========== CS764 Lab 01b ==========

This file contains the answers to the questions posed.

1) k-means clustering is an algorithm for unsupervised machine learning algorithms. The objective of k-means is to group similar data points together and discover the underlying patterns. To achieve this objective, k-means looks for a fixed number (k) of clusters in a dataset. This algorithm starts with first grouping randomly selected centroids,which are used as the beginning points for every cluster, and then perform iterative calculations to optimize the positions of the centroids.
   It halts creating and optimizing clusters when either:

   - The centroids have stabilized/converged i.e. there is no change in their values because the clustering has been successful.
   - The defined number of iterations has been achieved.

2) Yes, the results of k-means depend heavily on the initialization of centroids. The k-means algorithm is a non-convex algorithm and we can't find the global optimal clusters and their means. We can only find the local optimum. Hence different initialization techniques leading to different implementations are worked out to get better results.