Case Study: Retail Store Customer Churn and Segmentation Analysis

You are a data scientist working for a retail store application with a significant customer base. The company is interested in understanding customer churn patterns and segmenting its customer base to implement targeted marketing and retention strategies.

Perform customer churn analysis to identify factors contributing to customer attrition and then conduct customer segmentation analysis to tailor marketing efforts to different customer segments. You have access to a Retail Store Customer Dataset, which includes customer information, order history, complaints raised, coupons used, and churn status.

Data:

 Clean and preprocess the data, handle missing values, and ensure data quality. Please understand each variable clearly and perform a deep analysis of the data.

Link to dataset: https://data.world/wayvytech/a-retail-store-customer-churn-dataset

Variable	Description
CustomerID	Unique customer ID
Churn	Churn Flag
Tenure	Tenure of customer in organization
PreferredLoginDevice	Preferred login device of customer
CityTier	City tier
WarehouseToHome	Distance in between warehouse to home of customer
PreferredPaymentMode	Preferred payment method of customer
Gender	Gender of customer
HourSpendOnApp	Number of hours spend on mobile application or website
NumberOfDeviceRegistered	Total number of deceives is registered on particular customer
PreferedOrderCat	Preferred order category of customer in last month
SatisfactionScore	Satisfactory score of customer on service
MaritalStatus	Marital status of customer
NumberOfAddress	Total number of added added on particular customer
Complain	Any complaint has been raised in last month
OrderAmountHikeFromlastYear	Percentage increases in order from last year
CouponUsed	Total number of coupon has been used in last month
OrderCount	Total number of orders has been places in last month
DaySinceLastOrder	Day Since last order by customer
CashbackAmount	Average cashback in last month

Objectives:

Identify customer churn patterns:

- Perform exploratory data analysis to understand the relationships between customer demographics, purchase behavior, and churn.
- Apply clustering techniques to segment the customer base into distinct groups.
- Consider features such as purchase frequency, purchase amount, and customer demographics for segmentation.
- Analyze the characteristics of each segment and provide descriptive insights about their behavior.

Predictive Modeling:

- Build a predictive model to forecast customer churn using machine learning algorithms (e.g., logistic regression, random forest, or gradient boosting).
- Evaluate the model's performance using appropriate metrics.

Implementation Plan:

- Based on the insights from customer churn and segmentation analyses, propose customer retention strategies tailored to each segment.
- Develop an implementation plan for the suggested retention strategies, including a timeline and key performance indicators to measure their success.

Presentation:

Prepare a comprehensive presentation summarizing your problem statement, data you have, findings, methods, approaches, and recommendations. Be ready to present the results and strategies to the company's management.