MARKET SEGMENTATION USING MACHINE LEARNING

TEAM-2

R.SaiRoshini

P.HarshithaVarma

G.Aishwarya

M.Ram

Guided By

Mrs.V.Anupama

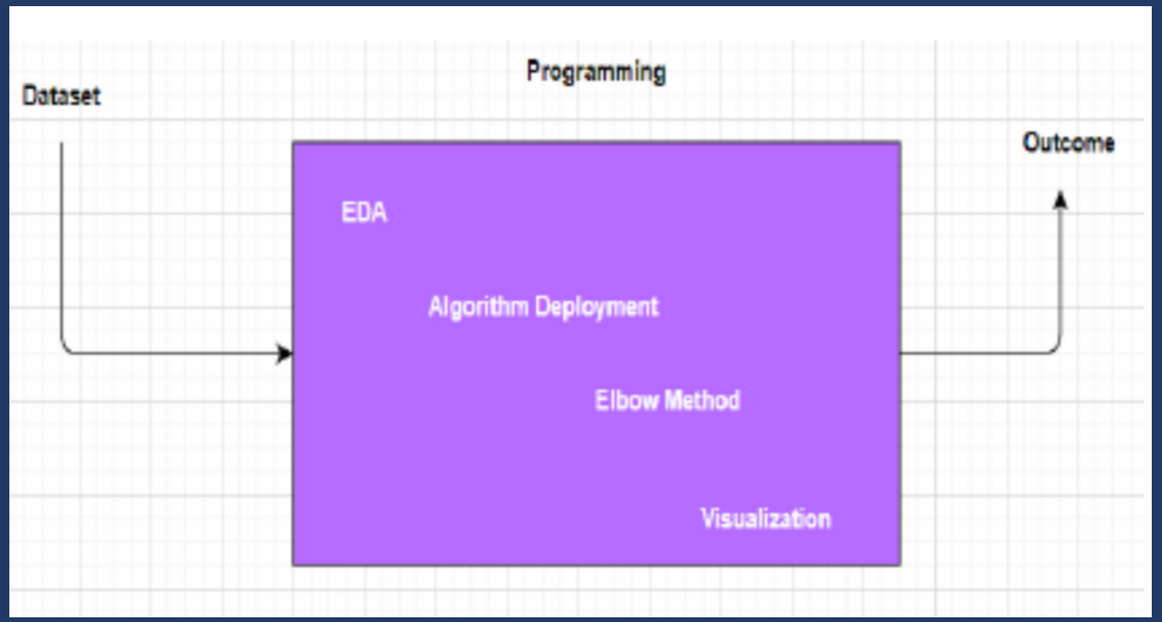
INTRODUCTION

Market segmentation simply means grouping your customers according to various characteristics (for example grouping customers by age). It’s a way for organizations to understand their customers. Knowing the differences between customer groups, it’s easier to make strategic decisions regarding product growth and marketing. The opportunities to segment are endless and depend mainly on how much customer data you have at your use. Starting from the basic criteria, like gender, hobby, or age, it goes all the way to things like “time spent of website X” or “time since user opened our app”. Customer Segmentation is the subdivision of a market into discrete customer groups that share similar characteristics. Customer Segmentation can be a powerful means to identify unsatisfied customer needs. Using the above data companies can then outperform the competition by developing uniquely appealing products and services. Clustering is an efficient technique used for market segmentation. Clustering places homogenous data points in a given dataset. Each of these groups is called a cluster . While the objects in each cluster are similar between themselves, they are dissimilar to the objects of other groups. Clustering is a type of data mining approach in machine learning classified under unsupervised learning . This is because it is able to discover patterns and information from unlabelled data. It is used extensively in machine learning, classification, and pattern recognition.

ABSTRACT

Effective decisions are mandatory for any company to generate good revenue. In these days competition is huge and all companies are moving forward with their own different strategies. We should use data and take a proper decision. Every person is different from one another and we don't know what he/she buys or what their likes are. But, with the help of machine learning technique one can sort out the data and can find the target group by applying several algorithms to the dataset. Without this, It will be very difficult and no better techniques are available to find the group of people with similar character and interests in a large dataset. Here, The customer segmentation using K-Means clustering helps to group the data with same attributes which exactly helps to business the best. We are going to use elbow method to find the number of clusters and at last we visualize the data. Market Segmentation is the process of dividing customers into groups based on common characteristics so companies can market to each group effectively and appropriately. Customers are segmented according to their similarities in behaviour and habits. Our goal is to segment their customers given the customer's various behaviors and features, in order for the company to be able to market for each segment in a manner that is more fitting to each individual customer. Market Segmentation is one the most important applications of unsupervised learning. Using clustering techniques, companies can identify the several segments of customers allowing them to target the potential user base. In this machine learning project, we will make use of K-means clustering which is the essential algorithm for clustering unlabeled dataset.Main objective is to develop a Customer Segmentation to give recommendations like saving plans, loans, wealth management on target groups. Finally we will create a streamlit application based on the clustering technique, where we are taking the customer details and identifying which cluster the customer belongs to.

System Architecture



EXSISTING SYSTEM

The existing method is storingcustomer data through paperwork andcomputer software (digital data) isincreasing day by day. At end of theday they will analyse their data as howmany things are sold or actualcustomer count etc. By analysing thecollected data they got to know who isbeneficial to their business andincrease their sales. It requires moretime and more paperwork. Also, it isnot much effective solution to find thedesired customers data.

PROPOSED SYSTEM

To overcome the traditional method i.epaper work and computerized digitaldata this new method will play vitalrole. As we collect a vast data day by day which requires more paperworkand time to do. As new technologieswere emerging in today's world.Machine Learning which is powerfulinnovation which is used to predict thefinal outcome which has many algorithms. So for our problemstatement we will use K-MeansClustering which groups the data intodifferent clusters based on their similarcharacteristics. And then we will visualize the data.

Software Requirements Specification

python :
python3.6 & higher version

Libraries :
numpy,matplotlib,seaborn

Operating System :
Windows or Ubantu

HardWare Requirements

Specification

large dataset hardware requirement

Processor :

64-bit, eight-core, 2.5 GHz minimum per core (If your dataset size is significantly larger than the medium dataset, we recommend 8 cores.)

Ram : 32GB

Hard disk :

160 GB

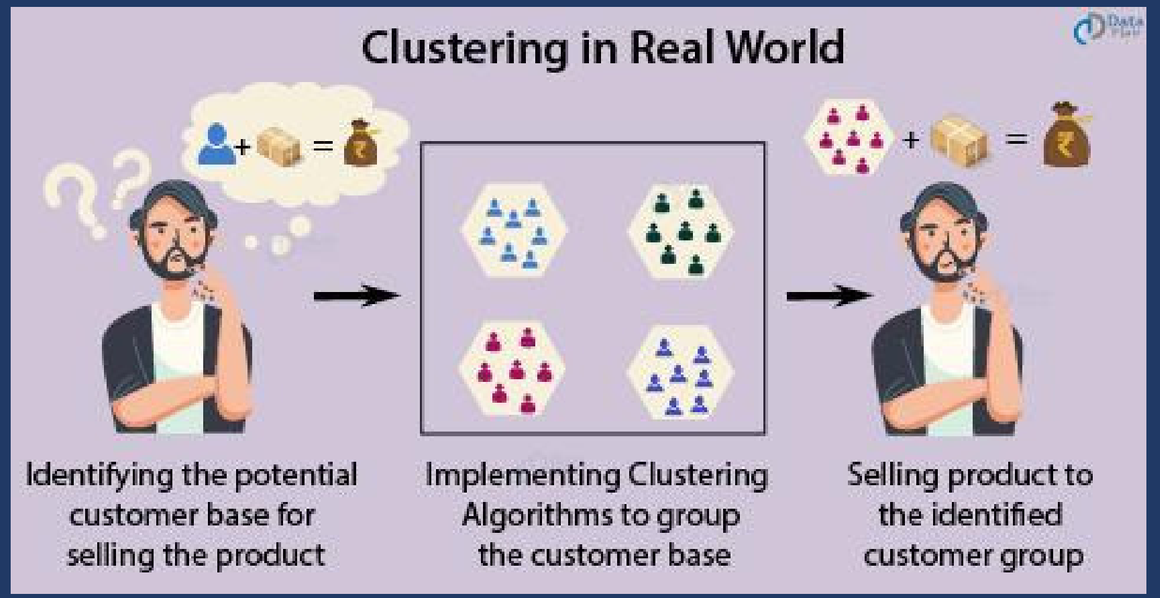
NOTE - Ideally, you should separate and prioritize data among disks. Place your data files and your SQL Server transaction logs on separate physical harddisks..

Algorithm Of Proposed System

We are using K-MEANS algorithm in our project

K-Means Clustering is an unsupervised learning algorithm that is used to solve the clustering problems in machine learning or data science.

This groups the unlabeled dataset into different clusters.


Clustering in Real World
Identifying the potential customer base for selling the product
Implementing Clustering Algorithms to group the customer base
Selling product to the identified customer group

Reference

[1] Cooil, B., Aksoy, L. &Keiningham, T. L. (2008),‘Approaches to customersegmentation’, Journal of RelationshipMarketing 6(3-4), 9–39.

[2] D. Aloise, A. Deshpande, P.Hansen, and P. Popat,“The Basis Of Market Segmentation”Euclidean sum-of-squares clustering,”Machine Learning, vol. 75, pp. 245-249, 2009.

Thank You