

Customer Demographics and Purchasing Patterns Analysis

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Introduction

The objective of this project is to analyze customer demographics to understand their purchasing patterns and provide strategic recommendations for targeted marketing. Understanding customer behavior is crucial for optimizing marketing efforts and improving customer engagement.

Data Sources

The analysis uses three primary datasets:

- Customers: Contains demographic information of customers.
 - File: `dbo.proj_customers`
 - Key Fields: `'CustomerKey'`, `'Gender'`, `'Name'`, `'City'`, `'State_Code'`, `'State'`, `'Zip_Code'`, `'Country'`, `'Continent'`, `'Birthday'`
- Sales: Records of sales transactions.
 - File: `dbo.proj_sales`
 - Key Fields: `'Order_Number'`, `'Line_Item'`, `'Order_Date'`, `'Delivery_Date'`, `'CustomerKey'`, `'StoreKey'`, `'ProductKey'`, `'Quantity'`, `'Currency_Code'`
- Products: Details of products sold.
 - File: `dbo.proj_products`
 - Key Fields: `'ProductKey'`, `'Product_Name'`, `'Brand'`, `'Color'`, `'Unit_Cost_USD'`, `'Unit_Price_USD'`, `'SubcategoryKey'`, `'Subcategory'`, `'CategoryKey'`, `'Category'`

Data Cleaning and Preparation

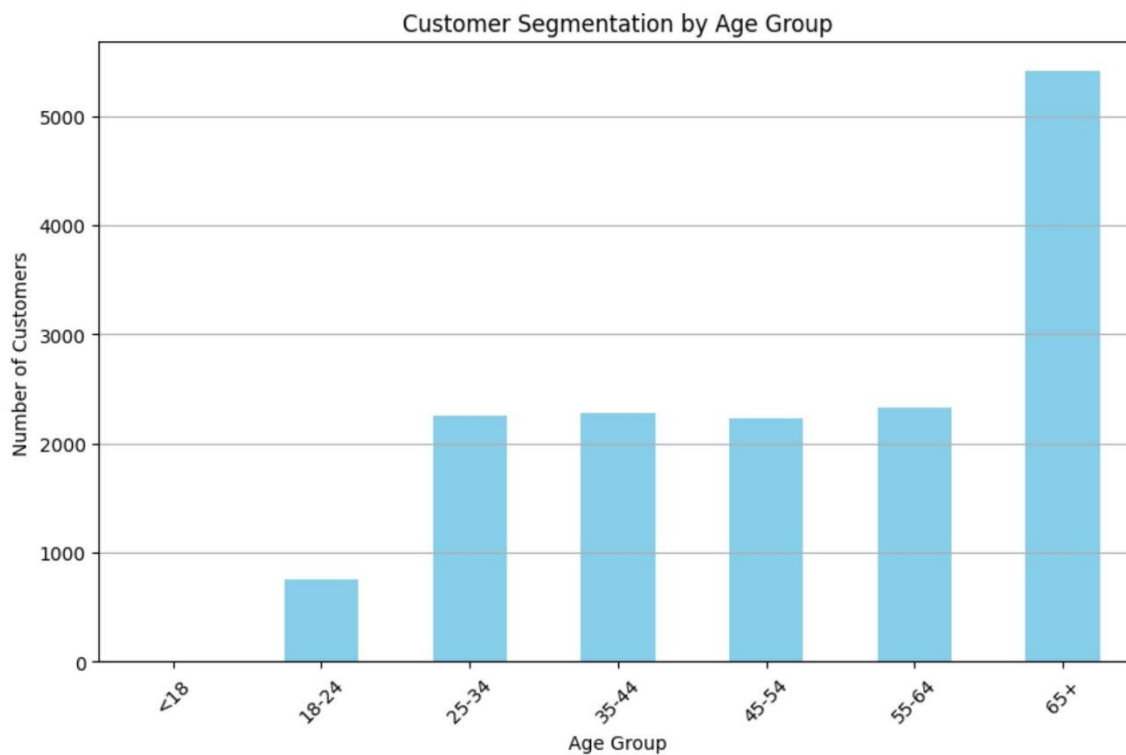
Data cleaning involved handling missing values and merging datasets for comprehensive analysis.

- Handling Missing Values: All missing values were removed from the datasets.
- Merging Datasets: The datasets were merged using common keys to create a unified view for analysis.

Customer Segmentation

Customers were segmented based on age groups to analyze demographic-specific purchasing behaviors.

- Segmentation Method: Age groups were created using the birthdate of customers.
- Age Groups: <18, 18-24, 25-34, 35-44, 45-54, 55-64, 65+



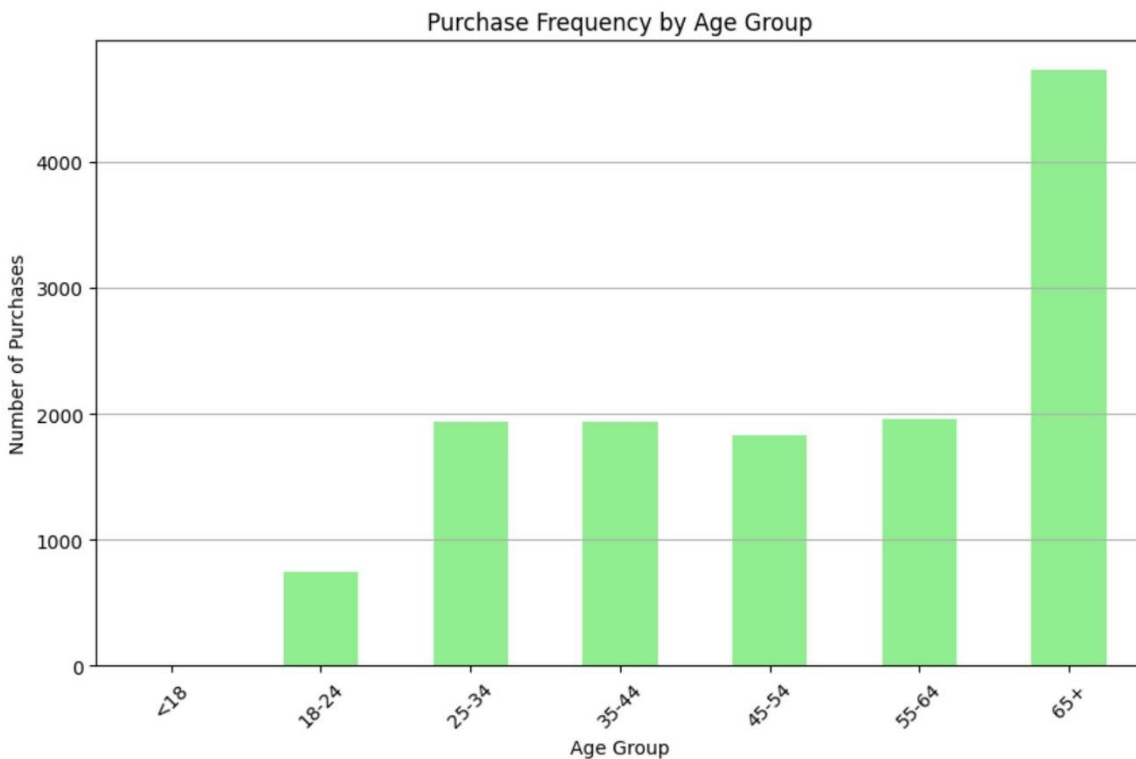
Key Findings:

- The majority of customers fall within the 65+ age group, followed by the 25-34 age group.

Purchasing Patterns Analysis

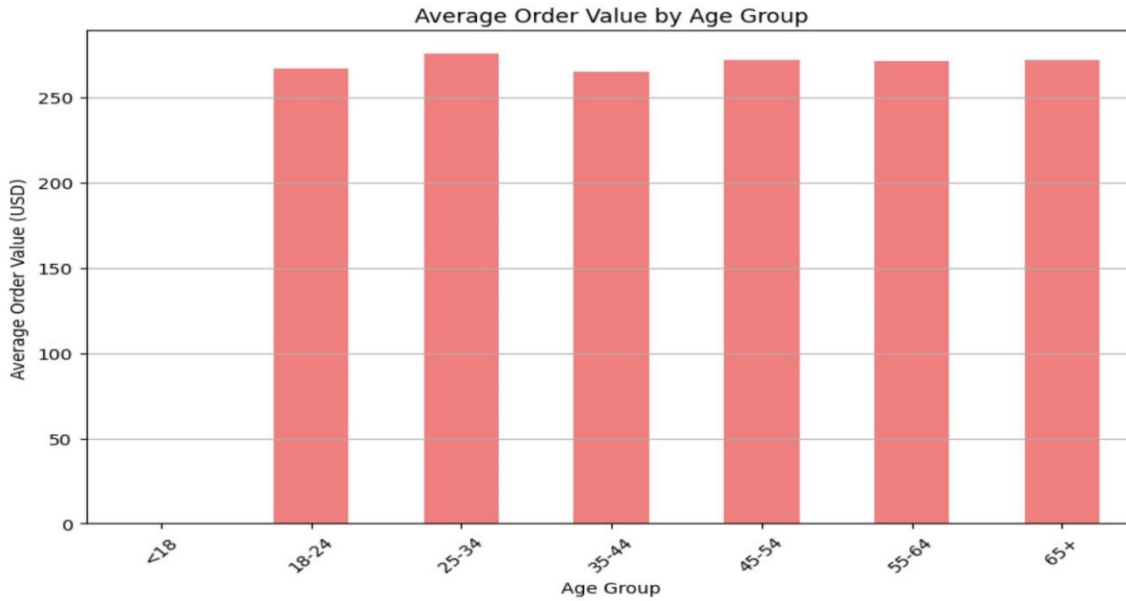
Analysis of purchasing patterns was conducted to understand the frequency and value of purchases made by different age groups.

- Purchase Frequency: Number of purchases made by each age group.
- Average Order Value: Average value of orders placed by each age group.



Key Findings:

- Higher purchase frequency observed in the 65+ age group.



Key Findings:

- The average order value is relatively consistent across all age groups, with slight variations.

Seasonal Trends

Examination of seasonal trends in purchasing behavior.

- Monthly Sales Trends: Analysis of sales trends across different months for each age group.



Key Findings:

- Significant peaks in purchasing activity are observed during holiday months.
- The 65+ age group shows the highest variation in monthly sales trends, indicating a strong seasonal influence on their purchasing behavior.

Insights

Key insights from the analysis:

- Customer Segmentation: The majority of customers fall within the 65+ age group, followed by the 25-34 age group.
- Purchase Frequency: Higher purchase frequency observed in the 65+ age group.
- Average Order Value: The average order value is relatively consistent across all age groups, with slight variations.
- Seasonal Trends: Peak purchasing periods identified, with significant trends in holiday months.

Recommendations

Based on the analysis, the following strategic recommendations are proposed:

- Target Marketing Campaigns: Focus on the 65+ age group, as they have the highest purchase frequency and consistent engagement. Develop marketing campaigns that cater to their preferences and highlight products that are popular in this age group.
- Inventory Management: Increase stock of top-selling products during peak months identified in the seasonal trends to ensure availability and meet demand.
- Personalized Marketing: Implement personalized marketing strategies for different age groups based on their purchasing patterns. For instance, tailor marketing messages and promotions for the 35-44 age group based on their specific product preferences.

Conclusion

The analysis provided valuable insights into customer demographics and purchasing patterns. These insights can help in optimizing marketing strategies and improving customer engagement. Future work could explore more detailed segmentation and the impact of different promotional strategies on sales.