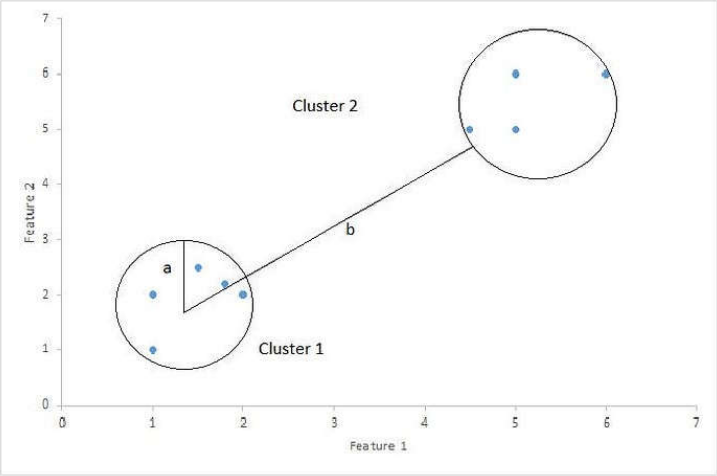
SILHOUETTE SCORE

Values: between -1 to +1

-1 = Clustering is wrong

0 = Clusters are same/indifferent/overlap

1 = Clusters are far away



Cohesion: Mean of distance of one data point to other points in the same cluster **(a)**

Separation: Minimum of Average distances of one point in a cluster with points from other clusters **(b)**

$$s = \frac{b - a}{\max(a, b)}$$

Step 1: Create a distance matrix

Step 2: Calculate Cohesion (a)

Step 3: Calculate separation (b)

Step 4: Calculate S

Cluster Label

Point	Cluster Label
P1	1
P2	1
P3	2
P4	2

Dissimilarity Matrix

Point	P1	P2	P3	P4
P1	0	0.10	0.65	0.55
P2	0.10	0	0.70	0.60
P3	0.65	0.70	0	0.30
P4	0.55	0.60	0.30	0

Point P1: $SC = 0.833$

Point P2: $SC = 0.846$

Point P3: $SC = 0.556$

Point P4: $SC = 0.478$

Cluster 1 $Average\ SC = 0.84$

Cluster 2 $Average\ SC = 0.517$

Overall

- $Average\ SC = \frac{0.840+0.517}{2} = 0.68$