

Report on Geographic Market Segmentation

Market Segmentation:

The practice of segmenting a bigger market into smaller consumer groups with comparable requirements, wants, or qualities is known as market segmentation. By customising marketing tactics, goods, and services to particular segments, market segmentation seeks to comprehend and address the demands of various client groups. A mix of demographic, regional, psychographic, and behavioural characteristics is typically used to segment markets.

Companies may employ a variety of marketing methods to efficiently target each section after a market has been split. In general, market segmentation enables companies to more effectively understand their clients and customise their marketing initiatives to suit the particular requirements of each client.

Geographic Market Segmentation:

A market can be divided into several categories according to its geographic location, such as a nation, region, city, or neighbourhood, using a technique called geographic market segmentation. When customer tastes and demands differ based on regional characteristics like temperature, culture, or population density, segmentation of this kind might be effective.

Geographic market segmentation may be used in a variety of ways, including to pinpoint locations with varying levels of demand for a good or service, to pinpoint places with various cultural preferences as well as to pinpoint areas with various degrees of competition. In general, geographic market segmentation is a helpful strategy for businesses aiming to target certain geographic markets and better understand the wants and needs of their clients.

Geographic Market Segmentation in India:

Due to India's diversified population and a variety of cultural, economic, and social considerations, geographic market segmentation is particularly important in this nation. The following are some of the main applications of geographic market segmentation in India:

1. **Regional variations:** There are 29 states and 7 union territories in India, and each has its own culture, language, and customs. For businesses trying to offer goods or services in other locations, it's crucial to comprehend these variances.
2. **Urban-rural division:** India has a sizable rural population, and the requirements and tastes of these customers differ frequently from those of urban dwellers.

3. Climate: India's climate is very diverse, ranging from hot and muggy in the south to chilly and icy in the north. Businesses may target customers for products and services that are best suited to the local climate by using regional market segmentation.
4. Economic factors: India's economy is diversified, with various regions experiencing variable degrees of wealth and purchasing power. Businesses can utilise regional market segmentation to pinpoint their marketing initiatives in areas with high levels of disposable income.
5. Language: India is a multilingual nation, and various areas might speak different primary languages. Businesses that can communicate clearly in the native tongue may benefit in those areas.

EV Market Segmentation By State-Wise Variations in India:

In this case study, I have determined the EV segmentation in India using the State-wise variation which is a type of geographic segmentation.

Data Extraction:

Data was extracted from the various websites mentioned below for EV market segmentation which is then converted to Excel and CSV file.

Link for data extraction:

- <https://pib.gov.in/PressReleasePage.aspx?PRID=1842704>
- <https://www.ibef.org/blogs/electricvehicles-market-in-india>
- <https://evreporter.com/indias-region-wise-ev-market-jan-may-2022/>
- <https://www.india-briefing.com/news/indias-ev-manufacturing-capacity-and-marketpreferences-progress-25840.html/>
- https://github.com/Marisha18/Market-Segmentation-for-Electric-Vehicles-inIndia/blob/main/Market_Segmentation.ipynb
- <https://github.com/Ashwini3535/EV-MARKETIN-INDIA>

Data Analysis:

I used univariate (analysing data over one variable or column from a dataset), bivariate (analysing data by considering two variables or columns from a dataset), and multivariate (analysing data by considering more than two variables or columns from a dataset) analysis to analyse my dataset.

Algorithms Used in Determining the Geographic Market Segmentation:

For determining the segmentation I have used the K-Means Clustering Method. The unsupervised machine learning technique K-means clustering is used to cluster or group together comparable data items. The technique divides a set of data points into K clusters depending on how similar they are to one another in terms of distance or other similarity metrics.

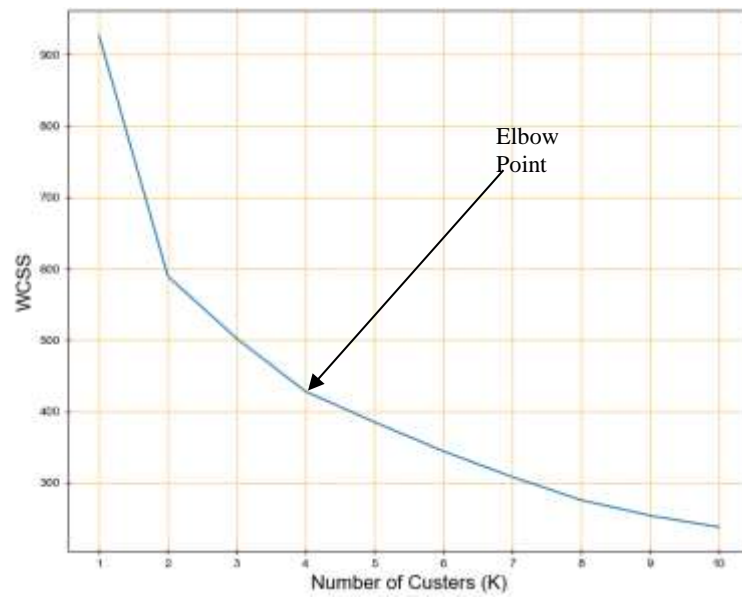
The K-means method operates by allocating each data point to the closest centroid after randomly choosing K starting centroids for the clusters. Following that, the algorithm determines the average of the points given to each centroid and updates the centroids appropriately. Iteratively repeating this procedure of allocating points to the closest centroid and updating centroids continues until the centroids stop changing noticeably or a certain number of iterations have been completed.

After deciding how many clusters (K) we need to produce before utilising K-means clustering to cluster an unlabeled multivariate dataset. A frequent method for choosing the K-value for the number of clusters (K) in K-means clustering is the elbow method. By graphing the within-cluster sum of squares (WCSS) against the number of clusters, the approach determines the K value at which the rate of WCSS decline slows, giving the plot an elbow-like appearance. Between each data point and its designated centroid, the WCSS calculates the total of their squared distances. Because the model can more accurately match the data by associating each data point with its closest centroid as K rises, the WCSS tends to decline.

With the Elbow approach, the number of clusters (K) is truly variable and ranges from 1 to 10. We are computing WCSS for each value of K. (Within-Cluster Sum of Square). The sum of the squared distances between each point and the cluster's centroid is known as WCSS.

The plot resembles an elbow when we plot the WCSS with the K value.

The WCSS value will begin to drop as the number of clusters rises. The highest WCSS value is when $K = 1$. As the graph is examined, it can be observed that it abruptly changes at one point, forming an elbow. The graph then begins to travel nearly parallel to the X-axis from this point on.



Github Link for Dataset And Code:

Rehan Roy: <https://github.com/Rehan20/Feynn-Labs-Internship/tree/5bde6e4b51ce9446d32940599d9e8a19be40588c/Project%202.1>