customer segmentation analysis

Objectives:
- Understand customer segments
- develop targeted strategies

Background

- The dataset is a real-world commercial dataset provided by Olist, the largest department store in Brazilian marketplaces.
- It contains information on 100,000 orders made at multiple marketplaces in Brazil between 2016 and 2018.

The Challenge

- Our business is entering a new market
- We have limited historical data on customer behavior, preferences, and reactions to marketing initiatives like how customer react with marketing strategies.
- Without this data, it becomes challenging to develop effective marketing strategies, loyalty programs, and personalization efforts right from the start.

how

RFM Analysis is technique that segment customer base on transactional data we do have

considers three key metrics:
- Recency: How recently a customer made their last purchase
- Frequency: How often a customer makes purchases
- Monetary Value: How much a customer spends on purchases

Segmentation Using K-Means Clustering

- By applying K-Means clustering to the RFM data, we identified four distinct customer segments or clusters, each with unique characteristics in terms of recency, frequency, and monetary value.
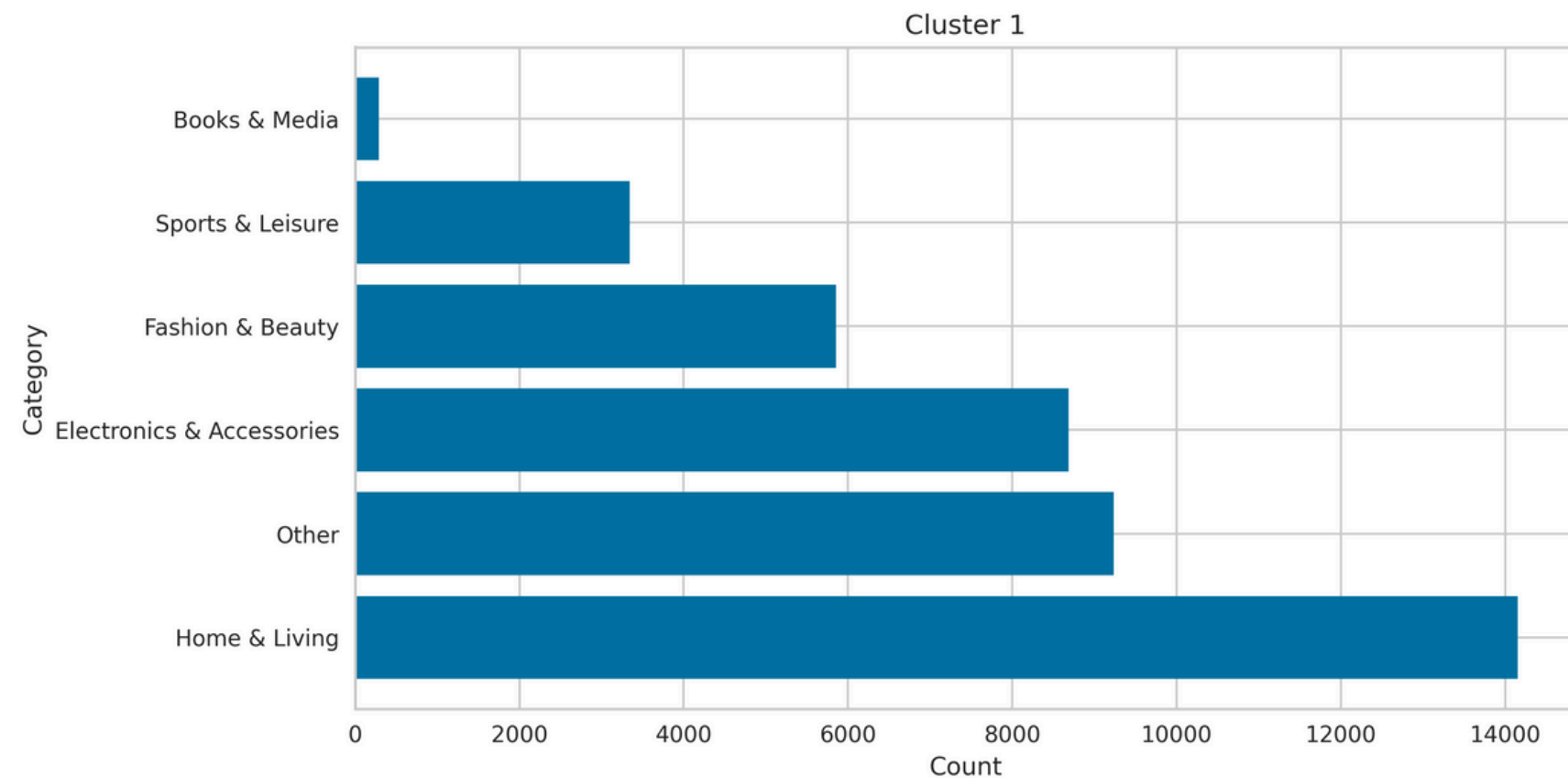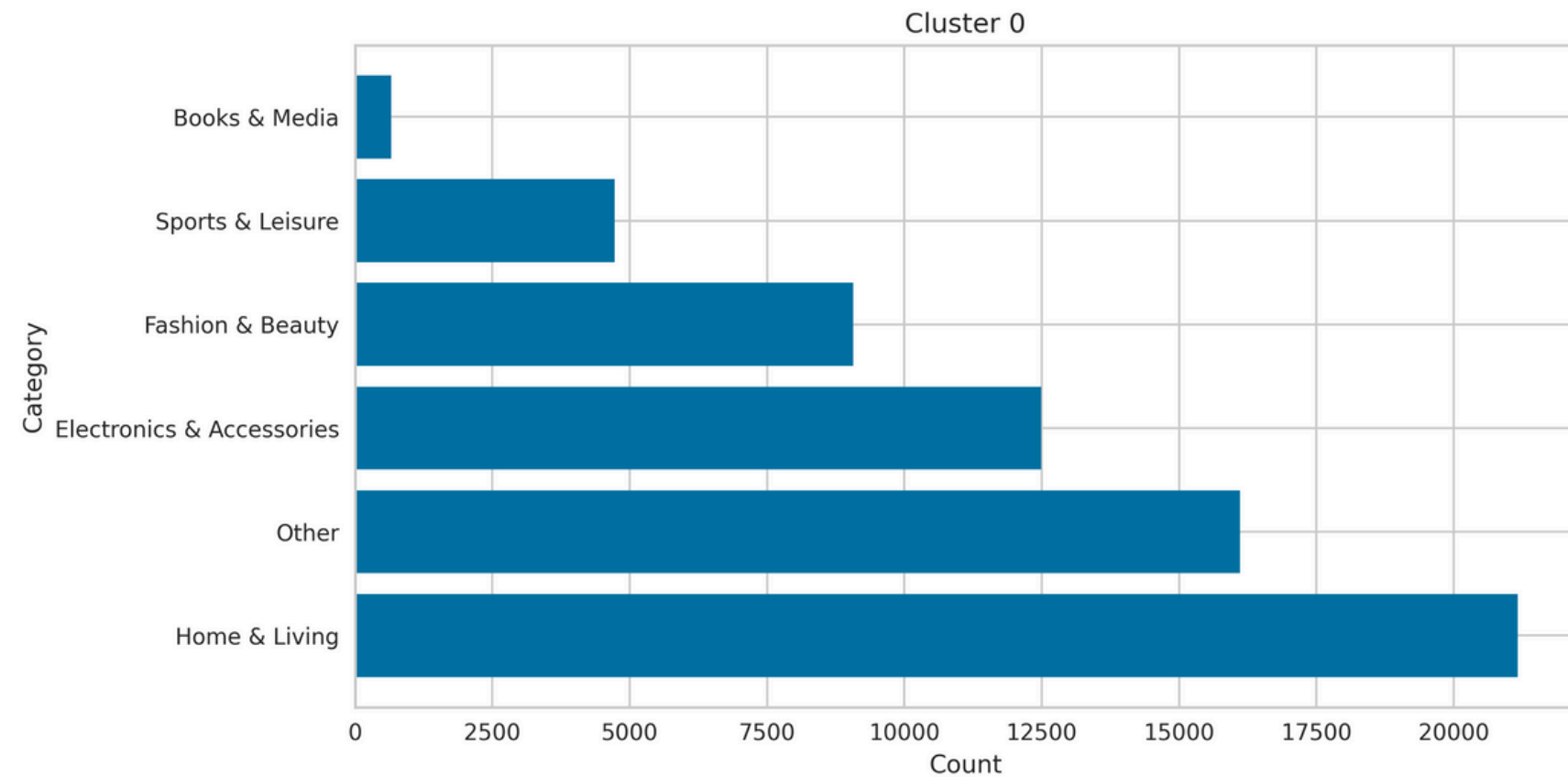
result
- cluster 1 and 2 (have 89,327 customers) recommend

1

**high recent (They have not purchased anything recently)**

2 **low frequency**

3

low monetary value.
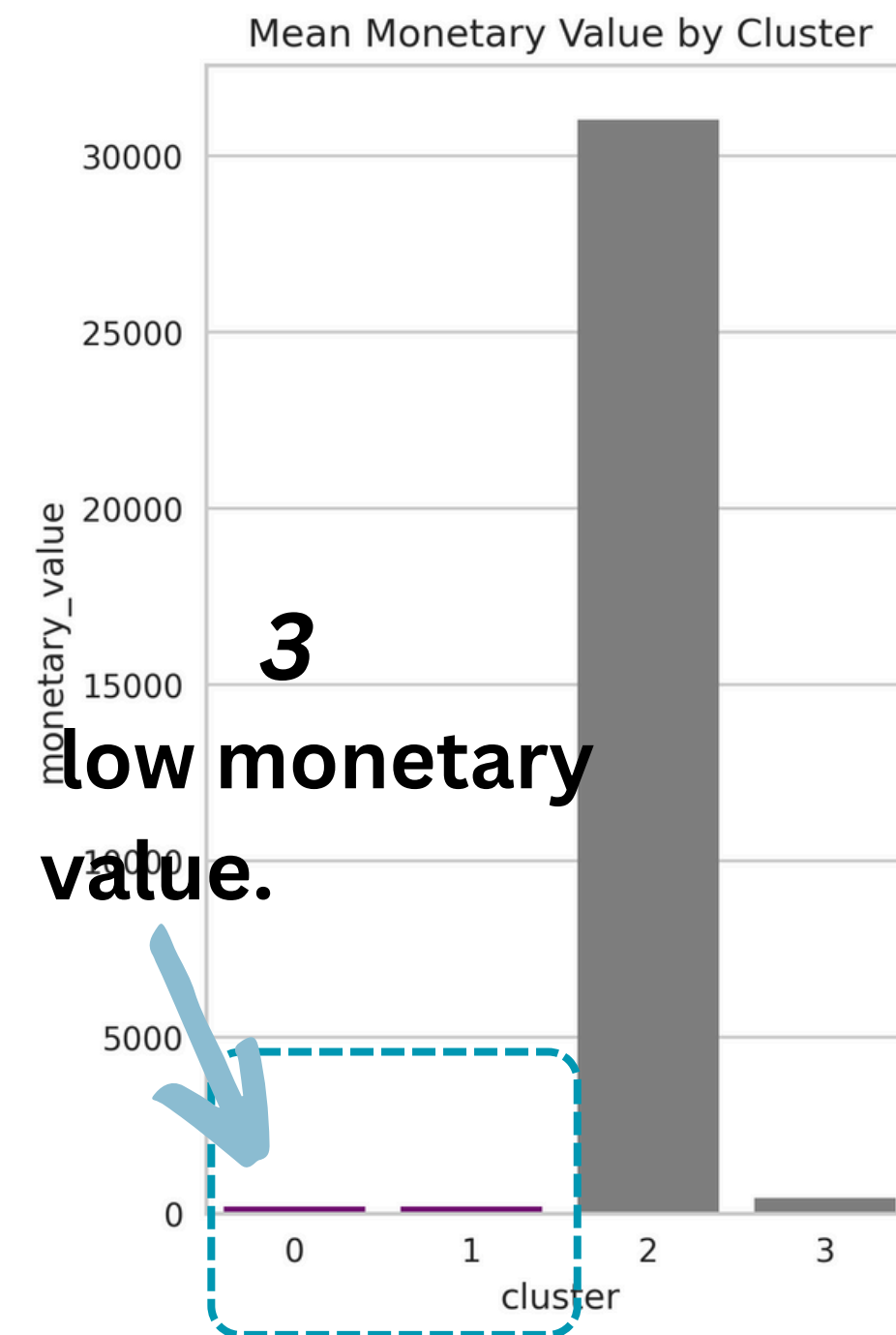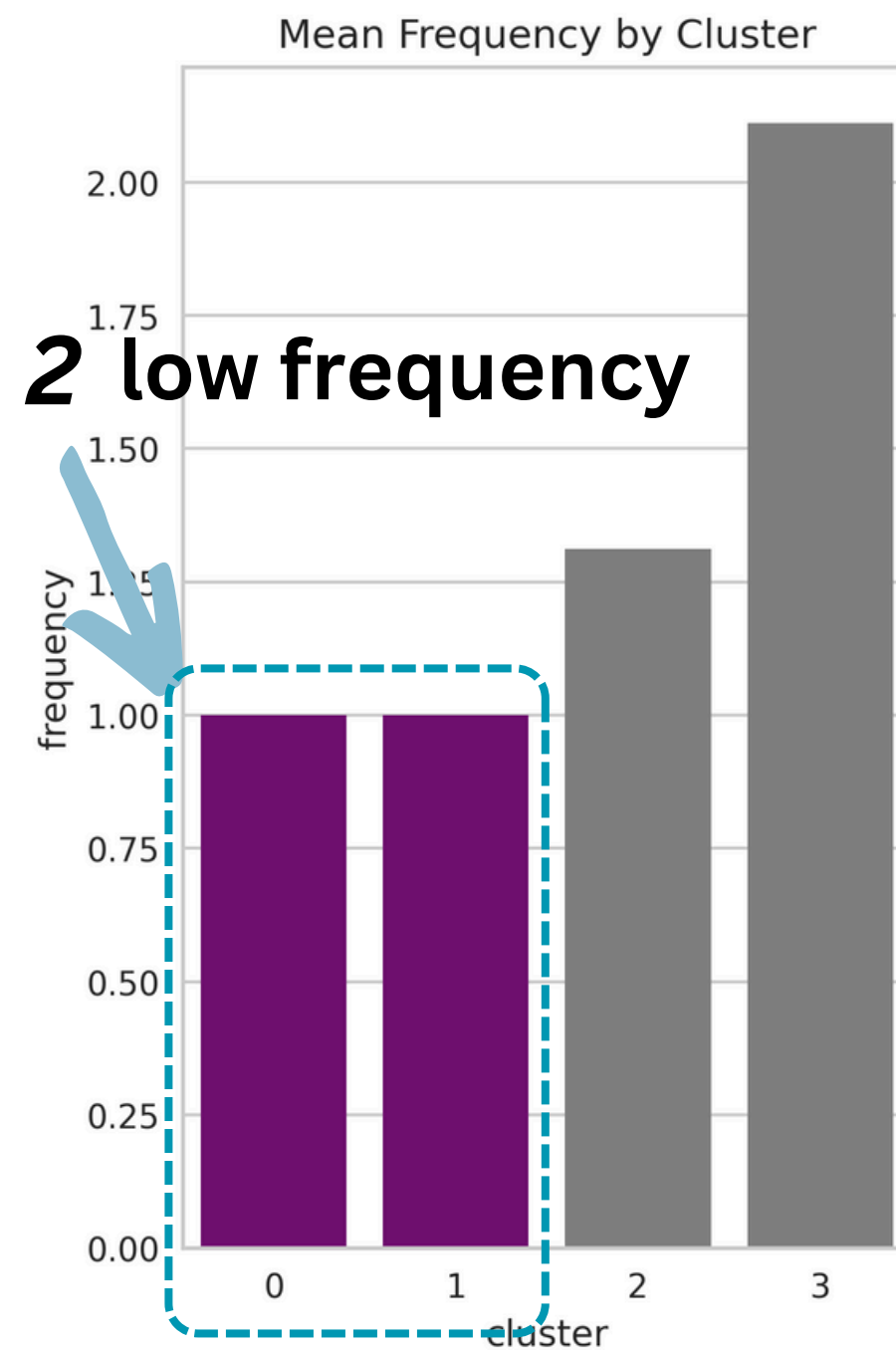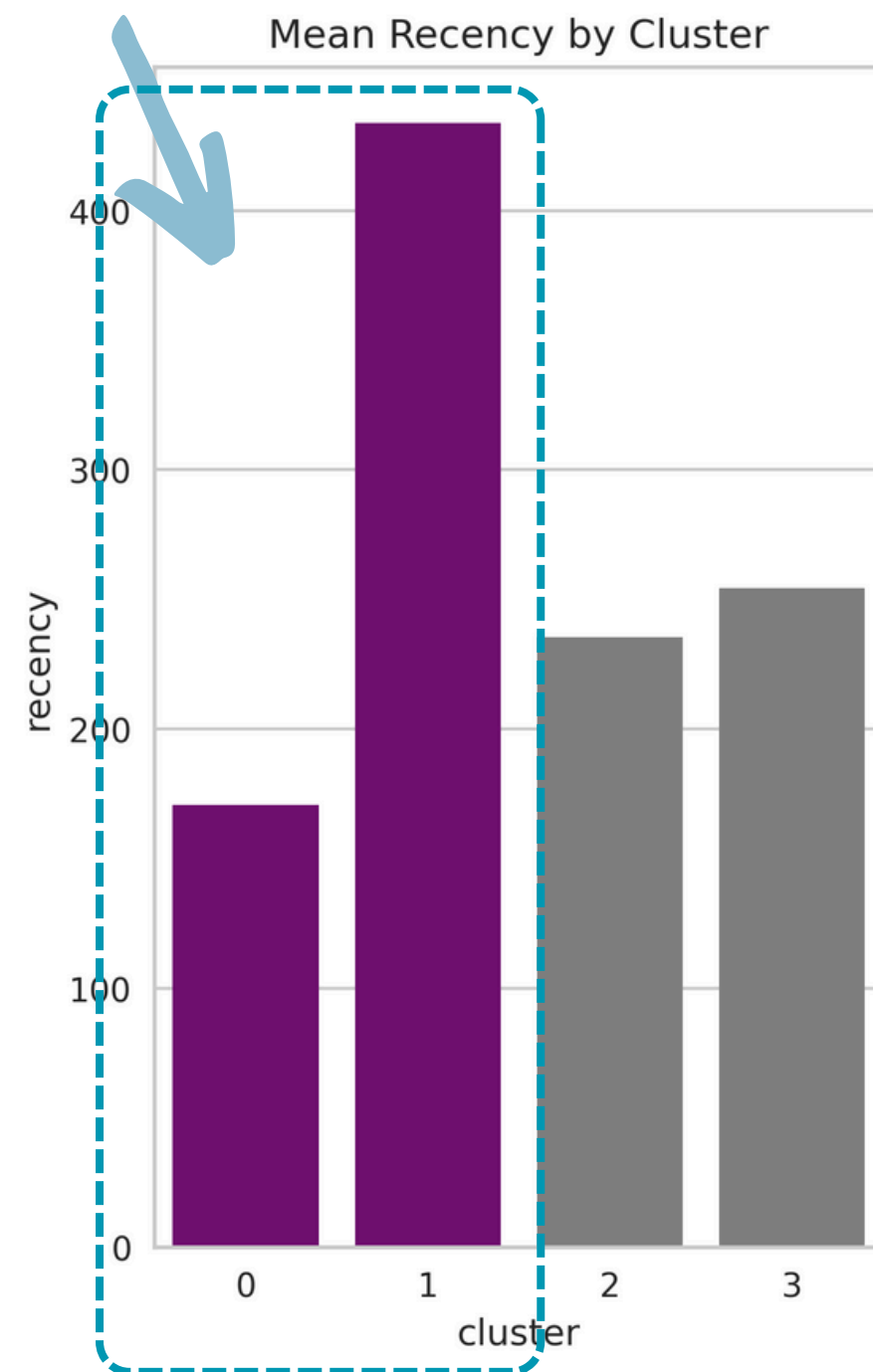
cluster 1 and 2 most buy product

Cluster 0
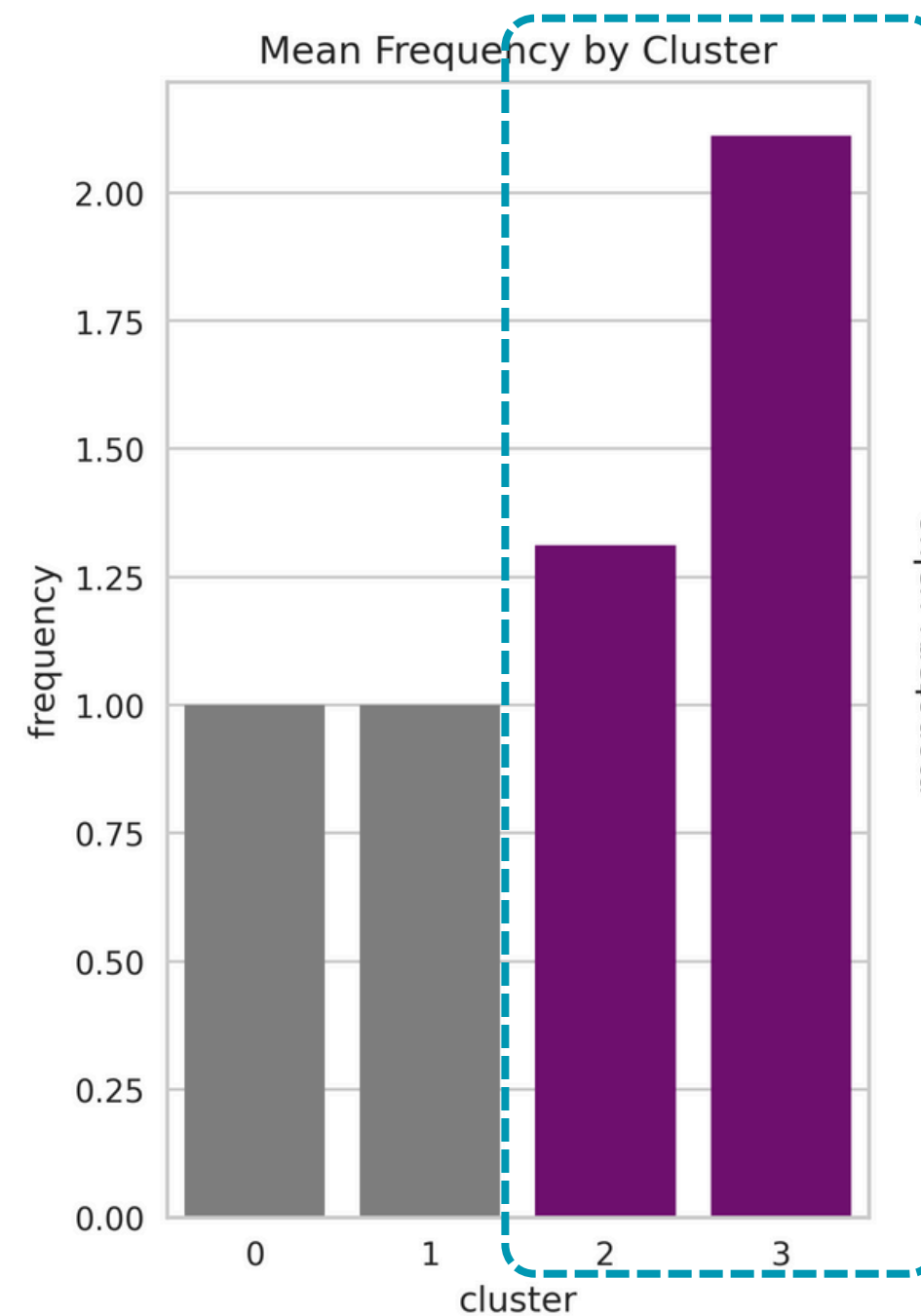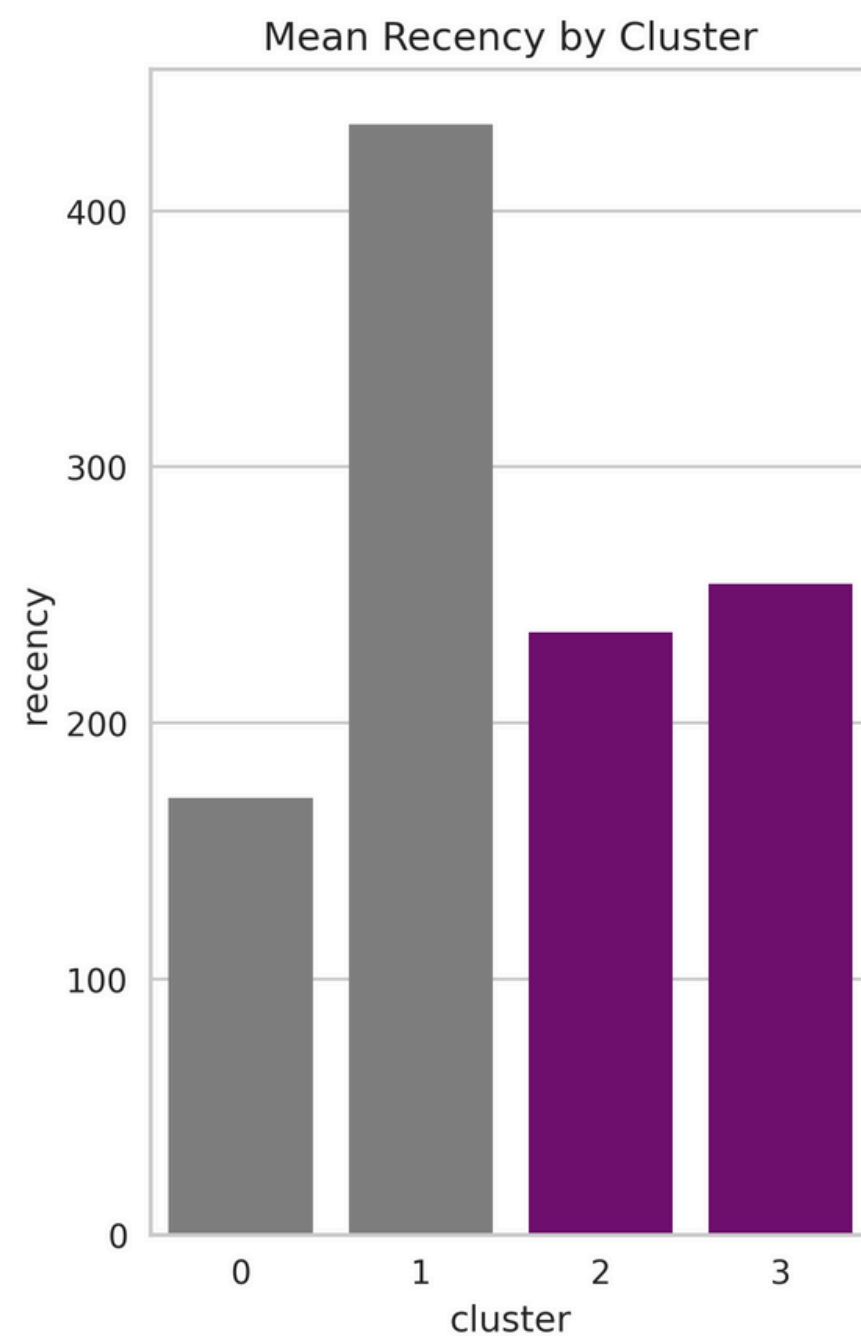
Cluster 1

recommended strategy
- for Clusters 1 and 2 is to launch targeted re-engagement campaigns and personalized email marketing **to bring these customers back.**
- **focus should be on popular product categories like Home & Living, Other, and Electronics & Accessories**.

- Cluster 2 consists of **high-spending customers with an exceptionally high monetary value.**
- Cluster 3 comprises customers who exhibit high levels of frequent purchases and high monetary value.
- Clusters 2 and 3 together contain a total of 2,754 valuable customers.
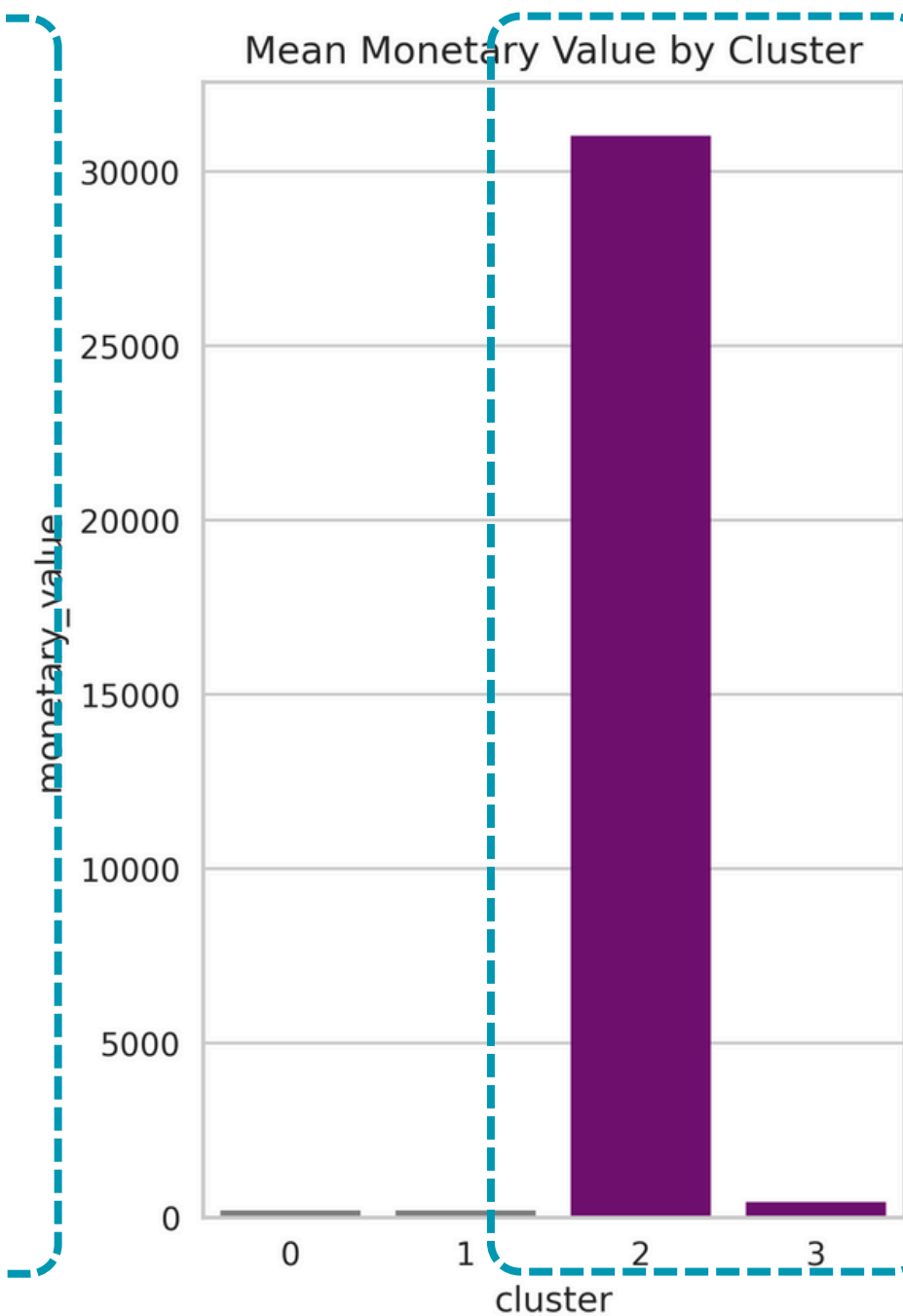
conclusion
By combining the clusters, businesses can develop more streamlined marketing strategies and **optimize resource allocation based on the collective characteristics and preferences of each combined segment**

bonus : Predict E-commerce Sales for the Next Three Months Using the ARIMA Model

Actual vs Forecast