2. Fashion Forward: Inventory and Sales Metrics for a Clothing Brand

Business Overview:

Fashion Forward is a mid-sized clothing retailer specializing in seasonal collections, catering to diverse customer segments. Operating through a network of physical stores and an online shopping platform, the company aims to:

- Introduce new collections for each season (Spring, Summer, Fall, Winter).
- Analyze customer preferences to predict future trends.
- Maintain optimal inventory levels to avoid overstocking or stockouts.
- Drive engagement through marketing campaigns and seasonal sales.

Business Operations:

1. **Product Management:**
    - Designing seasonal collections aligned with current fashion trends.
    - Collaborating with suppliers for timely delivery of raw materials and finished goods.
    - Managing inventory across warehouses and retail outlets.
2. **Sales Channels:**
    - Physical stores with personalized shopping experiences.
    - An e-commerce platform offering convenience and targeted promotions.
3. **Customer Engagement:**
    - Seasonal campaigns offering discounts and exclusive previews.
    - Loyalty programs rewarding repeat purchases and referrals.
    - Personalized marketing based on purchase history and browsing behavior.
4. **Revenue Streams:**
    - Direct sales through retail and e-commerce platforms.
    - Limited-edition collections priced at a premium.
    - Subscription services offering exclusive perks and early access to collections.

Data Warehouse Business Case:

Purpose of the Data Warehouse:

The data warehouse will serve as a centralized repository for Fashion Forward's operational data, enabling:

- Analysis of sales trends and inventory levels.
- Insights into customer preferences and purchasing behavior.

- Performance evaluation of seasonal collections and marketing campaigns.
- Enhanced forecasting for production and procurement planning.

Star Schema Design:

The data warehouse will utilize a star schema with the following dimensions and facts:

Fact Table:

- **Sales Fact Table:**
    - Sales_ID (Primary Key)
    - Product_ID (Foreign Key)
    - Store_ID (Foreign Key)
    - Customer_ID (Foreign Key)
    - Date_ID (Foreign Key)
    - Quantity Sold
    - Revenue
    - Discount Applied

Dimension Tables:

1. **Product Dimension:**
    - Product_ID (Primary Key)
    - Product_Name
    - Category (e.g., Men's, Women's, Kids's)
    - Collection (e.g., Spring 2024)
    - Price
2. **Store Dimension:**
    - Store_ID (Primary Key)
    - Store_Name
    - Location
    - Region
3. **Customer Dimension:**
    - Customer_ID (Primary Key)
    - Customer_Name
    - Email
    - Loyalty_Tier
    - Join_Date
4. **Date Dimension:**
    - Date_ID (Primary Key)
    - Date

- Day
- Month
- Year
- Quarter

Metadata for Data Warehouse:

1. **Sales Fact Table:**
    - Grain: Each row represents a unique sales transaction.
    - Source: Sales system (physical stores and online platform).
    - Update Frequency: Daily.
2. **Product Dimension:**
    - Grain: Each row represents a unique product.
    - Source: Product management system.
    - Update Frequency: Weekly or as products are introduced/updated.
3. **Store Dimension:**
    - Grain: Each row represents a unique store.
    - Source: Retail operations database.
    - Update Frequency: Monthly.
4. **Customer Dimension:**
    - Grain: Each row represents a unique customer.
    - Source: CRM system.
    - Update Frequency: Daily.
5. **Date Dimension:**
    - Grain: Each row represents a unique date.
    - Source: Calendar reference.
    - Update Frequency: Static (preloaded).

Dashboard Lab Instructions:

1. Use the data warehouse to execute queries and extract data relevant to Fashion Forward's operations.
2. Analyze inventory levels, sales performance, and customer loyalty metrics.
3. Design a dashboard using tools like Tableau or Power BI, ensuring it:
    - Highlights key metrics such as revenue by collection, sales by region, and loyalty tier distribution.
    - Incorporates seasonal trends and their impact on sales.
    - Adheres to clean, consistent visual design principles.
4. Present the dashboard to stakeholders, summarizing the insights derived and recommendations for inventory and marketing strategies.