Customer Segmentation using Data Science

1: Feature Engineering

The goal of feature engineering is simply to make your data better suited to the problem at hand
Consider “apparent temperature” measures like the heat index and the wind chill. These quantities attempt to measure the perceived temperature to humans based on air temperature, humidity, and wind speed, things which we can measure directly.
You could think of an apparent temperature as the result of a kind of feature engineering, an attempt to make the observed data more relevant to what we actually care about.

You might perform feature engineering to:

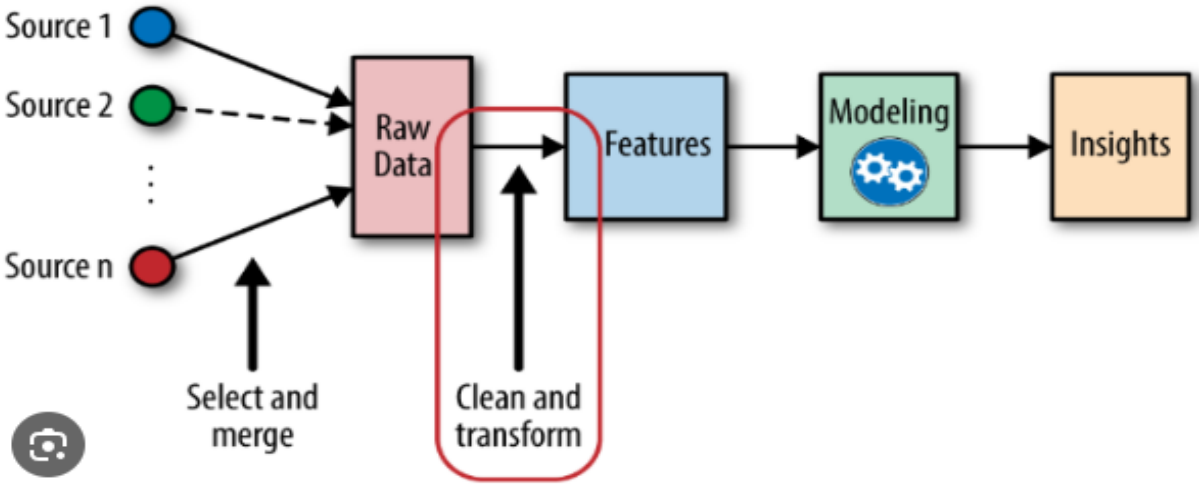
* improve a model’s predictive performance

*reduce computational or data needs

*improve interpretability of the results

The features you use influence more than everything else the result. No algorithm alone, to my knowledge, can supplement the information gain given by correct feature engineering.

— Luca Massaron.

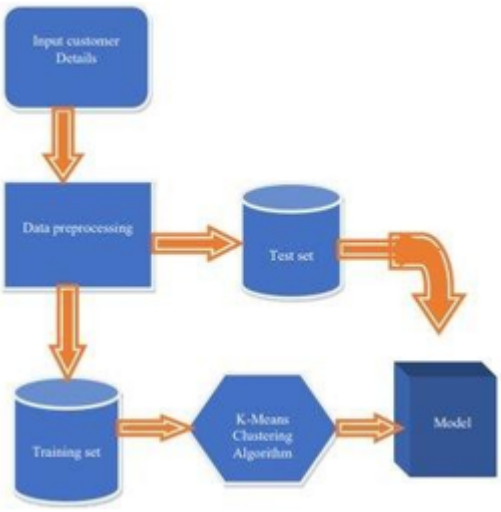


2:Applying Clustering Algorithms:

In a business context: Clustering algorithm is a technique that assists customer segmentation which is a process of classifying similar customers into the same segment. Clustering algorithm helps to better understand customers, in terms of both static demographics and dynamic behaviors. Customer with comparable characteristics often interact with the business similarly, thus business can benefit from this technique by creating tailored marketing strategy for each segment.

In a data science context: Clustering algorithm is an unsupervised machine learning algorithm that discovers groups of data points that are closely related. The fundamental difference between supervised and unsupervised algorithm is that:

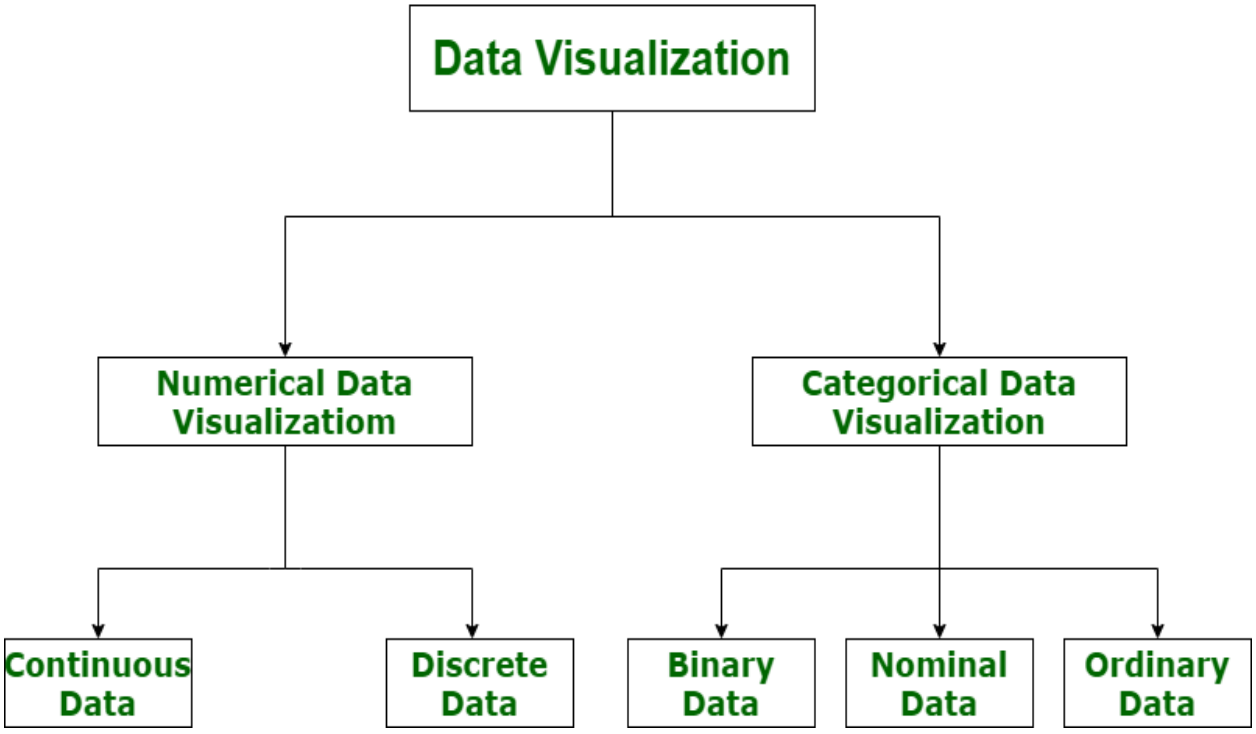
- **supervised algorithm: it requires partitioning the dataset into train and test set, and the algorithm learned based on the output/label of the train dataset and generalize it to unobserved data. For instance, decision tree, regression, neural networks.**
- **unsupervised algorithm: it is used to discover hidden patterns when there isn't any defined output/label from the dataset. For instance, clustering, association rule mining, dimension reduction.**



3:Visualization:

Data Segmentation is the process of taking the data you hold and dividing it up and grouping similar data together based on the chosen parameters so that you can use it more efficiently within marketing and operations. Examples of Data Segmentation could be Gender Customers vs Prospects.

Data Segmentation involves dividing up and grouping data into relevant segments, allowing an organisation to make better marketing decisions based on customer personalisation and prospect insights.



4:Interpretation.

Data visualization allows business users to gain insight into their vast amounts of data. It benefits them to recognize new patterns and errors in the data. Making sense of these patterns helps the users pay attention to areas that indicate red flags or progress.

1.Identify your customers. ...
2.Divide customers into groups. ...
3.Create customer personas. ...
4.Articulate customer needs. ...
5.Connect products and services to customers' needs. ...
6.Evaluate and prioritize top segments. ...
7.Develop specific marketing strategies. ...
Evaluate the effectiveness of your.