Homework 8

2.

A picture containing shoji, building, shrimp

Description automatically generateda)

b) For the K nearest neighbor plots I would say that their decision boundaries look largely similar, they only big difference that can be seen among the plots is that with the make circles plot the K=1 has a tail that can’t be seen in the other two nearest neighbor graphs.

c) For the radius based (distance) nearest neighbor plots their decision boundaries look to be largely similar with the only differences between the two being their slopes for the moon and linearly separable graphs being slightly different and then for the make circles graph the tail they all have is of slightly different sizes but all in the same general area. However for the fixed radius based nearest neighbors they seem to be quite different with red classification region being much greater as you move up in radius distance.

d) For the fixed radius based nearest neighbor and the k nearest neighbor plots their graphs look quite different from each other. When looking at the fixed radius nearest neighbor their decision boundaries have a totally different line (different slope) than that of the k nearest neighbor and they tend to classify blue plots inside of the red region. This can be observed for all three of the plots.

e) From my observations of the HW7 classifiers it looks like only the SVC Radial based function has a plot that is similar decision boundary to the Radius based nearest neighbor graphs