**GlobalMart Inventory and Sales Analysis**

**Initial Findings and Plan**

## **1. Introduction**

GlobalMart is currently facing critical business issues, including overstocking, stockouts, declining customer satisfaction, unclear sales trends, ineffective promotional campaigns, and low profitability in some product categories.

The objective of this project is to analyze GlobalMart's database, identify key problems, and provide **data-driven recommendations**.

## **2. Project Scope**

**Main Focus Areas:**

* Data Cleaning and Transformation
* Inventory and Sales Analysis
* Customer Behavior and Promotion Effectiveness
* Profitability Assessment
* Deliverables: Cleaned data scripts, analysis reports, interactive dashboard, and executive summary

**Key Challenges Identified:**

* Inconsistent category labels, typos, missing values
* Negative stock levels, prices, and discounts above 100%
* Unrealistic customer ages and case inconsistencies
* Ensuring insights are meaningful and not just surface-level observations

## **3. Assumptions for Inventory Analysis**

* Inventory levels must cover **two weeks** of sales.
* Sales data represents **three months** of transactions.
* Overstocked: **Stock level at least 20% higher** than required.
* Understocked: **Stock level at least 10% lower** than required.
* Negative stock values are assumed to be **incorrect data entry** and should be converted to positive.

# **Data Dictionary**

| **Table Name** | **Description** |
| --- | --- |
| sales | Daily transaction data (store\_id, product\_id, quantity, price, discount, date) |
| inventory | Current inventory level by product and store |
| products | Product metadata (category, brand, cost\_price) |
| stores | Store info (store\_id, location, region) |
| customers | Loyalty members (age, gender, region, customer\_id) |
| promotions | Promo campaigns with time period, product\_id, promo\_type |

# **Key Analysis Questions**

1. **Inventory issues**
   * Which stores have the highest stockouts or overstocked items?
   * Are any slow-moving products taking up inventory space?
2. **Sales trends**
   * What are the top-selling products by region/month?
   * How do sales vary by time (e.g., seasonality)?
3. **Customer behavior**
   * Who are the frequent buyers? What age group or region?
   * Which customer segments respond best to promotions?
4. **Promotion effectiveness**
   * Which promotions led to increased sales? Which didn’t?
   * Was there a profit margin drop due to heavy discounts?
5. **Profitability**
   * What are the most/least profitable products or categories?
   * Are any products being sold below cost?

# **Appendix: Challenges to Address**

| **Challenge** | **Mitigation Strategy** |
| --- | --- |
| Incomplete or inconsistent data | Apply validation and cleaning scripts |
| Unrealistic figures (e.g., age, price) | Filter and correct data anomalies |
| Fictional, limited-size dataset | Focus on strong logical insights over statistical precision |
| Risk of surface-level analysis | Prioritize strategic KPIs and in-depth findings |