# E-Commerce Sales Analytics Report

## Executive Summary

This project presents an end-to-end analysis of an E-Commerce dataset using **Power BI**, focusing on **sales performance, profitability, discount behavior, category trends, and regional insights**.
The objective is to help stakeholders understand **what drives revenue and profit**, identify **risk areas**, and uncover **growth opportunities** through interactive dashboards.

## Key Metrics Overview

- **Total Sales (YTD):** 53.88 M
- **Total Profit (YTD):** 8.29 M
- **Total Quantity Sold:** 1,516 units
- **Average Sales:** 107.77K
- **Maximum Monthly Sales:** 353.17K
- **Minimum Monthly Sales:** 2.19K

## 📈 Sales Performance Analysis

### Overall Sales Trend

- Sales exhibit **clear seasonality**, with peak performance during **May, October, and December**.
- A gradual decline in revenue is observed after peak months, indicating demand concentration around specific periods.
- Despite fluctuations, **Year-to-Date (YTD) sales remain stable**, supported by consistent category contributions.

**Insight:**
Sales are highly influenced by seasonal demand, highlighting the need for strategies to sustain revenue during off-peak months.

# Category-Wise Performance

## 🏆 Top Performing Categories

- **Sports & Furniture**
    - Highest contributors to both sales and profit.
    - Strong balance between **high volume and high margins**.
- **Toys & Clothing**
    - Stable performance with consistent sales and moderate margins.
    - Reliable contributors to overall revenue.

## ⚠️ Low Performing Categories

- **Electronics**
    - High sales volume but **lower profit margins**.
    - Heavy discounting impacts overall profitability.
- **Beauty & Books**
    - Lowest contribution to total sales and profit.
    - Require pricing or cost structure optimization.

**Key Insight:**
High sales volume does not always translate into high profit. Margin efficiency plays a critical role in business sustainability.

---

# 4. Profitability & Margin Analysis

## 💰 Profit Margin by Category

- Categories with profit margins above **400%** generate the highest overall profit when supported by sufficient order volume.
- **Furniture and Sports** maintain consistently strong margins.
- **Electronics** shows margin pressure due to discount-driven sales.

## 📊 Sales vs Profit Relationship

- Categories with **balanced sales volume and profit margins** outperform others.

- Some locations show high margins but low order counts, indicating untapped growth potential.

**Strategic Focus:**
Maximize profitability by balancing **margin and volume**, not sales alone.

---

## 5. Discount Impact Analysis

### 🏷️Discount Category Distribution

- **Medium Discounts:** ~51% of transactions
- **High Discounts:** ~37% of transactions
- **Low / No Discounts:** Minimal contribution

**Insight:**
While discounts increase order volume, excessive discounting significantly reduces profit margins, especially in Electronics.

**Recommendation:**
Adopt **category-specific discount strategies** instead of uniform discounting.

---

## 6. Regional & Location Insights

### 🌍 Revenue by Region

- **East and South regions** contribute the highest share of revenue.
- **North and West regions** show stable but moderate performance.

### 🗺️City-Level Insights

- Major revenue-generating cities include **Bangalore, Mumbai, Delhi, Jaipur, and Chennai**.
- Several cities demonstrate **high profit margins but lower sales volume**, presenting expansion opportunities.

# Key Influencer Analysis

- When total sales decline, the **East region shows higher dominance**, indicating regional resilience.

---

# 7. Product-Level Insights

### 🔝 Top 5 Products

- Accessories
- Perfumes
- Headphones
- Sugar products
- Foundation products

These products benefit from **high demand and repeat purchases**.

### 🔻 Bottom 5 Products

- Dumbbells
- Shoes
- Mixer Grinders
- Tables

These products contribute minimally to revenue and require review.

**Action Point:**
Re-evaluate pricing, promotion, or inventory strategy for low-performing products.

---

# 8. Risk Areas & Growth Opportunities

### ⚠️Identified Risk Areas

- Low profit margins in Electronics
- Heavy dependency on discounts
- Revenue drop during non-peak months

### 🚀 Growth Opportunities

- Expand high-margin categories in low-volume regions
- Improve demand in high-margin cities
- Optimize discount strategies
- Strengthen off-season sales campaigns

---

# 9. Business Recommendations

1. **Pricing Optimization**
   Reduce discount dependency in low-margin categories.
2. **Category Focus**
   Invest more in Sports and Furniture categories.
3. **Regional Strategy**
   Target high-margin but low-volume locations.
4. **Seasonality Management**
   Introduce targeted promotions during low-sales months.
5. **Performance Tracking**
   Monitor profit margins alongside sales volume using KPIs.

---

# 10. Conclusion

This Power BI project demonstrates how **data-driven analytics** can transform raw E-Commerce data into meaningful business insights. The analysis confirms that **maximum profitability is achieved when high-margin categories are sold in high-volume locations**, supported by optimized pricing and discount strategies.

---