

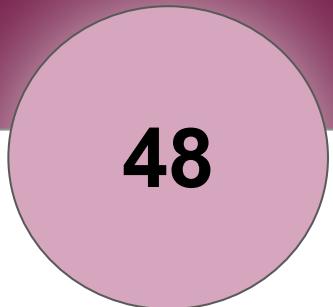
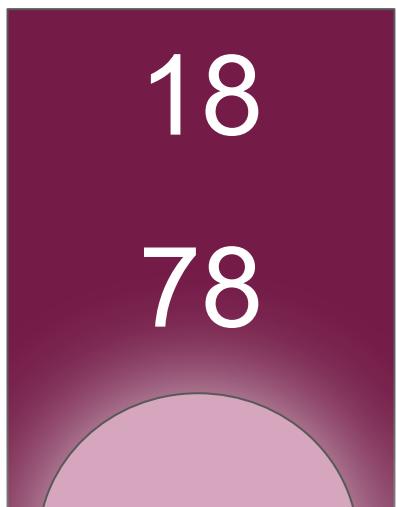
WONDERFUL WINES *of the* WORLD

TEAM
APEX
PATTERN
DEPLOYERS

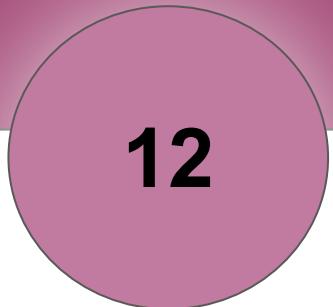


Introduction

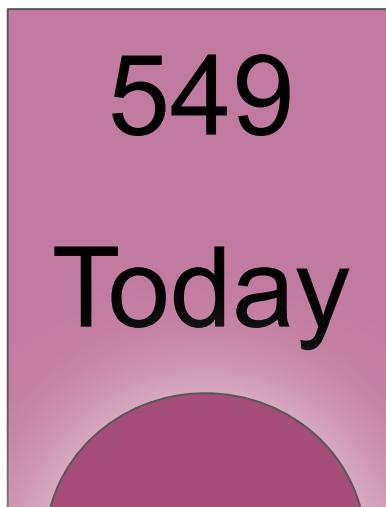
Wonderful World of Wine Customers



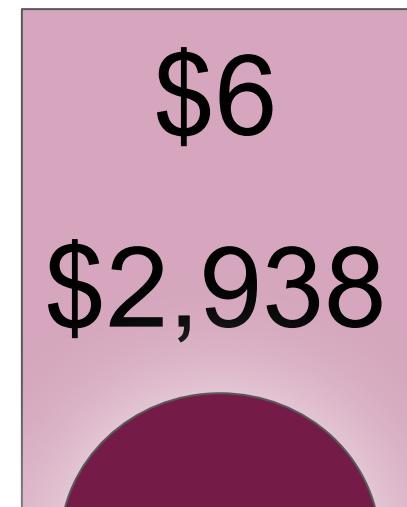
Age



of Purchases



Days Since Purchase

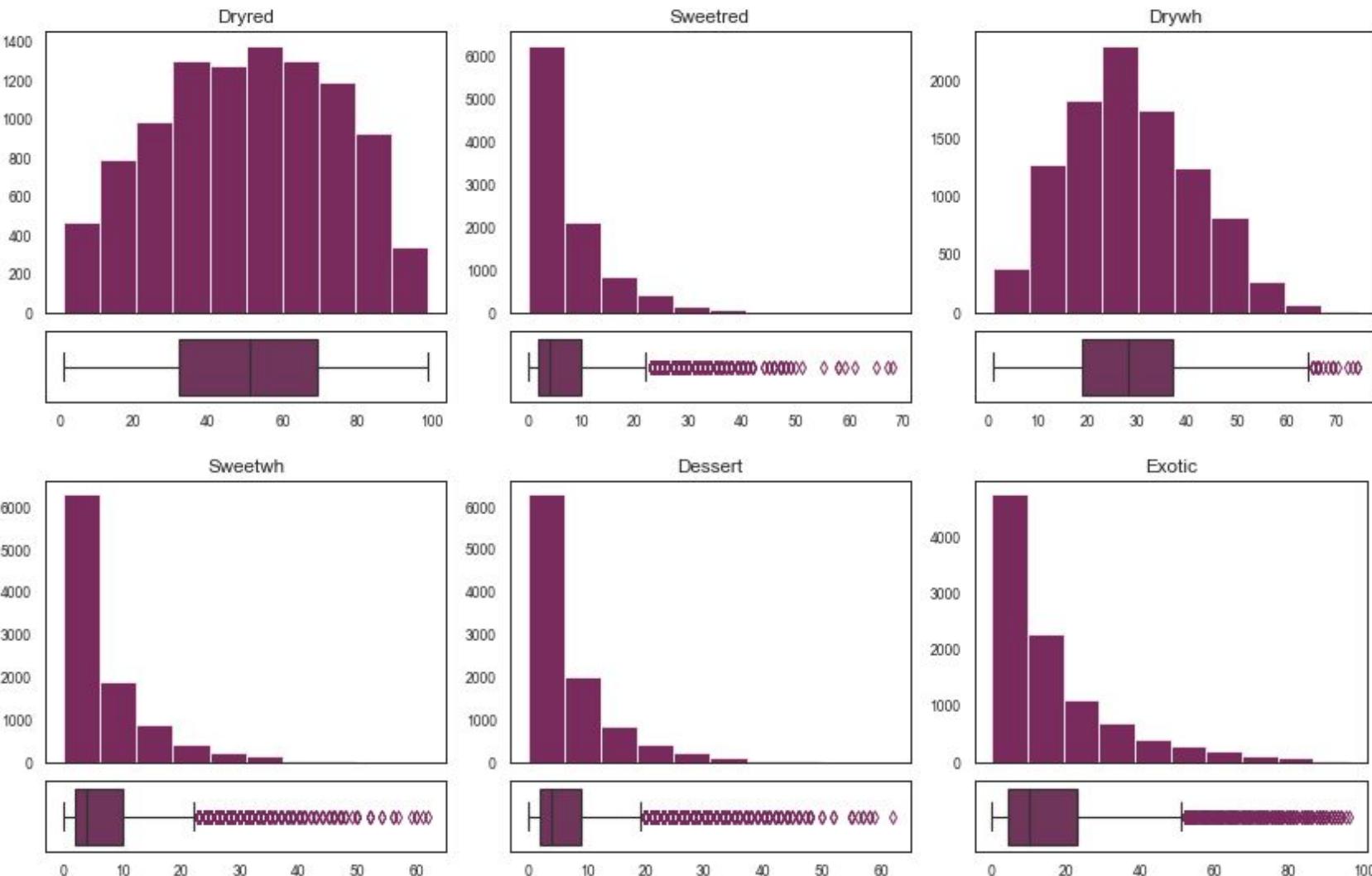


Lifetime Value

Data Pre-Processing

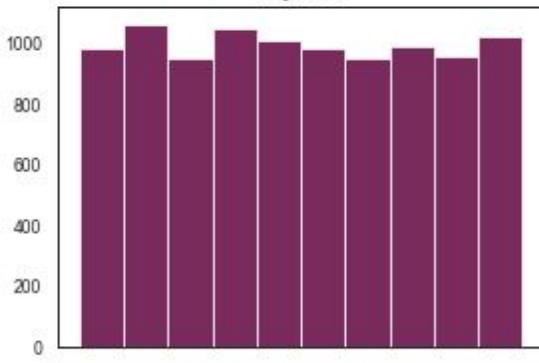
- Removing extraneous row
- Removing outliers
- Removing noise identified by DBSCAN
- Feature Selection and Segmentation
 - Dividing features into segments
 - Removing highly correlated features within each segmentation

Wine Segmentation (Outliers Removed)

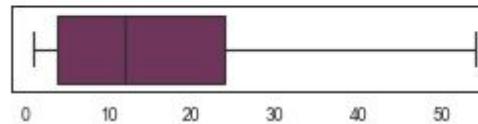
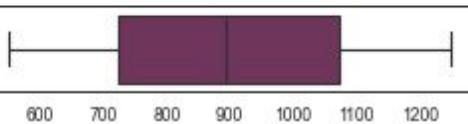
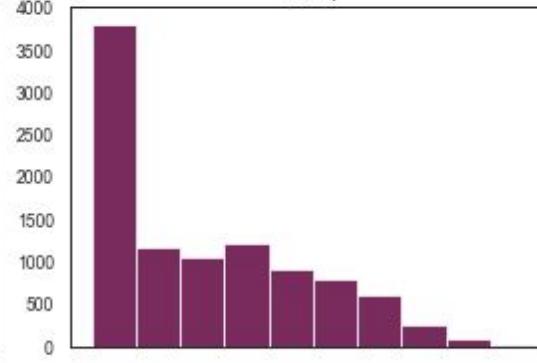


Value Segmentation (Outliers Removed)

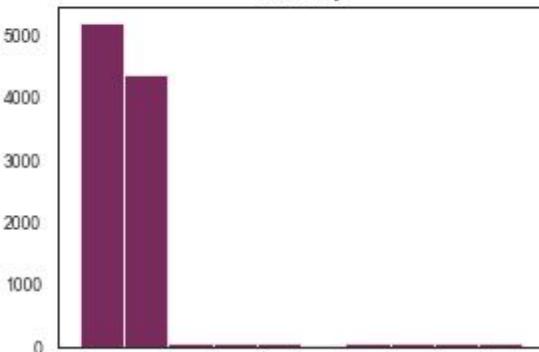
Dayswus



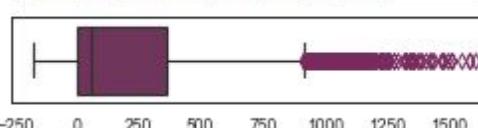
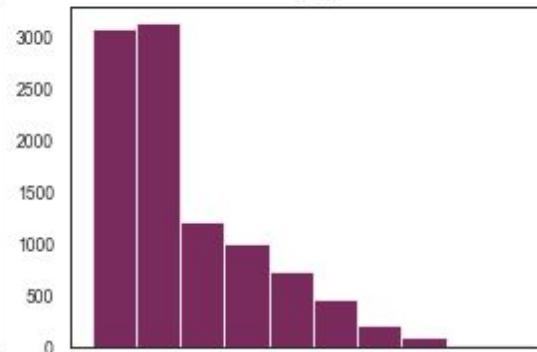
Freq



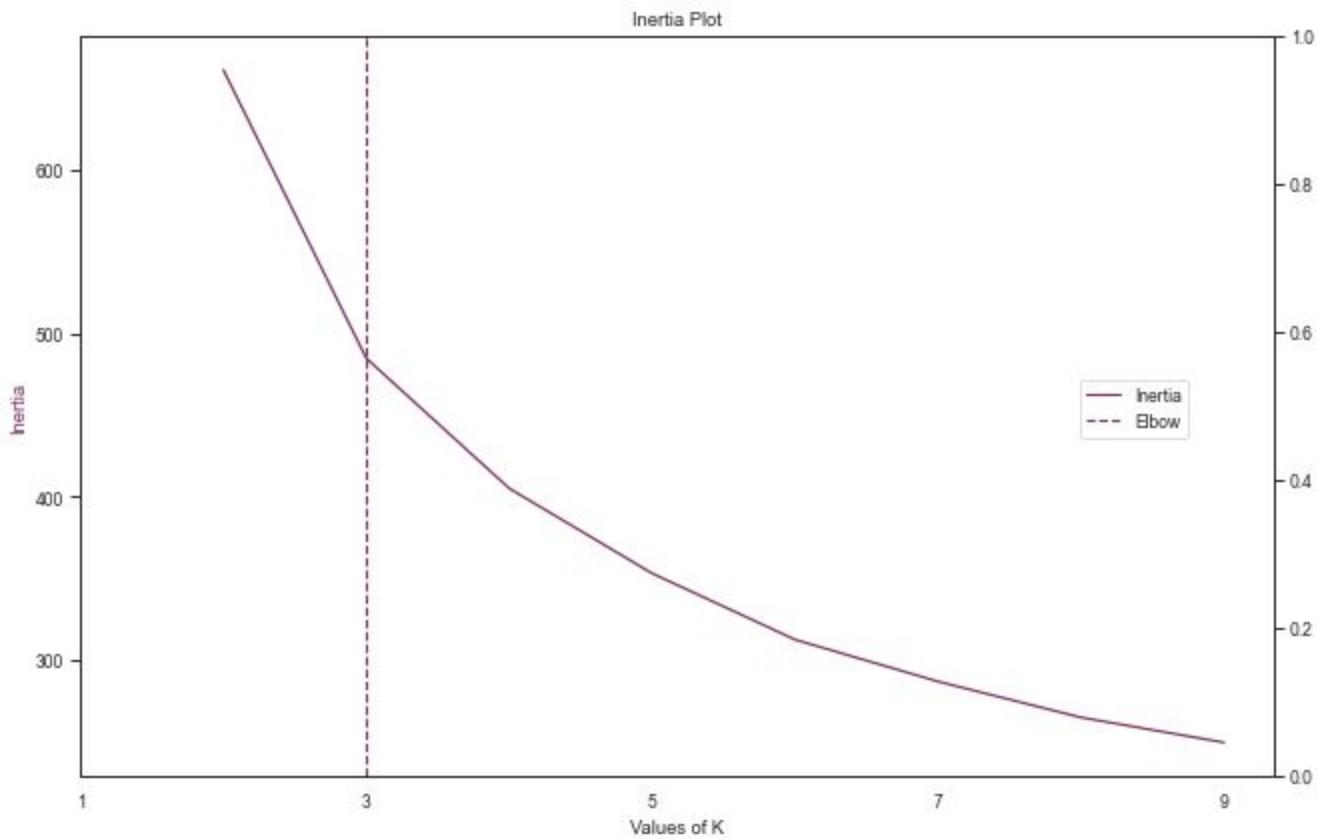
Recency



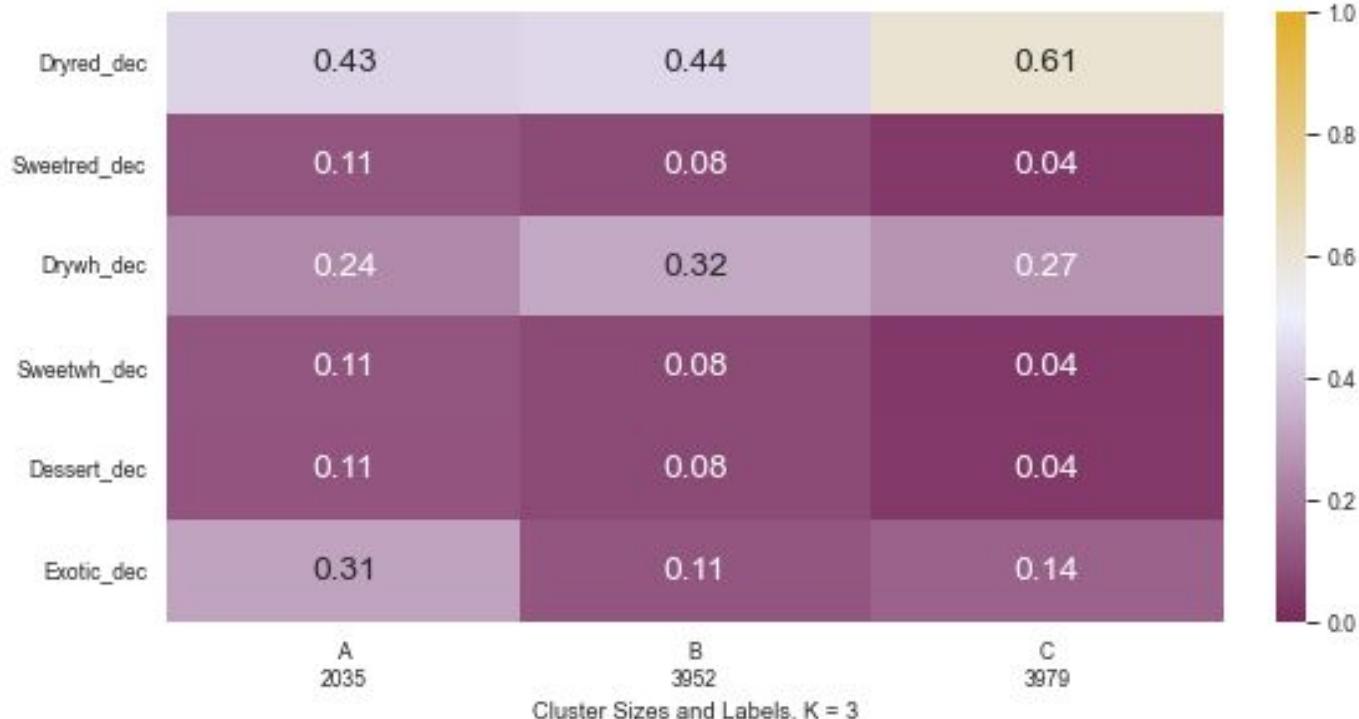
LTV



Wine Preferences Segmentation

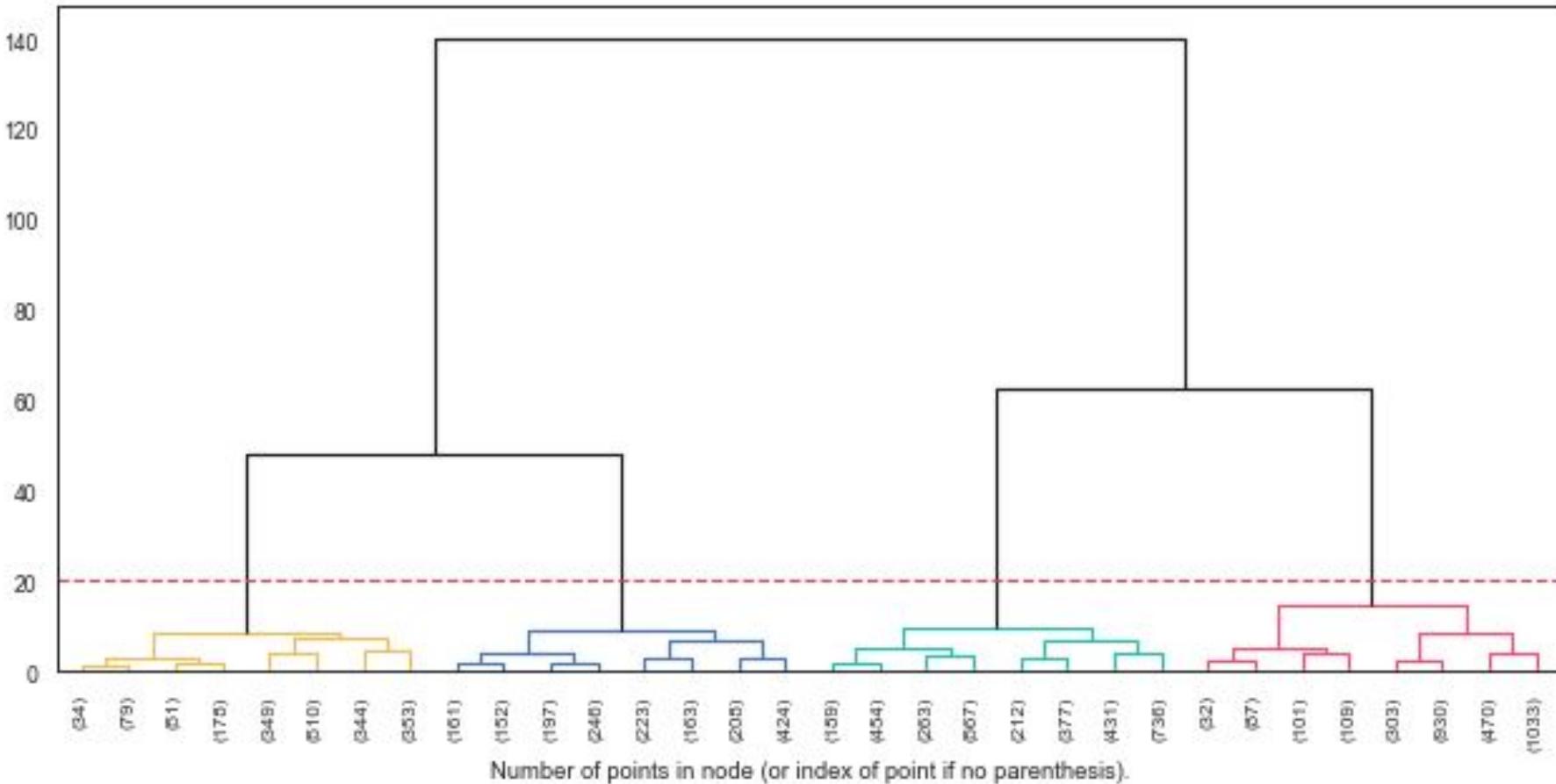


Cluster Means of Wine Segmentation: KMeans

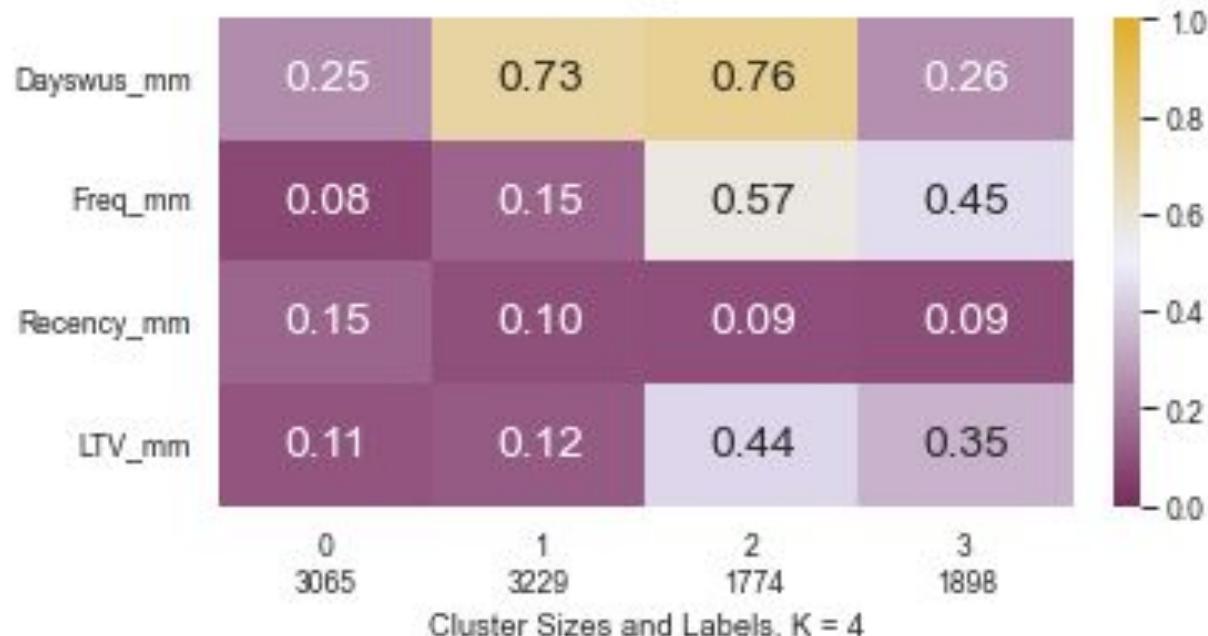


Value and Engagement Segmentation

Hierarchical Clustering Dendrogram: Value Features

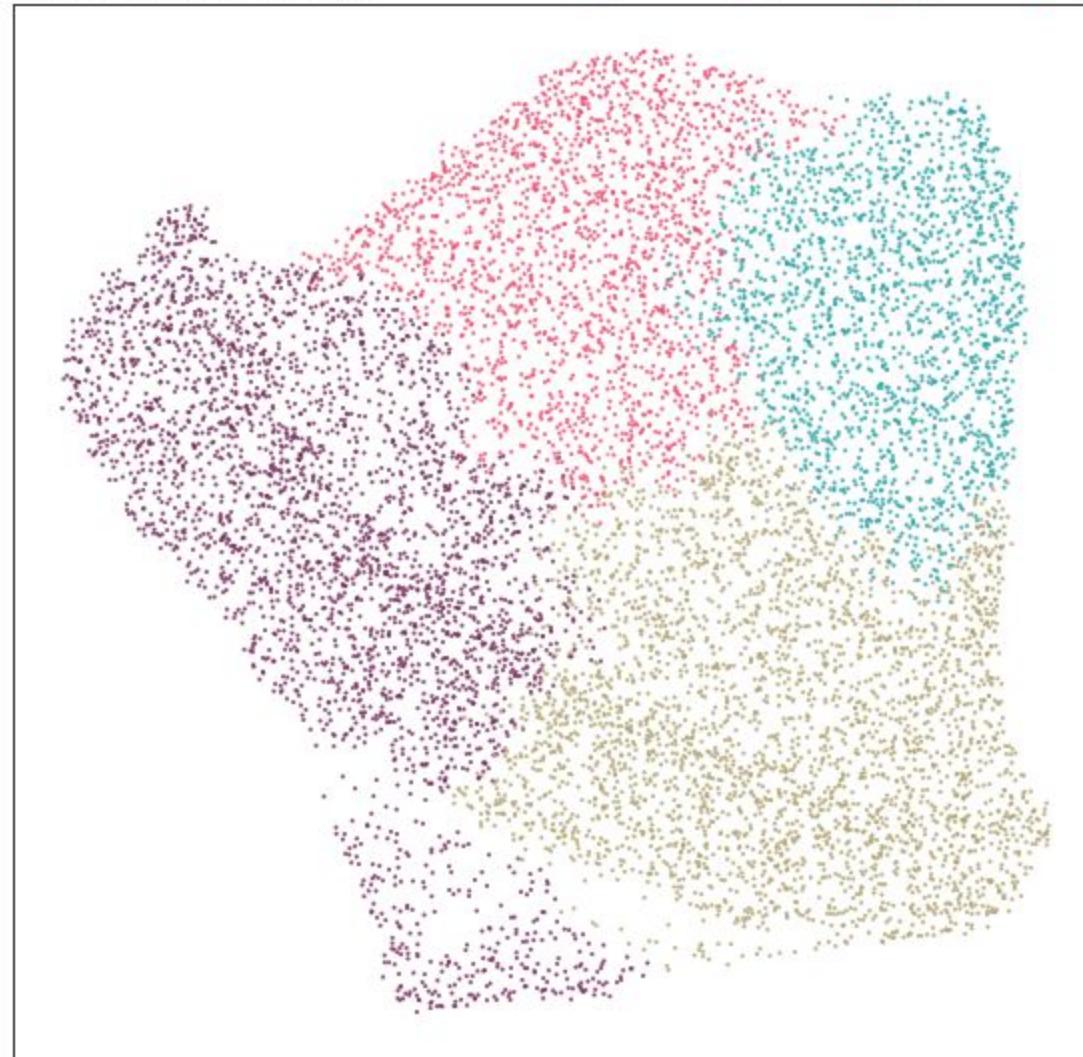


Cluster Means of Value Segmentation: Hierarchical



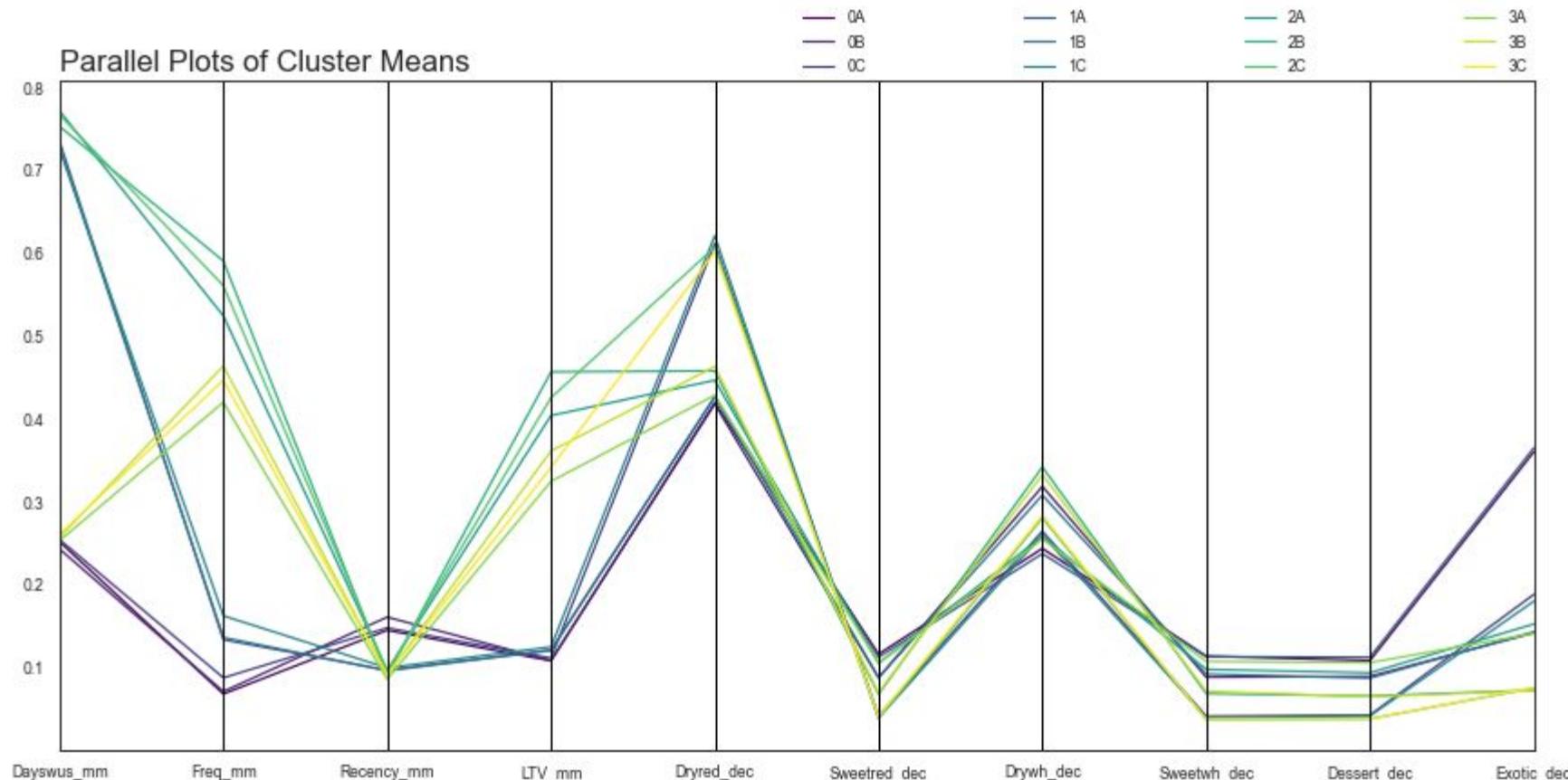
UMAP Visualization of Value Segmentation

0 1 2 3



Conclusion

Parallel Plots of Cluster Means



THANK YOU :)



Group X

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Bruno Mendes *m20210627*

Lucas Neves *m20211020*

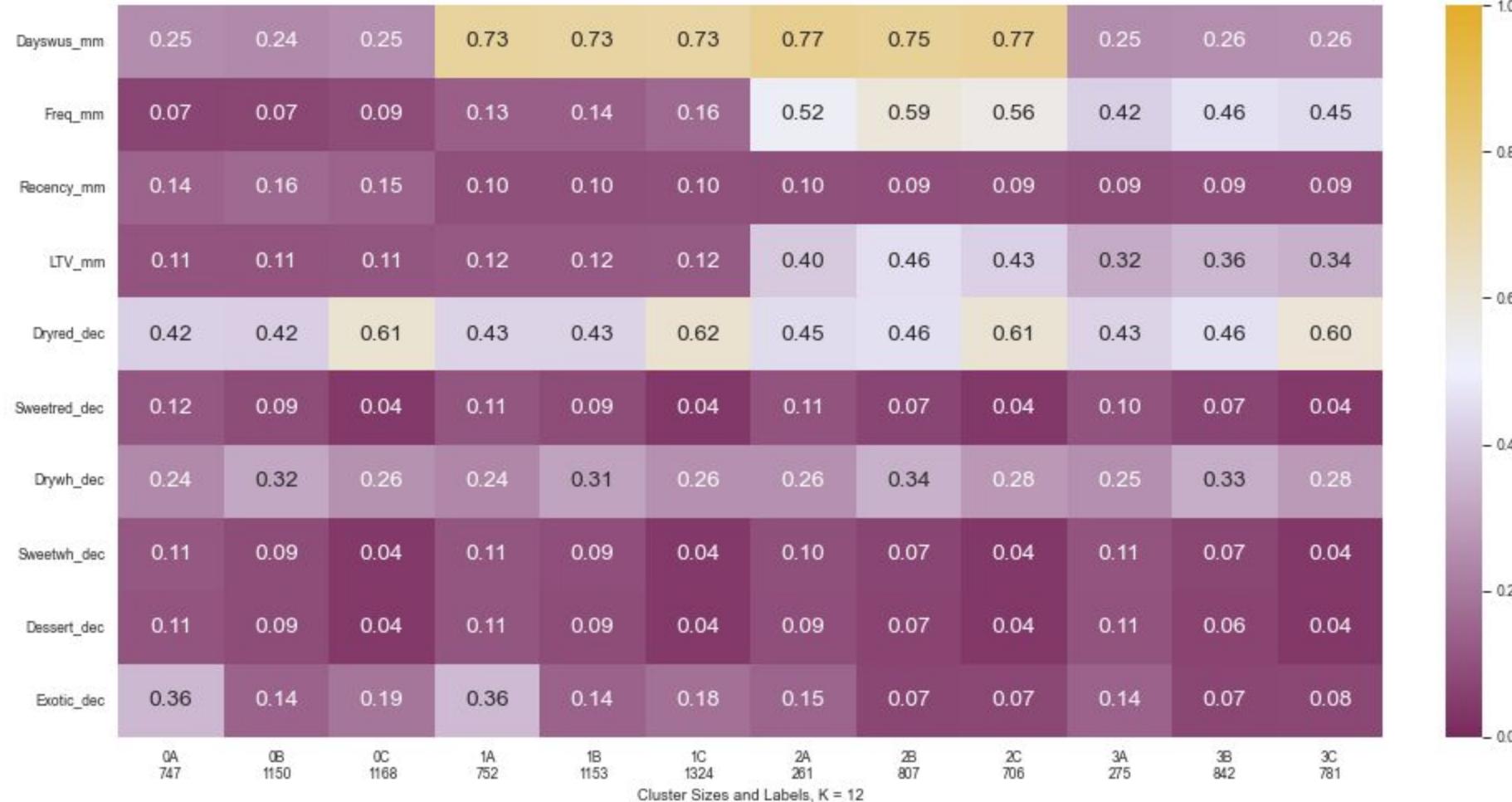
Farina Pontejos *m20210649*

Business Cases for Data Science

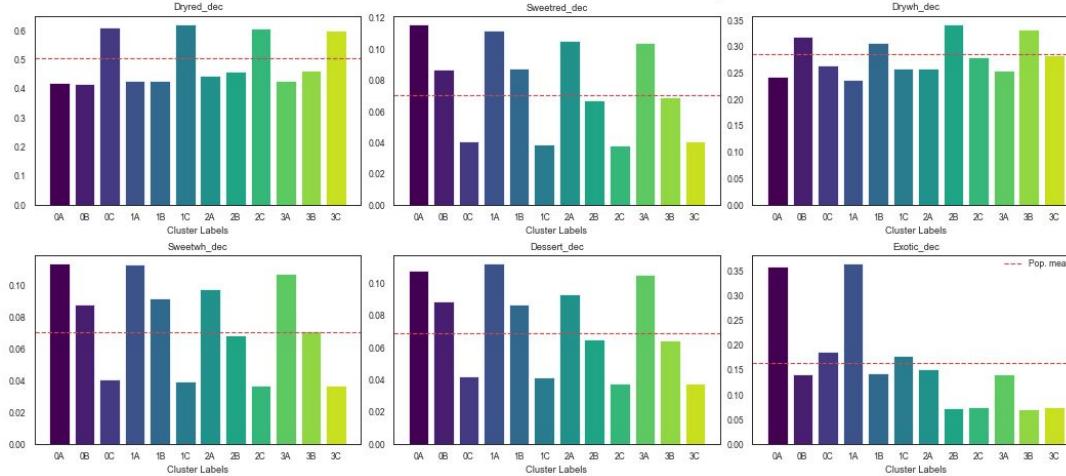
NOVA Information Management School

March 2022

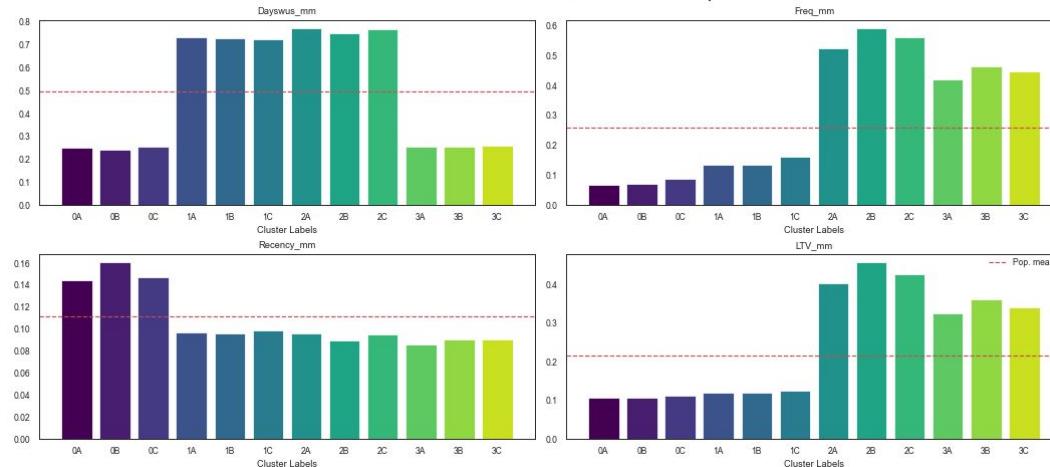
Cluster Means of Merged Clusters



Mean Values of Wine Features, Clusters vs Population



Mean Values of Value Features, Clusters vs Population



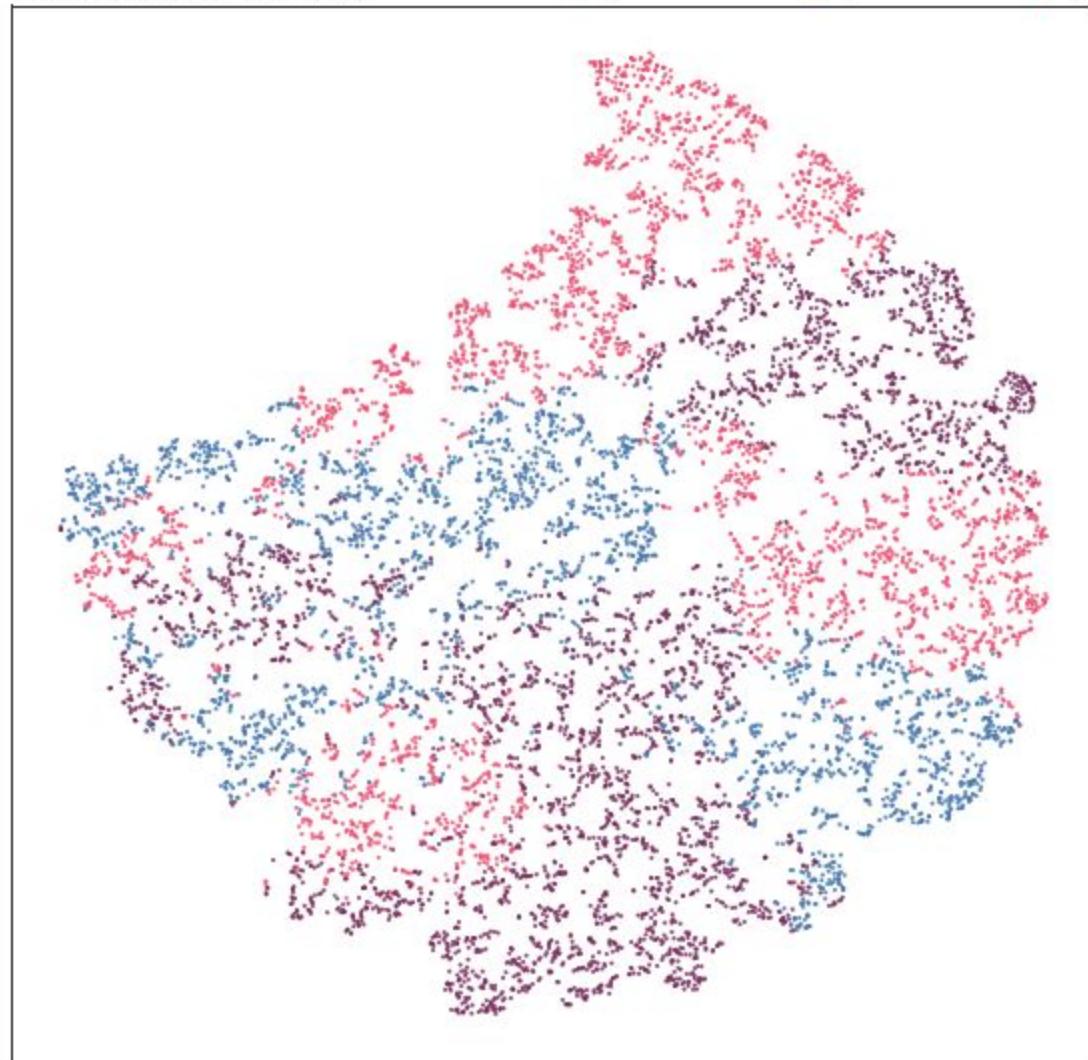
Wine Segmentation Visualization

T-SNE Visualization of Wine Segmentation

• 0

• 1

• 2

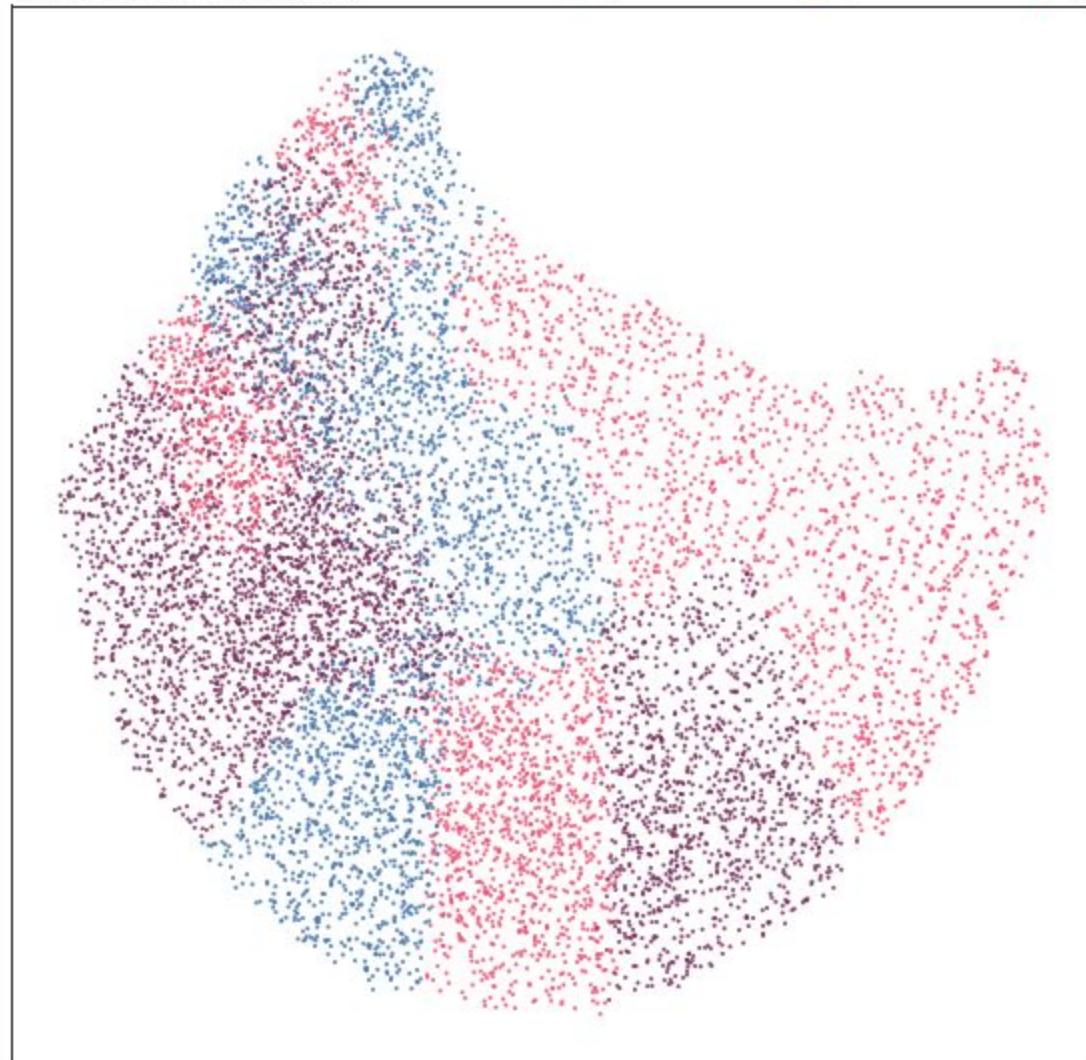


UMAP Visualization of Wine Segmentation

0

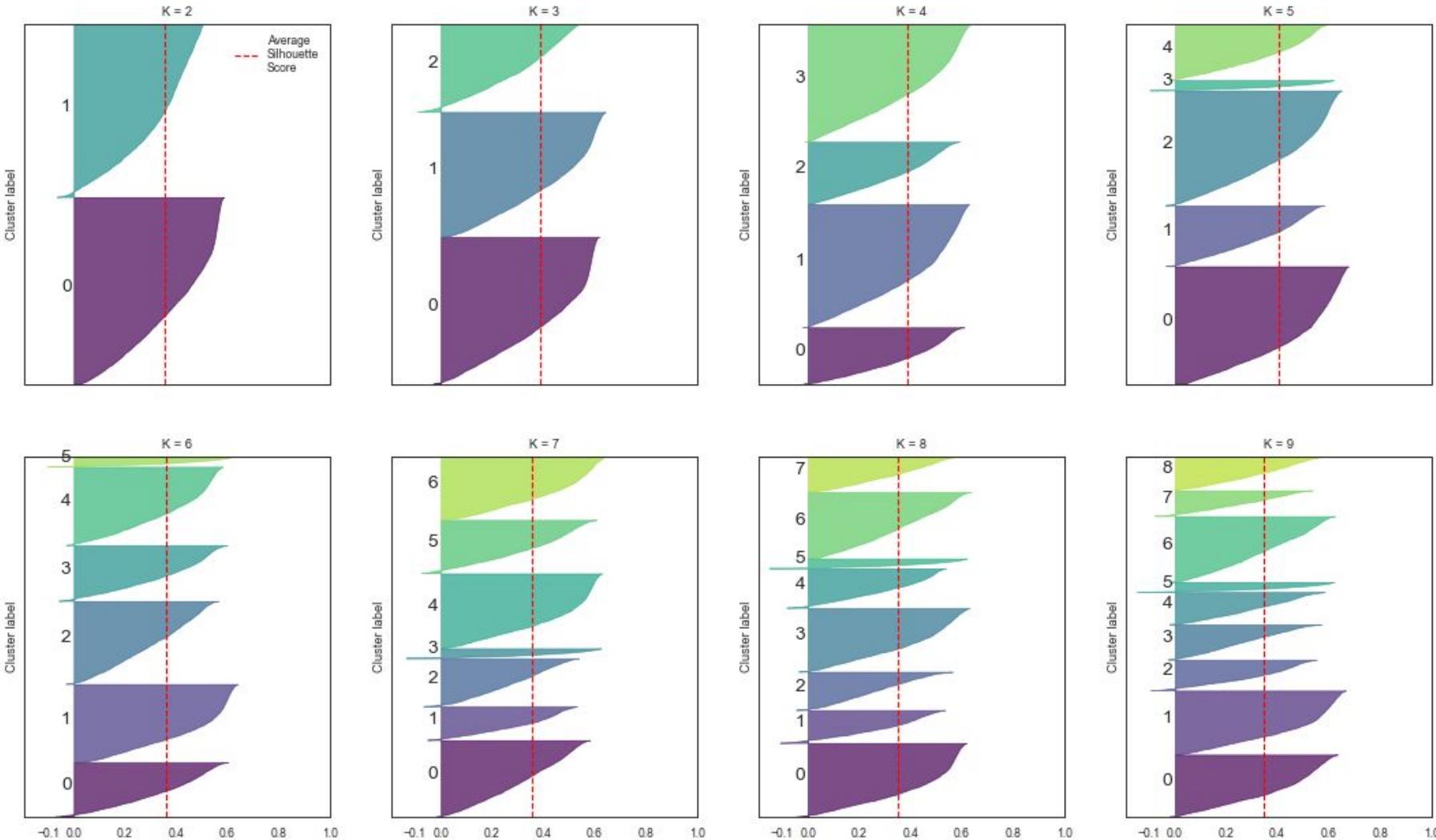
1

2



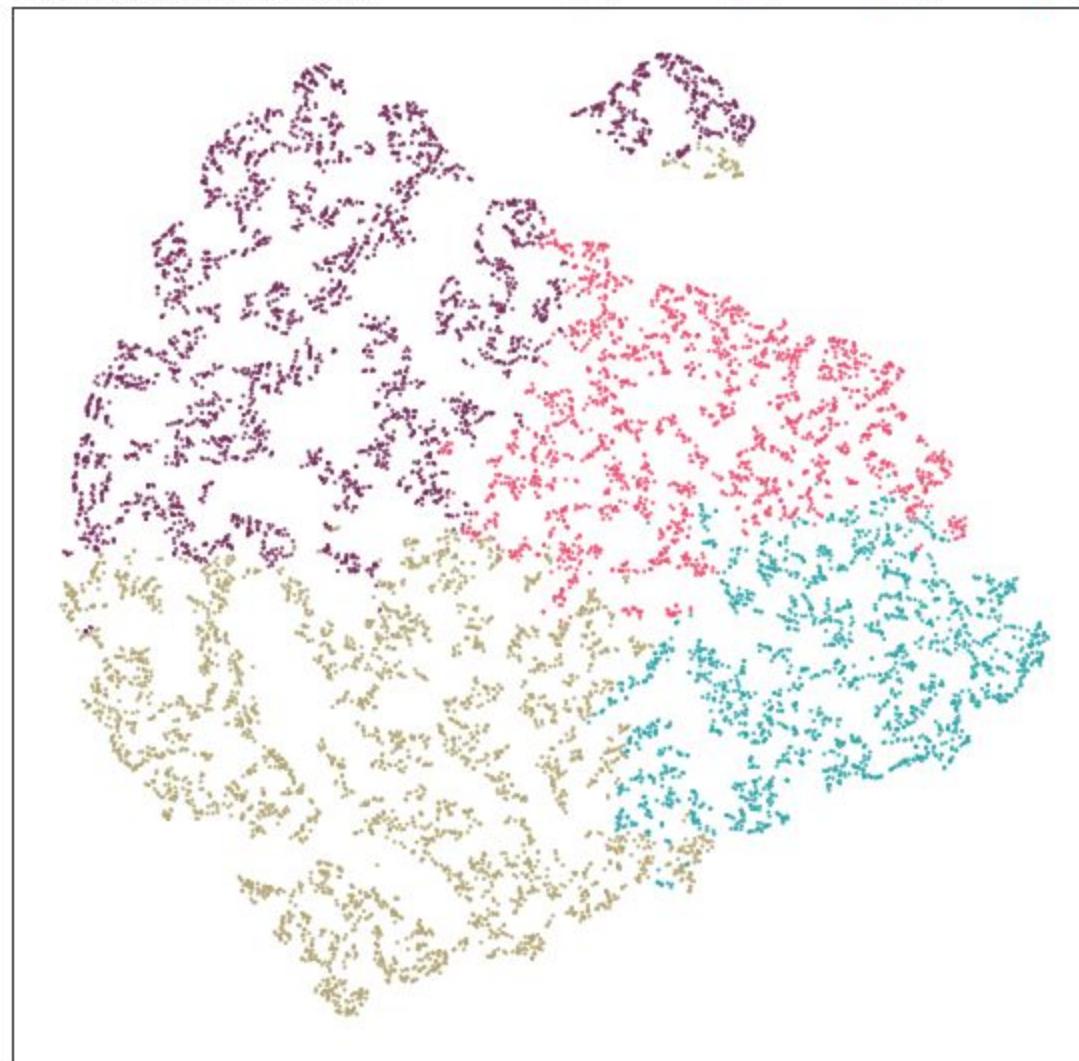
Value and Engagement Segmentation

Silhouette Analysis for Kmeans Clustering at Various K, Value Segmentation



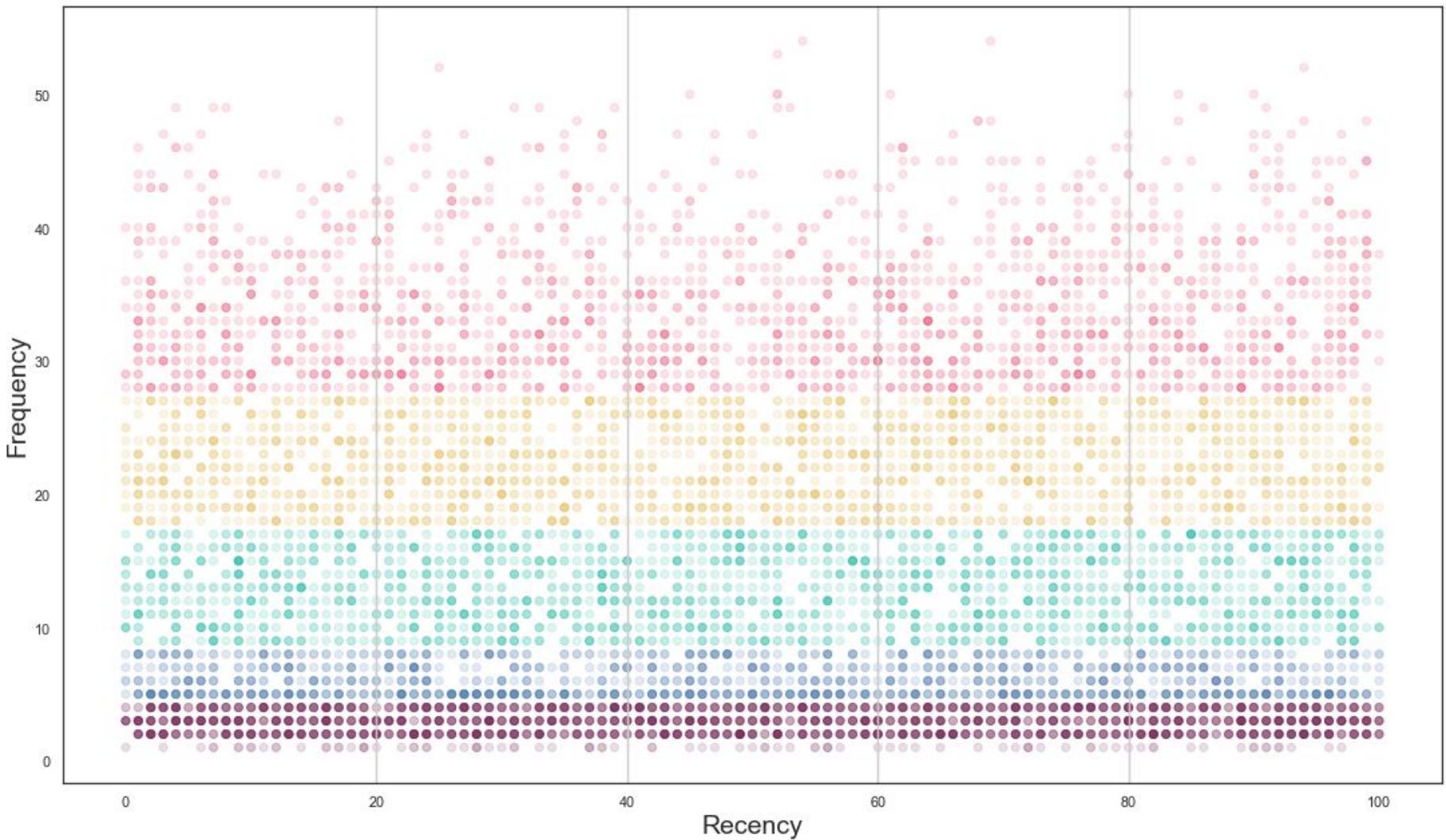
T-SNE Visualization of Value Segmentation

● 0 ● 1 ● 2 ● 3

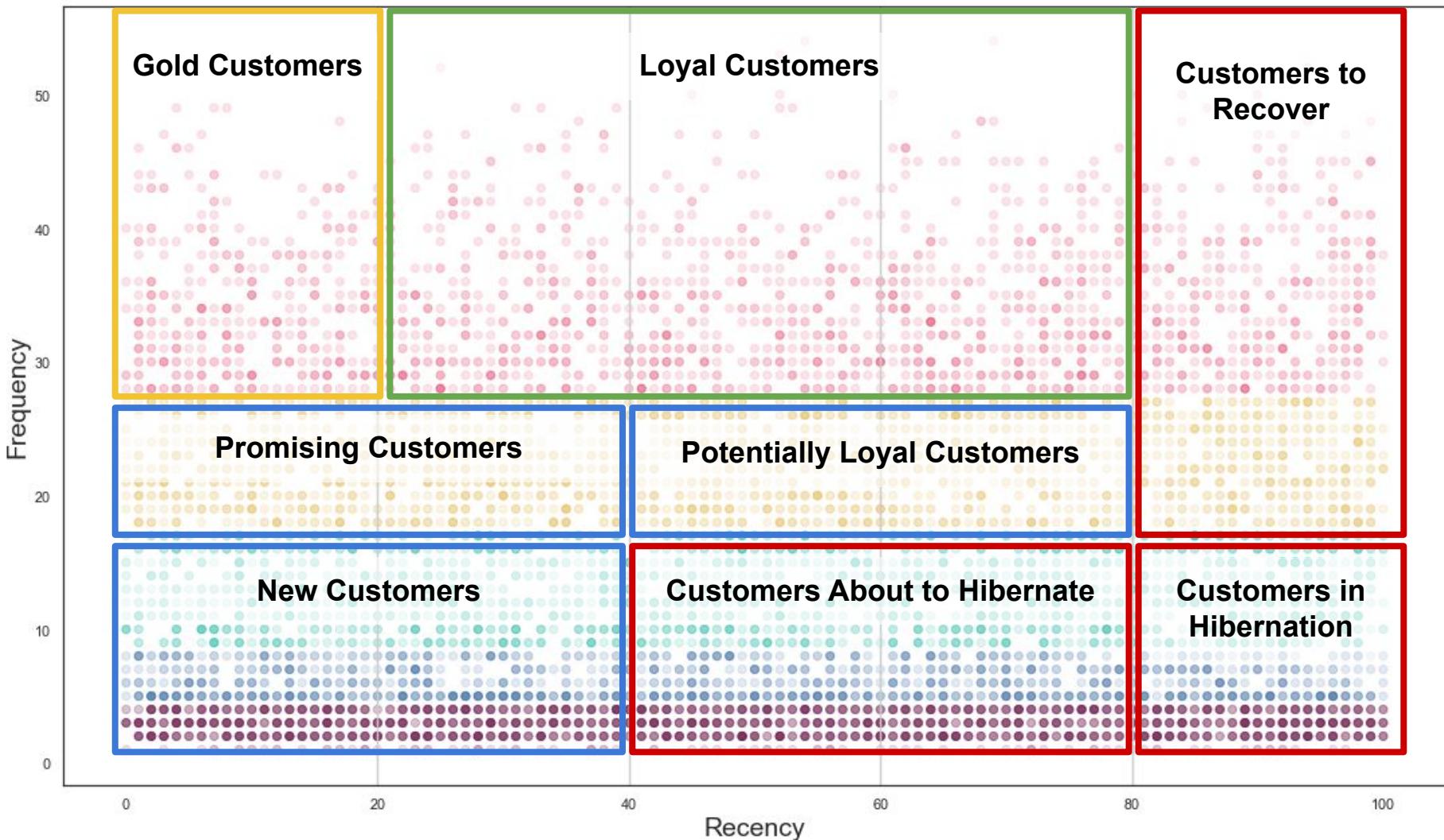


RFM Analysis

Recency vs Frequency, divided by percentile

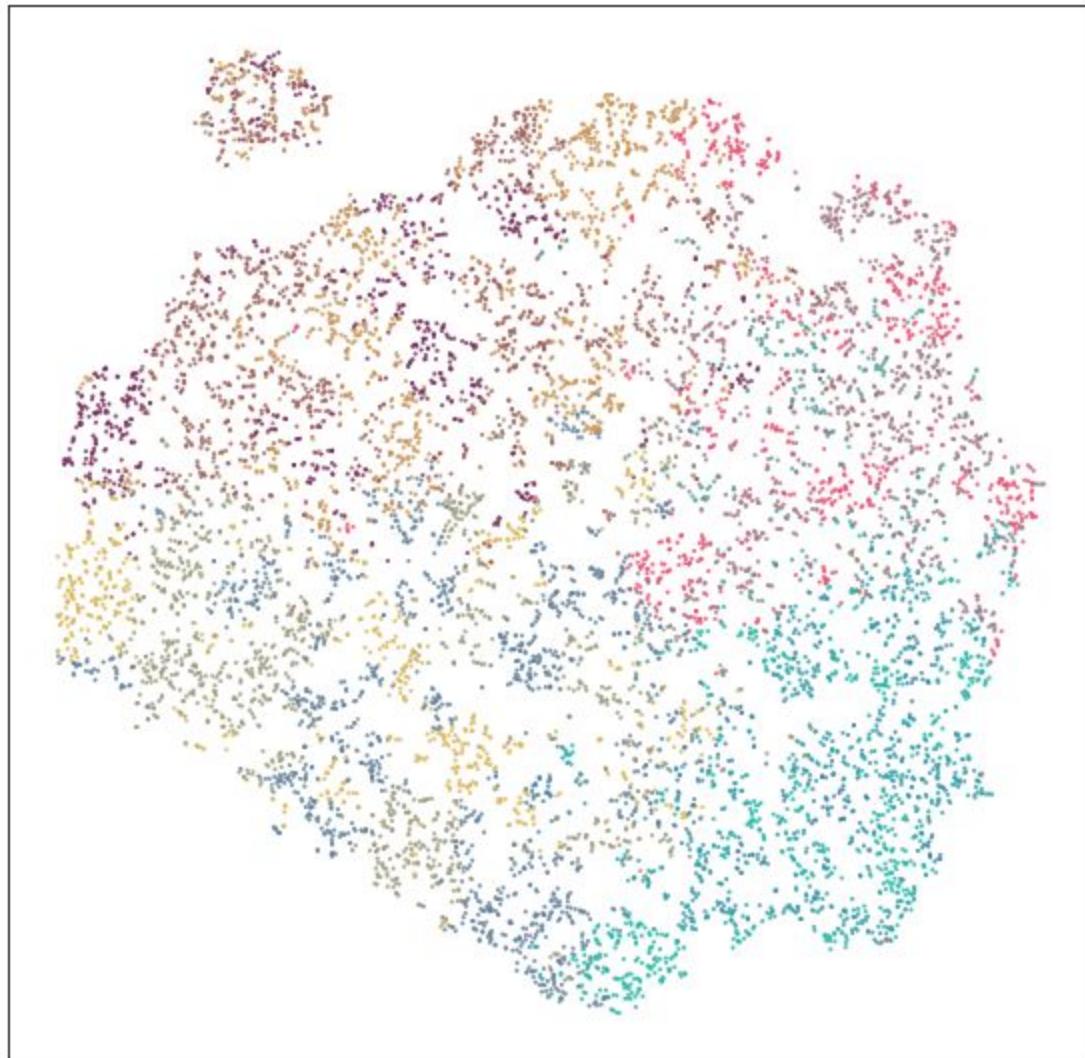


Recency vs Frequency, divided by percentile

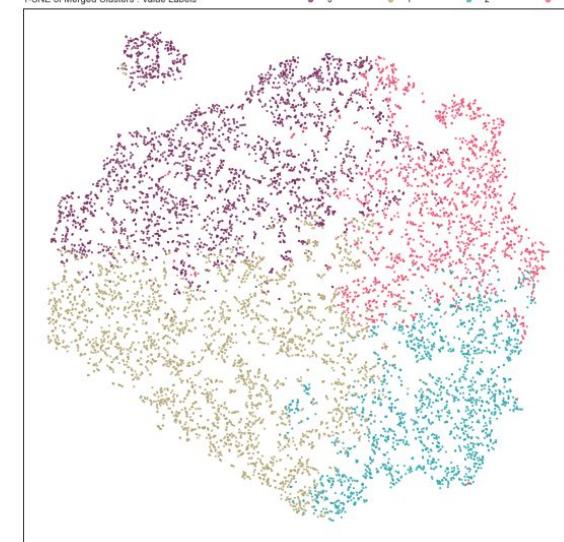


Merged Segmentation Visualization

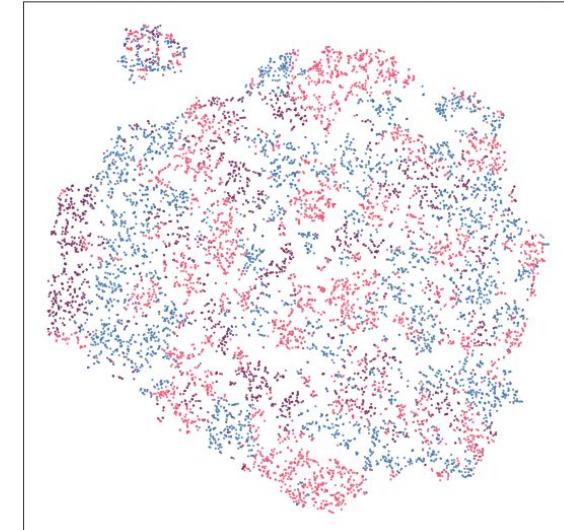
T-SNE Visualization of Merged Clusters



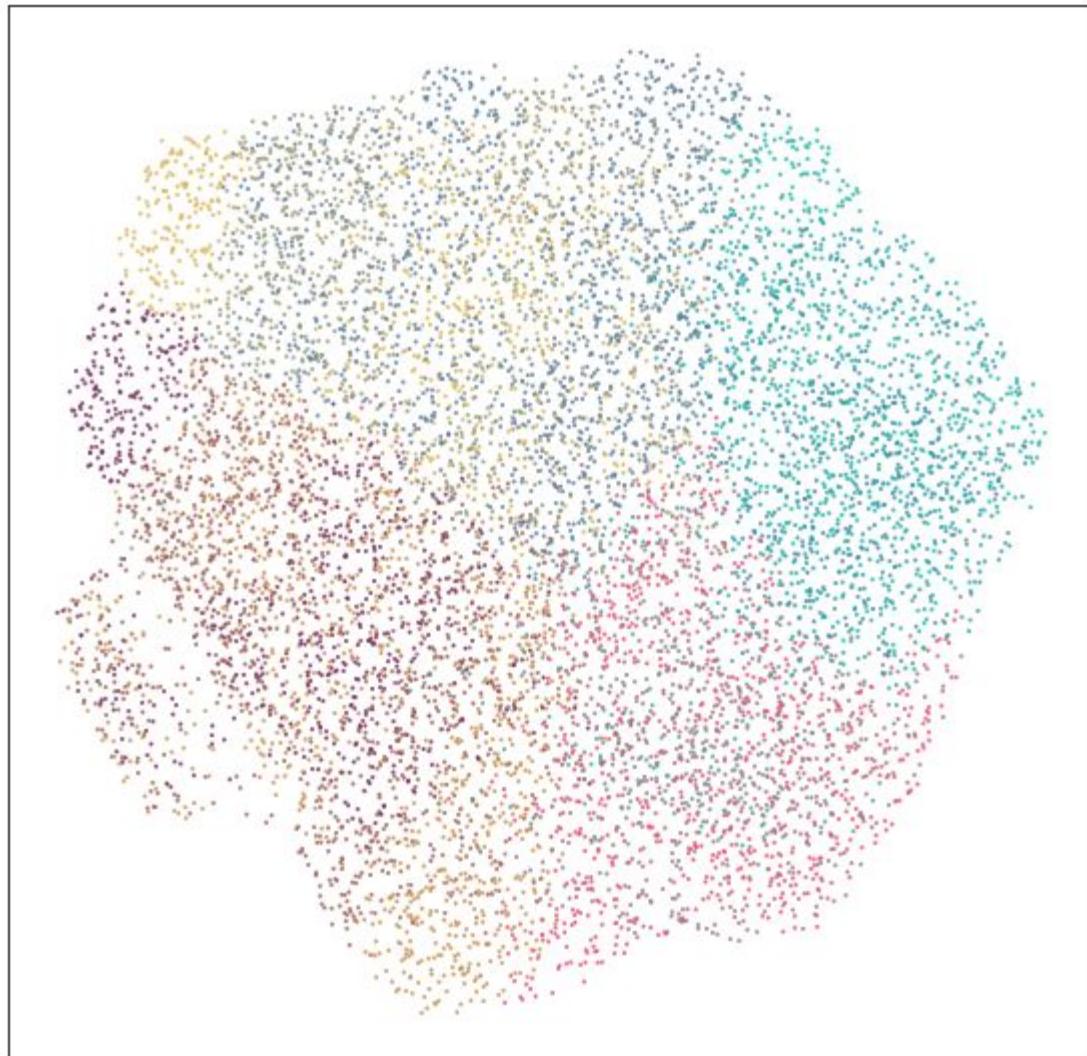
T-SNE of Merged Clusters : Value Labels



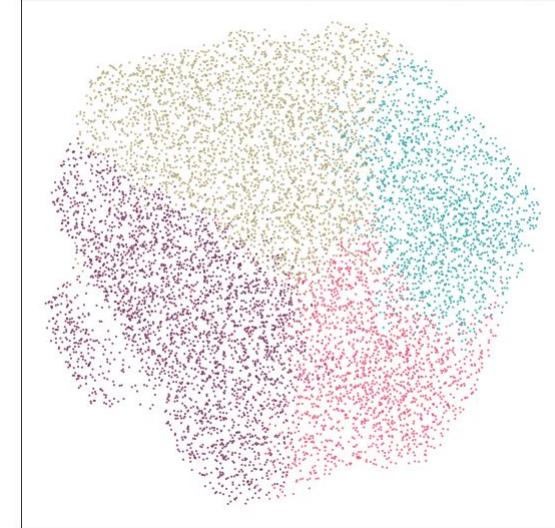
T-SNE of Merged Clusters : Wine Labels



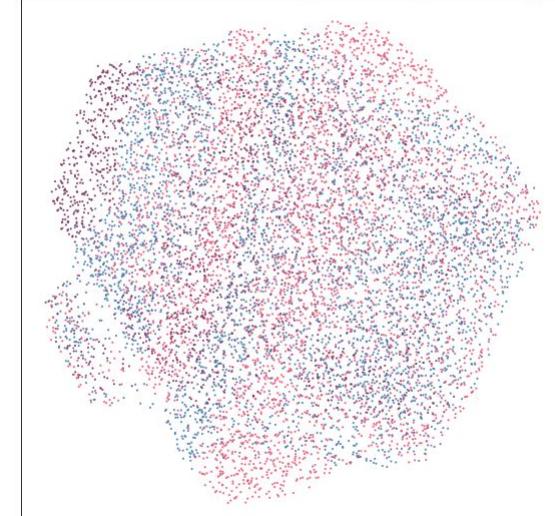
UMAP Visualization of Merged Clusters

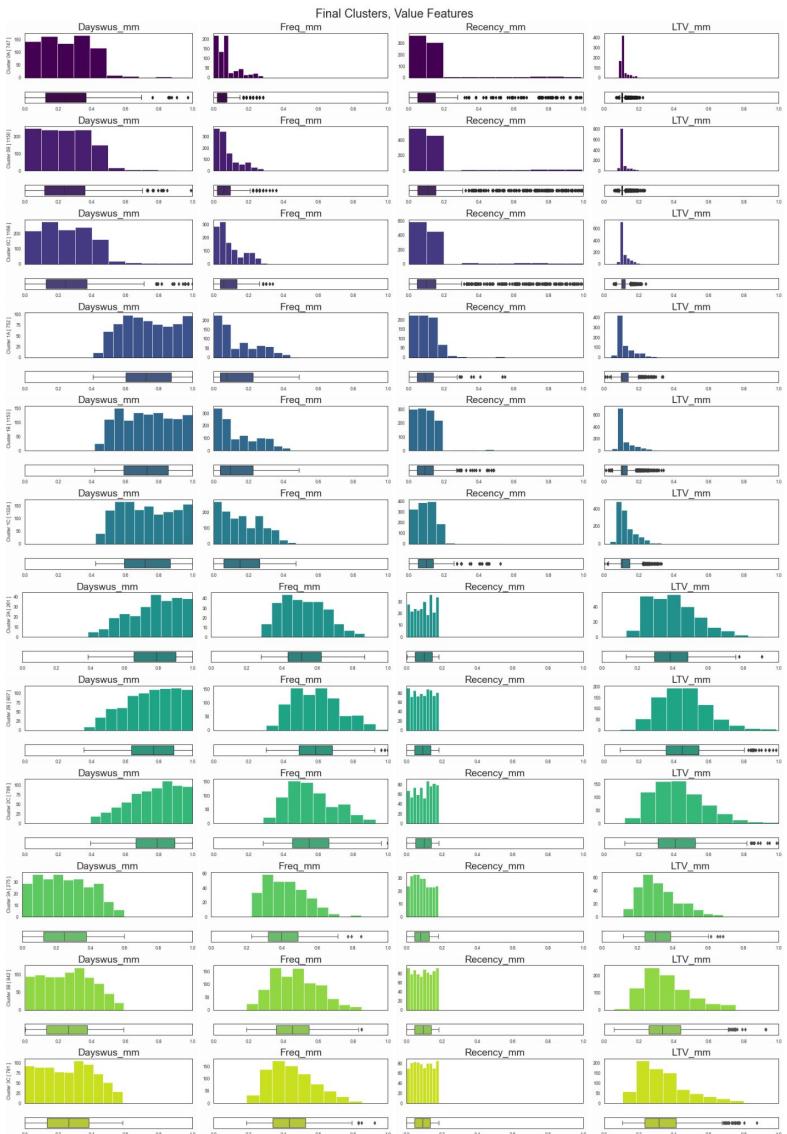


UMAP Visualization of Merged Clusters, Value Labels



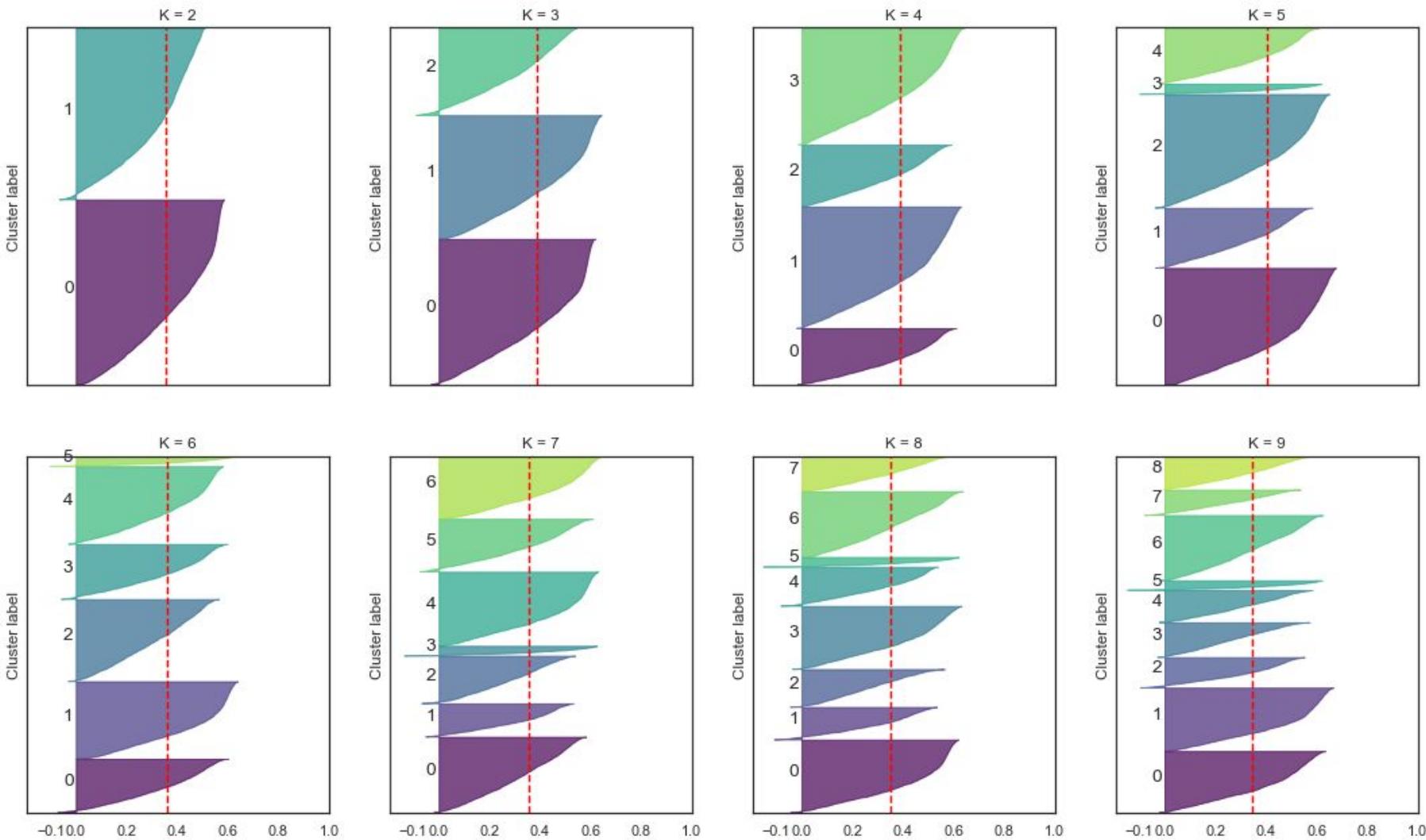
UMAP Visualization of Merged Clusters, Wine Labels



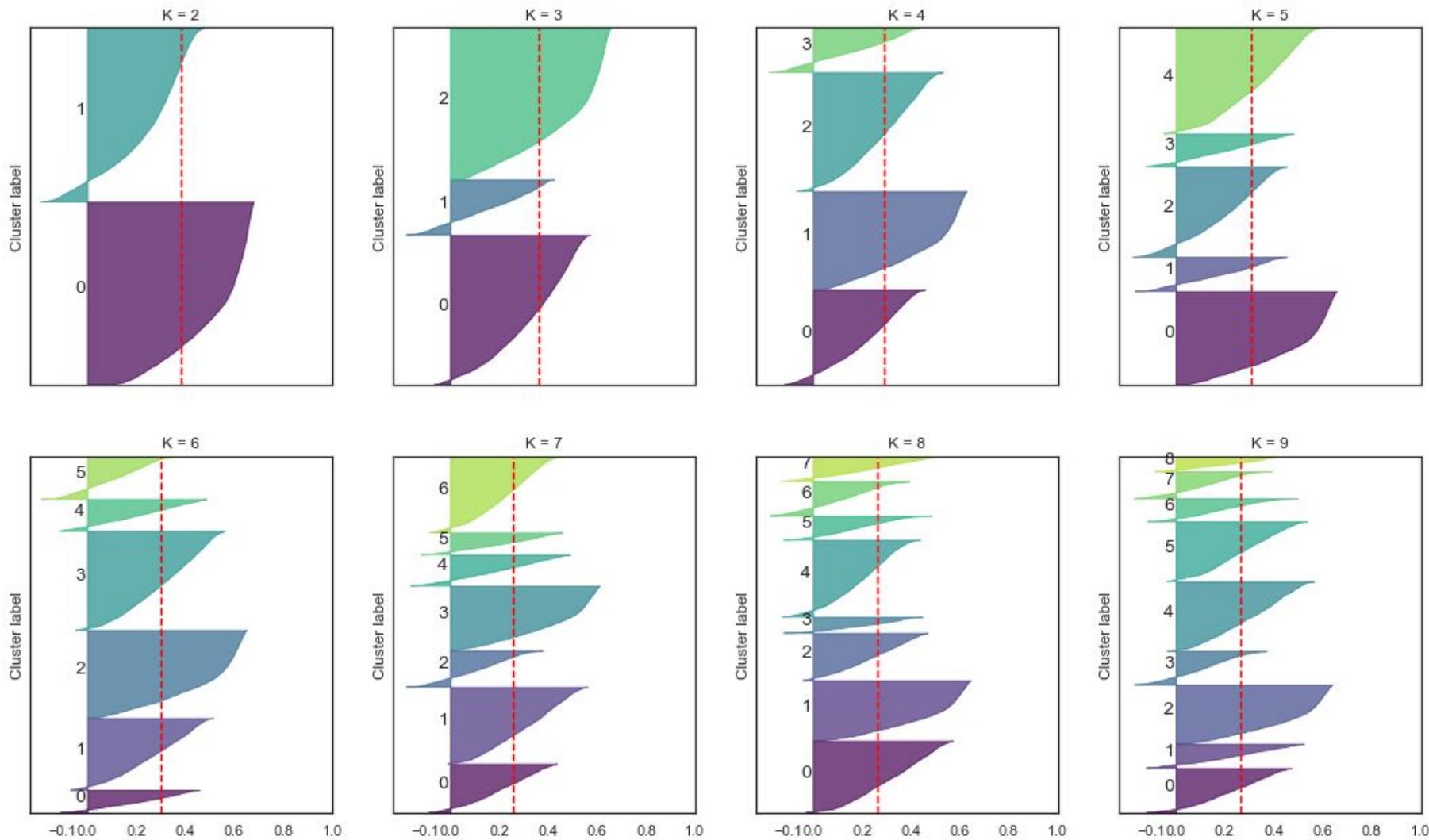


Supplementary Visualizations

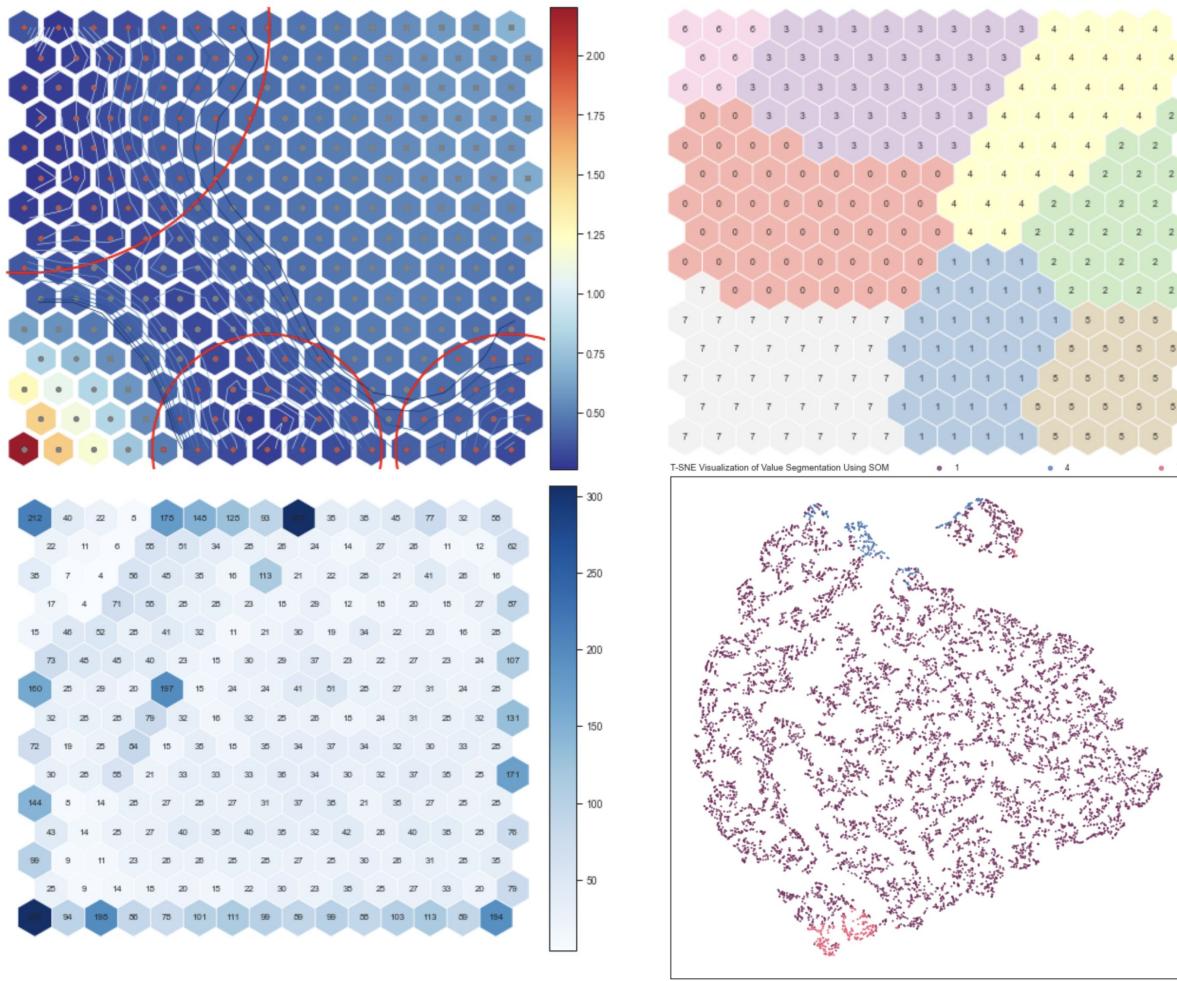
Silhouette Analysis for Kmeans Clustering at Various K, Value Segmentation



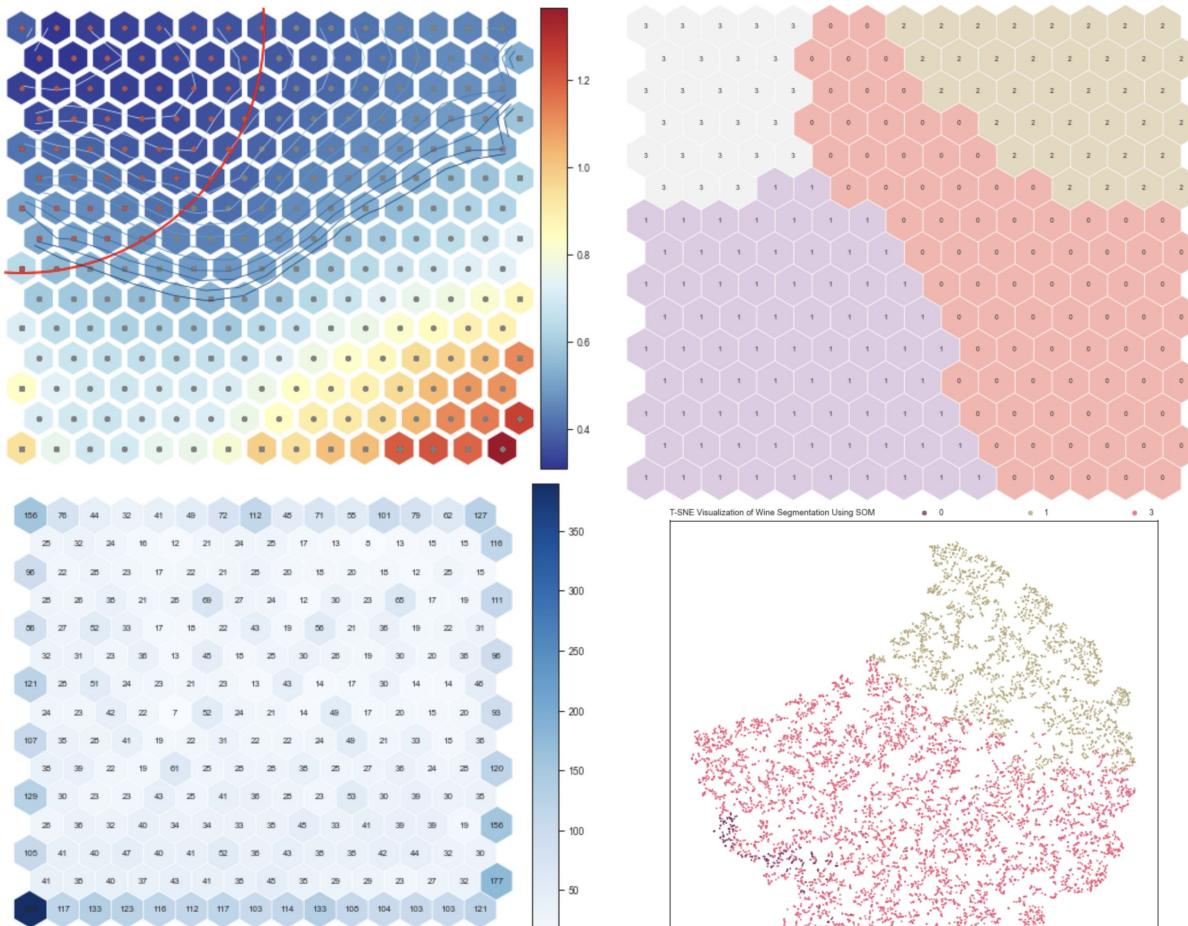
Silhouette Analysis for Kmeans Clustering at Various K, Wine Segmentation



Other Algorithms We Tried

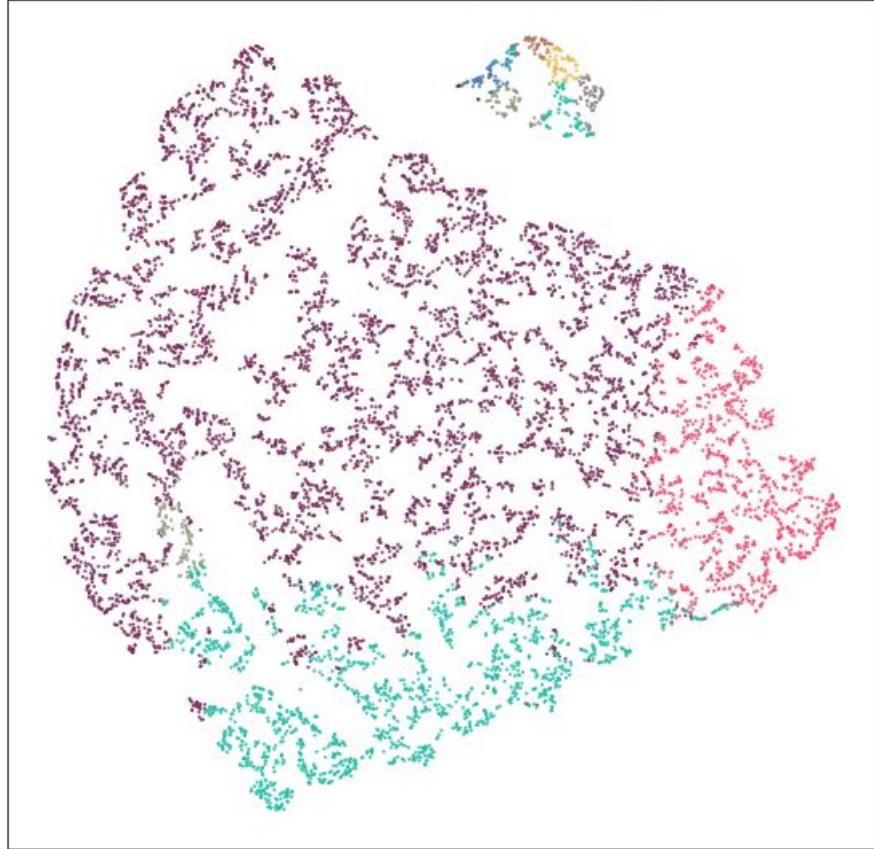
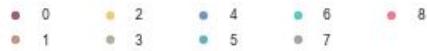


Self-Organizing Maps: Value Segmentation

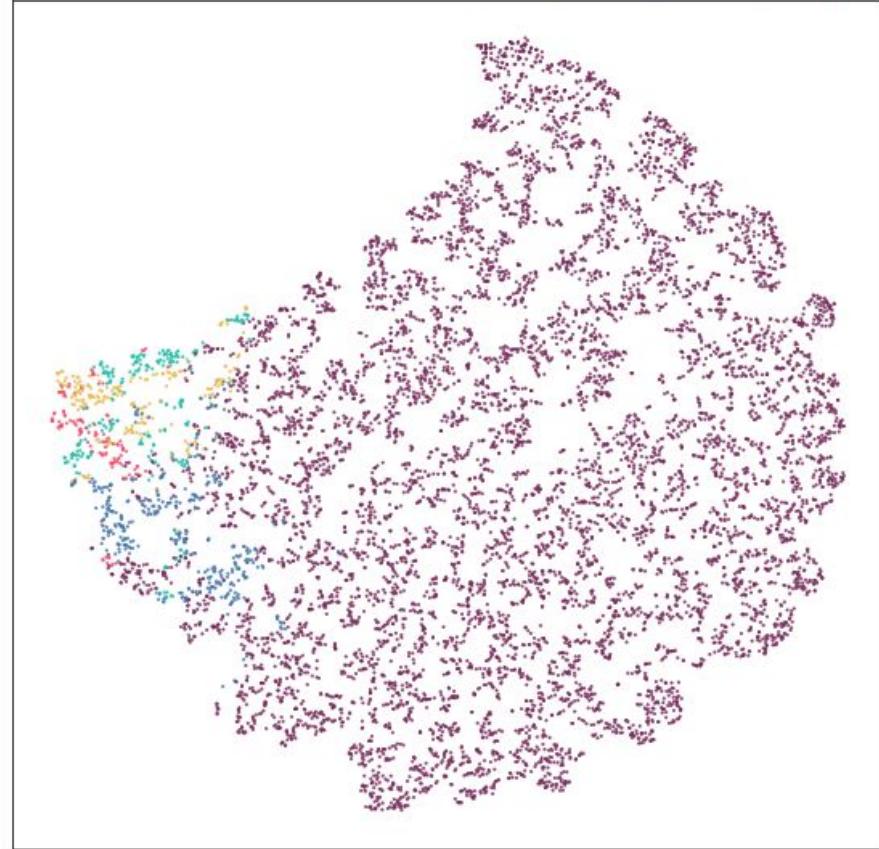


Self-Organizing Maps: Wine Segmentation

T-SNE Visualization of Value Segmentation Using Mean Shift



T-SNE Visualization of Wine Segmentation Using Mean Shift

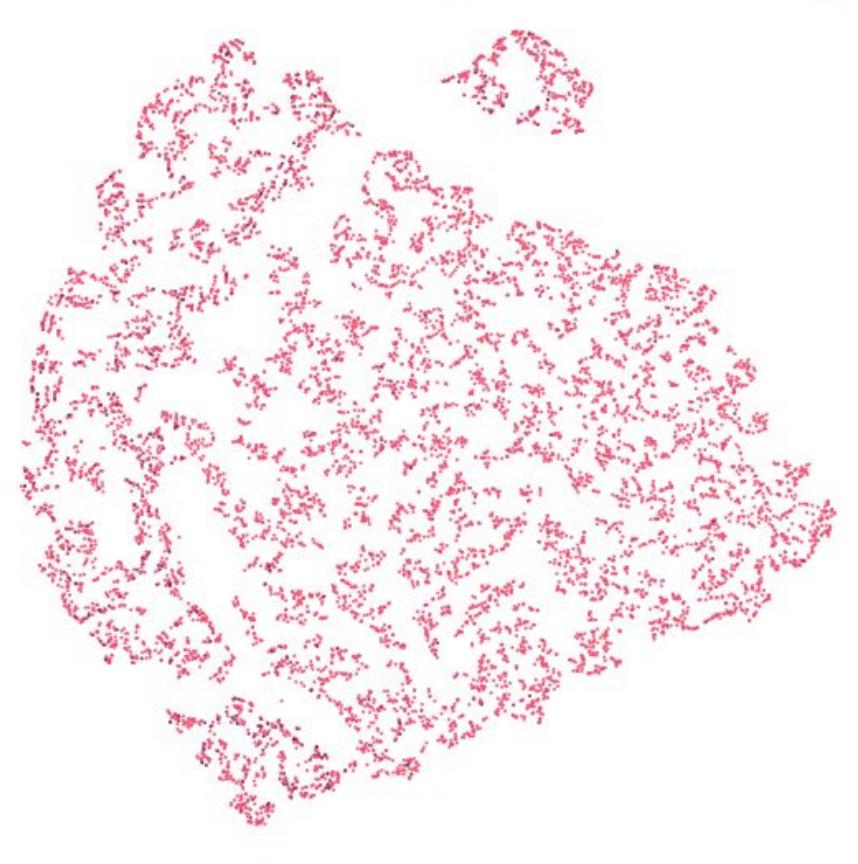


Mean Shift Algorithm

T-SNE Visualization of Value Segmentation Using DBSCAN

● -1

● 0



T-SNE Visualization of Wine Segmentation Using Mean Shift

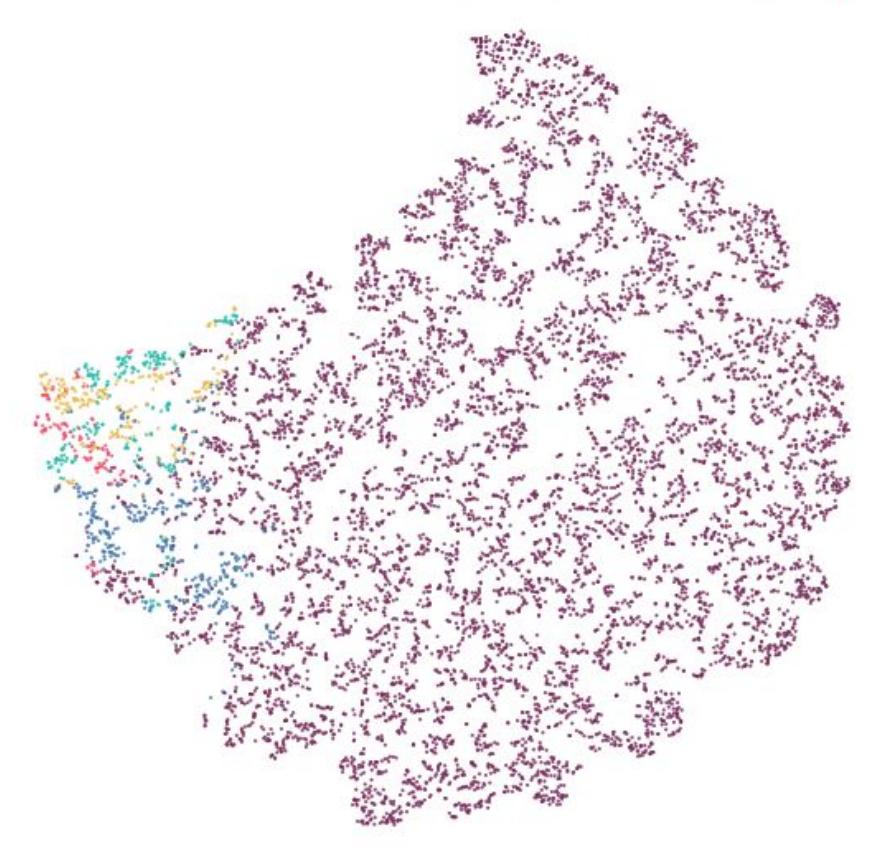
● 0

● 1

● 2

● 3

● 4



DBSCAN Algorithm