Resolving Concurrent Graph Mutation Conflicts

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Review

K-Clustering

- ► Simplest unsupervised learning algorithm that solve the clustering problem.
- ► The process by objects are classified into number of groups so that they are as much dissimilar from one group to the other, and as much similar within each group.
- ► Grouping is done in the following fashion:
  - ► Determine the centroid co-ordinate for each cluster
  - ► Calculate the Euclidean distance from each object to the centroid of the cluster
  - ► Group the object based on mimimum distance
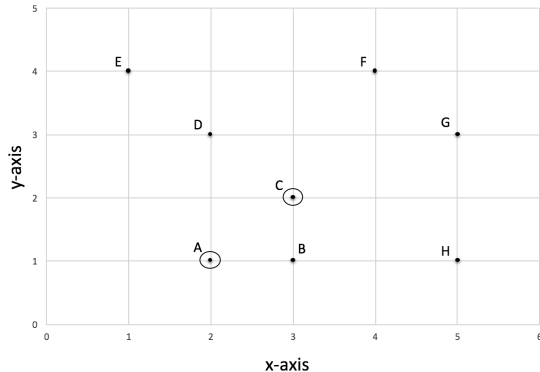
K-Clustering

Conflict in k-clustering algorithm

Figure: k-clustering algorithm

K-Clustering

Examples of Conflict in vertex related problems.

1) K-Cluster Algorithm

$A = (2,1), B = (3,1), C = (3,2), D = (2,3), E = (1,4), F = (4,4)$
$G = (5,3), H = (5,1)$, where B, D, E, F, G, H are objects and A and C are two clusters.

Calculating Euclidean distance from each object to both of the clusters:

$DA = \sqrt{(2-2)^2 + (3-1)^2} = 2$

$DC = \sqrt{(2-3)^2 + (3-2)^2} = \sqrt{2}$

$\therefore DC < DA$

$BA = \sqrt{(3-2)^2 + (1-1)^2} = 1$

$BC = \sqrt{(3-3)^2 + (2-1)^2} = 1$

$\therefore AB = BC$