Customer Insights Dashboard

Problem Statement

The business was facing several key challenges:

- A lack of clarity on customer purchasing patterns, leading to ineffective targeting strategies.
- Inability to segment customers based on key demographics like age, gender, and region.
- Sales inconsistencies across different regions and categories with no proper visibility into the causes.
- Difficulty in identifying high-performing and underperforming products and customer groups.
- Fragmented and unstructured data that made analysis time-consuming and error-prone.

Tools & Technologies Used

- **Power BI Desktop**: For data modelling, transformation, and visualization.
- **Power Query**: Used to clean, merge, and transform the datasets.
- **DAX (Data Analysis Expressions)**: Used to create calculated columns, measures, KPIs, and time intelligence functions.
- **Excel (Source File)**: The original data was stored in Excel and then imported into Power BI.

Dashboard Overview

A. Customer Demographics

This section provides a breakdown of who the customers are, enabling segmentation and better targeting strategies.

Key Visuals:

- Pie chart: Distribution by gender.
- Bar chart: Segmentation by age groups (e.g., 18–25, 26–35, etc.).
- Card visuals: Total number of unique customers, average age, and churned customers.

B. Sales & Profit Performance

This section highlights key financial performance metrics over time and across categories.

Key Visuals:

- Line chart: Monthly or quarterly sales trends, profit trends.
- KPI cards: Total Revenue, Average Sales, and Total Transactions.
- Stacked column chart: Revenue and profit across product categories, payment method, and age group.

C. Return Product Dashboard

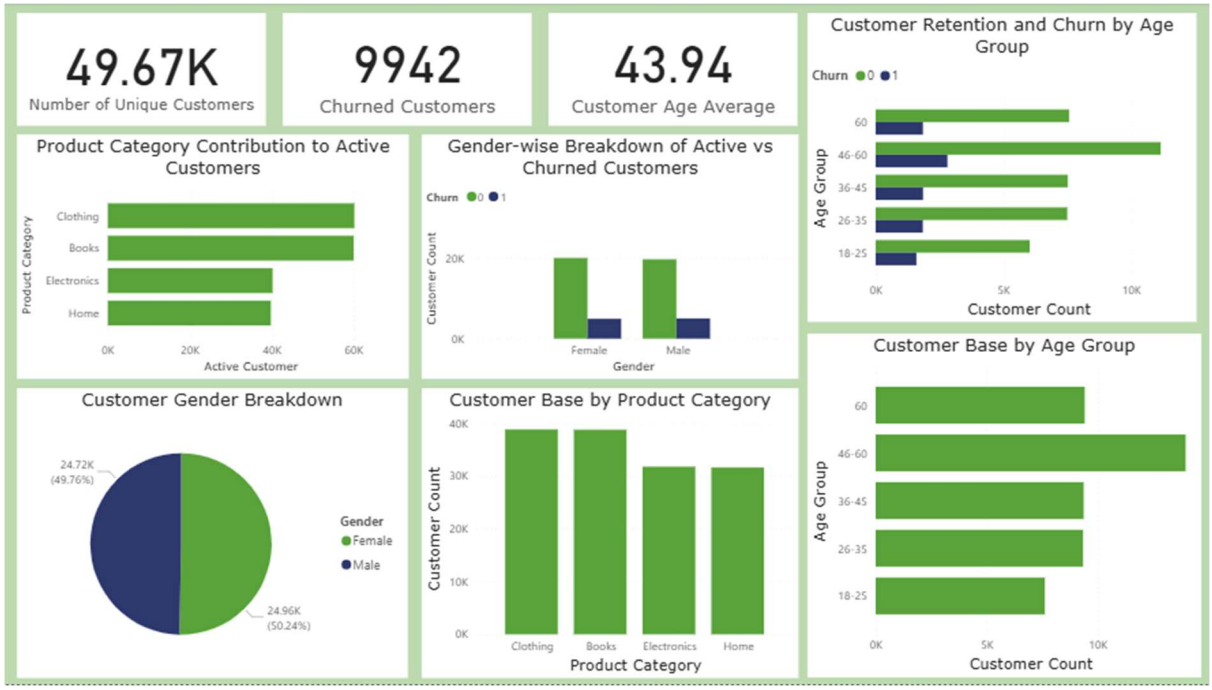
This specialized dashboard focuses on returned products, giving visibility into product return rates, reasons, and trends. It supports better inventory and quality control decisions.

Key Features:

- Return Volume Overview: Total number of returns with breakdown by product.
- Return Rate by Category: Charts showing which product categories have the highest return rates.
- Return Trends Over Time: Visual timeline of returns across weeks or months.

Dashboards

1. Customer Insights



2. Sales Performance

3. Return Product Dashboard

Project Outcome

- A fully interactive and dynamic Power BI dashboard was developed that provides deep insights into customer and sales data.
- Stakeholders can now easily identify customer trends, segment customers, and track performance across different dimensions.
- The company can use these insights to improve marketing campaigns, optimize inventory, and boost profitability.
- The project laid the foundation for data-driven decision making across departments like sales, marketing, and customer service.

Problems Faced

1. **Data Inconsistency & Formatting Issues**
   The initial datasets had missing fields, inconsistent column naming, and mixed data types, which required thorough data cleaning using Power Query.
2. **Performance Optimization**
   The dashboard started to slow down as more visuals and DAX measures were added. Optimizing measures and reducing the number of visuals helped improve performance.
3. **Segmentation Logic**
   Implementing the RFM model and other customer segmentation logic using DAX required trial and error to get correct results.

Key Learnings

- Hands-on experience in using **Power BI for data storytelling** and business analysis.
- Mastered the use of **Power Query** for complex data transformations.
- Gained expertise in **DAX functions** for KPIs, segmentation, and dynamic visual filtering.
- Understood the importance of a clean **data model** and how relationships affect report behaviour.
- Learned techniques to **optimize dashboard performance** and user experience.