Programming Assignment 2 CSI2110
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Experiment 1
In experiment 1, I found that the results of the rangeQueue using the K-D tree implementation had the same results as the linear rangeQueue. The order of the neighbors was different, but the same neighbors were found. I called rangeQueue with the 6 different points and the neighbors were printed line by line. All the neighbors were the same but in different orders. Files showing the neighbors found are labelled in the zip file.

Experiment 2
In experiment 2, I made 2 methods that will call the rangeQueue method with an argument for the eps and the points. It goes through all the points in intervals of 10, and then it records the time before and after the rangeQueue. The time is then added to a total time variable and after it runs through all points, it returns the time. In the main, I call the methods 3 times, one for each point cloud and the results are as follows:
Average time for rangequery with KD tree point cloud 1 = 27633ns
Average time for rangequery with KD tree point cloud 2 = 46097ns
Average time for rangequery with KD tree point cloud 3 = 36027ns
Average time for rangequery with linear point cloud 1 = 69570ns
Average time for rangequery with linear point cloud 2 = 112021ns
Average time for rangequery with linear point cloud 3 = 98555ns

As we can see, the rangeQuery with K-D tree implementation is faster than the linear implementation.
I did not divide by 1000000, it would make all the times 0ms so I measured in ns.

Experiment 3
I could not seem to find a way to run DBScan properly, when I ran it, it would have a null error, despite me not changing anything from the given code (PA1 solution)
I did not complete experiment 3.