

Project Planning & Management

○ Project Proposal

- The Sales Forecasting and Optimization project aims to predict future sales for a retail or e-commerce business by analyzing historical sales data.
- The objective is to develop a robust forecasting model to help businesses optimize inventory, marketing, and sales strategies.
- The scope includes data collection, preprocessing, exploratory analysis, forecasting model development, optimization, and deployment.

○ Project Plan

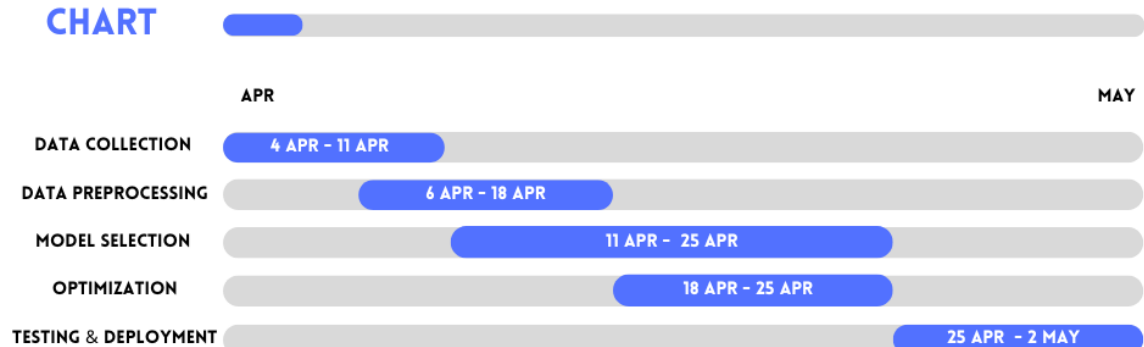
- **Timeline:** Gantt chart with phases spanning data collection to deployment.

Phase	Tasks	Duration
Data Collection	Gather historical sales data	Week 1
Data Preprocessing	Data cleaning, feature selection	Week 1-2
Model Selection	Train & evaluate ML models	Week 2-3
Optimization	Implement stock optimization	Week 3
Testing & Deployment	Validate, test, and launch system	Week 4

- **Gantt chart:**

SALES FORECASTING & OPTIMIZATION PROJECT

CHART



- **Milestones:**

1. Data Collection & Exploration
2. Data Analysis & Visualization
3. Forecasting Model Development
4. Deployment & MLOps
5. Final Report & Presentation

- **Deliverables:** Cleaned dataset, EDA reports, forecasting models, deployed model, final documentation.
- **Resource Allocation:** Team members assigned to data analysis, modeling, deployment, and reporting.

- **Task Assignment & Roles**

- **Data Scientist (Sara Abdelrahman):** Data preprocessing and exploratory analysis.
- **Machine Learning Engineer (Toka Khaled):** Model training and Model optimization.
- **Software Engineer (Rawan Sotohy):** Integration of the model into a web application and deployment.
- **Project Manager (Mariam Hassan):** Overseeing progress and ensuring milestones are met.

- **Risk Assessment & Mitigation Plan**

- **Data Quality Issues:** Addressed through preprocessing and feature engineering.
- **Model Overfitting:** Mitigated with cross-validation and hyperparameter tuning.
- **Deployment Challenges:** Ensuring cloud compatibility and model version control.

- **KPIs (Key Performance Indicators)**

- Forecast accuracy (RMSE, MAE, MAPE)
- Model response time
- System uptime
- User adoption rate