**Customer Behavior Analysis – Project Documentation**

**1. Project Overview**

**Business Context**

ShopEasy, an e-commerce company, has been experiencing low customer engagement, poor conversion rates, and ineffective marketing strategies. The goal of this project was to analyze customer behavior and provide actionable insights to improve business performance.

**Objectives**

* Analyze customer engagement, repeat purchases, and conversion trends.
* Identify best-performing products across different regions.
* Evaluate the impact of marketing strategies.
* Provide business recommendations to improve customer retention and sales.

**2. Data Description**

The project used six datasets from ShopEasy’s database:

1. **customers.csv** – Customer details (CustomerID, GeographyID, etc.).
2. **products.csv** – Product details (ProductID, ProductName, Category, Price, etc.).
3. **engagement\_data.csv** – Customer interactions with marketing content.
4. **customer\_journey.csv** – Customer purchase journey and actions.
5. **customer\_reviews.csv** – Customer feedback and ratings.
6. **geography.csv** – Location details (GeographyID, Country, City).

**3. Methodology**

**Data Cleaning & Processing**

* Handled missing values and duplicates in the datasets.
* Merged relevant tables using MySQL joins and Pandas.
* Standardized categorical values for consistency.

**SQL & Python Analysis**

* **Repeat vs. First-Time Buyers**: Used SQL to group purchases by CustomerID and classify buyers into first-time or repeat customers.
* **Best-Performing Products by Region**: Joined customer, geography, and product data to rank top products per region.
* **Customer Journey & Conversion Analysis**: Analyzed engagement data to understand drop-off points and conversion bottlenecks.
* **Sentiment Analysis on Customer Reviews**: Extracted insights from feedback to gauge customer satisfaction.

**4. Key Findings & Insights**

**Repeat vs. First-Time Buyers**

* **94.74% of customers were first-time buyers**, indicating low retention.
* Only **5.26% were repeat buyers**, suggesting a need for loyalty programs.

**Best-Performing Products by Region**

* Different products performed well in different cities.
* Sales volumes were low across all products, highlighting an opportunity for better promotions.

**Marketing Impact & Engagement**

* Customer engagement was inconsistent, with low click-through rates.
* A/B testing showed that **personalized product recommendations improved conversions**.

**Customer Sentiment Analysis**

* Reviews indicated that **shipping delays and product quality concerns** were common pain points.
* Positive feedback was centered around ease of use and pricing.

**5. Recommendations**

1. **Improve Customer Retention**
   * Introduce **loyalty programs** and exclusive discounts for repeat buyers.
   * Implement **personalized email campaigns** to re-engage past customers.
2. **Enhance Regional Marketing Strategies**
   * Promote **top-selling products regionally** (e.g., Surfboards in Madrid, Climbing Ropes in Stockholm).
   * Offer localized promotions based on customer preferences.
3. **Optimize Checkout & Reduce Cart Abandonment**
   * Simplify checkout and introduce guest checkout.
   * Offer **limited-time discounts** or free shipping for abandoned carts.
4. **Leverage Customer Reviews for Trust-Building**
   * Highlight **positive reviews near product listings**.
   * Address common negative feedback points (e.g., improve shipping times).

**6. Conclusion**

This project provided valuable insights into customer behavior, identifying key challenges and opportunities for ShopEasy. Implementing the recommendations can help the company boost **customer retention, sales, and marketing effectiveness**. Further studies, including advanced predictive modeling, could enhance the personalization and efficiency of customer engagement strategies.