Customer Segmentation

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Introduction

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- Point 1 Nowadays the competition is vast and lot of technologies came into account for effective growth and revenue generation. For every business the most important component is data. With the help of grouped or ungrouped data, we can perform some operations to find customer interests.
- Point 2 Customer Segmentation is useful to divide the large data from dataset into several groups based on their age, demographics, spent, income, gender, etc. These groups are also known as clusters. By this, we can get to know that, which product got huge number of sales and which age group are purchasing etc.
- Point 3 We are going to apply K-means clustering algorithm and we have to find the number of clusters first. So, at lastly, we have to visualize the data. One can easily find the potential group of data while observing that visualization.

Problem Statement

- Segmentation is the best application of unsupervised learning. Using clustering, identify segments of customers in the dataset to target the potential user base. They divide customers into various groups according to common characteristics like gender, age, interest, and spending habits so they can market to each group effectively. Use K-Means Clustering and also visualize the gender and age distributions. Then analyze their annual income and spending scores. As it describes about how we can divide the customers based on their similar characteristics according to their needs by using k-means clustering which is a classification of unsupervised machine learning.

Motivation Of Project

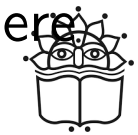
- It is finding the most profitable customer groups within the entire pool of customers.
- With this we can better understand customer interests, choices and purchasing patterns which will give us an idea of which attributes are more tightly related to the customers and the business as well.

Technical Keywords

- Clustering, Elbow Method, K-Means Algorithm, Customer Segmentation.

Literature Survey

- Customer Classification Over the years, the commercial world has become more competitive, as organizations such as these have to meet the needs and wants of their customers, attract new customers, and thus improve their businesses.
- The task of identifying and meeting the needs and requirements of each customer in the business is a very difficult task. This is because customers may vary according to their needs, wants, demographics, shapes, taste and taste, features and so on.
- s. Accordingly, customer segmentation is the process of dividing the market into indigenous groups. Clustering data Clustering is the process of grouping the information in the dataset based on some similarities. There are a number of algorithms which can be chosen to be applied on a dataset based on the situation provided.
- n K- means that an algorithm is one of the most popular classification algorithm. This clustering algorithm depends on the centroid where each data point is placed in one of the overlapping K clusters pre-programmed into the algorithm.



Goals and Objectives

- Goals : The goal of segmenting customers is to decide how to relate to customers in each segment in order to maximize the value of each customer to the business
- Objectives: 1) To reduce risk in deciding where, when, how, and to whom a product, service, or brand will be marketed; 2) To increase marketing efficiency by directing effort specifically toward the designated segment in a manner consistent with that segment's characteristics.

Methodology

- The data set used to implement clustering and K-means algorithm was collected from a store of data.The elbow method is based on the observation that increasing the number of clusters can help to reduce the sum of within-cluster variance of each cluster.
- .Average Silhouette Method:With the help of the average silhouette method, we can measure the quality of our clustering operation.
- Gap Statistics method: For computing the gap statistics method we can utilize the clusGap function for providing gap statistic as well as standard error for a given output.

Outcomes

1]Finding an optimal number of unique customer groups will help you understand how your customers differ, and help you give them exactly what they want.

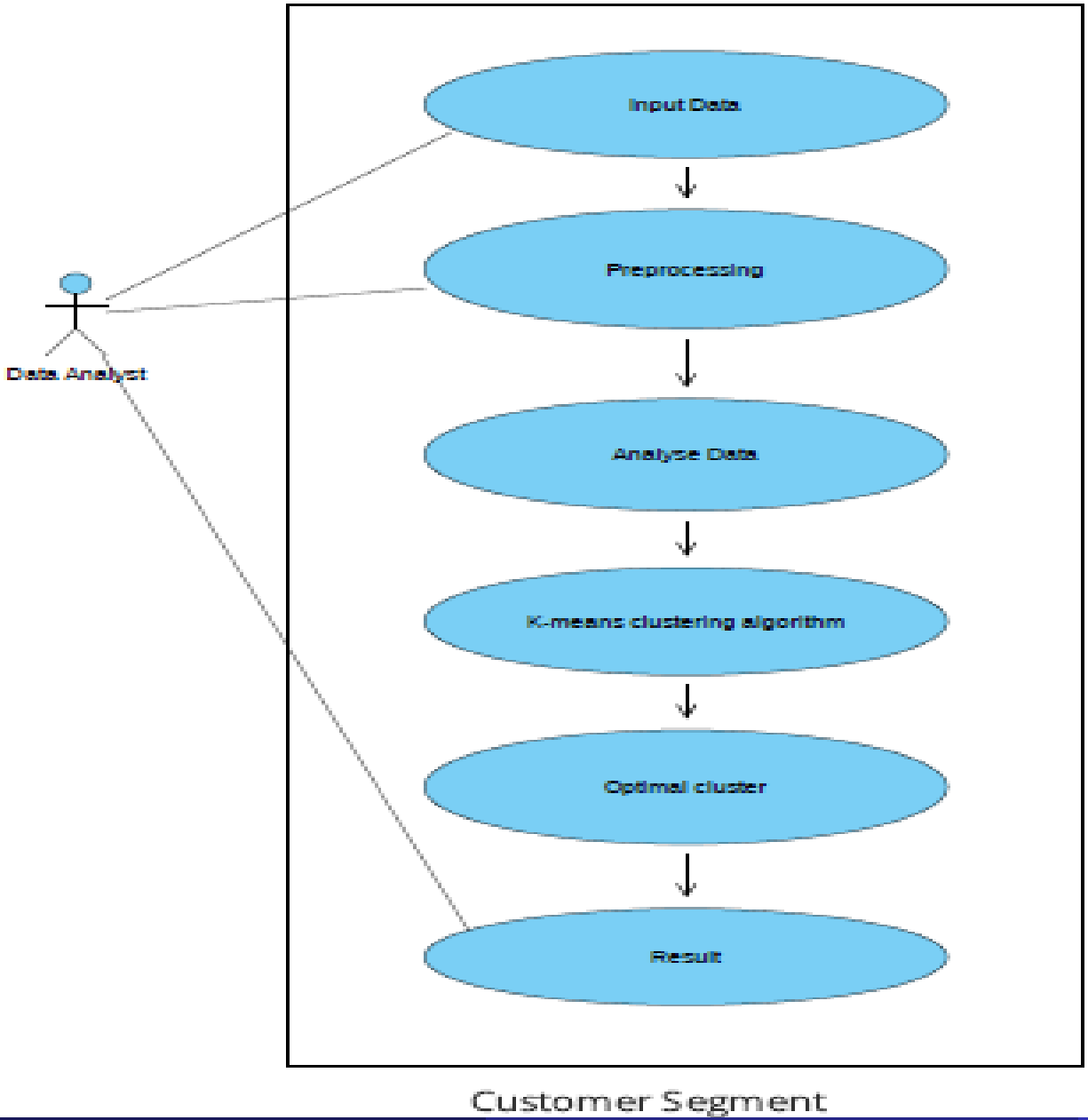
2]Discovering all of the different groups that build up a more meaningful customer base permits you to get into customers' brains and give them precisely what they crave, enhancing their participation and expanding profits.

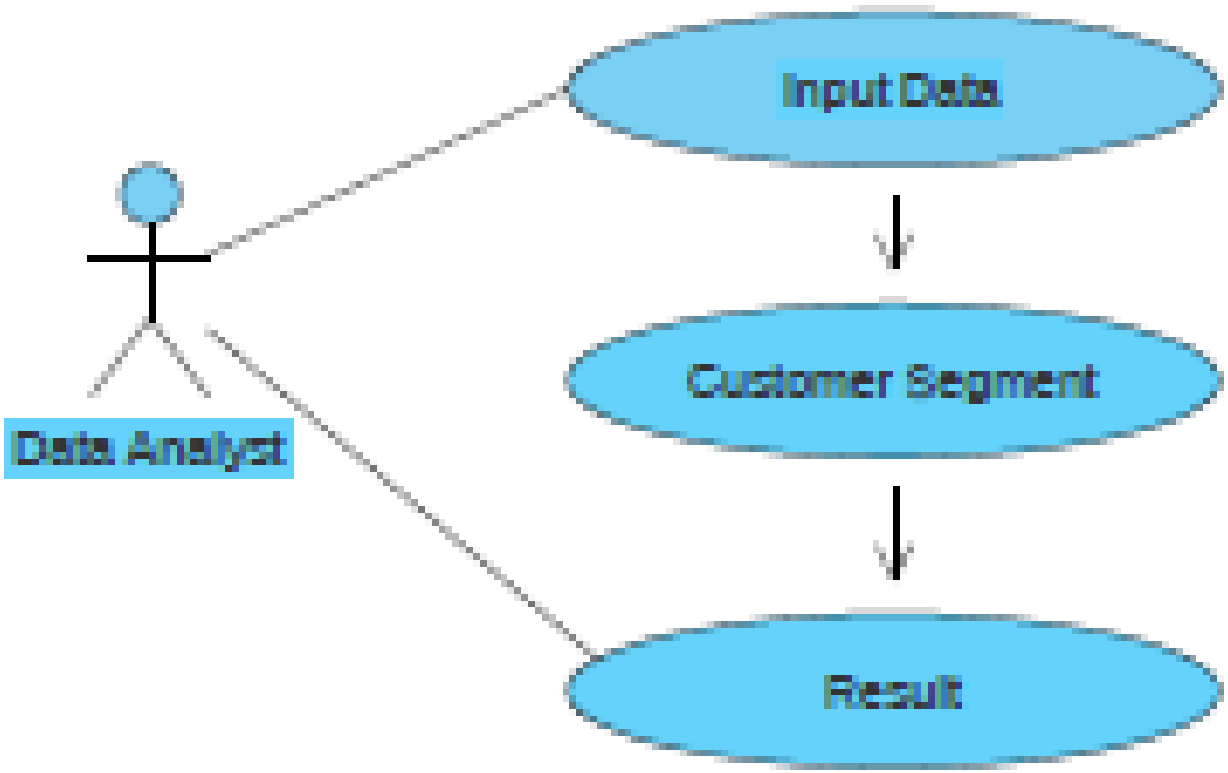
Applications

1]Data Analysis

2]Clustering can also helps to discover distinct groups in their customer base

Use Case Diagam




Input Data
Customer Segment
Result
Data Analyst

Software and Hardware Resources

1]Software required
Platform:Windows
IDE:Google Colab
Programming Language:Python

2]Hardware required
Processor:-intel i3
Storage:-2KB

Thanking You Slide

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