

# Customer Segmentation for Supermarket Marketing and Sales Strategy

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## Background

We are a supermarket looking to gain a competitive edge in the market by understanding our customers better. To achieve this, we want to segment our customer base into distinct groups based on their characteristics and preferences. By doing so, we can develop targeted marketing and sales strategies for each group, providing a personalized shopping experience and maximizing customer satisfaction. This approach will allow us to tailor our offerings, promotions, and services to meet the specific needs and preferences of each customer segment, ultimately leading to increased customer loyalty and business growth.

## Dataset

For this analysis, we obtained a comprehensive dataset from Kaggle (<https://www.kaggle.com/datasets/imakash3011/customer-personality-analysis>). The dataset includes information about our customers, such as demographic data, shopping habits, product preferences, and purchase behaviors. We will use this dataset as the foundation for our customer segmentation process.

## Workflow

### Data Cleaning

1. We start by cleaning the raw data to remove any duplicates, irrelevant entries, and incomplete records.
2. We address missing values through imputation or removal, ensuring data integrity for further analysis.

### Feature Engineering

1. To capture meaningful insights, we perform feature engineering by extracting relevant attributes from the dataset.
2. We identify key features that could impact customer segmentation, such as age, income, presence of a partner, presence of children, shopping frequency, and product preferences.

### Encoding, Scaling, and Imputing Missing Values

1. Categorical features are encoded to numerical representations, making them suitable for clustering algorithms.
2. Numerical features are scaled to have comparable ranges, preventing any bias due to differing magnitudes.

3. Missing values, if any, are imputed using appropriate techniques to ensure the dataset is complete.

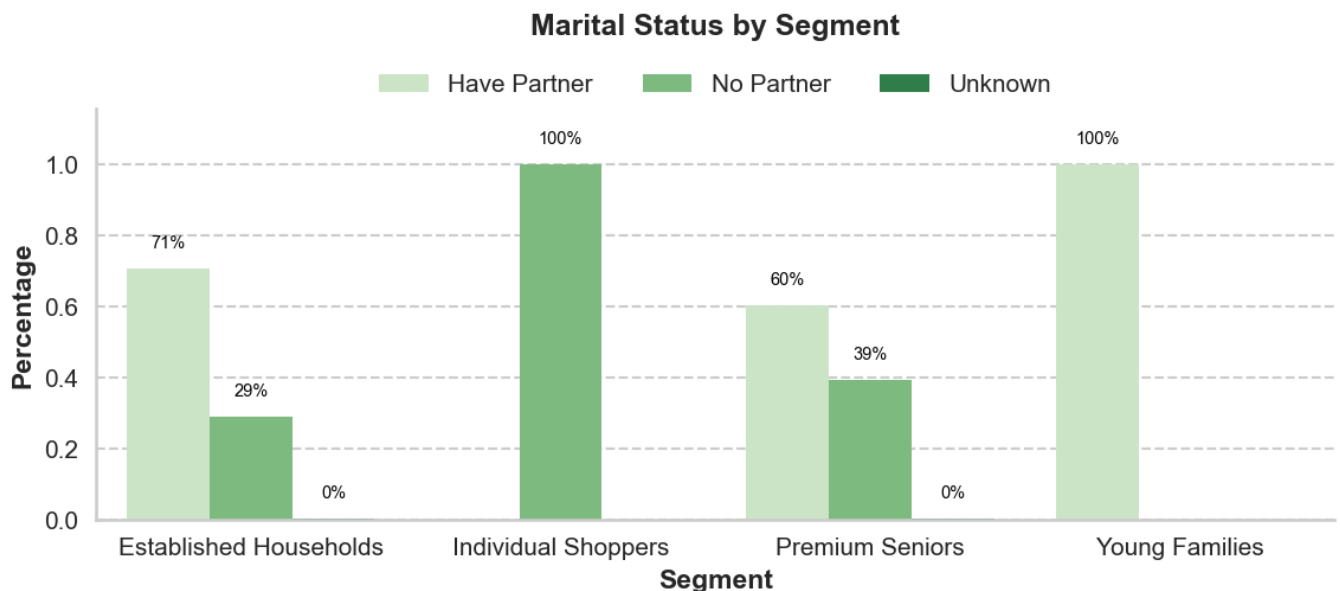
## Model and K Selection

1. We apply clustering algorithms, such as K-means or DBSCAN, to segment the customers into distinct groups.
2. The optimal number of clusters (K) is determined using Silhouette Score, which help identify the most meaningful segmentation.

## Customer Segmentation

1. Based on the clustering results, we assign each customer to their respective segment or group.
2. We analyze the characteristics and preferences of each group to gain insights into their shopping behaviors and preferences.

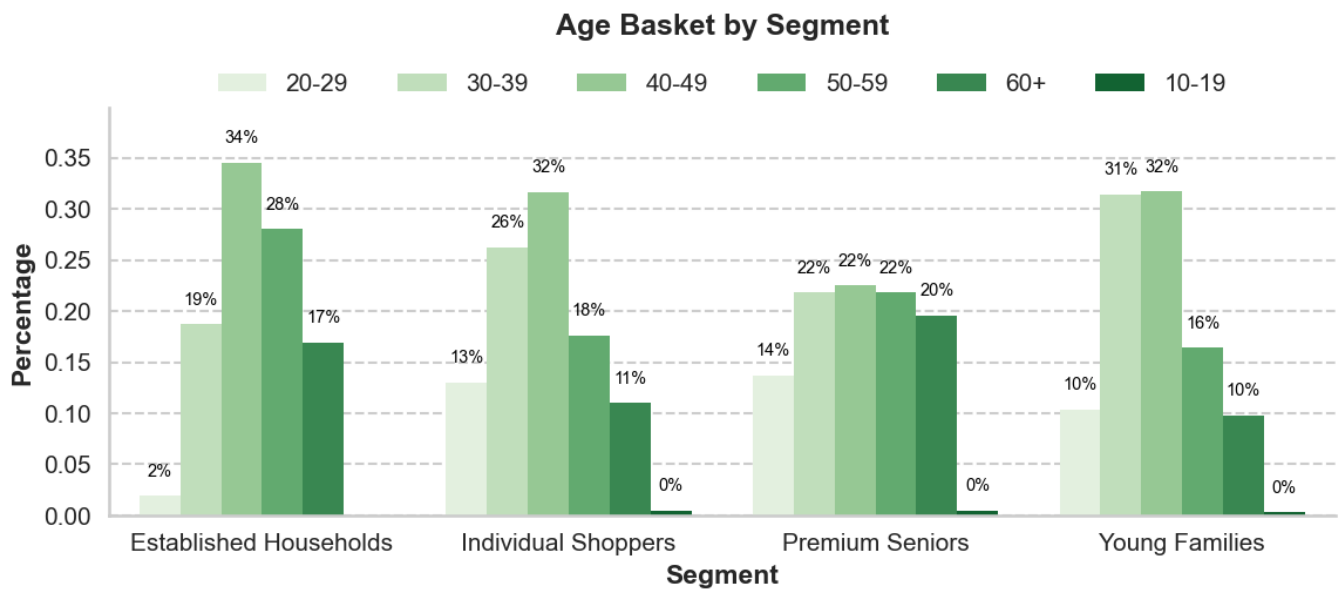
## Customer Profiling



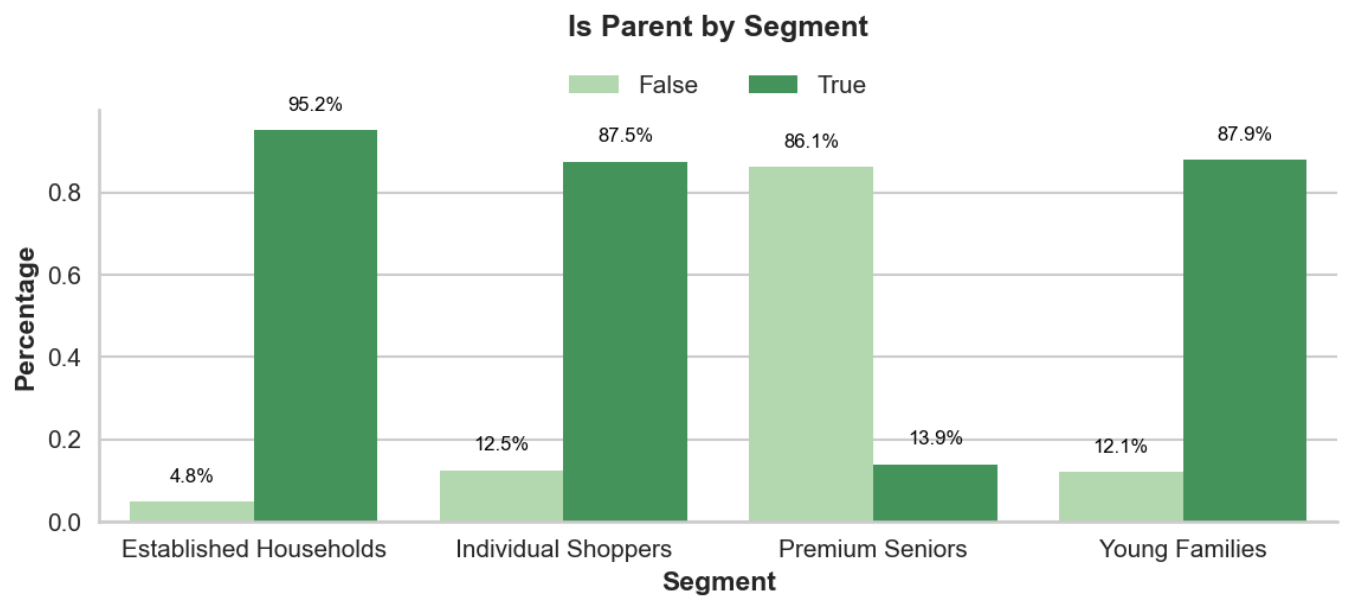
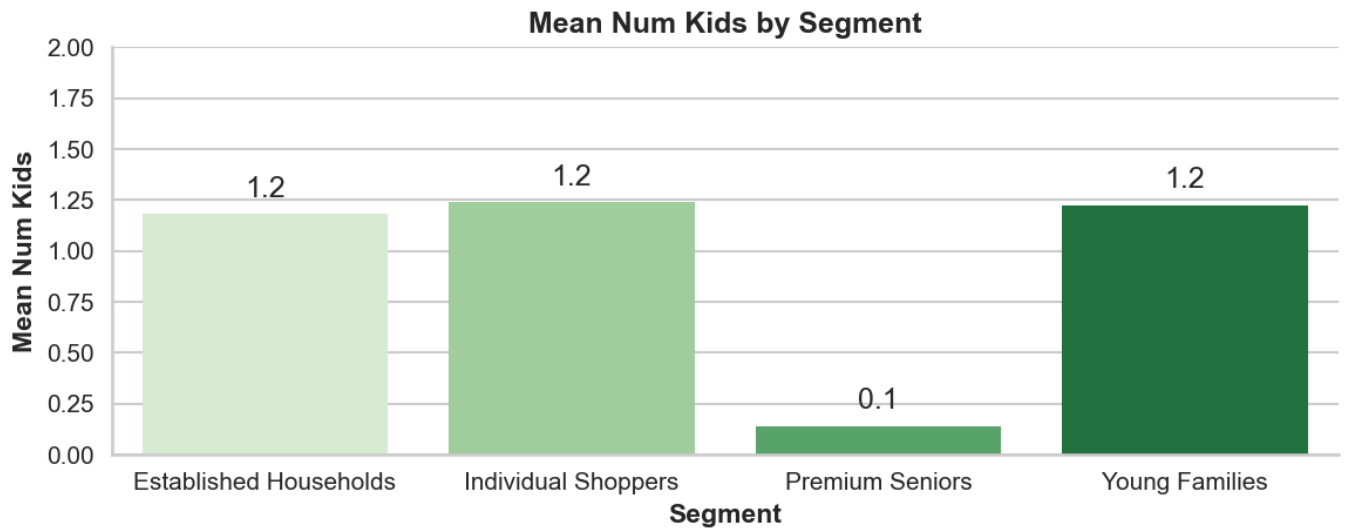
Every young family in the dataset has a partner, indicating that they are likely married or in committed relationships. In contrast, established households and premium seniors exhibit a more varied pattern; some individuals in these groups have partners, while others do not. This suggests a mix of family structures within these two segments.



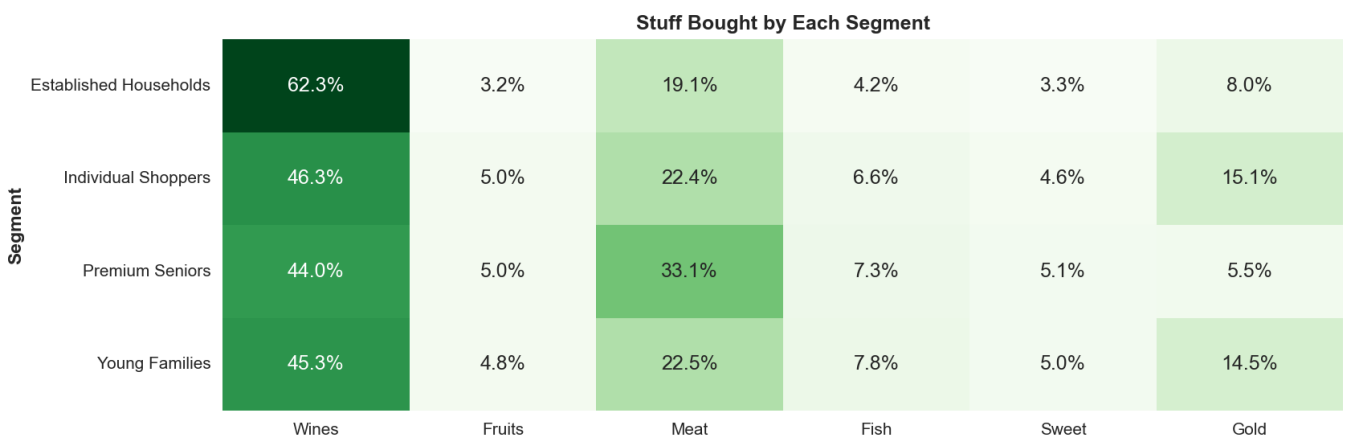
In this observation, premium seniors have the highest earnings, while individual shoppers and young families earn the lowest incomes.



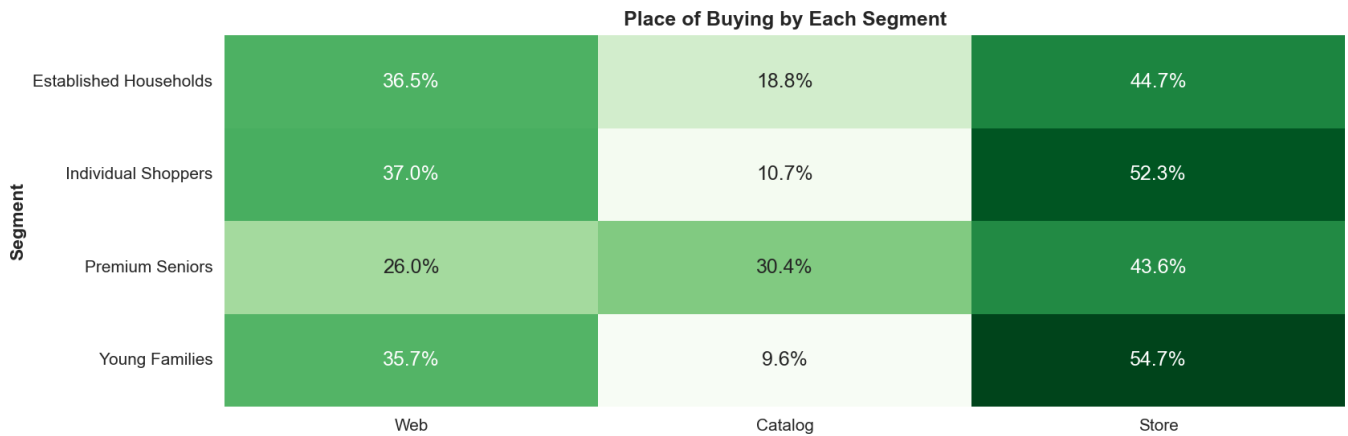
Regarding age, premium seniors are generally older compared to the other groups.



On average, all groups have approximately 1.2 children, except for premium seniors, who have nearly zero children.



All groups have a strong affinity for wine, with established households showing a particular fondness for it. Moreover, premium seniors are notably enthusiastic about purchasing meat in significant amounts.



All the groups show a strong preference for buying products in physical offline stores. Additionally, premium seniors stand out as they enjoy shopping not only on the web and through catalogs but also in physical offline stores.



The most fascinating plot, in my view, shows how different groups of shoppers behave. Individual shoppers and young families buy infrequently and opt for more affordable items. On the other hand, established households make frequent purchases of economical products. Remarkably, premium seniors make frequent purchases but lean towards more expensive items.

## Insights from Customer Segmentation

### Group 0: Young Families

- This group primarily consists of young couples with lower incomes and young children.
- They have diverse preferences and show a preference for wines, meat, and gold products.

- Physical stores are their preferred shopping destination, and they tend to purchase cheaper products.

### Group 1: Premium Seniors

- Most members of this group are couples with high incomes, including retirees.
- They shop using various methods, including online, catalogs, and in-store.
- They exhibit a preference for high-end products, indicating a taste for luxury items.

### Group 2: Established Households

- This group is composed mostly of families with moderate incomes, primarily middle-aged.
- They are focused on purchasing wines and prefer both online and in-store shopping for convenience.
- Cost-consciousness influences their significant purchases of affordable products.

### Group 3: Individual Shoppers

- This group comprises individuals without partners and with lower incomes, typically middle-aged.
- They have diverse shopping patterns, purchasing wines, meat, and gold items.
- Their spending habits are moderate, preferring affordable products and making restrained purchases of cheaper items.

## Marketing and Sales Strategies for Each Group:

Detailed marketing and sales strategies have been designed to cater to the unique characteristics and preferences of each customer segment. By implementing these strategies, we aim to create tailored experiences that resonate with each group, leading to improved customer satisfaction, loyalty, and overall business success.

# Appendix: Detailed Group Features, Sales Initiatives and Marketing Initiatives

## Group 0: Young Families

- This group mainly includes young couples with lower incomes.
- They have children, indicating they are likely young families with growing responsibilities.
- Members of this group have varied preferences and buy a lot of wines, meat, and gold products.
- They prefer shopping in physical stores rather than online.
- They don't buy very often, but when they do, they tend to choose cheaper products.

## Marketing Strategy

1. Emphasize family-oriented messaging that resonates with young couples and their growing responsibilities.
2. Highlight affordable product options, discounts, and promotions to attract price-conscious consumers.
3. Use social media platforms and targeted online ads to reach this tech-savvy group.
4. Offer in-store exclusive deals and create a warm and welcoming shopping atmosphere for families.
5. Collaborate with parenting blogs and influencers to promote family-friendly products.

## Sales Strategy

1. Train sales representatives to be knowledgeable about the preferences of young families and recommend suitable products.
2. Offer loyalty programs to encourage repeat purchases and customer retention.
3. Provide flexible payment options and installment plans to accommodate lower incomes.
4. Organize family-oriented events and workshops in physical stores to engage with this group.
5. Use customer feedback to continuously improve products and services based on their evolving needs.

## Group 1: Premium Seniors

- Most members of this group are couples with high incomes.
- They have a wide age range, with many being older individuals or retirees.
- They don't have children, suggesting they are likely retired or in advanced career stages.
- Members of this group shop using various methods, including online, catalogs, and in-store.
- They spend a lot on high-end products, showing a preference for luxury items.

## Marketing Strategy

1. Position products as premium and high-quality to appeal to the refined tastes of this group.
2. Use sophisticated and elegant branding to target an older, discerning audience.
3. Leverage online advertising, catalogs, and in-store displays to reach this diverse audience.

4. Create exclusive membership programs with personalized offers for premium services.
5. Collaborate with luxury lifestyle influencers and celebrities to endorse the brand.

## Sales Strategy

1. Train sales representatives to provide top-notch customer service and personalized assistance.
2. Offer premium packaging and gift-wrapping services to enhance the shopping experience.
3. Provide exclusive previews and early access to new products for members.
4. Organize events and private shopping sessions for this group to showcase new collections.
5. Implement a hassle-free return policy and offer complimentary alterations for high-end items.

## Group 2: Established Households

- This group is mostly composed of families with moderate incomes.
- They are in their middle-aged years, indicating established families with children.
- The main focus of this group is on buying wines.
- They enjoy both online and in-store shopping for convenience.
- They are mindful of costs and make significant purchases of affordable products.

## Marketing Strategy

1. Highlight wines as the main focus of this group's interest and offer wine-related promotions and events.
2. Utilize targeted online ads and email campaigns to reach middle-aged families effectively.
3. Showcase a variety of affordable products, including family essentials and budget-friendly options.
4. Offer bundle deals and family-sized packages to appeal to their household needs.
5. Collaborate with food and lifestyle bloggers to promote family-friendly recipes and products.

## Sales Strategy

1. Provide in-store wine tastings and product demonstrations to engage with this group.
2. Offer discounts for bulk purchases and encourage loyal customers with reward programs.
3. Implement a user-friendly online shopping experience with easy navigation and customer reviews.
4. Offer a subscription service for regularly purchased items to ensure customer loyalty.
5. Ensure efficient customer service and prompt resolution of any issues or concerns.

## Group 3: Individual Shoppers

- This group consists of individuals without partners and with lower incomes.
- They are typically in their middle-aged years, representing various life stages and experiences.
- Having children, they may be single parents or actively involved in family responsibilities.
- Members of this group have diverse shopping patterns, buying wines, meat, and gold items.
- They like the flexibility of both online and in-store shopping.
- Their spending habits are moderate, preferring affordable products and making restrained purchases of cheaper items.



## Marketing Strategy

1. Appeal to the independence and flexibility of individual shoppers in marketing messages.
2. Utilize targeted online advertising and social media platforms to reach this group effectively.
3. Offer a wide variety of products to cater to their diverse shopping preferences.
4. Create online-exclusive deals and discounts to attract tech-savvy shoppers.
5. Collaborate with lifestyle bloggers and content creators to showcase versatile products.

## Sales Strategy

1. Provide personalized recommendations and product suggestions based on their diverse preferences.
2. Offer a hassle-free online shopping experience with easy returns and exchanges.
3. Implement a user-friendly mobile app for on-the-go shopping convenience.
4. Utilize customer reviews and ratings to build trust and aid in decision-making.
5. Provide regular updates on new arrivals and product recommendations through email newsletters.