

### AffinityPropagation:

- Creates clusters by sending messages between pairs of samples until convergence
- The two important parameters are *preference* and damping factor.
- *Damping factor* which damps the responsibility and availability messages to avoid numerical oscillations.

### MeanShift:

- Clustering aims to discover *blobs* in a smooth density of samples.
- Data points are covered with based on radius and bandwidth.
- It is eliminate near-duplicates to form the final set of centroids.

### DBSCAN:

- It views clusters as areas of high density separated by areas of low density.
- Samples that are in areas of high density
- Higher `min_samples` or lower `eps` indicate higher density

### OPTICS:

- It has many similarities with the DBSCAN
- The OPTICS algorithm builds a *reachability* graph, which assigns each sample both distance and a spot within the cluster.
- These two attributes are assigned when the model is fitted.

### Birch:

- It is a tree called the Clustering Feature Tree – CFT.
- The CF Nodes have a number of sub clusters called Clustering Feature sub clusters
- It has two parameters, the threshold and the branching factor and the branching factor limits the number of sub clusters in a node and the threshold limits the distance between the entering sample and the existing sub clusters.

### SpectralClustering:

- It performs a low-dimension embedding of the affinity matrix between samples, followed by clustering
- The number of clusters to be specified in advance.
- It works well for a small number of clusters, but is not advised for many clusters.