Customer Behaviour Analysis using Python

Customer Behavior Analysis is a crucial process for businesses aiming to understand and enhance customer interactions, tailor marketing strategies, and improve overall customer experience. This project aims to demonstrate the process of Customer Behaviour Analysis using Python, focusing on a dataset of customer interactions with an e-commerce platform.

Data in Hand:

The dataset used in the project focuses on customer interactions with an e-commerce platform. This dataset provides valuable insights into customer interactions, preferences, and purchase behavior. By analyzing this data, businesses can tailor their marketing strategies, improve customer experiences, and drive growth and profitability. It serves as the foundation for data-driven decision-making and strategic planning in various industries. It consists of the following features:

- User_ID: Unique identifier for each customer.
- Gender: Gender of the customer (e.g., Male, Female).
- Age: Age of the customer.
- Location: Location of the customer.
- Device_Type: Type of device used for browsing (e.g., Mobile, Tablet, Desktop).
- Product_Browsing_Time: Amount of time spent browsing products (in minutes).
- Total_Pages_Viewed: Total number of pages viewed during the browsing session.
- Items_Added_to_Cart: Number of items added to the shopping cart.
- Total_Purchases: Total number of purchases made .

Analysis:

- **Data Collection and Preprocessing**: The project starts by importing necessary Python libraries and loading the dataset. Data preprocessing steps include checking for missing values, identifying data inconsistencies, and handling outliers to ensure data quality and accuracy.
- **Descriptive Statistics**: Summary statistics are computed for both numerical and categorical columns to gain insights into the dataset. Mean, median, standard deviation, and quartiles provide an overview of the central tendency and variability of numerical attributes. Frequency distributions reveal patterns in categorical variables such as Gender, Location, and Device_Type.
- **Exploratory Data Analysis (EDA):** Visualizations such as histograms, bar charts, and scatter plots are utilized to explore trends, patterns, and relationships within the data. Analysis includes examining the distribution of Age, gender distribution, relationship between Product Browsing Time and Total Pages Viewed, average total pages viewed by gender and device type, customer segmentation based on Customer Lifetime Value (CLV), and conversion funnel analysis.
- **Insights and Findings**: The analysis reveals insights into customer behavior on the e-commerce platform. Gender distribution indicates a higher frequency of male customers. There is no strong correlation between Product Browsing Time and Total Pages Viewed, suggesting potential areas for improvement in website engagement. Average total pages viewed varies across different genders and device types, highlighting potential targeting strategies. Customer segmentation based on CLV identifies low, medium, and high-value segments, facilitating targeted marketing approaches. Conversion funnel analysis provides insights into the customer journey, from browsing products to making purchases. Churn rate analysis reveals a substantial proportion of customers who have not made any purchases, indicating opportunities for retention strategies.

Conclusion:

The project demonstrates the importance of Customer Behaviour Analysis in understanding customer interactions and optimizing business strategies. By leveraging Python for data analysis and visualization, businesses can gain actionable insights to enhance customer experiences, improve conversion rates, and maximize profitability. Continuous monitoring and analysis of customer behavior are essential for staying competitive in a dynamic market landscape. Overall, the project serves as a valuable resource for individuals interested in learning about Customer Behaviour Analysis using Python and provides a framework for conducting similar analyses in real-world scenarios.