**RESULTS WITH CROSS VALIDATION – 10 FOLD – Extended Dataset**

**Bayesian Network**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Classification** | | | | |
|  | **Class** | Happy | Interested | Sad | Worried | Stern |
| **True Class** | Happy | 52 | 0 | 0 | 0 | 0 |
| Interested | 39 | 0 | 0 | 0 | 0 |
| Sad | 41 | 0 | 0 | 0 | 0 |
| Worried | 41 | 0 | 0 | 0 | 0 |
| Stern | 32 | 0 | 0 | 0 | 0 |

Correctly Classified Instances 52 25.3659 %

Incorrectly Classified Instances 153 74.6341 %

**Naïve Bayes**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Classification** | | | | |
|  | **Class** | Happy | Interested | Sad | Worried | Stern |
| **True Class** | Happy | 28 | 5 | 6 | 10 | 3 |
| Interested | 19 | 7 | 3 | 8 | 2 |
| Sad | 21 | 7 | 5 | 6 | 2 |
| Worried | 18 | 4 | 7 | 10 | 2 |
| Stern | 16 | 6 | 5 | 4 | 1 |

Correctly Classified Instances 51 24.878 %

Incorrectly Classified Instances 154 75.122 %

**Logistic regression**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Classification** | | | | |
|  | **Class** | Happy | Interested | Sad | Worried | Stern |
| **True Class** | Happy | 27 | 6 | 6 | 10 | 3 |
| Interested | 17 | 6 | 6 | 8 | 2 |
| Sad | 23 | 10 | 2 | 5 | 1 |
| Worried | 18 | 7 | 7 | 7 | 2 |
| Stern | 16 | 4 | 5 | 5 | 2 |

Correctly Classified Instances 44 21.4634 %

Incorrectly Classified Instances 161 78.5366 %

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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Classification** | | | | |
|  | **Class** | Happy | Interested | Sad | Worried | Stern |
| **True Class** | Happy | 26 | 7 | 3 | 11 | 5 |
| Interested | 17 | 8 | 1 | 6 | 7 |
| Sad | 22 | 10 | 3 | 4 | 2 |
| Worried | 20 | 6 | 4 | 9 | 2 |
| Stern | 15 | 11 | 0 | 5 | 1 |

Correctly Classified Instances 47 22.9268 %

Incorrectly Classified Instances 158 77.0732 %

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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Classification** | | | | |
|  | **Class** | Happy | Interested | Sad | Worried | Stern |
| **True Class** | Happy | 23 | 6 | 13 | 7 | 3 |
| Interested | 11 | 15 | 4 | 5 | 4 |
| Sad | 25 | 5 | 3 | 4 | 4 |
| Worried | 16 | 7 | 4 | 11 | 3 |
| Stern | 12 | 8 | 4 | 5 | 3 |

Correctly Classified Instances 55 26.8293 %

Incorrectly Classified Instances 150 73.1707 %

**Random Forest**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Classification** | | | | |
|  | **Class** | Happy | Interested | Sad | Worried | Stern |
| **True Class** | Happy | 14 | 8 | 12 | 11 | 7 |
| Interested | 11 | 11 | 6 | 4 | 7 |
| Sad | 20 | 7 | 6 | 4 | 4 |
| Worried | 7 | 7 | 5 | 17 | 5 |
| Stern | 6 | 9 | 5 | 6 | 6 |

Correctly Classified Instances 54 26.3415 %

Incorrectly Classified Instances 151 73.6585 %

**SVM**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Classification** | | | | |
|  | **Class** | Happy | Interested | Sad | Worried | Stern |
| **True Class** | Happy | 25 | 2 | 11 | 10 | 4 |
| Interested | 17 | 8 | 4 | 7 | 3 |
| Sad | 28 | 6 | 1 | 5 | 1 |
| Worried | 28 | 2 | 4 | 7 | 0 |
| Stern | 22 | 5 | 3 | 2 | 0 |

Correctly Classified Instances 41 20 %

Incorrectly Classified Instances 164 80 %