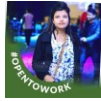# 📝 Enhancing Ecommerce Performance with Power BI: A Complete Case Study

[Sanjana Thakur](#)

Data scientists/Analyst | Proficient in ML, SQL & Data Management | Gold Badge & 4-Star Holder on HackerRank & LeetCode | Conducted Market Analysis, Boosting New Contracts by 19%

April 2, 2025

As someone passionate about transforming raw data into real insights, I recently completed a hands-on Power BI case study focused on Ecommerce Analytics. In this project, I worked on cleaning, modeling, analyzing, and visualizing ecommerce data to help uncover meaningful insights and business strategies.

medium link :
https://medium.com/@sanjanathakur302/enhancing-ecommerce-performance-with-power-bi-a-complete-case-study-4c9c38c20d8f

📌 Project Background

The project was based on two key datasets: Ecommerce Orders and Customer Profiles. My objective was to analyze customer behavior, sales trends, and product performance, then turn that into a professional and interactive Power BI dashboard that could be used by decision-makers in the business.

🛠️ The Process

This wasn't just about dragging charts into a canvas. I followed a complete end-to-end process:

1. Data Cleaning Using Excel and Power BI's Power Query, I handled missing values, removed duplicates, corrected formatting issues, and ensured the data was ready for analysis.

2. Data Modeling I created relationships between the Orders and Customers tables using CustomerID. I also built new calculated columns and DAX measures like:

- TotalSales = Quantity × UnitPrice
- AvgOrderValue
- Customer Segments based on TotalSpent
- Retention and Loyalty metrics

3. Designing the Dashboard Layout Instead of using default visuals, I wanted a clean and modern look. So I designed the layout in Figma and imported it into Power BI as a background template. This gave my report a unique and polished appearance.

4. Visualization & Storytelling I built four connected dashboards:

- Overview
- Sales
- Customers
- Products

Each one focused on a different aspect of the business and included interactive filters, slicers, and navigation buttons for a seamless user experience.
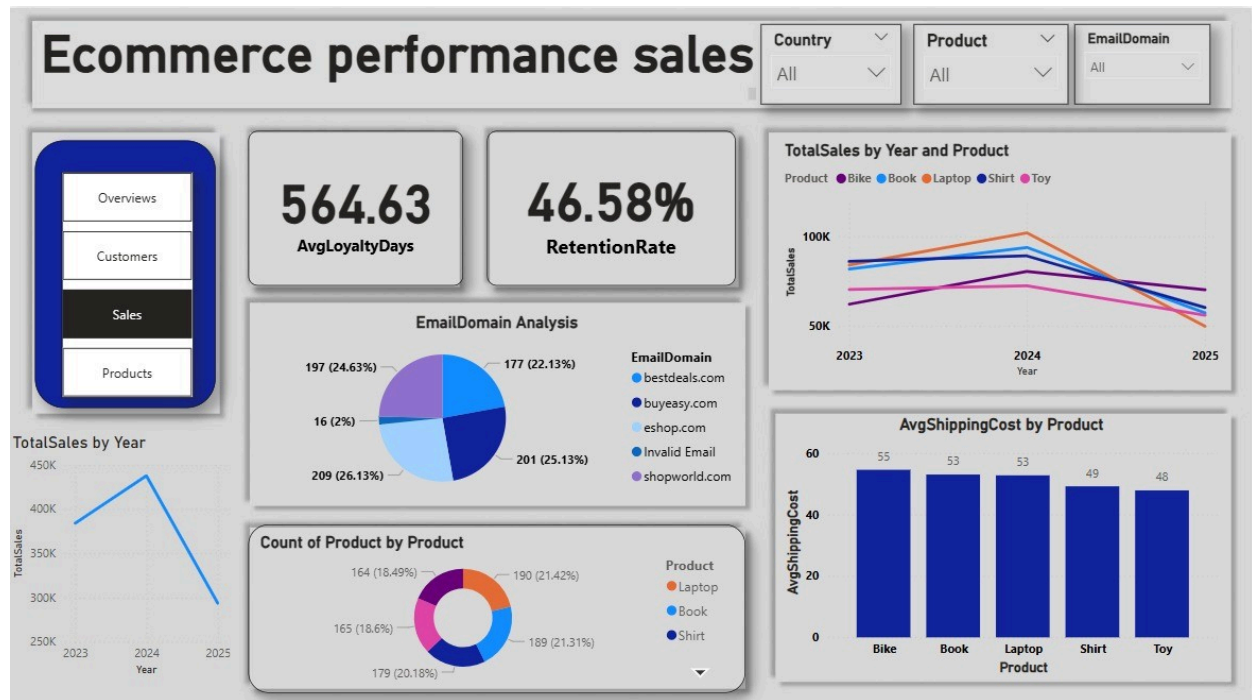
🟦 Overview Page
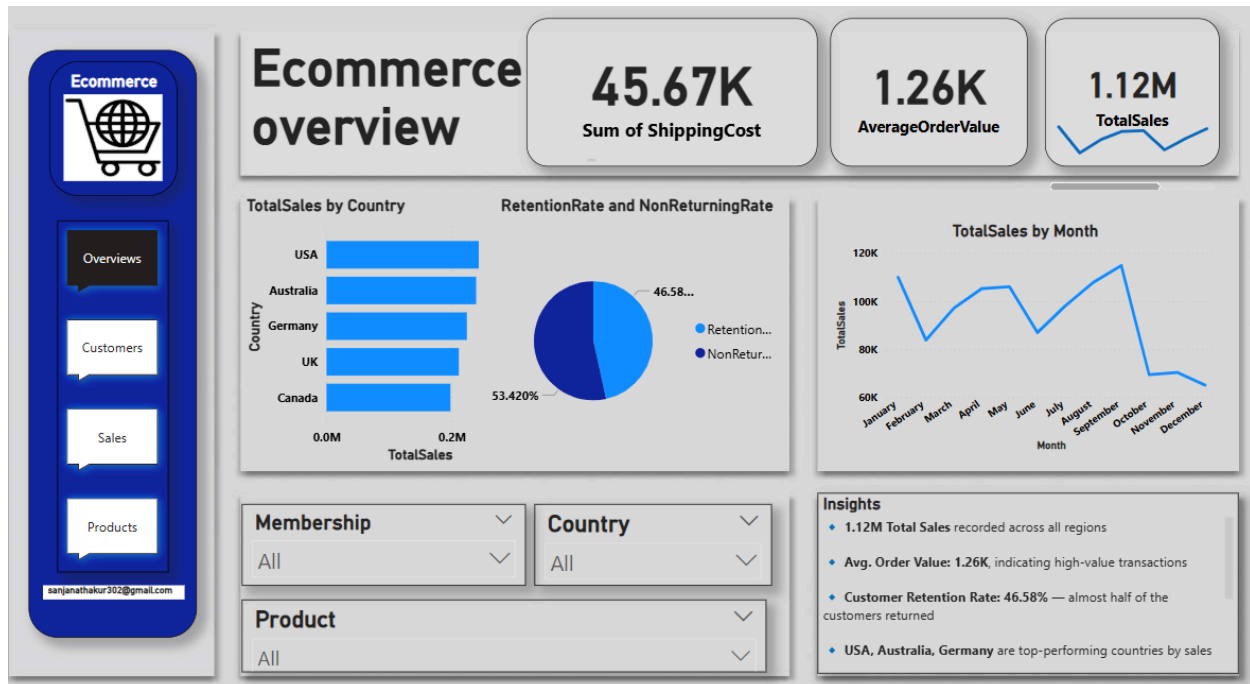
📊 Insights & Recommendations

- Total sales crossed ₹1.12M, and the average order value was ₹1.26K
- Customer retention was at 46.58%
- USA, Australia, and Germany were the highest-performing regions

💡 Recommendation: Focus marketing efforts on high-performing countries and introduce a loyalty program to improve retention.
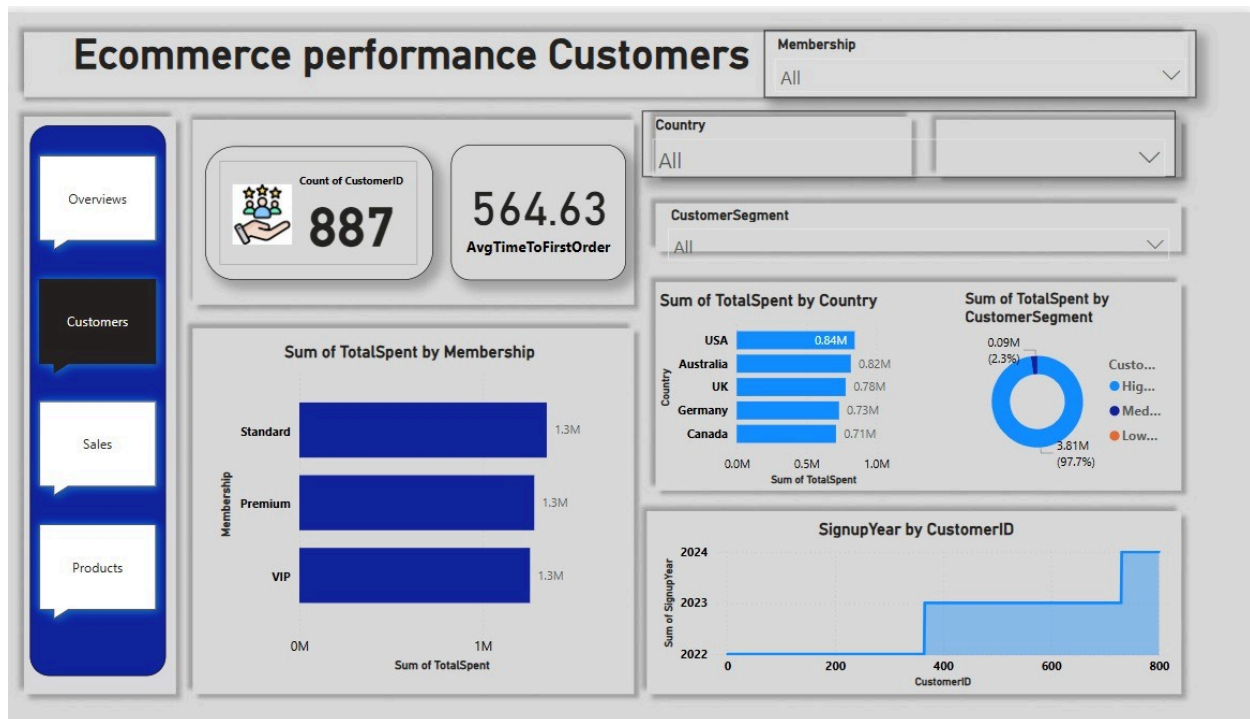
🟨 Sales Page

🟨 Sales Page

📊 Insights & Recommendations

- Loyalty Days averaged 564, indicating long-term but slow-converting users
- 2024 showed a sales peak, but 2025 had a drop
- Email domain analysis showed invalid entries, which may affect communication

💡 Recommendation: Clean email data and investigate the 2025 dip to plan campaigns.

🟩 Customers Page

Ecommerce performance Customers

Membership: All

Country: All

CustomerSegment: All

Overviews

Customers

Sales

Products

Count of CustomerID
887

564.63
AvgTimeToFirstOrder

Sum of TotalSpent by Membership

Membership	
Standard	1.3M
Premium	1.3M
VIP	1.3M

0M — 1M
Sum of TotalSpent

Sum of TotalSpent by Country

Country	Sum of TotalSpent
USA	0.84M
Australia	0.82M
UK	0.78M
Germany	0.73M
Canada	0.71M

0.0M — 0.5M — 1.0M
Sum of TotalSpent

Sum of TotalSpent by CustomerSegment

0.09M (2.3%)
3.81M (97.7%)

Custo...
● Hig...
● Med...
● Low...

SignupYear by CustomerID

2024
2023
2022

0 — 200 — 400 — 600 — 800
CustomerID

📊 Insights & Recommendations

- 887 customers analyzed, but most were in the low-value segment
- Time to first order averaged 564 days — quite high
- Premium and Standard members performed similarly

💡 Recommendation: Reduce onboarding friction and upsell to higher tiers.

🟪 Products Page

Ecommerce performance Products

| 2022 | 2023 | 2024 |

Product — All
Country — All
Membership — All

Overviews
Customers
Sales
Products

Products popularity
Product ● Book ● Shirt ● Laptop ● Bike ● Toy

AverageOrderValue by Country

TotalSales and Average of OrderValue by Month
● TotalSales ● Average of OrderValue

TotalSales by Membership and Product
Product ● Bike ● Book ● Laptop ● Shirt ● Toy

🟪 Products Page

📊 Insights & Recommendations

- Laptops and bikes were the most popular products
- Australia had the highest average order value
- Sales were consistent across product types

💡 Recommendation: Promote best-sellers in low-performing regions and create country-specific offers.

🧠 **Key Learnings**

This project helped me strengthen several core skills:

- Writing complex DAX measures
- Designing dashboards with a user-first approach
- Using bookmarks and page navigation effectively
- Balancing insights with visual storytelling

✨ Final Thoughts

Building this Power BI project from scratch — from data cleaning to final dashboard — was incredibly rewarding. It not only improved my technical skills but also my ability to think like an analyst, focusing on what the data truly means for the business.