problem 1e: Clustering 2D pointsChart, scatter chart

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problem 1f: Trying the Algorithm on MNIST

each centroid is a point in R^784, and it is mean of each cluster. By applying implemented algorithm on given data set, we attempt to classify given data set into 10 classes. But as we can see from the result, cluster 4(centroid 4) is omitted. This is due to the behavior of function update\_assignment. update\_assignment's return value does not include centroid which does not have any data point closest to it. So as a result we obtain 9 clusters(centroids), and again, since centroids are mean value of each cluster, the resulting centroid image looks like actual digits.