

# Customer Segmentation

Wonderful Wines of the World

## Business Case 1

Business Cases with Data Science - 2nd Semester

### Group V:

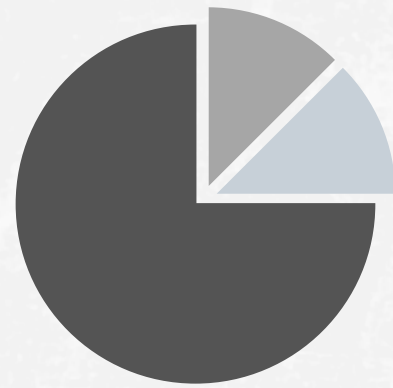
Anis Tmar (m20211157)

André Forte (m20210590)

Opeyemi Mary Akande (m20211320)

Rafael Nunes (m20210832)

# Business Understanding



## **CUSTOMER SEGMENTATION**

Customers' groups based  
on their value and on their  
buying behavior



## **TARGET MARKETS**

Developing more focused  
programs on customers'  
preferences and needs.



## **DISCOVER PROFILES**

Discover our customers'  
profiles to apply better  
strategies

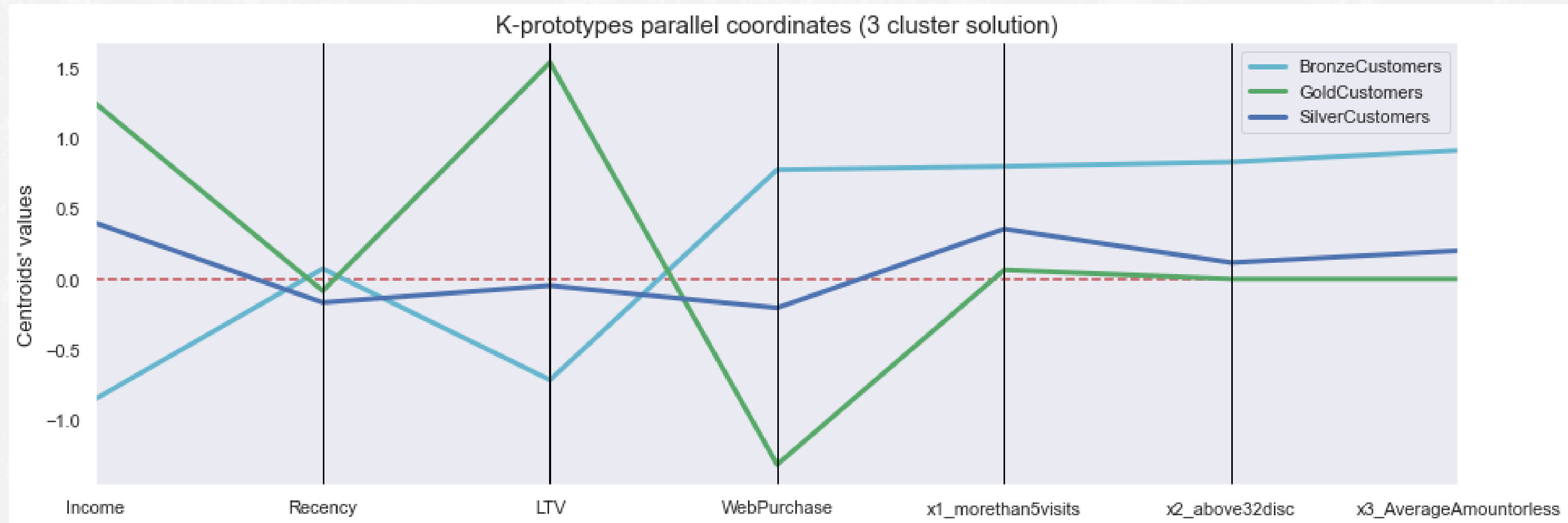
# Data Understanding

- Check the nulls
- First Visualizations to explore the initial dataset: outliers, features' distributions, features' correlations
- Understand possible important patterns for customers' segmentation

# Data Preparation

- Outliers' removal
- Feature Engineering
- Normalization
- Feature Selection (based on different Perspectives)

# First Perspective: Customer Value



**Fig1.** Parallel coordinate plot (First Perspective)

## Some of the Conclusions:

- BronzeCustomers: more proportion of individuals with discount purchases
- GoldCustomers: purchases on website were below the average
- SilverCustomers: Income above the average, but LTV below the average



# Second Perspective: Buying Behavior

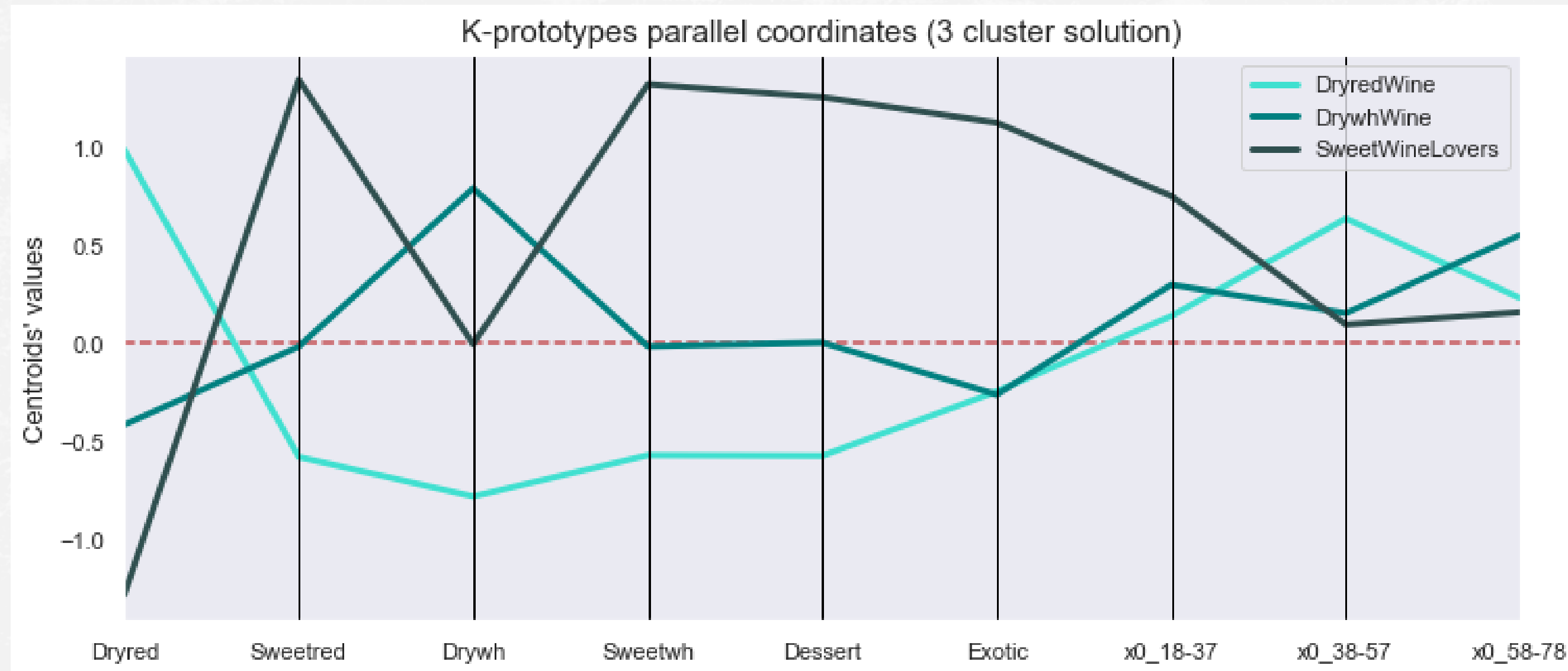


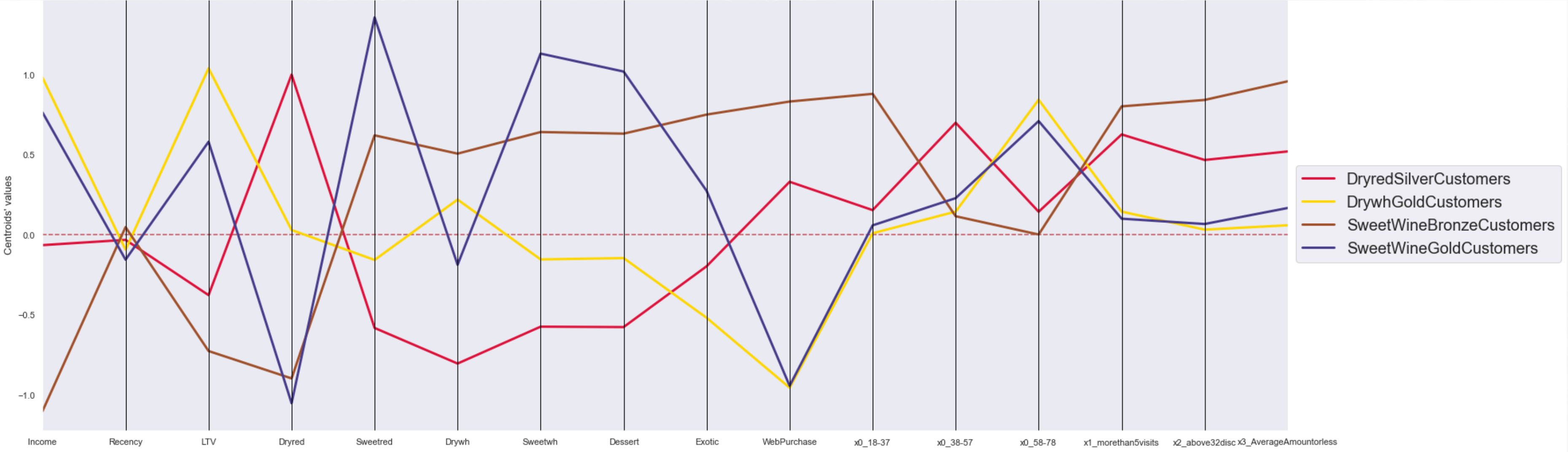
Fig2. Parallel coordinate plot (Second Perspective)

## Some of the Conclusions:

- DryredWine: high proportion of 38-57 age group
- DrywhWine: high proportion of 58-78 age group
- SweetWineLovers (Sweet Wine + Exotic + Dessert): high proportion of 18-37 age group

# Merged Perspective: Final Solution (using Hierarchical Clustering)

K-prototypes parallel coordinates (4 cluster solution)



**Fig3.** Parallel coordinate plot (Merged Perspective)

# Merged Perspective (Product)

Final Clusters' Characterization based on their preferences:

- **DryRedSilverCustomers:** DryRed
- **DrywhGoldCustomers:** Drywh
- **SweetWineBronzeCustomers:** SweetWine
- **SweetWineGoldCustomers:** SweetWine



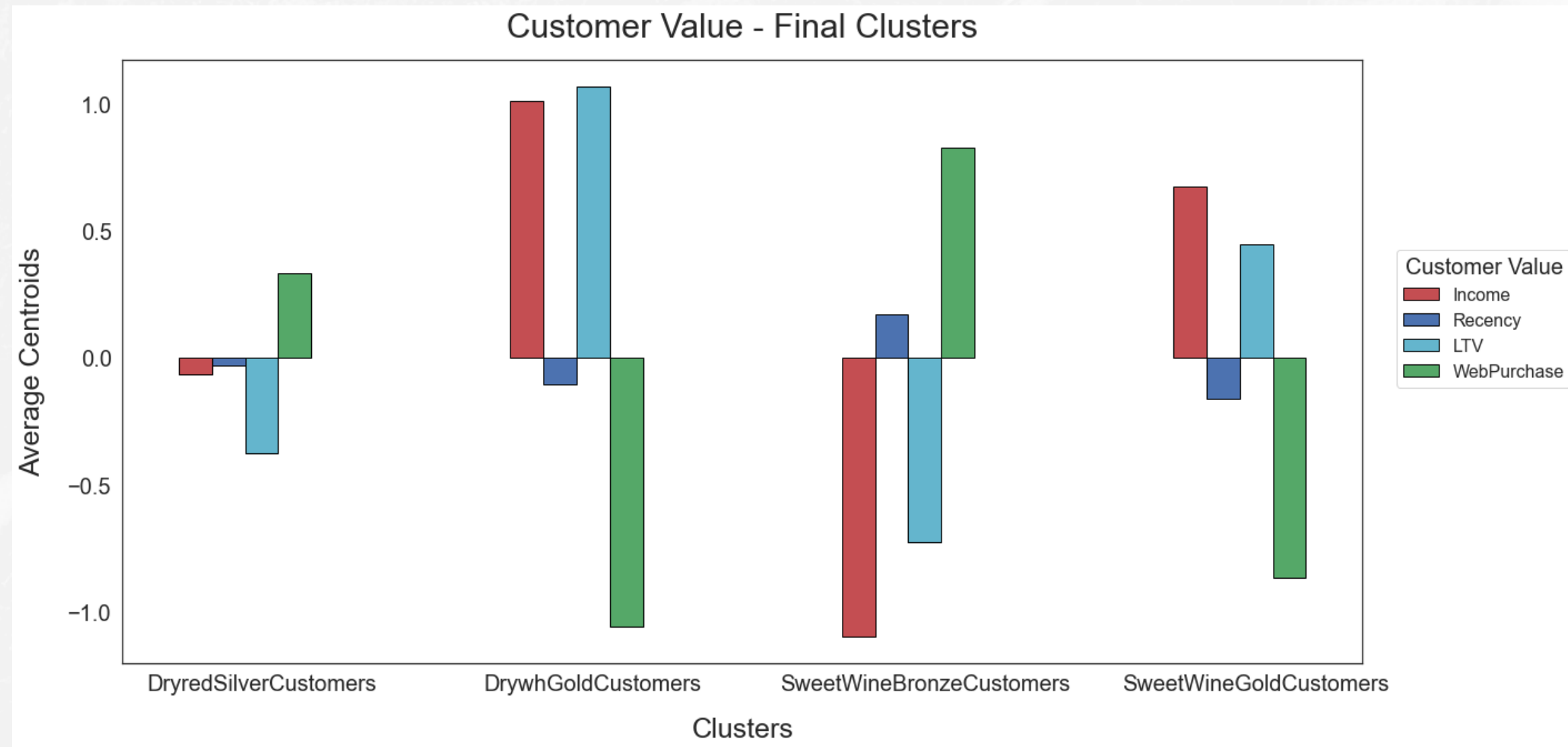
**Fig4.** Final Clusters - Product variables



# Merged Perspective (Customer Value)

Final Clusters' Characterization based on their value:

- **DryRedSilverCustomers:**  
Individuals between Bronze and Gold
- **DrywhGoldCustomers:**  
High Income and High LTV
- **SweetWineBronzeCustomers:**  
Low Income and Low LTV
- **SweetWineGoldCustomers:**  
High Income and High LTV



**Fig5.** Final Clusters - Customer Value variables



# Merged Perspective (Age and Discount proportions)

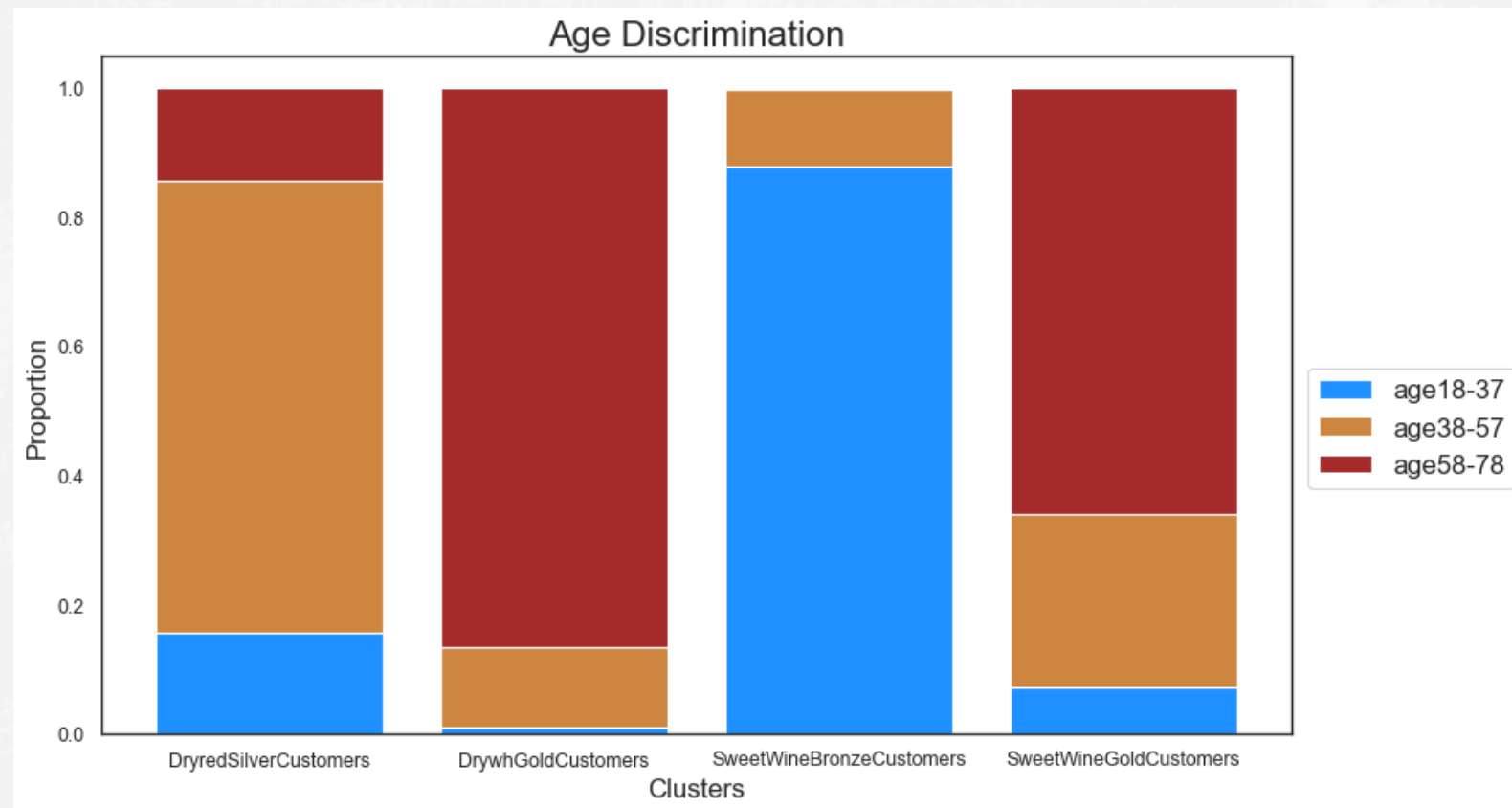


Fig6. Final Clusters - Age Groups

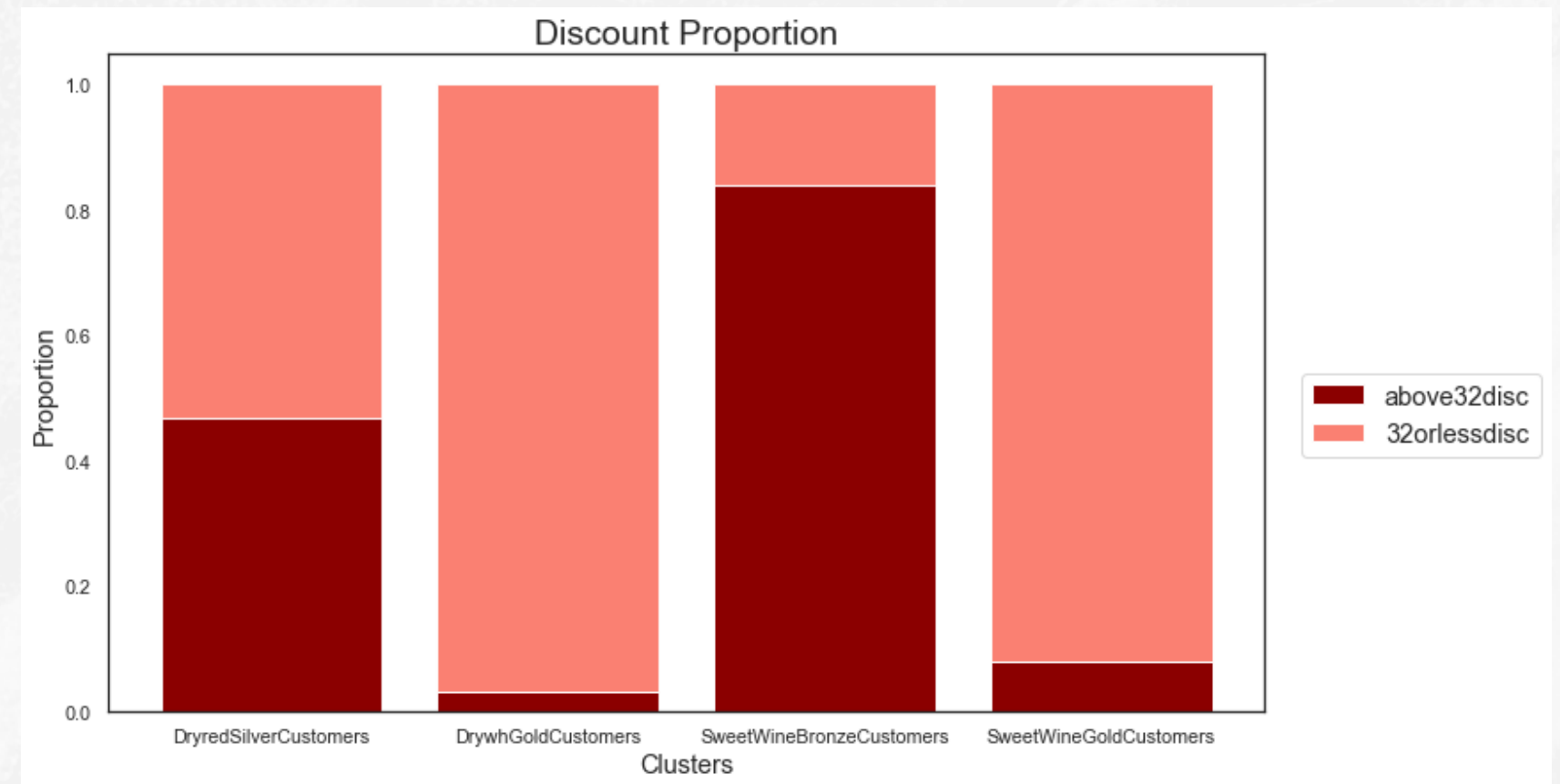


Fig7. Final Clusters - Discount Groups

## Final Clusters' Characterization (additional information):

- **DryRedSilverCustomers:** High proportion of 38-57 age group
- **SweetWineBronzeCustomers:** High proportion of 18-37 age group + high proportion of purchases on discount on total purchases
- **DrywhGoldCustomers:** High proportion of 58-78 age group + low proportion of purchases on discount on total purchases
- **SweetWineGoldCustomers:** High proportion of 58-78 age group + low proportion of purchases on discount on total purchases

# Clusters' Profiles

## DryRedSilverCustomers

- Product: DryRed
- Individuals between Bronze and Gold (value)
- High proportion of 38-57 age group
- High proportion of individuals that visited our website more than 5 times per month

## DrywhGoldCustomers

- Product: Drywh
- High Income and High LTV (value)
- High proportion of 58-78 age group
- They don't tend to buy wines online

## SweetWineGoldCustomers

- Product: SweetWine
- High Income and High LTV (value)
- High proportion of 58-78 age group
- They don't tend to buy wines online

## SweetWineBronzeCustomers

- Product: SweetWine
- Low Income and Low LTV (value)
- High proportion of 18-37 age group
- These individuals tend to buy more online
- High proportion of purchases with discount on total purchases

# Business Applications

**Product Campaigns**

**Loyalty programs**