



**Presentation on**

**Identify customer segments for online  
retail with the use of K-means clustering**

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# . Problem Statement .

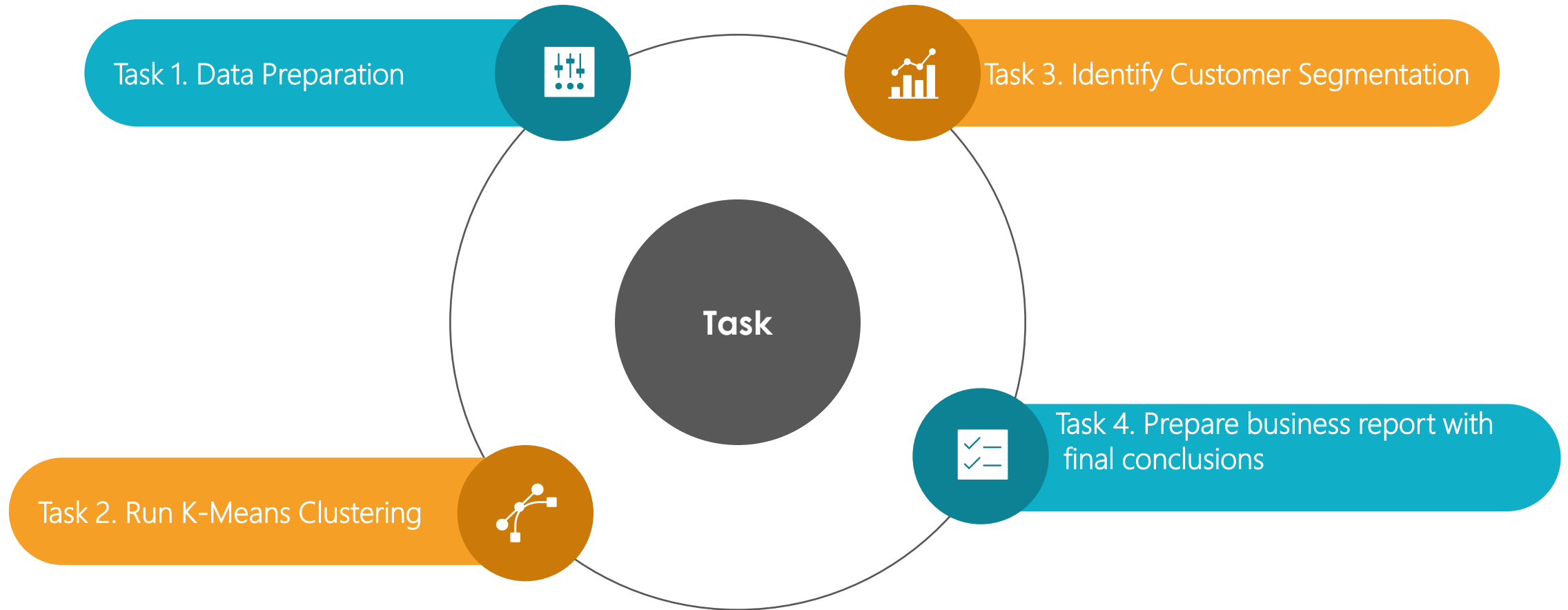
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E-commerce businesses like any other business depend on Customer Relationship Management software to manage customer relationships and drive customer loyalty and retention. Understanding the behavior of their customers and dividing them into segments as per their spending habits, and frequency of platform's use - helps an e-commerce platform sharpen its customer success policy and increase revenue coming from repeat customers.

## Introduction

Customer segmentation is crucial for understanding consumer behavior and optimizing business strategies. This report analyzes Snapdeal's customer segments using RFM (Recency, Frequency, Monetary) analysis, clustering techniques, and dimensionality reduction, providing actionable insights for improving retention and revenue.

# Project Task



# Project Analysis

## DATA PREPROCESSING

1. Removing the missing values
2. Checking for duplicate rows
3. Outliers

## Feature Engineering

1. Recency
2. Frequency
3. Monetary Value
4. RFM Segmentation using scores
5. Visualizing the RFM Level customers using a bar plot

## Clustering products into product categories

1. The Elbow Method
2. Visualizing the clusters

## Customer Segmentation using Unsupervised Learning

1. PCA
2. K-Means Clustering

## Understanding Clusters

1. Clear separation between high-value and low-value customers.

## A. RFM Segmentation Analysis

- Customers are grouped based on how recently they purchased, how often they purchase, and the monetary value of their transactions.
- High-value customers make frequent and high-value purchases, while low-value customers buy infrequently and spend less.
- The heatmap highlights clear distinctions between these segments, aiding in targeted marketing efforts.

## B. Clustering Analysis (K-Means & PCA)

### Three-Cluster Model (Broad Segmentation)

- High-Value Customers (Cluster 2):
  - Frequent and recent shoppers with the highest spending.
  - Most engaged customer group, crucial for retention strategies.
- Medium-Value Customers (Cluster 0):
  - Moderate spending and frequency.
  - Opportunity for engagement through loyalty programs.
- Low-Value Customers (Cluster 1):
  - Rare shoppers with low-value orders.
  - Require re-engagement strategies to boost activity.

# Actionable Recommendations

## A. Retention Strategies for High Value Customers

- ✓ **Exclusive Loyalty Programs:**  
Reward frequent shoppers with tiered benefits.
- ✓ **Early Access & Premium Deals:**  
Provide priority access to sales and limited edition products.
- ✓ **Personalized Offers:**  
AI-based recommendation systems to keep engagement high.

# Actionable Recommendations

## B. Engagement Strategies for Medium-Value Customers

- ✓ Limited-Time Offers & Discounts:  
Encourage more frequent shopping.
- ✓ Subscription-Based Benefits:  
Introduce a Snapdeal membership program.
- ✓ Targeted Email & SMS Campaigns:  
Personalized nudges based on past purchases.



# Actionable Recommendations

## C. Re-Engagement Strategies for Low-Value Customers

- ✓ **Win-Back Offers:**  
Special discounts for inactive customers.
- ✓ **Gamification Elements:**  
Interactive contests and reward points for engagement.
- ✓ **Feedback Mechanisms:**  
Understanding barriers to shopping and resolving pain points.

# Actionable Recommendations

## D. Leveraging Data Science for Better Insights

- ✓ **Dynamic Pricing Strategies:**  
AI-driven pricing based on customer behavior.
- ✓ **Enhanced Customer Support:**  
AI chatbots for immediate assistance and retention.
- ✓ **Improved Product Recommendations:**  
Data-driven suggestions tailored for individual preferences.

# Conclusion

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Customer segmentation has identified clear distinctions among different buyer groups, allowing for tailored engagement strategies. High-value customers should be nurtured with loyalty rewards and premium services, while medium-value customers can be encouraged to increase their spending through personalized promotions. Low-value customers, who show the highest risk of churn, require aggressive re-engagement tactics such as exclusive offers and feedback-driven improvements. By integrating AI-driven personalization, automated retention campaigns, and data-backed loyalty programs, Snapdeal can significantly boost customer lifetime value and drive sustainable revenue growth.



# Thank You

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