

# CUSTOMER SEGMENTATION

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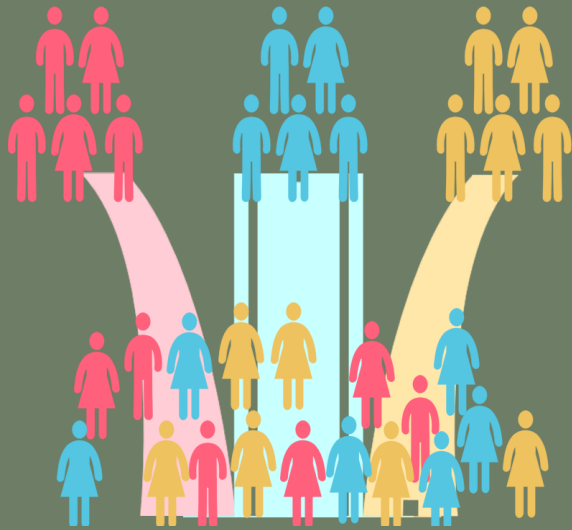


# Customer Segmentation – Business Problem

Customer segmentation finds various subgroups (consumer personas) using clustering techniques with demographic and expenditure data of a mall's patron base. These segments enable organizations to target segments with their marketing initiatives.

The owner of the grocery mall has some basic information about their clients, such as Customer ID, age, gender, annual income, and spending score, thanks to membership cards.

The owner can assign the client a spending score based on specified criteria, such as customer behavior and purchasing information. The mall's owner wants the marketing staff to comprehend the clients as those who can quickly converge [Target Customers] and design the strategy accordingly.



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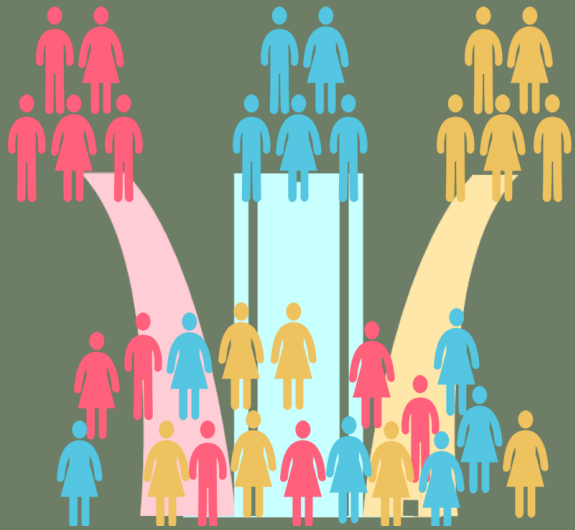
## Customer Segmentation – Background

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Customer segmentation is the process of grouping users according to shared traits like habits and demographics. Understanding your clients better will enable you to communicate with them personally and make offers that will affect their purchasing decisions.

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Businesses without a strong customer segmentation strategy risk giving all customers the same degree of attention while ignoring the most lucrative customers or products. This project will address this business issue by identifying profitable clients to increase productivity and profitability rather than trying to provide exceptional service to every customer, regardless of whether they are a top customer.



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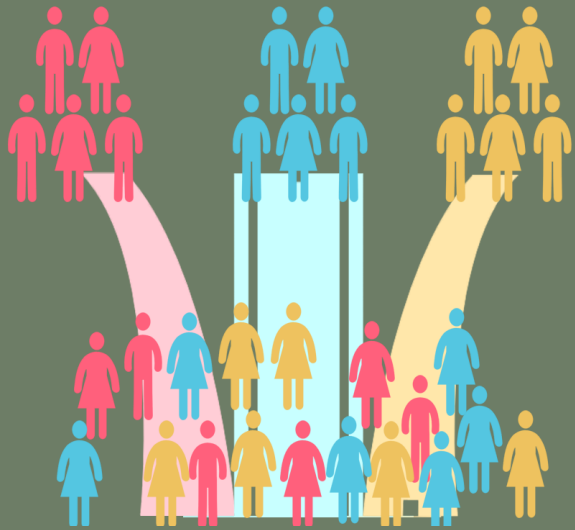
## Customer Segmentation – Data Explanation

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The data set is of 200 mall customers. It includes demographic variables such as Customer ID, Age, Gender, Annual Income, and Spending Score. The variables Customer ID and Gender were removed as they were determined not to be helpful in customer segmentation. The mean of the variables is Age 38.85, Annual Income of \$60.56K, and Spending Score of 50.20. The minimum age of the customer in the data is 18 years, and the maximum age is 70. The minimum annual income of a customer is 15k\$, and the maximum is 137k\$. A Spending Score is assigned to the customer based on defined parameters like customer behavior and purchasing data.

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Here the minimum spending score assigned is one, and the maximum ranges to 99. Between 40 and 60 has the highest population of Spending Scores. The Ages between 20 and 40 have the highest Spending Scores. The Ages between 30 and 40 have the largest population. The amount between \$60K and \$80k has the highest population of annual income. The Ages between 30 and 50 have the highest annual income. None of the data types had to be changed, and there were no missing values to populate.



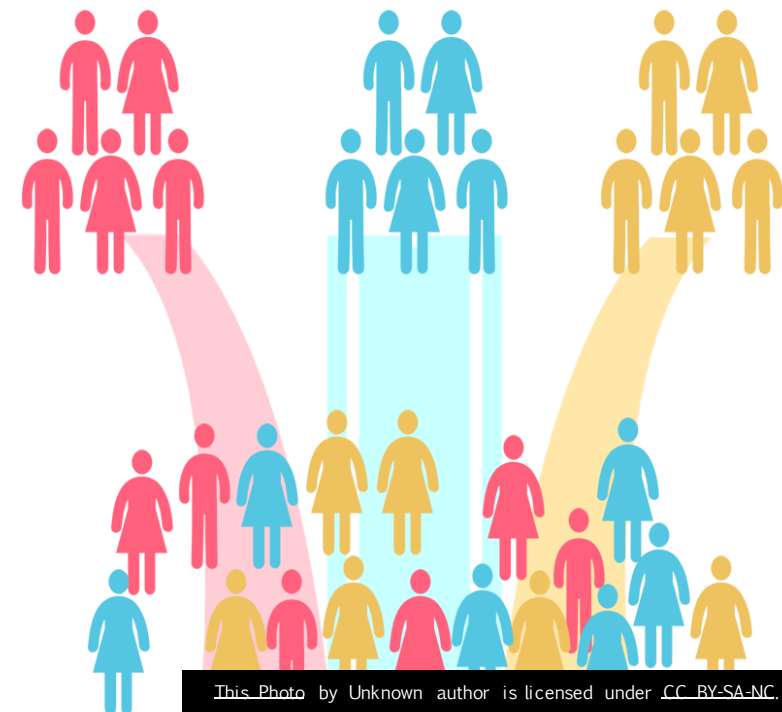
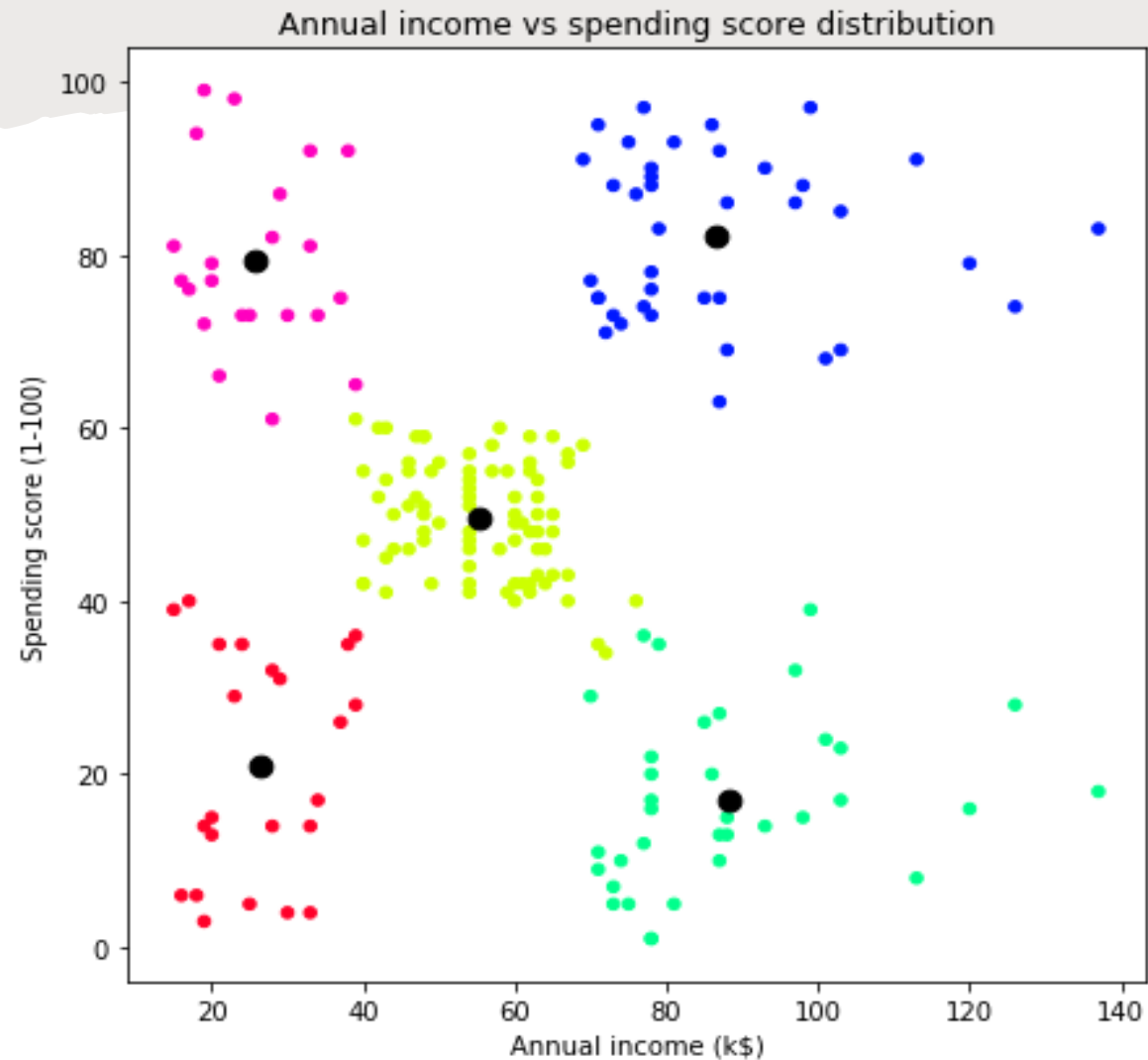
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## Customer Segmentation – Methods

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K-Means Clustering algorithm used to cluster data. To implement K-Means clustering, we need to look at the Elbow Method. The Elbow method is used within cluster analysis to determine the appropriate number of clusters in a dataset. It is clear from the figure that we should take the number of clusters equal to 5, as the slope of the curve is not steep enough after it. The data(clusters) are plotted on a spending score Vs. Annual income curve.

# Customer Segmentation – Methods







# Conclusions

**Cluster 1:** Customers with a lower annual income and lower spending score. These customers can be identified as “The Budget-Minded Customer.”

**Cluster 2:** Customers with a higher annual income and lower spending score. They are “More Marketing Focus” customers.

**Cluster 3:** Customers with a middle annual income and middle spending score are the “Average Joes.”

**Cluster 4:** Customers with a lower income and higher spending score - “Carefree shoppers.”

**Cluster 5:** Customers with a high income and high spending score - “Frequent Shoppers.”

This Clustering Analysis gives us a clear insight into the different segments of customers in the mall. There are five segments of Customers when using Annual Income and Spending Scores. It determined that they were the best variables to use to establish customer segments in a mall. Once we have the results, we can use different marketing strategies to capitalize on the spending scores of the customer in the mall. The marketing department no longer must use a one size fits all campaign for all the customers groups.

# ANALYSIS





### Limitations

If you choose a segment that is too small, you won't have the necessary turnover, which will affect your overall margins and the viability of your business. It's acceptable to target a specific niche, but you should also consider the costs. If your segmentation strategy focuses on the XYZ segment and you need more resources to be present where the XYZ customer hangs out, it will succeed. If the customer themselves is doubtful of whether they will be interested in a particular product, you should withdraw from that market.

### Challenges

Data quality is one of the main problems with customer segmentation. Bad grouping typically originates from inaccurate data in the source systems. The content will be less valuable if the segment attributes are not preserved. If users are unsure about the data's accuracy, they will not use the segments. Data quality issues may result from a lack of maintenance and routine cleaning to ensure correctness. Business users' widespread misuse and misunderstanding of segmentation concepts plague consumer segmentation. The segment information indicates each segmentation's categorizations and the appropriate analytical scenarios.

### Future Uses/Additional Applications

Machine learning is used to enhance the segmentation. Segments of dynamic machine learning are those that are often changed. In order to effectively apply personalization tactics, they must be automated. Discover patterns in data with machine learning that would not have otherwise, and anyone can use those patterns to predict future consumer behavior and spending patterns.





## Recommendations

Once subgroups are identified, businesses can continue to do so for subgroups further along the chain. Every sub-level presents unique marketing options that can increase revenue.

They must also be able to keep track of and assess progress. By assessing how well they are currently addressing the demands of segments, segment evaluation assists in prioritizing and planning developments.

The marketing message to a specific group of customers and customer segmentation helps any organization increase its profitability. Building segments implies that we get a more nuanced and detailed grasp of the results immediately. Utilize these client segmentation best practices to provide the data needed to enhance the performance values aiming.

## Implementation Plan

Concentrate on the most significant clients. It is crucial to concentrate on the consumer demographics that are most beneficial to the company.

Create focused marketing campaigns that speak to these clients' needs and desires because they are the most likely to purchase.

Test and try new things. Try various techniques and tactics to implement marketing techniques. Monitor outcomes. Finally, it is critical to monitor progress and change as necessary.