Online-Retail-Customer-Segmentation

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PROBLEM STATEMENT:

The online retail store is seeking to gain a comprehensive understanding of customer purchase patterns to enhance their marketing strategies, optimize inventory management, and improve overall customer satisfaction.

PROJECT OBJECTIVE:

- Identify and analyze key trends in customer purchasing patterns, including frequency, timing, and types of products purchased.
- Classify customers into distinct segments based on their buying behavior, preferences to tailor marketing efforts and promotions effectively.

DATA DESCRIPTION:

1. Invoice - Invoice number
2. Stock Code - Product ID
3. Description - Product Description
4. Quantity - Quantity of the product
5. Invoice Date - Date of the invoice
6. Price - Price of the product per unit
7. CustomerID - Customer ID
8. Country - Region of Purchase

DATA PRE-PROCESSING STEPS AND INSPIRATION:

- **Checking Data Types**: Verify the data types of all columns, ensuring the Date column is converted from an object to a datetime format to facilitate better visualization.

- **Handling Missing Values**: Identify and address any null values and duplicate entries in the dataset.
- **Visualization**: Use visualizations and statistical methods to examine the relationships between columns, revealing additional patterns and dependencies within the data

CHOOSING THE ALGORITHM FOR THE PROJECT:

For customer segmentation, I have decided to go with K-Means and RFM model

Reason for choosing:

Using K-means in conjunction with the RFM model allows businesses to enhance their customer segmentation efforts. For instance:

- *RFM Scoring*: Customers can first be scored using the RFM model to quantify their behavior.
- *K-means Clustering:* These RFM scores can then be fed into K-means to form distinct customer segments, leading to more refined and actionable insights

ASSUMPTIONS:

No Assumptions were made.

FUTURE POSSIBILITIES OF THE PROJECT:

We can train customer service teams for targeted customer service, eg. We can analyze different segments and tailor their interactions with customers accordingly, this way we can enhance customer experience

From the insights that we have gained from segmentation, we can create a personalized marketing messages and offers for each customer segments

Collaborating with supply chain teams to ensure inventory aligns with purchasing patterns of high value segments

Implement recommendation engines that leverage customer segments to suggest products that align with their preferences and purchasing behavior

CONCLUSION:

After forming 5 clusters by k-means and elbow method we can separate our customers as star, light, new, lost, at-risk customers.

An ideal customer should have low recency, high frequency and high monetary value. These customers can now be targeted according to business need resulting in better customer relationships and profitability.

REFERENCES:

1. NewDigits.org
2. YouTube
3. Intellipaat Live Class notes and code.
4. Kaggle
5. GitHub