# Silhouette coefficient

## Definition and purpose

Silhouette refers to a method of interpretation and validation of consistency within clusters of data. The technique provides a succinct graphical representation of how well each object has been classified.

Silhouette analysis identifies the **average distance for all the points in a cluster** and the average distance between every point in a class and the point in another class and **determines** **how well the clusters are formed from the given set of data points**. If the **distance between points within the class is very close** and the **distance between points from different classes is more**, then it is considered that the algorithm **performs very well** to identify the clusters. **The silhouette coefficient ranges between -1 to 1**, -1 being the least performance and 1 being the best.