Project Charter

[Department of Computer Engineering]

[Customer Segmentation using Clustering]

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1   Introduction

Customer segmentation is the process of dividing a customer base into smaller groups of individuals or organizations that share similar characteristics or needs. The goal of customer segmentation is to better understand and target specific groups of customers in order to improve marketing and sales efforts and ultimately increase revenue.

One of the most popular methods for customer segmentation is clustering, a machine learning technique that groups data points into clusters based on their similarity. In the context of customer segmentation, clustering is used to group customers into segments based on shared characteristics such as demographics, behaviors, needs, or preferences.By analyzing this data, businesses can gain insights into their customers' behaviors, preferences, and needs, and use these insights to tailor marketing messages, improve product offerings, and increase customer satisfaction and loyalty.

Overall, customer segmentation using clustering is a powerful tool for businesses to better understand and target their customers, and it can lead to improved customer acquisition, retention, and profitability.

2   Goals and Objectives

➢   To group customers based on shared characteristics such as demographics, behaviors, needs, or preferences.

➢   To tailor marketing messages and product offerings to specific customer segments in order to improve the effectiveness of marketing and sales efforts.

➢   To optimize resource allocation and budgeting by focusing on the most profitable and valuable customer segments.

➢   To increase customer satisfaction and loyalty by providing targeted and personalized experiences that meet their specific needs and preferences.

➢   To identify new market opportunities by identifying under-served or unexplored customer segments that have growth potential.

3   Scope and Benefits

a.   Developing a methodology for clustering the customers into these segments based on their data.

b.   Pre-processing the customer data by scaling and normalizing it to ensure the quality of the analysis.

c.   Visualizing the resulting clusters using techniques such as scatter plots, heat maps, or deprograms.

d.   Evaluating the clustering performance using metrics such as silhouette score and elbow plot.

e.   Providing actionable insights for improving customer satisfaction and loyalty by providing targeted and personalized experiences that meet their specific needs and preferences.

4   Project Tasks

Tasks	Estimated Start Date	Estimated End Date
Get the fully working code or write on own.	2023/02/15	2023/02/20
Go through tutorials and other similar projects and try with different datasets	2023/02/20	2023/03/05
Plan possible enhancement of project	2023/03/05	2023/03/13
Submit mid-term report	2023/03/13	2023/03/22
Enhance Code	2023/03/22	2023/03/31
Submit final report	2023/04/01	2023/04/30

5   Project Assumptions and Constraints

Assumptions:

➢   The customer data used for the project is accurate and representative of the target market.

➢   The chosen clustering algorithm will be able to effectively group customers based on shared characteristics.

➢   The team has the necessary skills and resources to implement and test the clustering algorithm.

➢   The project team will be able to complete the project within the given time frame.

Constraints:

➢   The project must be completed within a specific time-frame, as defined by the University.

➢   The chosen clustering algorithm must be compatible with the available data and software resources.

➢   The project team must adhere to any relevant data privacy and security regulations

6   Project Risks

➢ Data quality issues: The accuracy and completeness of customer data could impact the effectiveness of the clustering analysis.

➢ Unforeseen data patterns: There may be hidden patterns in the customer data that are not captured by the chosen clustering algorithm, which could lead to ineffective segmentation.

➢ Over-fitting: The clustering algorithm may be overfit to the training data, leading to inaccurate or unreliable segmentation.

➢ Interpretation issues: The interpretation of clustering results may be subjective, leading to inconsistencies or errors in decision-making.

➢ Resource constraints: Limited resources, such as time or members, may impact the ability to complete the project on time.

➢ Integration issues: The results of the clustering analysis may not be easily integrated with existing marketing or sales systems, leading to operational challenges

7   Project Roles and Responsibilities

Role and Responsibility
Get fully working code, understand it, try with different data set, submit report
Get fully working code, understand it, try with different data set, submit report
Get fully working code, understand it, try with different data set, enhance and implement code
Get fully working code, understand it, try with different data set, enhance and implement code

8   Project Budget

As this project is a personal project made for learning purpose, there is no defined budget for the project. The project does not require any significant financial investment beyond the cost of using necessary infrastructure to run the python script.