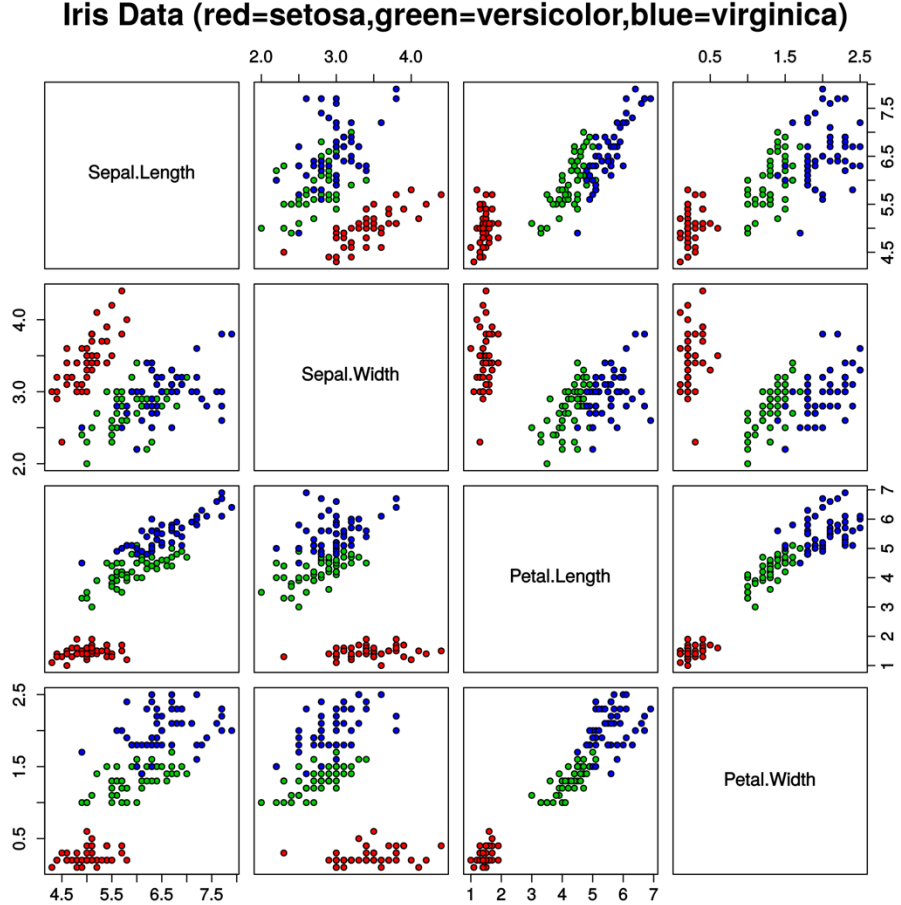
K-Means

CSCI 410
Eric Ewing

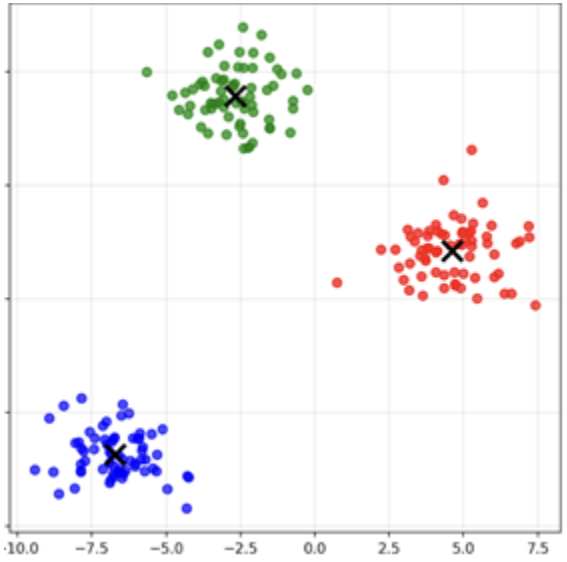

Iris Data (red=setosa,green=versicolor,blue=virginica)
Sepal.Length
Sepal.Width
Petal.Length
Petal.Width
2.0
3.0
4.0
0.5
1.5
2.5
4.5
5.5
6.5
7.5
1
2
3
4
5
6
7

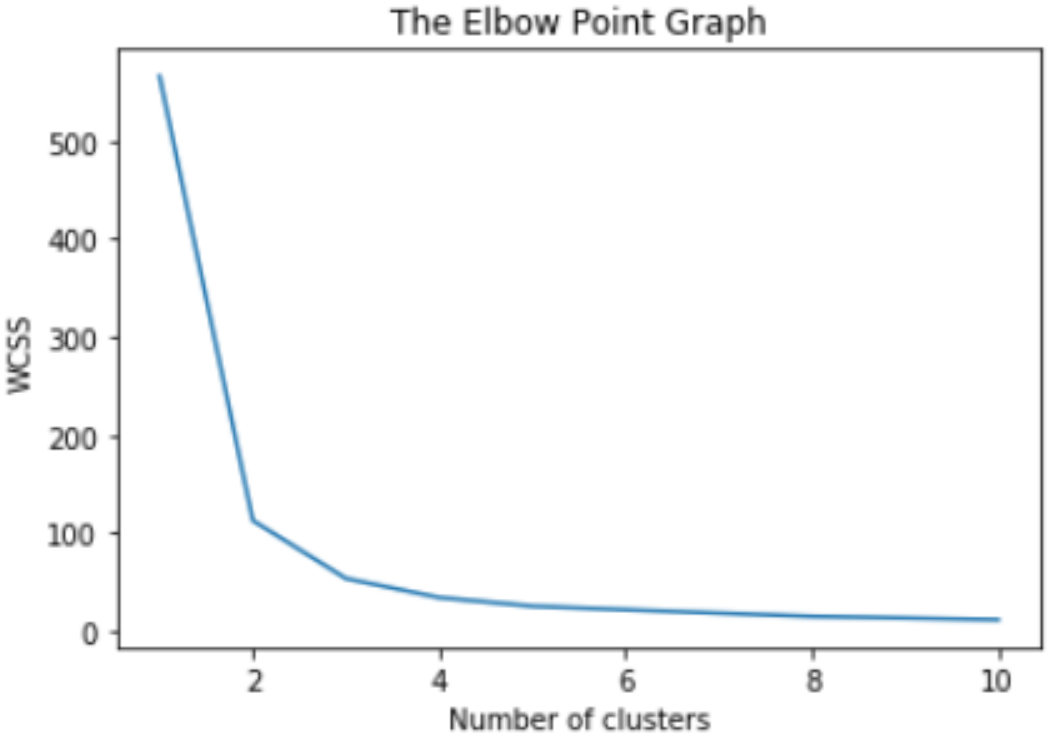
Visualizing K-Means

https://www.naftaliharris.com/blog/visualizing-k-means-clustering/

Finding Appropriate K

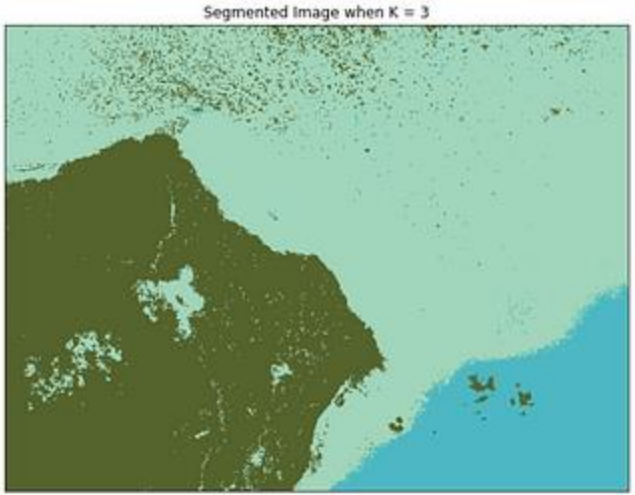
What is the best value of k?





K-Means for Image Segmentation

1. Turn each pixel into a vector of RGB values
2. Run K-means on vectors and assign each point to the nearest centroid
3. (Optional) create new image with pixel color determined by assigned centroid



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Downsides of K-means Segmentation

K-means segmentation only uses color information, not *semantic* information