**Customer Churn Analysis for E-commerce Businesses**

**Executive Summary:**

This report presents a comprehensive analysis of customer churn for e-commerce businesses, using the Kaggle Customer Churn dataset.

The project involved cleaning and preprocessing the data in Python, followed by an in-depth exploration of the key factors influencing customer churn. Pandas was utilized for statistical analysis, while Plotly was employed to create interactive visualizations of the data.

The analysis revealed **three major insights**:

1. **Higher churn rates** were observed among customer segments preferring cash on delivery, mobile category users, and customers from higher city tiers.
2. **High satisfaction scores** did not necessarily prevent churn.
3. **Increased customer complaints** were strongly correlated with higher churn rates.

Based on these findings, the following **recommendations** are made:

1. Implement tailored retention strategies for each high-risk customer group.
2. Conduct a thorough review of the feedback system to address underlying issues.
3. Prioritize effective complaint management to reduce churn.

**Business Problem:**

For e-commerce businesses, customer retention is crucial, as retaining existing customers is often more cost-effective than acquiring new ones. High churn rates can negatively impact revenue, growth, and long-term profitability. Despite various efforts to engage customers, a significant number of them still choose to leave.

The challenge is to identify the specific customer segments most at risk of churn and determine the underlying reasons for their departure. By addressing these concerns, e-commerce businesses can implement effective interventions to reduce churn rates, increase customer lifetime value, and enhance overall business performance

**Methodology:**1. **Data Cleaning:**

The process began with extracting the raw dataset from Kaggle. Key cleaning steps included handling duplicate rows, addressing missing values, and dropping unnecessary columns to ensure the dataset was relevant.

**2. Data Preprocessing:**

This step included first grouping the columns into three categories: float, object and ordinal followed by removing data inconsistencies.

**3. Exploratory Data Analysis (EDA):**

Overall churn distribution followed by analysis of churn distribution against each column of each of the three categories created during pre-processing was performed. Then interactive plots with Plotly to visualize key attributes affecting customer churn were created to gain insights into customer behaviour.

**Results:**

1. **Churn Distribution Insights:** The analysis revealed significant variations in churn rates across different customer segments. Customers who preferred cash on delivery, those using mobile devices, and those from higher city tiers exhibited higher churn rates compared to other groups.
2. **Satisfaction Scores vs. Churn:** Contrary to expectations, high satisfaction scores did not correlate with lower churn rates. This indicates that satisfaction alone does not necessarily prevent customers from leaving.
3. **Complaint Correlation:** An increase in customer complaints was strongly associated with higher churn rates. This suggests that unresolved issues and dissatisfaction play a critical role in customer attrition.

**Business Recommendations:**

1. **Tailored Retention Strategies:** Develop and implement retention strategies specifically designed for high-risk customer segments, such as those preferring cash on delivery, mobile users, and customers from higher city tiers. Personalized offers, targeted communication, and loyalty programs could help reduce churn within these groups.
2. **Review Feedback Systems:** Conduct a comprehensive review of the feedback and satisfaction measurement systems. Ensure that feedback mechanisms are effectively capturing and addressing customer concerns to prevent them from escalating into reasons for churn.
3. **Enhance Complaint Management:** Focus on improving complaint management processes to resolve issues more efficiently. Implementing better support systems and proactive issue resolution strategies can help in reducing churn rates associated with customer complaints.