

## I. INTRODUCTION:

### Overview of the project:

A market segmentation is a marketing term that refers to aggregating prospective buyers into groups or segments with common needs and who respond similarly to a marketing action. The objective of market segmentation is to minimize risk by determining which products have the best chances of gaining a share of a target market and determining the best way to deliver the products to the market.

### Types of Market Segmentation:

There are four primary types of market segmentation. One type can usually be split into an individual segment and an organization segment.

#### → Demographic Segmentation

This segmentation involves in breaking the market into customer demographic as age, income, gender, race or occupation.

#### → Firmographic Segmentation

This firmographic Segmentation, instead of analyzing individuals, this strategy looks at organizations and looks at a company's number of employees, number of customers, or annual.

#### → Geographic Segmentation

This approach groups customers by physical location, assuming that people within a given geographical area may have similar needs.

## Purpose :

The purpose of market segmentation is to group customers with similar attributes together so that businesses and brands can understand their wants, needs, and behaviours so that can ultimately market to the segments that make the most profit.

Marketing segmentation is a process through which a market is divided into various groups based on the demographic, psychographic, and behavioral attributes of the population. Market segmentation is extremely important for brands because it is not possible to fulfill the wants, needs and desires of all potential customers with a single marketing message. It is the process used first before target marketing.

## Importance :

When marketers use market segmentation it makes planning campaigns easier, as it helps to focus the company on certain customer groups instead of targeting the mass market.

Segmentation helps marketers to be more efficient in terms of time, money and other resources. Market segmentation allows companies to learn about their customers. They gain a better understanding of customers' needs and wants and therefore can tailor campaigns to customer segment most likely to purchase products.

## 2. Literature Survey:

Market segmentation, while incredibly useful, can be challenging to conduct and implement. Here are some of the main problems you'll likely encounter when segmenting your market. The first one is

### Existing problem:

#### # Cost

Segmentation is an investment. Splitting your market into groups means you'll have to do some things, for instance, marketing campaigns multiple times in different ways. This can be more time consuming and expensive than running a campaign aimed at a single market.

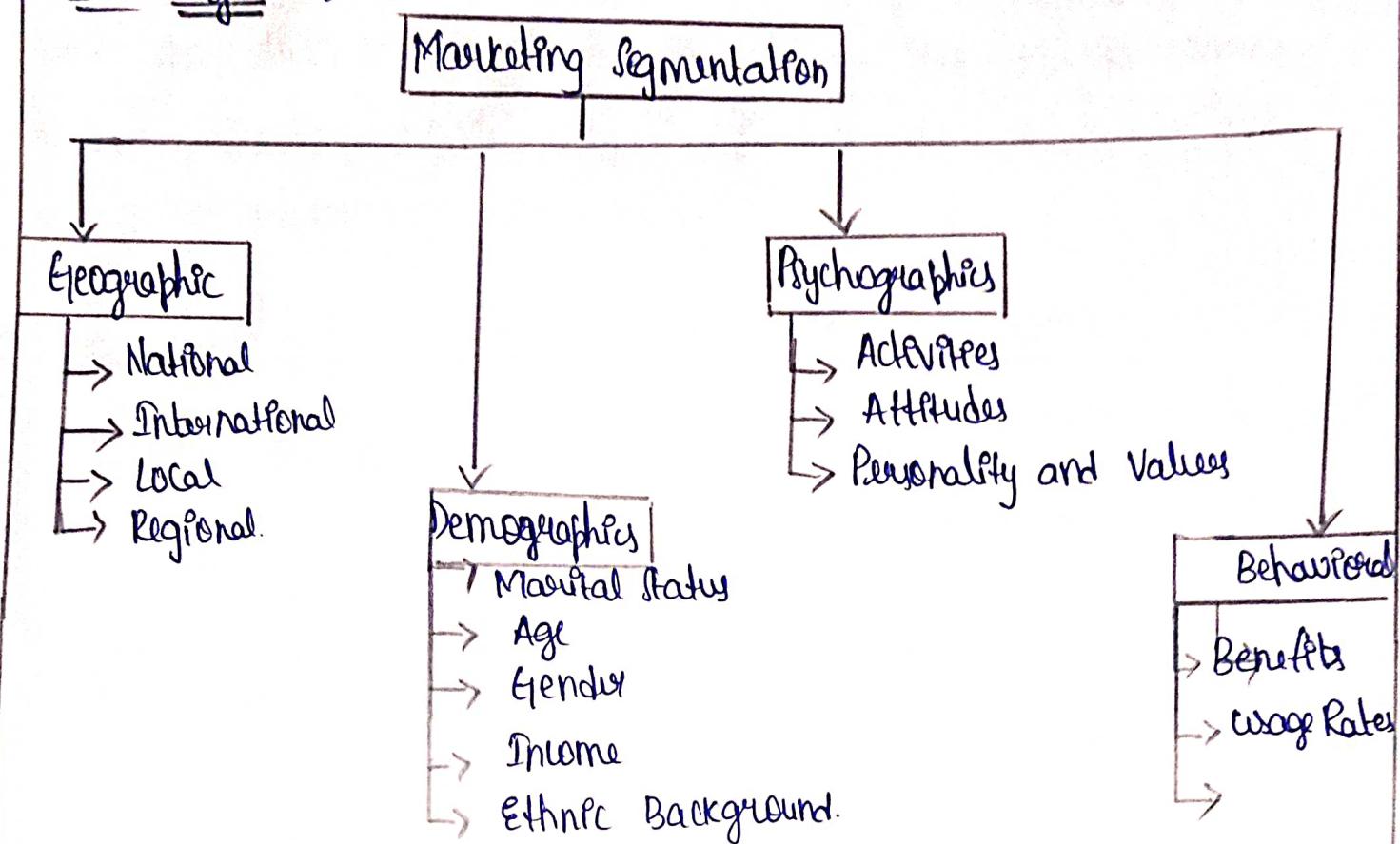
### Proposed Solution:

There is no way to avoid this challenge. The cost of market segmentation will always be an investment, but if done right, the extra revenue you will generate from targeting the segments that represent the best opportunities for your brand will more than pay for the initial investment.

Marketing segmentation is a powerful tool for businesses. It allows you to improve your product range, increase your chances of connecting with customers and growing your brand.

### 3. Theoretical Analysis

Block diagram :



There are four primary types of market segmentation.

Geographic :

This approach groups customers by physical location, assuming that people within a given geographical area may have similar needs.

Demographics :

It involves breaking the market into customer demographics as age, income, gender, occupation etc.

Psychographics :

It strives to classify consumers based on their lifestyle, personality, opinions and interests.

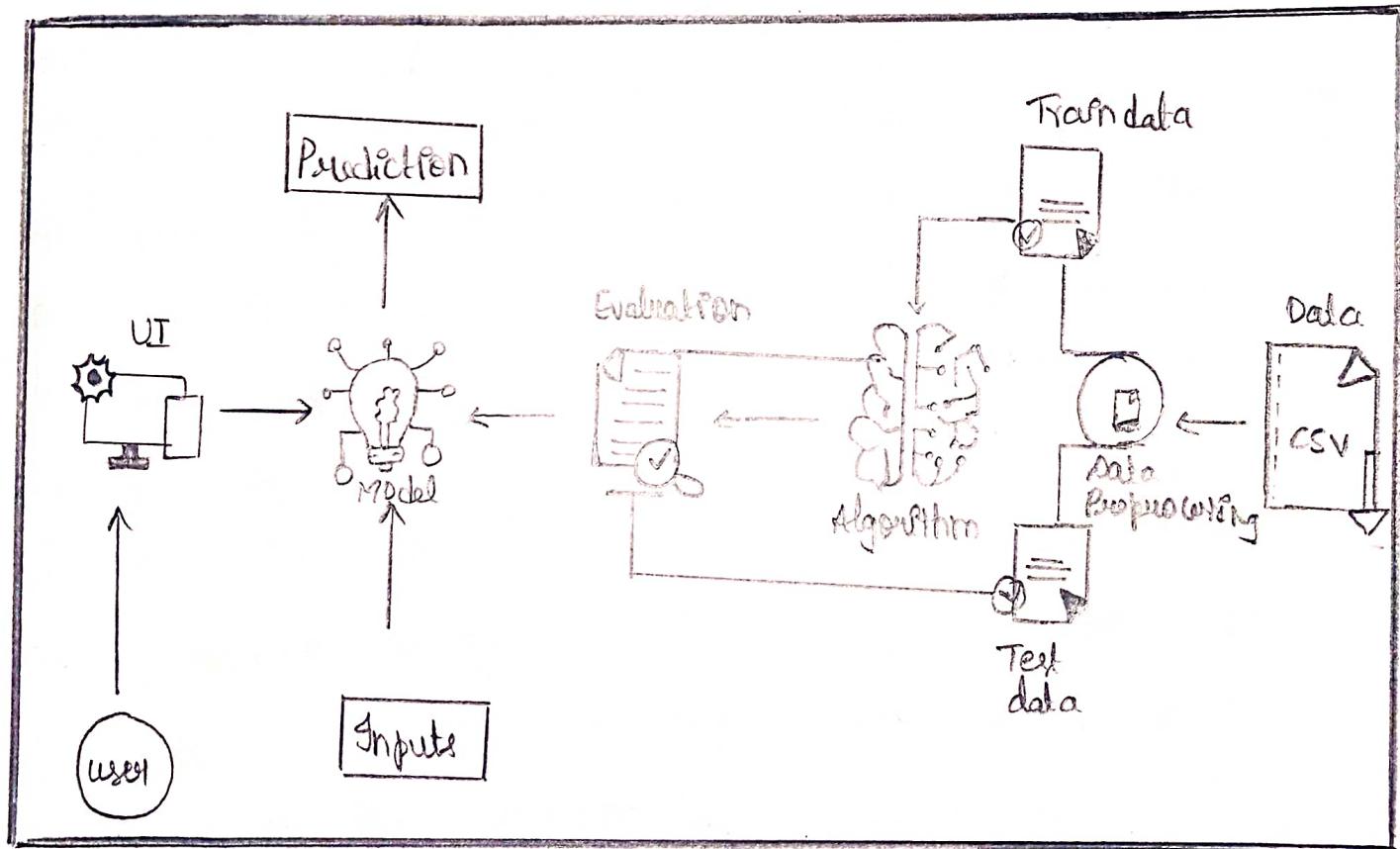
Behavioral :

This approach based groups consumers based on how they

have previously interacted with markets and products. This approach assumes that consumers' prior spending habits are an indicator of what they may buy in the future, though spending habits may change over time or in response to global events.

## Hardware and Software Requirements of the project:

### Technical Architecture:



## 4. Experimental Investigations :

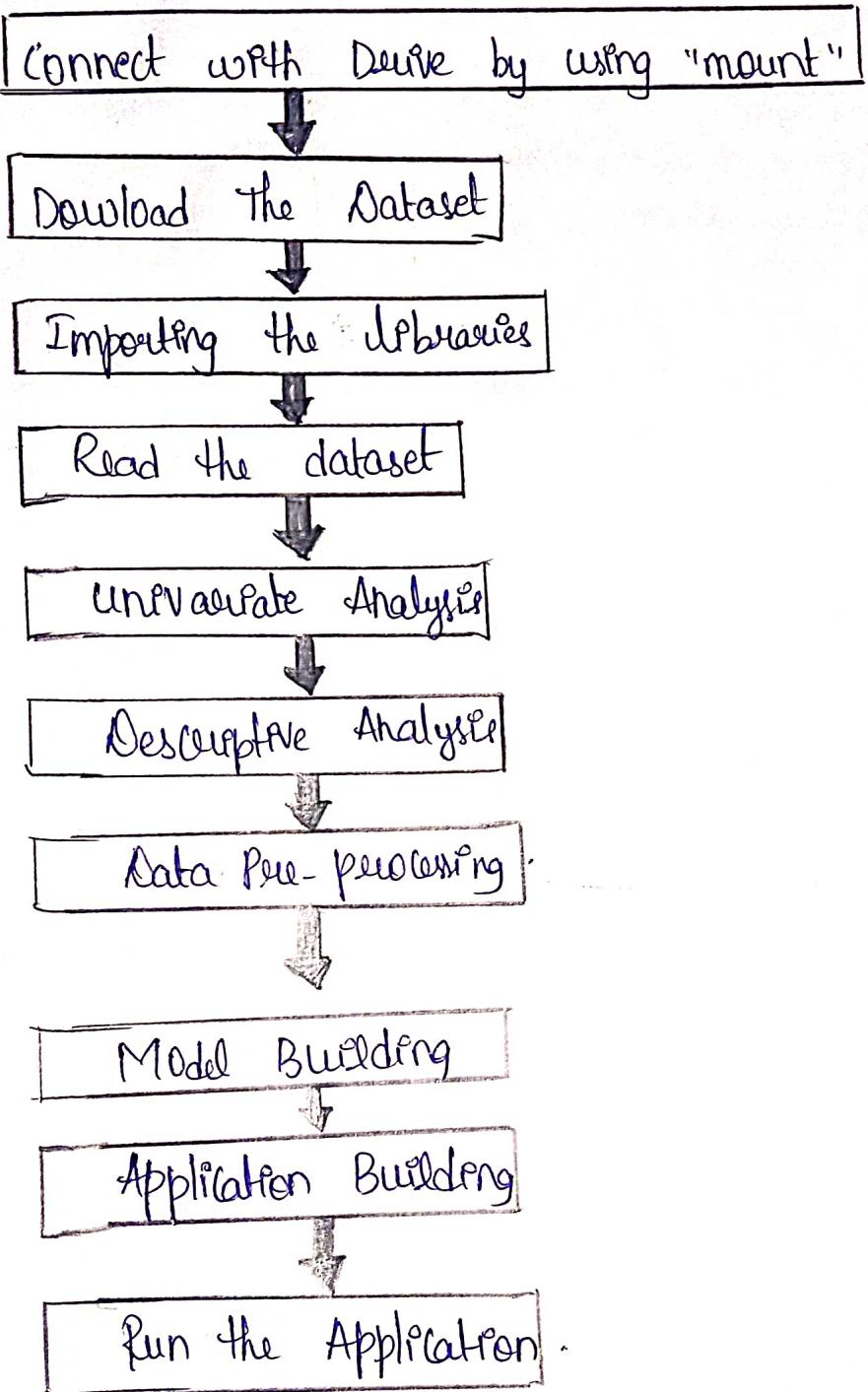
Market segmentation analysis is the study of customers, divided into smaller groups, to understand their specific characteristics like behaviour, age, income, and personality. It's easier for companies to advertise when they're marketing a smaller segment of customers; each campaign can be highly targeted and precise to the characteristics of each group. How a company should showcase a product or service depends on which group they're targeting.

### Research

Preliminary, to know your customers in-depth. Talking with them directly is the best way to achieve this. You can talk in-person, on the phone, or through online surveys. The more information you have, the easier it'll be to segment your audience. Now, you have data about your customers, it's time to segment them. After that create your study or survey to ask a variety of questions. Finally, you have your data and your customers segmented, it's time to make sure the segmentation is useful.

Market Segmentation analysis involves understanding your customers based on specific characteristics, both physical and behavioral.

## 5. Flow Chart :

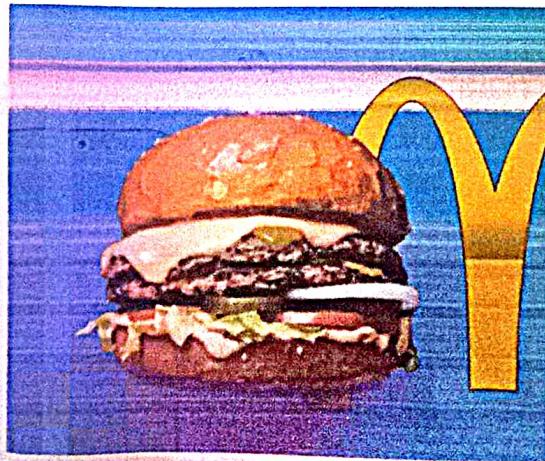


## 6. Result:

The screenshot shows a web browser window with the title "MARKET SEGMENTATION ANALYSIS USING ML.". Below the title, there are several input fields for text entry, each containing a word describing food: "yummy", "convenient", "spicy", "fattening", "greasy", "fast", "cheap", "tasty", "expensive", and "healthy". A yellow "Predict" button is located to the right of the input fields.

The screenshot shows a terminal window with the following text:  
(base) C:\Users\Akash> activate Thysroid  
(Thysroid) C:\Users\Akash> cd C:\Users\Akash\Desktop\Market-Segmentation  
(Thysroid) C:\Users\Akash\Desktop\Market-Segmentation> python app.py  
\* Serving Flask app "app"  
\* Debug mode: on  
\* WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.  
\* Running on http://127.0.0.1:5000  
Press Ctrl+C to quit.  
\* Restarting with stat  
\* Debugger is active  
\* Debugger PIN: 771 133-122

The screenshot shows the same web application as above, but now with a visible navigation bar at the top. The navigation bar includes links for "Home", "About", "Contact", and a prominent "Predict" button.



### Data Collection and Preprocessing

The first step involves collecting customers data and preprocessing it to handle missing values, Handling Categorical data and outliers, and inconsistencies.

### Feature Engineering and Model Selection

The second step involves selecting relevant features and transforming them into a format suitable for building a machine learning model, as well as selecting an appropriate algorithm such as KNN, Naive Bayse, Decision Trees, Random Forest, or SVM.

### Model Training and Evaluation

The third step involves training the selected model using the preprocessed data and evaluating its performance using metrics such as accuracy, precision, recall, and F1-score.

### Model Deployment

The final step involves deploying the model in a real-world scenario to predict the customer belong to suitable clusters.

## 7. Advantages :

Market Segmentation has several advantages, which are very beneficial for companies to cater to the needs of consumers. Consumers are very materialistic, they generally opt for those products or show interest in those with high economic value. Some of them are

- Market segmentation helps to enhance the focus and intensity of marketing efforts.
- Market segmentation helps the firms by providing insights into several markets.
- Market segmentation helps in avoiding waste of money.

## Disadvantages :

Every economical tool has two sides, one of which we see and has a positive impact. And the other side is hidden from us. Similarly, for market segmentation, there are several disadvantages. Some of them are

- Market segmentation can increase company selling costs.
- Market segmentation can create production problems.
- Market segmentation leads to unprofitable goals.
- Market segmentation can create the wrong selection.

## 8. Applications :

Market segmentation makes it possible to evaluate how different groups of customers have different disposable incomes and set your price points according to how much they're willing to spend on your various products or services. This will help your business from under or over selling itself.

- One example of market segmentation in action is Victoria's Secret and their teenage-targeting brand PINK. Victoria's Secret primarily targets women, while their brand PINK is targeted more toward teenage girls and women.
- The aim of segmentation is to tailor marketing efforts to your ideal customer profile (ICP) i.e; the customers most likely to buy your product or service. For example, a customer at an organic food shop is likely to share some or all of these characteristics : Gender : Male or Female. Age : 25-44.
- Demographic customer segmentation groups by people age, gender/identification, income, or other basic identifiers - for instance, Nike's decision to more actively pursue women.

## 9. Conclusion :

This report about my internship programme with Smart-Bridge have discussed about every major aspect which I observed and perceived during my Internship programme.

Registering in Smartbridge in Artificial Intelligence and Machine Learning through APSCHE - LMS portal has landed me into the pool of courses which are mainly focusing on the emerging technologies in the world. Out of many choices I opted for AI and ML virtual internship sponsored by Smart Bridge.

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

## 10. Future Scope:

Segmentation is a powerful tool that can help you improve your marketing plan and more effectively reach your target audience. By breaking your market into smaller, more specific groups based on key characteristics, you can create more relevant and personalized marketing campaigns.

It's important to remember as you move toward the future that markets change and audiences evolve. Because of this constant change, it's important to review your segmentation strategy on a regular basis to make sure you're still speaking to your audience's needs.

This will allow you to build longer and stronger relationships with your customers, increase engagement, and ultimately drive sales.

→ The future of market segmentation will firstly, command emphasis on the Kaleido-identity trend, where newer attributes will become critical. Secondly, it will leverage technology to acquire newer types of data.

→ We are certain to see a rise in the use of chatbots, social channels, and virtual reality marketing techniques by 2025.

## II. Bibliography

### 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/>.