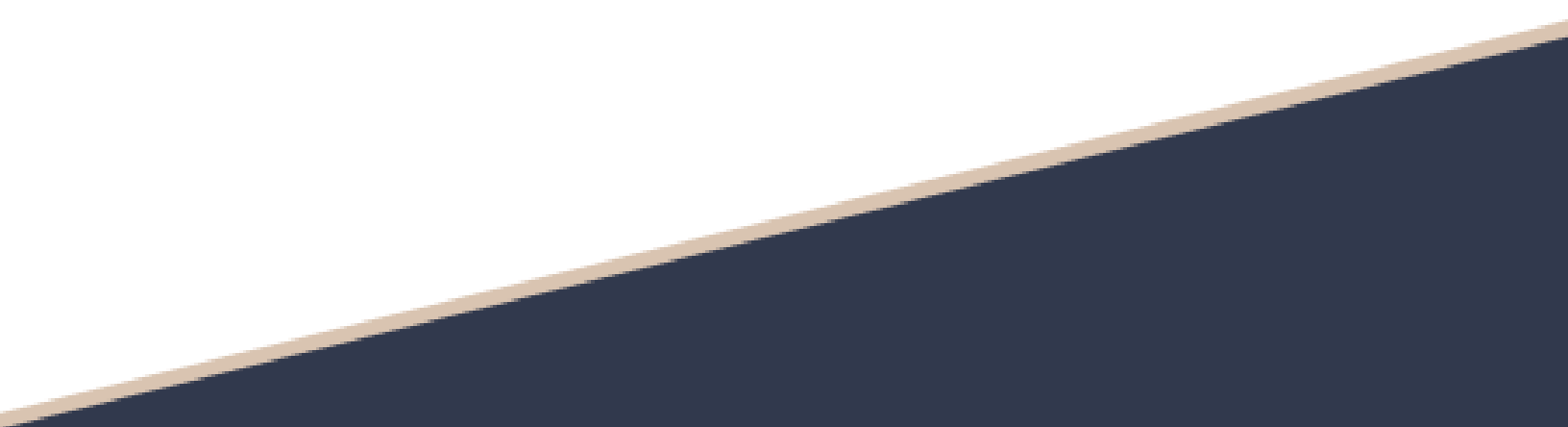
PROJECT OBJECTIVES

- Develop a machine learning-based model to accurately
- forecast retail sales trends.
- Improve inventory and marketing decision-making through
- data-driven forecasting.
- Provide optimization insights for inventory, marketing campaigns, and pricing strategies.
- Develop an automated dashboard to streamline decision-making for business teams
- Provide comprehensive documentation and a presentation to stakeholders highlighting the business impact.

Business Benefits:

- Improving sales predictability and reduce uncertainty in decision-making
- Optimize inventory and reduce stockouts.
- Improve sales planning and marketing strategies.
- Enable data-driven decision-making for the company.

TOOLS & TECHNOLOGIES

- Python (Pandas, NumPy)
- Jupyter Notebook
- Matplotlib, Seaborn
- Plotly / Dash for interactive dashboards
- Scikit-learn
- ARIMA / SARIMA
- XGBoost / LightGBM
- MLOps & Experiment Tracking:
- MLflow
- DVC (Data Version Control)
- Streamlit for web deploying
- Git & GitHub

Stakeholder Analysis

Stakeholder	Role/Position	Interest in Project	Influence Power	Impact of Project	Engagement Strategy
Executive Management CEO, CFO	Project sponsors Decision-makers	**High** want accurate forecasts for budgeting and strategy	**High**	Improved profitability Better strategic planning	● Regular updates ● Executive summaries ● Dashboards
Sales Director / Sales Managers	End users of forecasts	**High** Rely on forecasts for targets and planning	**High**	Better sales plan Enhance stock management	Include in requirement gathering, periodic feedback sessions
Data Analysts / Data Scientists Team	Development Analysis	**High** Responsible for building and maintaining the model	**High technical**	Skill enhancement, increased workload	Agile collaboration, clear project scope, technical workshops
Finance Department	Budgeting Financial planning	**Medium** Forecasts inform cash flow and inventory costs	**High**	Improved budget accuracy	Monthly reports, integrated forecast dashboards
IT Department	Infrastructure System support	**Medium** Ensure data integration and system stability	**High**	System reliability and security	Coordination on tools, access management, maintenance schedules

Stakeholder	Role/Position	Interest in Project	Influence Power	Impact of Project	Engagement Strategy
Marketing Department	Campaign planners	**Medium** Depend on forecasts to align promotions	**Medium**	More effective campaign targeting	Collaborative meetings, data-sharing sessions
Vendors / Suppliers	Provide products based on demand forecasts	**Medium**	**Low**	Stable orders Reduced variability	Share aggregate forecasts periodically
Customers	Indirect beneficiaries	**Low** Benefit from product availability and stable pricing	**Low**	Better service Fewer stock outs	Indirect engagement via improved service metrics

Stakeholder Matrix

Influene or power

Keep Satisfied	Manage Closely
1. IT Department 2. Finance Department	1. Executives Management 2. Sales Managers 3. Data Science Team
Monitor 1. Customers	**Keep Informed** 1. Suppliers 2. Vendors

Stakeholder Interest in Project