Requirements Gathering

1. Stakeholder Analysis

Key Stakeholders:

- **Business Owners/Managers:** Need accurate sales forecasts to optimize inventory and pricing strategies.
- **Marketing Team:** Requires insights on promotions and seasonal trends to plan campaigns effectively.
- **Sales Team:** Needs real-time analytics to track performance and adjust sales strategies.
- **IT/Data Science Team:** Responsible for maintaining the forecasting system and ensuring data accuracy.
- **Customers:** Indirect stakeholders benefiting from better stock availability and pricing.

2. User Stories & Use Cases

User Stories:

1. As a business owner, I want to view sales forecasts, so that I can make informed inventory decisions.
2. As a marketing analyst, I want to analyze the impact of promotions on sales, so that I can optimize marketing strategies.
3. As a sales representative, I want to track daily sales performance, so that I can adjust my approach.
4. As an IT administrator, I want to monitor data integrity, so that I can ensure accurate sales predictions.

Use Cases:

1. **View Sales Forecasts:** Users access predicted sales trends for the next period.
2. **Analyze Promotional Impact:** Marketing team compares past promotions with sales performance.
3. **Monitor Real-Time Sales:** Sales team tracks sales metrics and adjusts strategies accordingly.
4. **Manage Data Integrity:** IT team ensures that data is clean, accurate, and processed correctly.

3. Functional Requirements

- The system should process and store historical sales data.
- It should provide interactive dashboards with visualizations for trends and seasonality.
- The system should generate sales forecasts using machine learning models.
- Users should be able to filter data by date range, product category, and store location.
- The system should allow exporting reports in CSV and PDF formats.

4. Non-Functional Requirements

- **Performance:** The system should generate forecasts within 5 seconds.
- **Security:** Role-based access control should be implemented to protect sensitive data.
- **Usability:** The interface should be user-friendly and support interactive visualizations.
- **Reliability:** The system should have 99% uptime and handle large datasets efficiently.