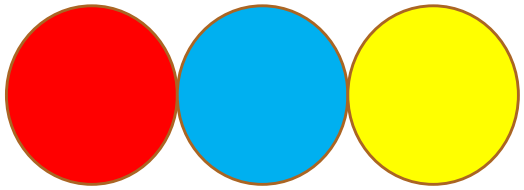
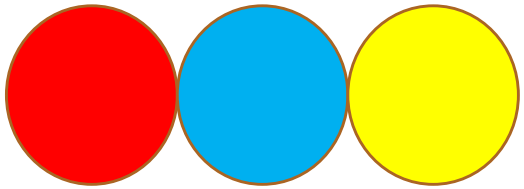
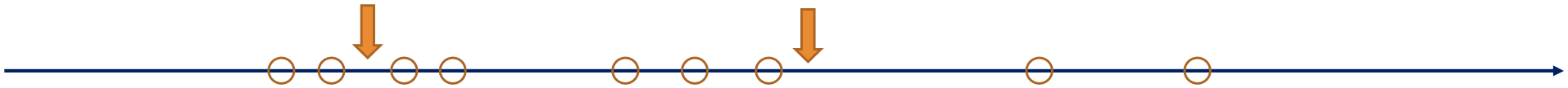
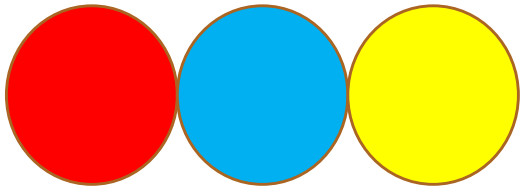
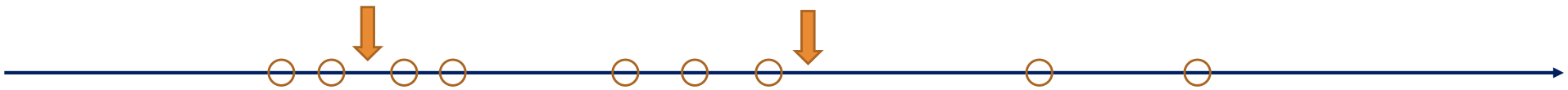


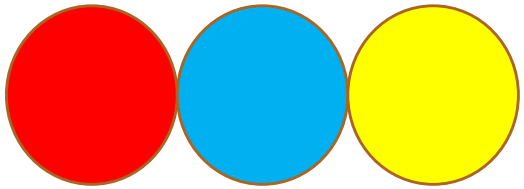




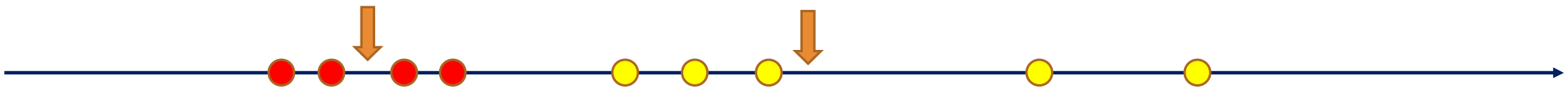


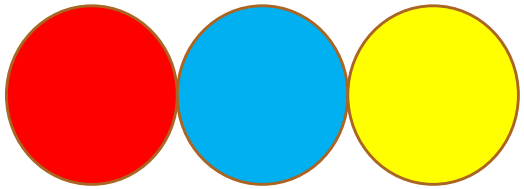
Then, find the distance between each point and each mean.



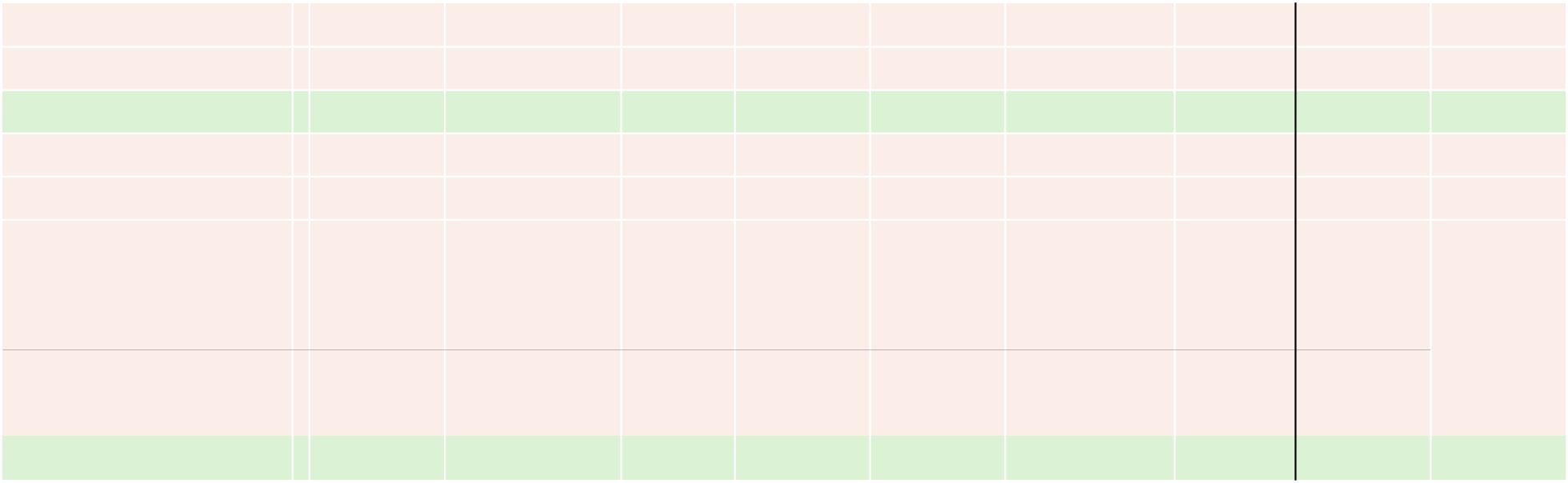


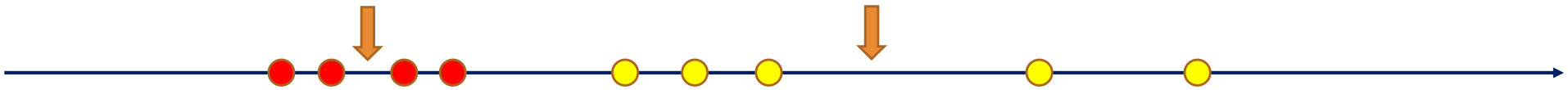
Use the shortest distance to assign a point to a cluster.

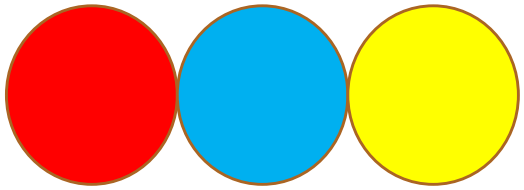


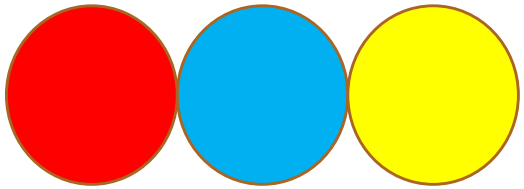


Update the mean of each cluster.

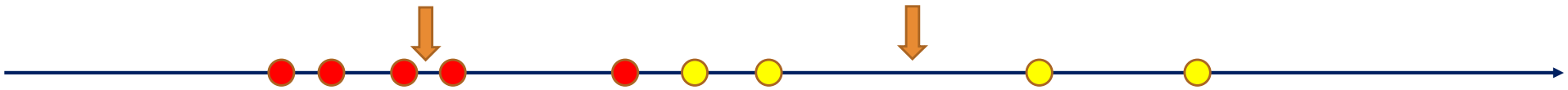


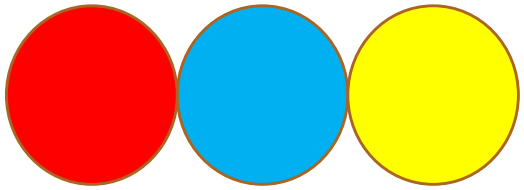


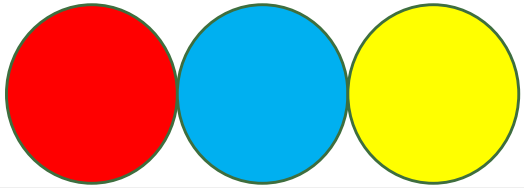




The means stay the same at the 3 iteration.



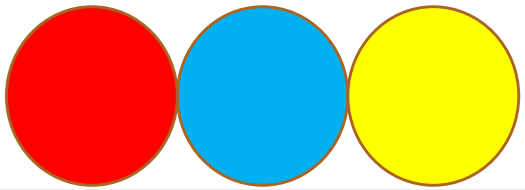




Advanced Questions:

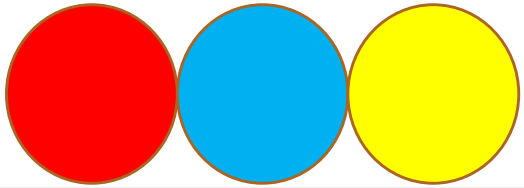
Is there any method to determine the optimal value of k?

Other than absolute value (Manhattan distance), may we use other distance formula?



Applications:

- **Image compression**
- **Document analysis**
- **Market segmentation**



Further Topics:

- **K-Medoids Clustering**
- **Hierarchical Clustering**
- **Hard/Soft Clustering**
- **Clustering with Outliers**