Data set Overview

|  | Capacity | Modality |
| --- | --- | --- |
| Dataset-Reddit | 12000 | Single |
| Dataset- Twitter | 900 | Single |
| DS- Reddit + Twitter | 12900 | Single |

Result without Hyperparameter Tuning

| Reddit + Twitter |  | | Precision | Recall | F1-Score | Support | Accuracy |
| --- | --- | --- | --- | --- | --- | --- | --- |
| SVM | Anxiety | 0.70 | 0.70 | 0.70 | 416 | 70.75 % |
| Bipolar | 0.65 | 0.81 | 0.72 | 412 |
| Depression | 0.72 | 0.67 | 0.69 | 443 |
| Neutral | 0.19 | 0.18 | 0.18 | 17 |
| Normal | 0.62 | 0.25 | 0.36 | 32 |
| PTSD | 0.81 | 0.71 | 0.76 | 427 |
| KNN | Anxiety | 0.60 | 0.36 | 0.45 | 416 | 39.61 % |
| Bipolar | 0.31 | 0.83 | 0.45 | 412 |
| Depression | 0.46 | 0.35 | 0.40 | 443 |
| Neutral | 0.00 | 0.00 | 0.00 | 17 |
| Normal | 0.29 | 0.06 | 0.10 | 32 |
| PTSD | 0.81 | 0.11 | 0.20 | 427 |

| Reddit + Twitter |  | | Precision | Recall | F1-Score | Support | Accuracy |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Logistic Regression | Anxiety | 0.78 | 0.73 | 0.75 | 416 | 73.78 % |
| Bipolar | 0.66 | 0.84 | 0.74 | 412 |
| Depression | 0.74 | 0.72 | 0.73 | 443 |
| Neutral | 0.08 | 0.06 | 0.07 | 17 |
| Normal | 0.78 | 0.22 | 0.34 | 32 |
| PTSD | 0.83 | 0.74 | 0.78 | 427 |
| Naive Bayes | Anxiety | 0.69 | 0.72 | 0.70 | 416 | 68.92 % |
| Bipolar | 0.79 | 0.56 | 0.65 | 412 |
| Depression | 0.65 | 0.82 | 0.72 | 443 |
| Neutral | 0.17 | 0.29 | 0.21 | 17 |
| Normal | 0.14 | 0.03 | 0.05 | 32 |
| PTSD | 0.73 | 0.72 | 0.72 | 427 |
| Random Forest | Anxiety | 0.76 | 0.77 | 0.76 | 416 | 74.87 % |
| Bipolar | 0.70 | 0.77 | 0.74 | 412 |
| Depression | 0.69 | 0.80 | 0.74 | 443 |
| Neutral | 0.20 | 0.06 | 0.09 | 17 |
| Normal | 0.83 | 0.16 | 0.26 | 32 |
| PTSD | 0.88 | 0.73 | 0.80 | 427 |

Result with Hyperparameter Tuning

| Reddit + Twitter |  | | Precision | Recall | F1-Score | Support | Accuracy |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Logistic Regression | Anxiety | 0.80 | 0.75 | 0.77 | 416 | **75.27 %** |
| Bipolar | 0.66 | 0.85 | 0.74 | 412 |
| Depression | 0.75 | 0.74 | 0.75 | 443 |
| Neutral | 0.14 | 0.12 | 0.13 | 17 |
| Normal | 0.78 | 0.22 | 0.34 | 32 |
| PTSD | 0.86 | 0.75 | 0.80 | 427 |
| KNN | Anxiety | 0.65 | 0.34 | 0.45 | 416 | 41.27 % |
| Bipolar | 0.32 | 0.82 | 0.46 | 416 |
| Depression | 0.47 | 0.39 | 0.43 | 443 |
| Neutral | 0.00 | 0.00 | 0.00 | 17 |
| Normal | 0.26 | 0.19 | 0.22 | 32 |
| PTSD | 0.73 | 0.15 | 0.24 | 427 |

| Reddit + Twitter |  | | Precision | Recall | F1-Score | Support | Accuracy |
| --- | --- | --- | --- | --- | --- | --- | --- |
| SVM | Anxiety | 0.78 | 0.71 | 0.74 | 416 | 72.07 % |
| Bipolar | 0.61 | 0.83 | 0.70 | 412 |
| Depression | 0.75 | 0.70 | 0.72 | 443 |
| Neutral | 0.13 | 0.12 | 0.12 | 17 |
| Normal | 0.57 | 0.12 | 0.21 | 32 |
| PTSD | 0.84 | 0.71 | 0.77 | 427 |
| Naive Bayes | Anxiety | 0.68 | 0.74 | 0.71 | 277 | 70.16 % |
| Bipolar | 0.77 | 0.63 | 0.69 | 283 |
| Depression | 0.69 | 0.81 | 0.74 | 316 |
| Neutral | 0.20 | 0.43 | 0.27 | 14 |
| Normal | 0.17 | 0.04 | 0.07 | 23 |
| PTSD | 0.75 | 0.69 | 0.72 | 304 |
| Random Forest | Anxiety | NA | NA | NA | NA | NA |
| Bipolar | NA | NA | NA | NA |
| Depression | NA | NA | NA | NA |
| Neutral | NA | NA | NA | NA |
| Normal | NA | NA | NA | NA |
| PTSD | NA | NA | NA | NA |