Practical: Unsupervised Learning

1. Implement the squared Euclidean distance function to compare a set of points to a cluster mean.

   a. Load the data from a saved file "two_cluster_example.pickle"
   b. Intialise the two means as being (-2,1) and (0, -1)

2. Implement the K-means algorithm
   a. The Expectaction Step (E-Step)
   b. The Maximisation Step (M-Step)
   c. As a loop

   Answer:
   ```
   After 1 iteration
       Mean1: [-2.34520662 -0.56958997]
       Mean2: [ 1.19797457  0.43053383]

   After 2 iterations
       Mean1: [-2.12074842 -0.65420751]
       Mean2: [ 1.86287449  0.76383918]

   After 3 iteration
       Mean1: [-2.10058756 -0.64715212]
       Mean2: [ 1.89054716  0.77381202]
   ```


3. Replace the squared Euclidean distance function with the median function