Non-Predictive Use of Decision Tree and Friends

How supervised machine learning models can help you beyond the usual task of prediction and classification

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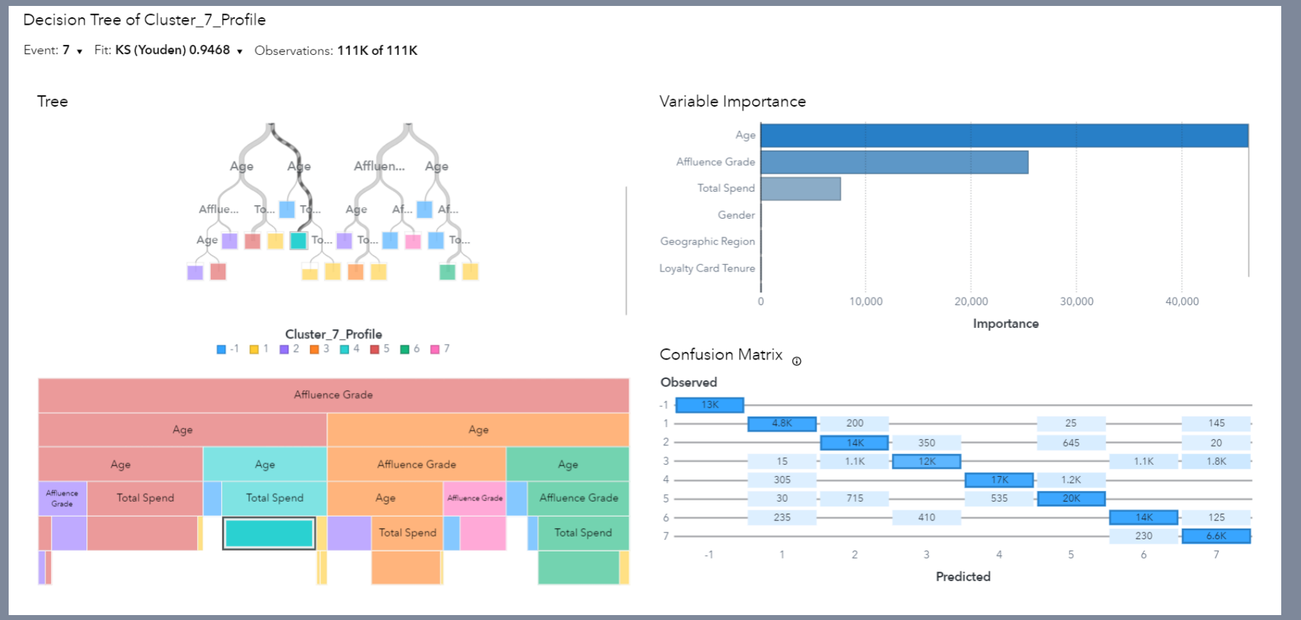
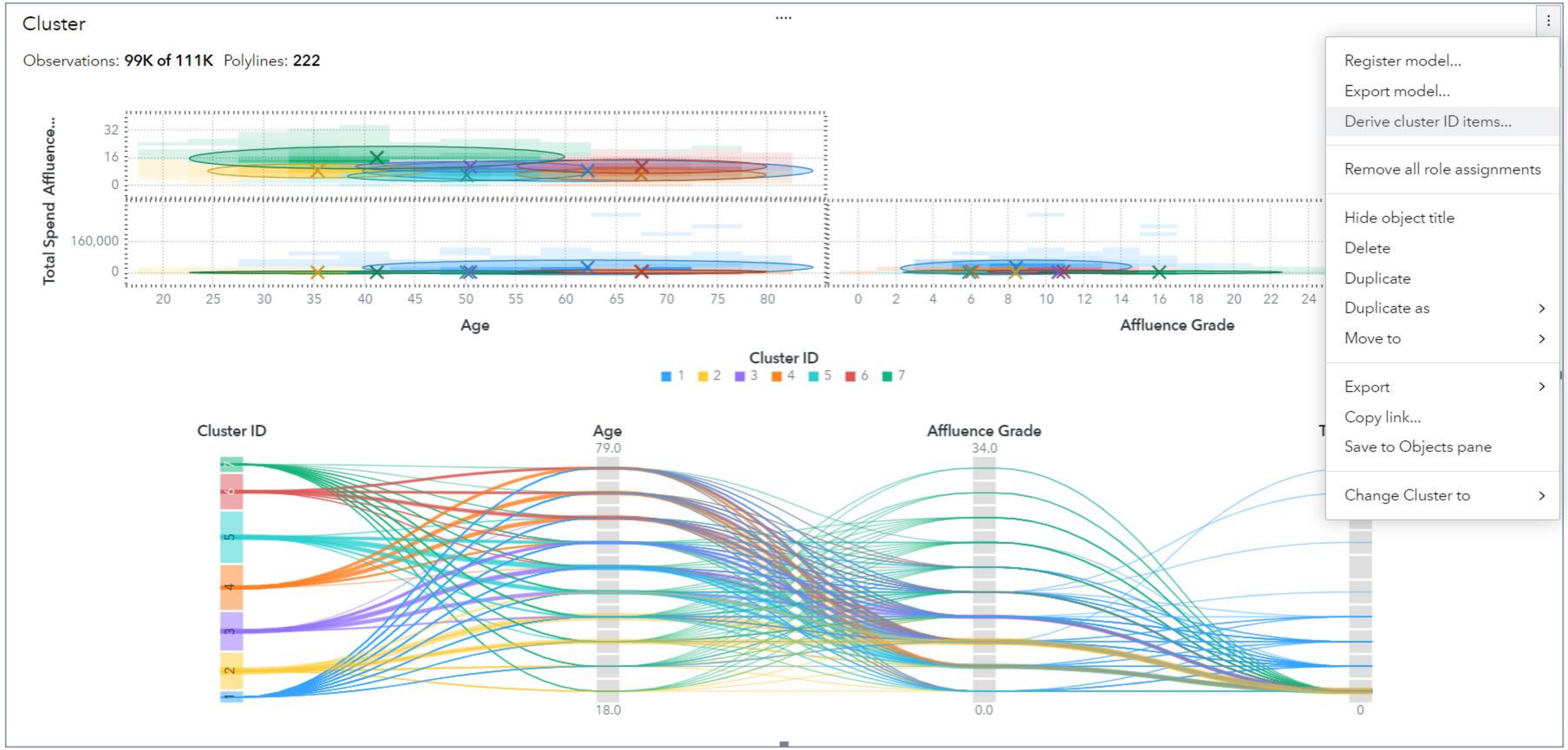
Youtube: DataPreparation4DataScience | Data Science Use Cases

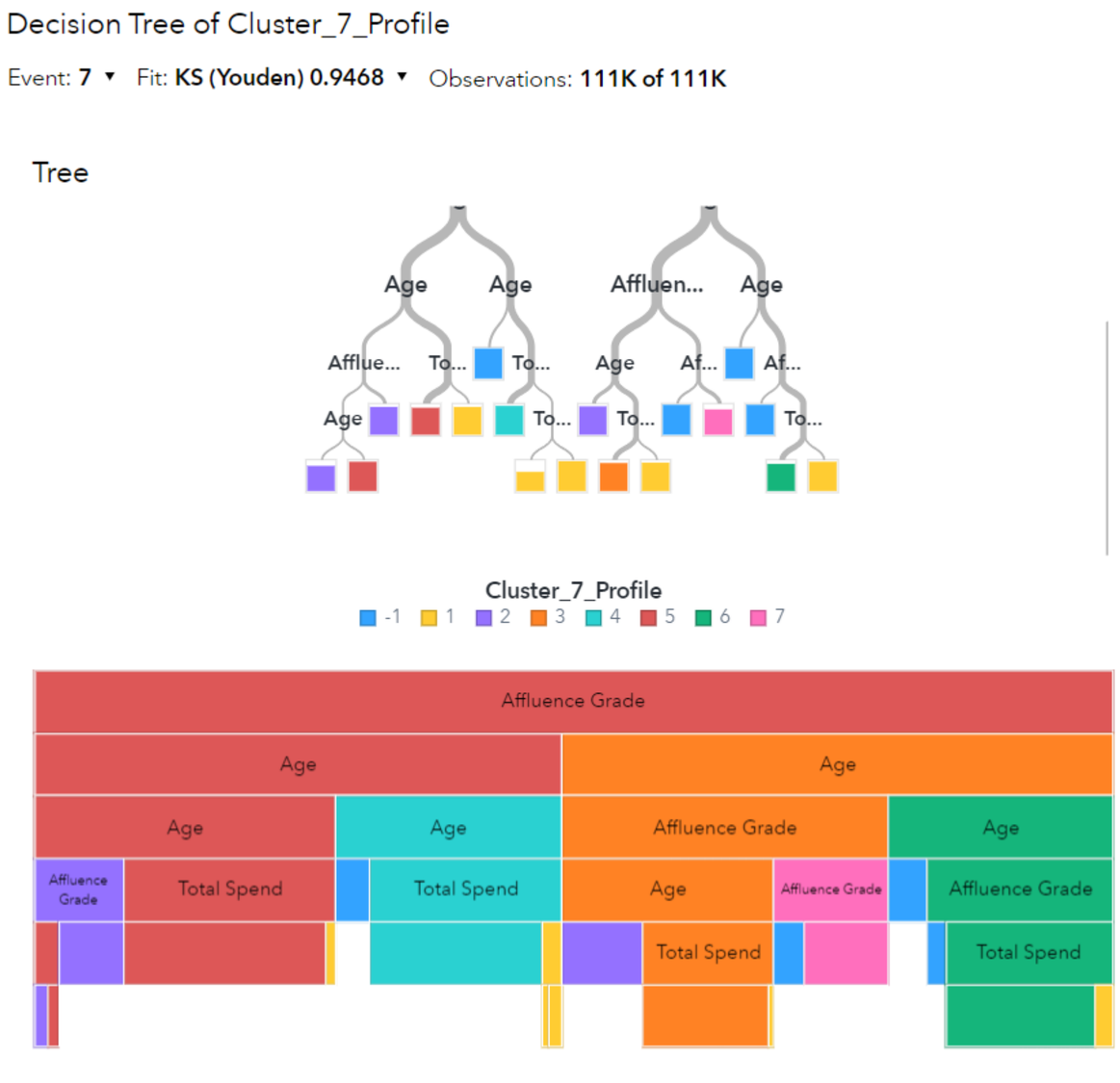
#4
Profiling the nature of clusters and segments

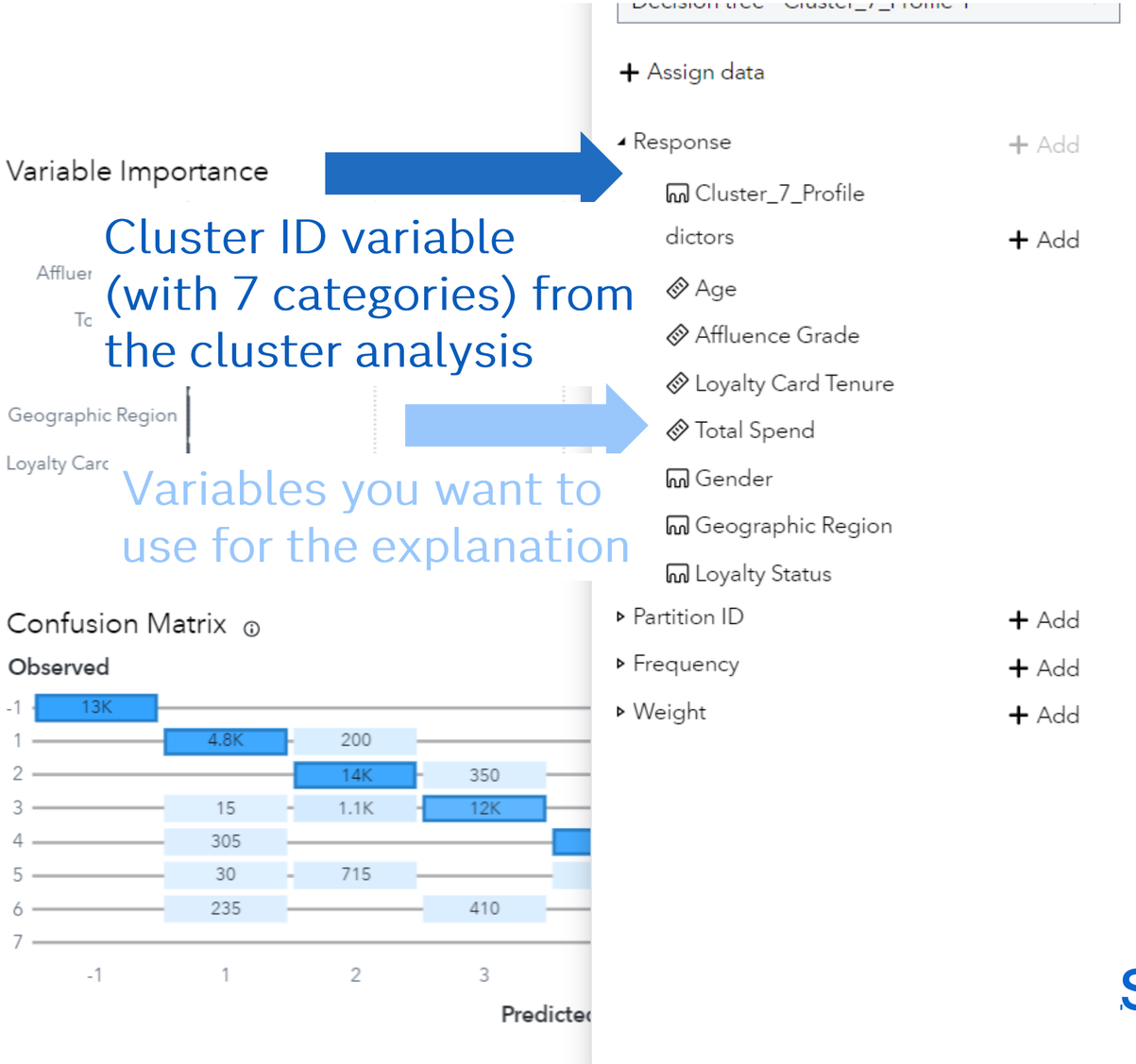


Step 1: Derive the ClusterIDs from your cluster model

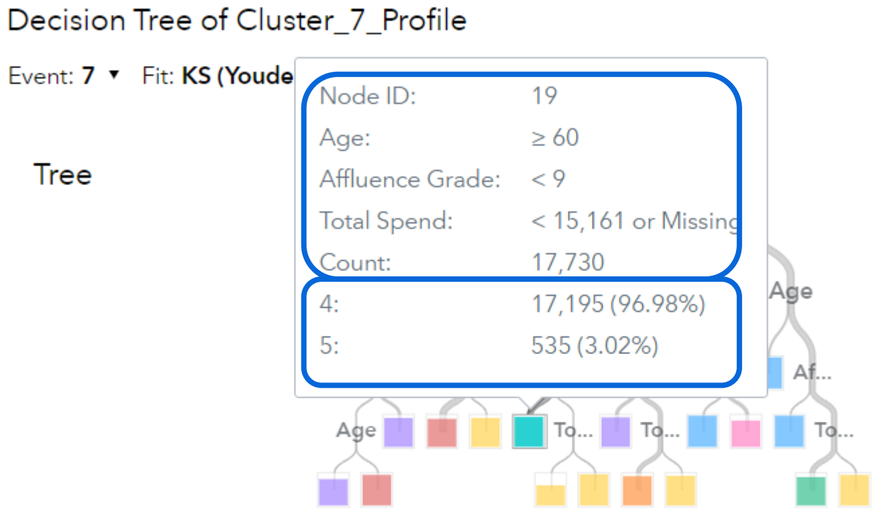


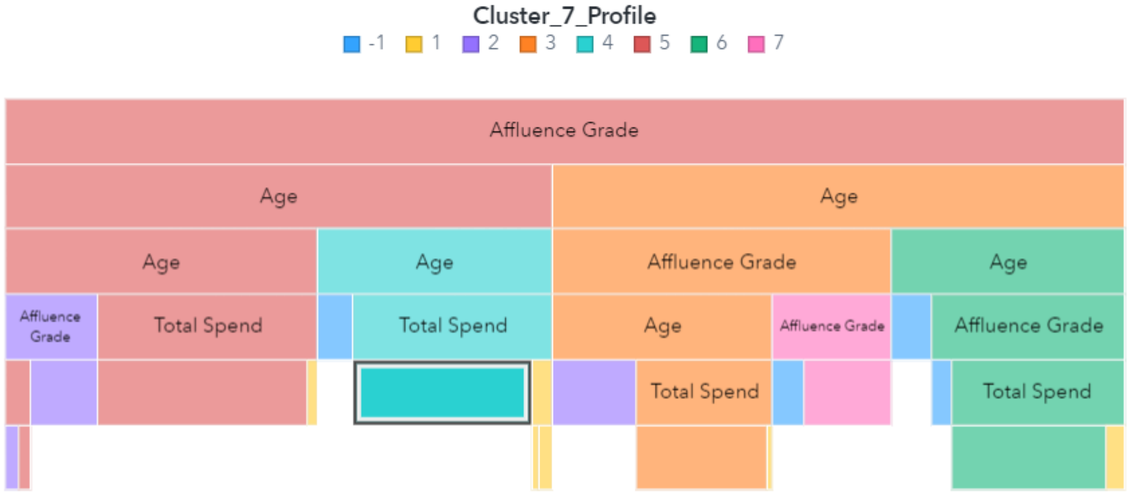
Step 2: Build a decision tree to “explain” why the differences between the clusters





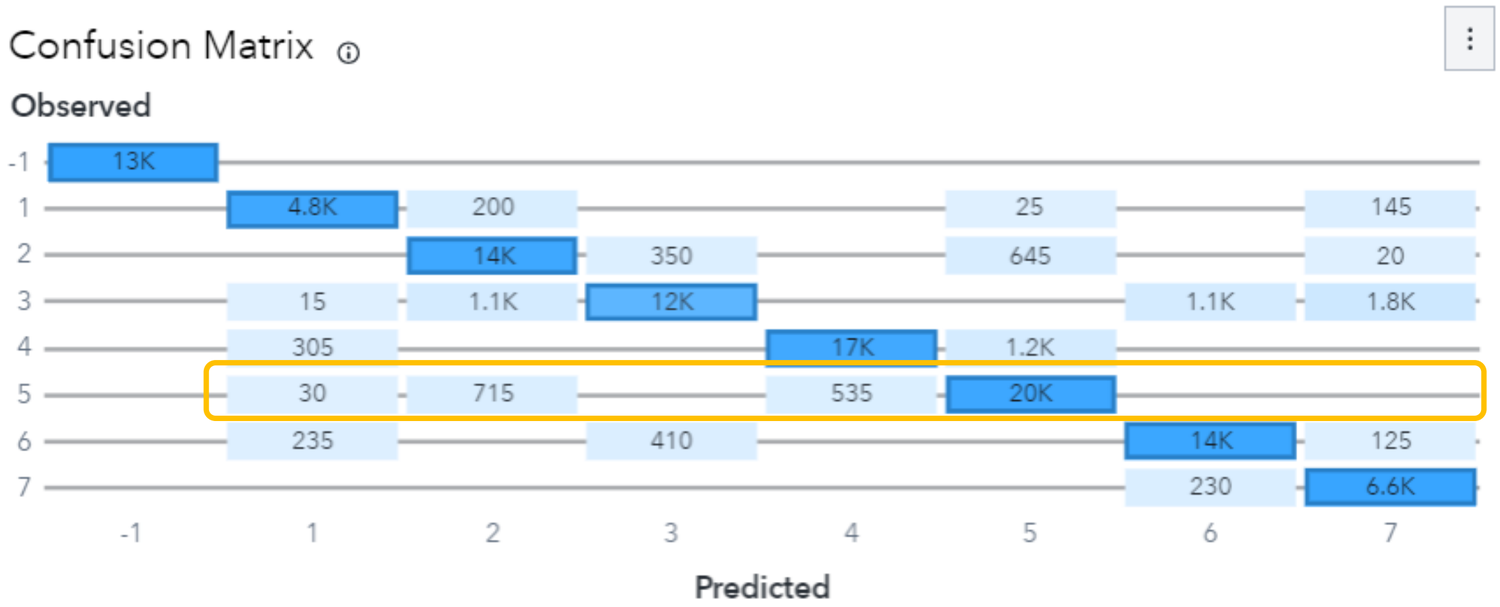
Step 3: Review individual leaves of the tree for the rules and the “predicted” clusters



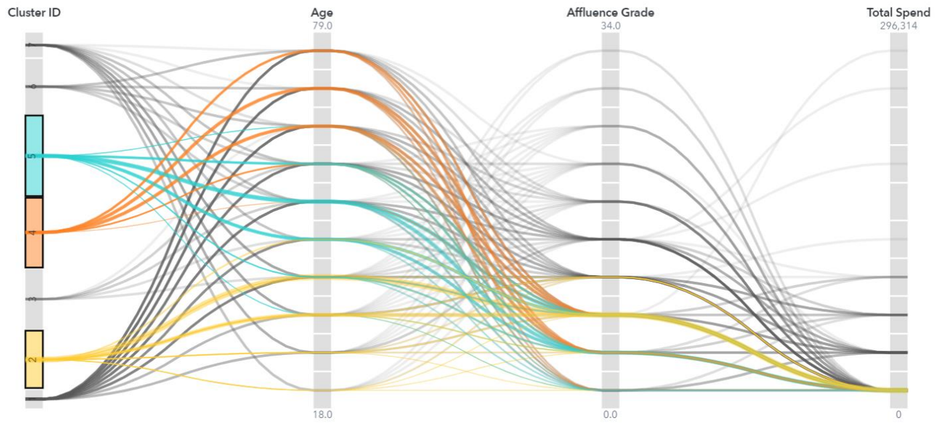


- Node 19 represents
  - 17,730 observations who are
  - older 60 years,
  - have a total spent of < 15,000 and
  - are less affluent
- 97% are found in cluster 4
- 3% are found in cluster 5

Step 4: Review the confusion matrix to understand which clusters are “similar” to each other as some of the analysis subjects are assigned to the “wrong” (= “nearby”) cluster



- Analysis subjects from cluster 5 are
  - Mostly assigned to cluster 5
  - Some them however to cluster 2 and 4



Application Recommendations

- Preferred Method: Decision Tree
- Recommended SAS Tool: SAS Visual Analytics

- This is not limited to cluster models built in SAS Visual Analytics!
- You can use the cluster/segment assignments from any model
  - SAS Model Studio
  - Cluster Models from SAS Procedures
  - Segmentations in general