**CST8390 - Lab 3**

**K Nearest Neighbor (kNN)**

1. 1. What is the **percentage** of correctly classified items? 94.9438 %
   2. What are the True Positive (TP) rates of **each** class?

Class 1: 1.000

Class 2: 0.873

Class 3: 1.000

* 1. Look at the confusion matrix, which class is incorrectly classified?

b = 2

1. Now click on the “Choose” button to modify the number of neighbours that are used in the kNN search to 3.
2. What is the **percentage** of correctly classified instances? 94.9438 %
3. What are the True Positive (TP) rates of **each** class?

Class 1: 1.000

Class 2: 0.873

Class 3: 1.000

1. Look at the confusion matrix, which classes are incorrectly classified?

b = 2

1. Run the algorithm several times, always increasing the value of N by two, and always an odd number: 5, 7, 9, 11, 13. Each of your tests will be in the window of the lower left. Fill in the following table.

|  |  |  |
| --- | --- | --- |
| K | Percentage of correctly classified instances | Number of instances misclassified in each class |
| 5 | 95.5056 % | 1: 0  2: 7  3: 1 |
| 7 | 94.9438 % | 1: 0  2: 8  3: 1 |
| 9 | 96.0674 % | 1: 0  2: 6  3: 1 |
| 11 | 97.191 % | 1: 0  2: 5  3: 0 |
| 13 | 96.6292 % | 1: 0  2: 6  3: 0 |
| 15 | 96.0674 % | 1: 1  2: 6  3: 0 |

1. Repeat step 9 with “Percentage Split” of 70. Fill in the following table.

|  |  |  |
| --- | --- | --- |
| K | Percentage of correctly classified instances | Number of instances misclassified in **each** class |
| 1 | 96.2264 % | 1: 0  2: 2  3: 0 |
| 3 | 100 % | 1: 0  2: 0  3: 0 |
| 5 | 98.1132 % | 1: 0  2: 1  3: 0 |
| 7 | 100 % | 1: 0  2: 0  3: 0 |
| 9 | 100 % | 1: 0  2: 0  3: 0 |
| 11 | 100 % | 1: 0  2: 0  3: 0 |
| 13 | 100 % | 1: 0  2: 0  3: 0 |