E-commerce Data Analysis Dashboard

In this project, I built an **eCommerce Data Analysis Dashboard** using Power BI, which highlights my proficiency in data analysis, visualization, and storytelling. The dashboard provides detailed insights into key performance metrics of an online store, offering valuable information to business stakeholders to optimize sales, marketing strategies, and customer retention.

Key Responsibilities and Approach:

- **Data Collection and Preparation**:

  - I worked with a raw eCommerce dataset that included information on sales, customer demographics, product categories, and purchase behavior.
  - Performed **data cleaning** and preprocessing using Power BI's **Power Query Editor** to handle missing data, format inconsistencies, and redundant records, ensuring the dataset was accurate and reliable for analysis.
  - Applied transformations like **splitting columns**, **merging tables**, and creating new calculated fields to derive key business metrics.

- **Data Analysis & Business Insights**:

  - Conducted a comprehensive analysis of **sales trends**, breaking down data by time, region, and product categories to understand the sales performance across different dimensions.
  - Performed **customer segmentation** analysis to identify high-value customers and understand their purchase patterns.
  - **Revenue Analysis**: Provided insights into the store's revenue generation, identifying the top-performing products, regions, and customer segments. This helped in identifying areas for optimizing marketing and sales strategies.
  - **Profitability Analysis**: Analyzed profit margins across different product categories and customer segments to guide pricing strategies and improve profitability.

- **Advanced Metrics and KPIs**:

  - Designed KPIs that tracked **Total Sales**, **Average Order Value (AOV)**, **Customer Lifetime Value (CLV)**, **Conversion Rate**, and **Profit Margin**. These metrics were presented with clear, easy-to-understand visuals, enabling stakeholders to monitor performance at a glance.
  - Created time-series visualizations to track **monthly revenue**, **customer growth**, and **product performance** over time, which helped stakeholders identify seasonal trends and periods of high/low sales activity.

- **Visualizations and Dashboard Design**:

  - Developed interactive visualizations, including:

    - **Sales Performance by Region**: A map visualization that displayed sales across different regions, helping the business understand regional performance.
    - **Top Products and Categories**: Bar charts showing the highest-selling products and categories to help stakeholders allocate inventory and marketing efforts.

- **Customer Demographics**: Visualized customer distribution based on age group, location, and purchasing behavior, enabling better-targeted marketing campaigns.
  - Implemented **drill-through** and **cross-filtering** capabilities, allowing users to deep dive into specific segments like individual products or customer segments for further analysis.

- **Actionable Insights**:

  - Identified top-performing products, which helped the business focus its marketing and inventory strategies on high-demand items.
  - Highlighted underperforming product categories and regions, offering the business insights into areas for improvement and potential growth opportunities.
  - The **customer segmentation analysis** helped pinpoint high-value customers, aiding in the design of personalized marketing campaigns and loyalty programs to boost retention. **Tools and Techniques.**

- **Power BI**: Utilized for creating the dashboard, generating interactive visualizations, and delivering business insights.

- **DAX (Data Analysis Expressions)**: Leveraged DAX to create custom calculations for KPIs, including AOV and CLV, enabling dynamic analysis.

- **Power Query**: Used for extensive data transformation, cleaning, and ensuring the dataset was optimized for analysis.

This project highlights my ability to not only work with complex datasets but also to transform that data into actionable insights that directly impact business performance. The **eCommerce Data Analysis Dashboard** showcases my data analysis, visualization, and problem-solving skills, demonstrating my capability to drive business results through data.