Fuzzy Clustering

It is a type of soft method in which a data object may belong to more than one group or cluster. Each dataset has a set of membership coefficients, which depend on the degree of membership to be in a cluster. Fuzzy C-means algorithm is the example of this type of clustering; it is sometimes also known as the Fuzzy k-means algorithm.

Fuzzy clustering assigns membership probabilities to each data point for each cluster, indicating the degree to which the data point belongs to the cluster. This allows data points to belong to multiple clusters with varying degrees of membership.

How it works: FCM is similar to K-Means, but instead of assigning each data point to a single cluster, it assigns a membership value between 0 and 1 for each cluster. The algorithm iteratively updates the cluster centers and membership values.