**RESULTS WITH CROSS VALIDATION – 10 FOLD**

**Bayesian Network**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Classification** | | | | |
|  | **Class** | Happy | Interested | Sad | Worried | Stern |
| **True Class** | Happy | 28 | 0 | 0 | 0 | 0 |
| Interested | 21 | 0 | 0 | 0 | 0 |
| Sad | 24 | 0 | 0 | 0 | 0 |
| Worried | 21 | 0 | 0 | 0 | 0 |
| Stern | 18 | 0 | 0 | 0 | 0 |

Correctly Classified Instances 28 25 %

Incorrectly Classified Instances 84 75 %

* I suspect settings may need to be correctly set for Bayesian network – I’ve been using the default settings. Need to investigate.

**Naïve Bayes**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Classification** | | | | |
|  | **Class** | Happy | Interested | Sad | Worried | Stern |
| **True Class** | Happy | 6 | 5 | 7 | 8 | 2 |
| Interested | 8 | 2 | 4 | 5 | 2 |
| Sad | 13 | 2 | 4 | 2 | 3 |
| Worried | 9 | 0 | 3 | 7 | 2 |
| Stern | 5 | 2 | 5 | 2 | 4 |

Correctly Classified Instances 23 20.5357 %

Incorrectly Classified Instances 89 79.4643 %

**Logistic regression**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Classification** | | | | |
|  | **Class** | Happy | Interested | Sad | Worried | Stern |
| **True Class** | Happy | 8 | 4 | 5 | 8 | 3 |
| Interested | 9 | 3 | 3 | 4 | 2 |
| Sad | 13 | 2 | 2 | 2 | 5 |
| Worried | 11 | 1 | 2 | 5 | 2 |
| Stern | 6 | 1 | 7 | 2 | 2 |

Correctly Classified Instances 20 17.8571 %

Incorrectly Classified Instances 92 82.1429 %

**Multilayer Perceptron / Neural net, one layer**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Classification** | | | | |
|  | **Class** | Happy | Interested | Sad | Worried | Stern |
| **True Class** | Happy | 6 | 5 | 8 | 8 | 1 |
| Interested | 3 | 6 | 5 | 4 | 3 |
| Sad | 7 | 5 | 7 | 4 | 1 |
| Worried | 7 | 3 | 4 | 5 | 2 |
| Stern | 1 | 5 | 7 | 2 | 3 |

Correctly Classified Instances 27 24.1071 %

Incorrectly Classified Instances 85 75.8929 %

**K-nearest neighbors (1 neighbor, performance degrades with more neighbors)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Classification** | | | | |
|  | **Class** | Happy | Interested | Sad | Worried | Stern |
| **True Class** | Happy | 9 | 5 | 11 | 3 | 0 |
| Interested | 6 | 5 | 4 | 3 | 3 |
| Sad | 12 | 4 | 4 | 1 | 3 |
| Worried | 9 | 5 | 1 | 3 | 3 |
| Stern | 2 | 6 | 5 | 2 | 3 |

Correctly Classified Instances 24 21.4286 %

Incorrectly Classified Instances 88 78.5714 %

**Random Forest**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Classification** | | | | |
|  | **Class** | Happy | Interested | Sad | Worried | Stern |
| **True Class** | Happy | 4 | 7 | 8 | 7 | 2 |
| Interested | 7 | 5 | 3 | 4 | 2 |
| Sad | 8 | 4 | 5 | 2 | 5 |
| Worried | 7 | 4 | 4 | 3 | 3 |
| Stern | 1 | 5 | 4 | 2 | 6 |

Correctly Classified Instances 23 20.5357 %

Incorrectly Classified Instances 89 79.4643 %

**SVM**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Classification** | | | | |
|  | **Class** | Happy | Interested | Sad | Worried | Stern |
| **True Class** | Happy | 10 | 3 | 8 | 6 | 1 |
| Interested | 11 | 6 | 1 | 1 | 2 |
| Sad | 16 | 0 | 5 | 1 | 2 |
| Worried | 12 | 5 | 0 | 3 | 1 |
| Stern | 5 | 5 | 5 | 2 | 1 |

Correctly Classified Instances 25 22.3214 %

Incorrectly Classified Instances 87 77.6786 %