

Project Breakdown

Week 1: Data Collection & Cleaning

- Gather all relevant data (supply chain, financial metrics, sales data, seasonal patterns, etc.).
- Clean and preprocess the data:
 - Handle missing values and outliers.
 - Ensure consistency in timestamps (if applicable), such as aligning sales with holiday periods or promotional events.
 - Ensure that all financial metrics are calculated correctly (e.g., final price, revenue, profit).

Week 2: Exploratory Data Analysis (EDA)

- Visualize the data to uncover initial patterns and relationships:
 - Stock levels vs. sales.
 - Lead times vs. supplier performance.
 - Profit margins vs. discount percentages.
- Look for seasonal trends and holiday effects on sales.
- Identify any outliers or anomalies in financial and sales data.

Week 3: Supply Chain Analysis

- Conduct a **supplier performance analysis** by evaluating lead time consistency, stock availability, and supplier reliability.
- Explore **inventory optimization** methods:
 - Calculate optimal reorder points based on lead times and sales volume.
 - Identify potential stockouts or overstock situations.
- Analyze lead time variability and its impact on sales.

Week 4: Financial Analysis

- Perform **profit margin analysis** to understand which products or categories are most profitable.
- Analyze how **discounts affect sales** and find the optimal discount levels.

- Use **revenue forecasting** models, considering seasonal trends and promotional impacts.

Week 5: Advanced Sales Analysis

- Apply **seasonal decomposition** to separate the sales data into trend, seasonal, and noise components.
- Assess **holiday impacts** on sales, particularly for major holidays.
- Evaluate the **effectiveness of promotions** by comparing promotional and non-promotional sales periods.

Week 6: Final Model & Reporting

- Integrate all your findings into a cohesive strategy for optimizing supply chain, pricing, and sales decisions.
- Create a dashboard or visualizations using tools like Power BI or Streamlit to showcase insights (if relevant).
- Prepare a report summarizing key findings, insights, and recommendations.