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ECE 1395 – Dr. Dallal

Assignment 9

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Question 1: K-Means Clustering and Image Segmentation

Part c

- Image 1



This image has been segmented with a K value of 3, over 7 iterations, and 5 repeats.

- Image 2



This image has been segmented with a K value of 5, over 13 iterations, and 15 repeats.

- Image 3



This image has been segmented with a K value of 7, over 20 iterations, and 30 repeats.

Part d



By increasing the K value from 3 to 7, the number of layers of color in the image is greater than before. This makes it easier to see the distinguish the patterns in the leaves.



By increasing the number of repeats from 15 to 30, there seems to be little difference in the actual quality of the image. This might be because the global minima has been reached both times.



By decreasing the number of iterations from 20 to 7, there is little noticeable difference in the earlier image.

In total, because the actual sizes of the images have been shrunk, it is more difficult to determine the effects of some of the factors on the images. The factor that has the most noticeable difference on the output images is the K value which determines the number of layers present in the images.