**Software Methods – HM2**

The subject of my project is to visualize the distance of testing data to ten of its nearest neighbors in a window application.

The first step is reading the cvs file of training data through the tool, FileUtil, store them as point and display them in the two-dimension coordinate.

The second step is displaying one of the testing data as well as its information in the window, and then get its nearest points through knn algorithm, connect each of them to the testing point in the coordinate;

We also provide the function of “previous” and “next” to get to all the testing data respectively.

Following is the interface display. First it’s a welcome window, maybe i should make it disappear automatically after showing for a second. Never mind, we can click “start” to start the system. I intended to make a menu for the user to choose two-dimension or three-dimension, but i failed to realize the three-dimension. So just two-dimension. Well, in this window, as the requirements, we can choose which two of coordinates to be shown in the diagram. And visualizing the distance of the nearest points to a given testing point. I know there are many things should be improved. For example, the points of training data concentrates on a certain area, maybe i should optimize it to make it look good.

And then the most important thing is labelling the testing data by implementing an algorithm. My algorithm is for every testing data, meausring its distance from every traningdata to get the five of most nearnest points. This processing cost O(nk) time. Then we caculate the occurrence number of every label in these five points and return the most one as the label of the testing data. This processing takes constant time.