

1. Overview A brief description about our project:-

market segmentation analysis is the process of dividing a market into distinct groups of customers based on their characteristics, needs, preferences and behaviours. it helps business to tailor their products, services and marketing strategies to different segments and increase their

Profitability and customer satisfaction market segmentation analysis and using ML in Project that is similar to market segmentation analysing AI, but it focuses more on the use of machine learning techniques to create customer segments machine learning is a branch of artificial intelligence that involves creating and training algorithms that can learn from data and make predictions or decisions there is a brief overview of the Project

- * The project collects customer data from various sources such as surveys, online reviews, social media, purchase history etc..
- * The project cleans, transforms, and integrates the data to make it suitable for analysis.
- * The project applies machine learning algorithms such as clustering classification, regression etc. to discover

Patterns and insights from the data.

- * The project uses graphical tools such as charts, graphs, maps, etc. to present the result of the analysis in a clear and understandable way.
- * The project interprets the result of the analysis and draws conclusion and recommendations for marketing actions.
- * Market segmentation is the process of dividing customers into groups based on their shared characteristics, such as spending habits, location, or industry. This can be a valuable tool for wholesale business to better understand their customer and tailor their marketing and sales strategy according.
- * In this report, we are going through the steps of market segmentation and covering the basic idea of market segmentation. We will be covering all the instruction or procedure you have to keep in mind during the market segmentation.
- * The purpose of marketing is to match the given genuine needs and desires of consumers with the offers of suppliers particularly suited to satisfy those needs and desires. This matching process benefits consumer and supplier and drives an organization

marketing planning process

2. literature survey

→ Existing problem

using unsupervised machine learning techniques, specifically clustering algorithms, the project seeks to group customer with similar spending patterns together. By identifying customer segments with the distinct spending behaviours, the project aims to provide insights to how we businesses can tailor their marketing strategies and product offering to better serve each customer segment. The project also aims to identify opportunities for growth, such as which product or product categories are underrepresented among customers, and which segments may be receptive to new product offerings.

→ Proposed solution

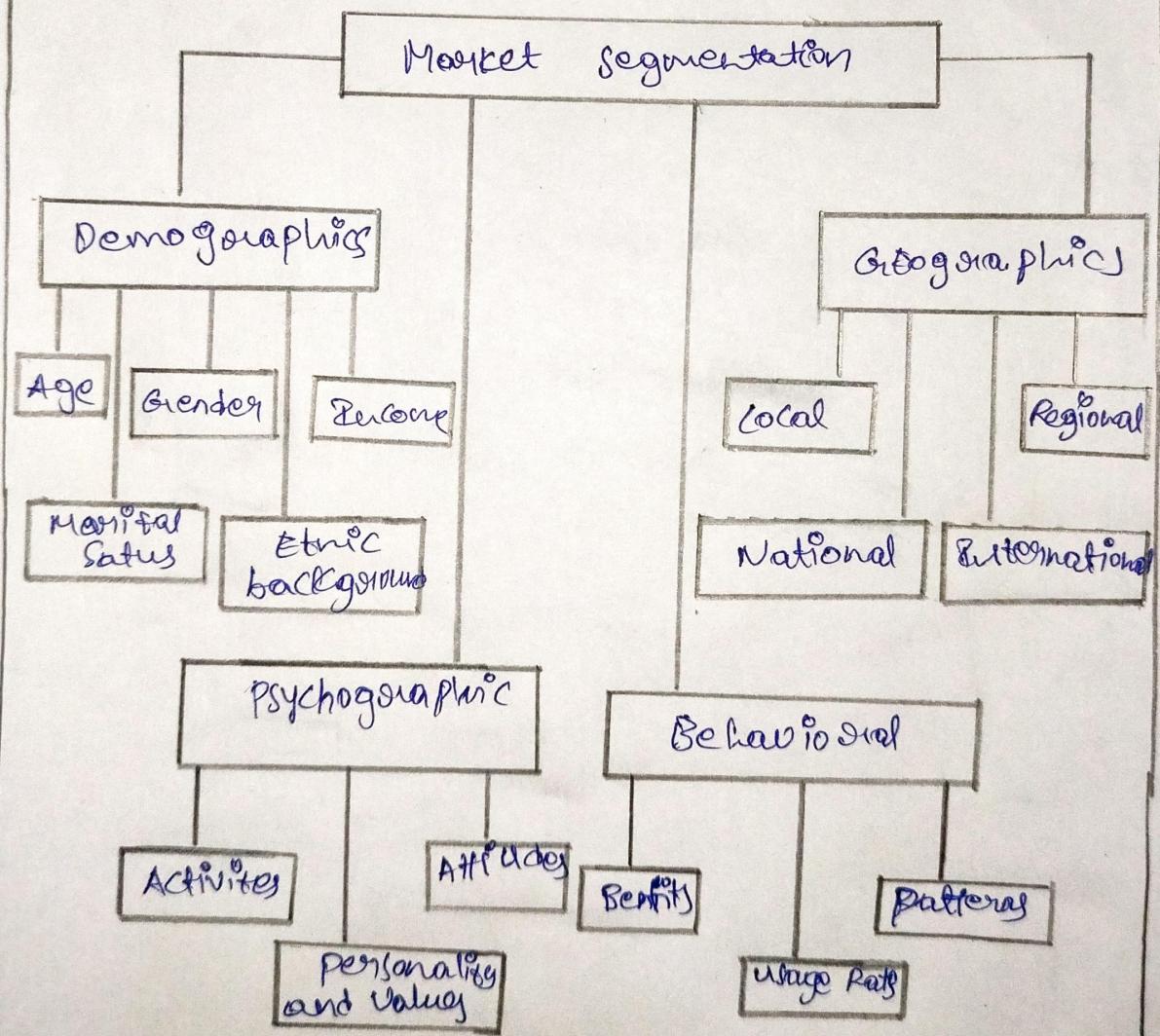
Existing approaches or methods to solve this problem:
There are many methods and techniques to solve the problem of market segmentation analysis using ML, depending on the types, sizes, and distribution of the data; however, one of the most common and

general methods in the clustering approach which consists of the following steps.

- * Data Preprocessing prepare and clean the data for the segmentation task. you can use tools such as data exploration, feature engineering, feature scaling or outlier detection to help you with this step.
- * cluster analysis Apply a clustering algorithm to partition the data into groups based on the similarity of their features: you can use tools such as k-means, hierarchical clustering, or association rule mining to help you with this step
- * cluster Evaluation Assess the quality and usefulness of the clusters. you can use tools such as elbow method, silhouette score or domain knowledge to help you with this step.
- * cluster Interpretation:- understand and describe the characteristics and preferences of each cluster you can use tools such as principal component analysis (PCA), visualization or descriptive statistics

help you with this step.

* cluster application:- use the cluster to design and implement personalized marketing strategies and campaigns for each segment. you can use tools such as A/B testing customer feed back, or performance metrics to help you with this step.



-> Diagram + hardware / software designing

-> hardware and software requirements of this project.

Hardware requirements to complete this project

You must required laptop.

To complete this project you must required following software, concepts and packages.

* Anaconda navigator and Pycharm:-

Refer the link below to download anaconda navigator

* Python Packages:-

Open anaconda prompt as administrator.

Otype "pip install numpy" and click enter

Otype "pip install pandas" and click enter

Otype "pip install scikit learn" and click enter

Otype "pip install matplotlib" and click enter

Otype "pip install scipy" and click enter

Otype "pip install pickle-mixin" and click enter

Otype "pip install seaborn" and click enter

Otype "pip install flask" and click enter.

4.

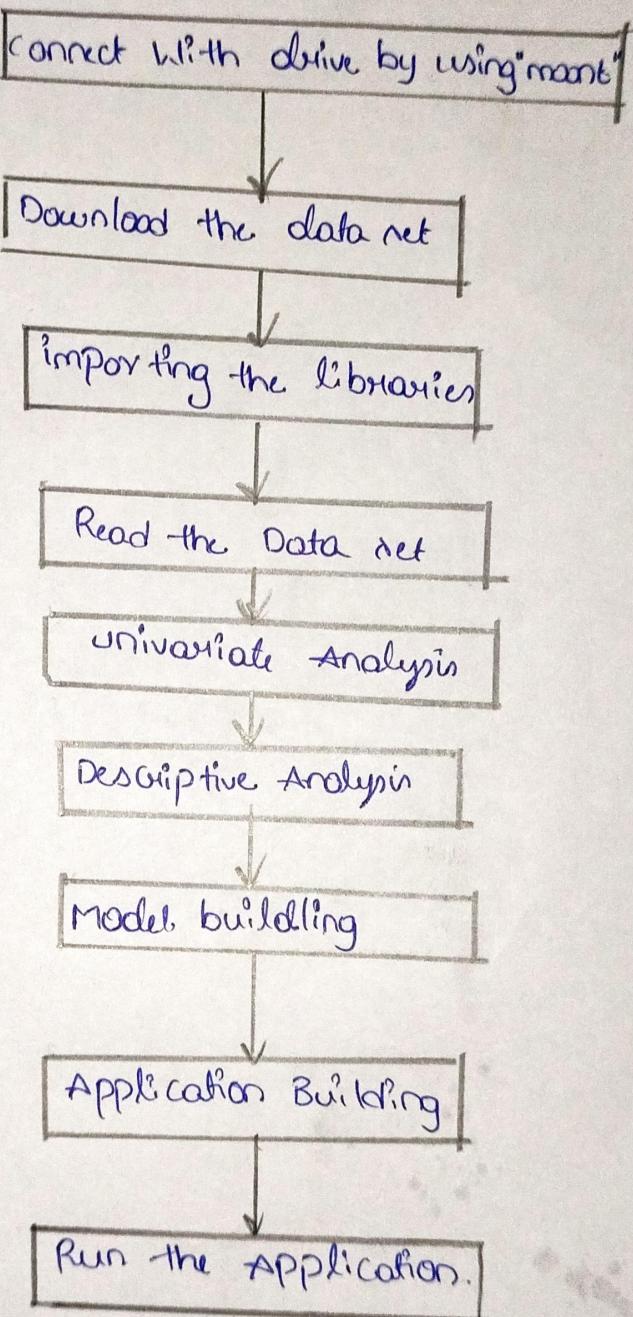
Experiment investigation:

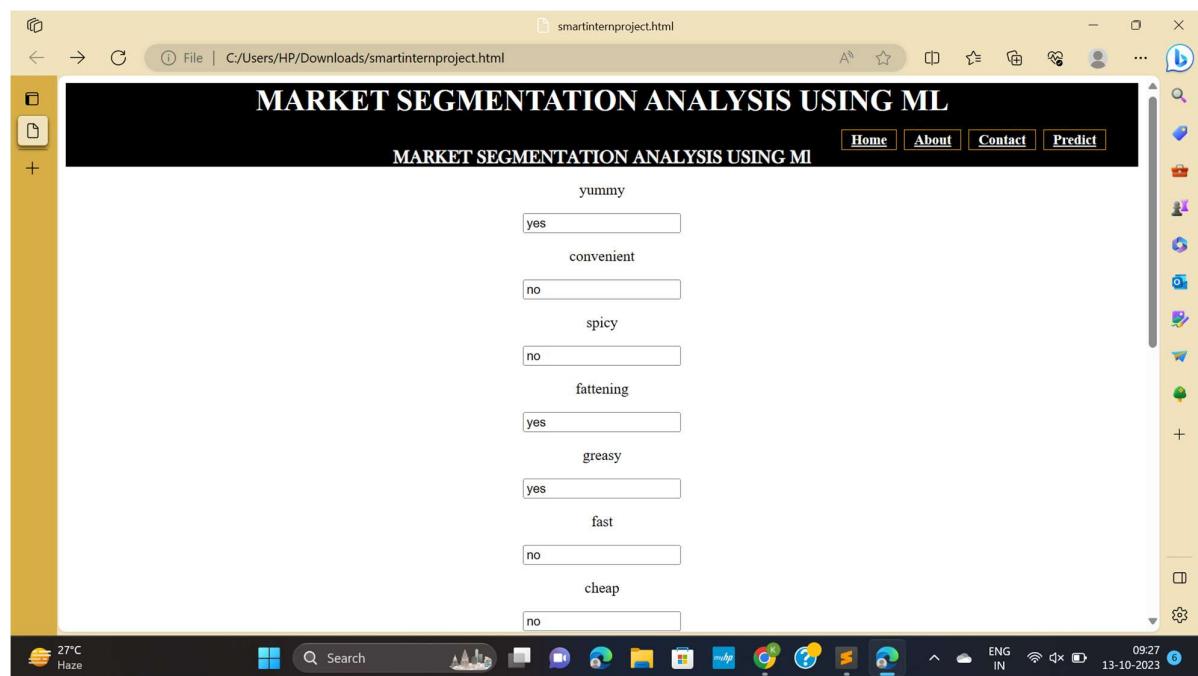
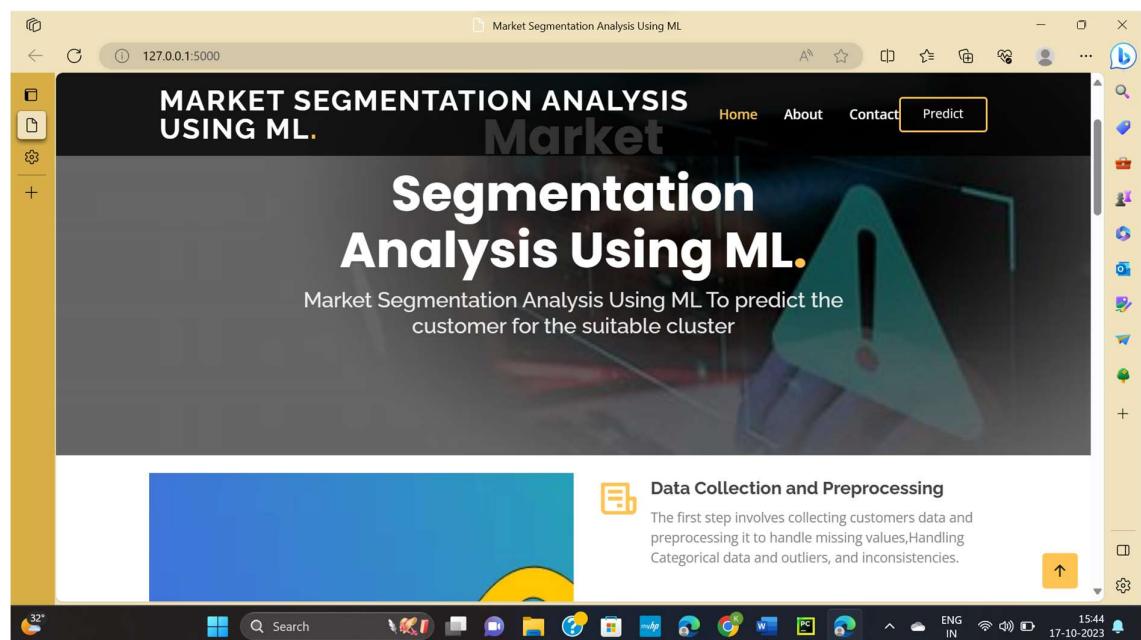
(4)

To accomplish this project we have to complete all the activities listed below.

- * Data collections we have to collect the data set or create the data set.
- * visualizing and analysing data, univariate analysis, bivariate analysis, multivariate analysis and descriptive analysis.
- * Data pre-processing checking for null values - handling outliers handling categorical data and splitting data into train and test.
- * Most model building to import the model building libraries for initializing the model to training and testing the model for evaluating performance of model to save the model.
- * Application Building by creating an html file and build Python flask code.

5) Flow chart Diagram showing the control flow of the solution:-





7. Advantages and disadvantages:-

Advantages of market segmentation analysis using m22

- * It can help you to identify the most profitable and loyal customers and focus your resources on them.
- * It can help you to create more effective marketing campaigns that target the specific needs and wants of each segment.
- * It can help you to develop new products or services that cater to the gaps or opportunities in the market.
- * It can help you to gain a competitive edge over your rivals by offering more value and satisfaction to your customers.

disadvantages of market segmentation analysis using m22

- * It can increase your costs and complexity as you have to create different marketing mixes for different segments.
- * It can require more time, effort and money in research and data collection to segment the

market accurately.

- * It can pose ethical and legal issues if you use sensitive or personal data to segment the market without the consent of the customer.
- * It can alienate some customers who do not fit into any segment or who feel discriminated by your segmentation strategy.

8.

Applications:-

The areas where this solution can be applied.

There are some potential business requirements for market segmentation analysis using ml

Accurate forecasting the predictor must be able to accurately forecast the spending behaviour of customers.

User-friendly interface the predictor must have a user friendly interface that is easy to navigate and understand.

The interface should present the result of the Predictor in a clear and concise manner to satisfaction and retention.

Increase of customer satisfaction and retention:- By understanding the spending behavior of their customers, whole sale business can tailor their marketing strategies and product offerings to better meet the needs of each customer segment. This can lead to increase customer satisfaction and retention. As customers are more likely to do business with companies that understand their needs and preferences.

9. conclusion:-

The result of this project to predict the data and give the strategic value to understand the customer satisfaction and retention to client to up to improve the this business and the customer reviewed.

10. future scope:-

* The future scope of using ml in market segmentation analysis is very promising as ml can help business to understand their customers better tailor their product and marketing strategies.

11.BIBILOGRAPHY: -

References:

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For KNN learning:

<https://www.javatpoint.com/k-nearest-neighbor-algorithm-for-machine-learning>

For Flask learning:

<https://www.geeksforgeeks.org/deploy-machine-learning-model-using-flask/>