# Clustering: Customer Clustering

## Version 1:

### Updates from v0 to v1:

- Differentiation between categorical and numerical variables despite all of them being in a numerical state.

- Distinction between binary and ordinal categorical variables.

- Different preprocessing for each group.

- New model saved with the updated results.

### Reason for the updates:

I had previously put all features through the preprocessing of numerical features, but later realized that this was a mistake.

It doesn't make sense to standardize categorical features in the same way, and it's risky to treat ordinal, non-ordinal, and binary features the same, as it affects how the algorithm learns.

### Results:

I achieved better results in terms of K-Means inertia. In v0, the inertia started at 10,000, while in v1, it starts at 4,000.

Silhouette Method - Silhouette Score: -0.20

Elbow Method - Inertia: 781.47

Reduction in Initial Inertia - Percentage Reduction: 91.30%