Dataset Overview

Reddit has a capacity of 25396 and is a single modality dataset.

Model Summary

Model	Accuracy	Hyperparameter Tuning Accuracy
Logistic Regression	87.66%	87.72%
Naive Bayes	83.63%	83.95%
SVM	85.13%	85.13%
Random Forest	86.0%	N/A%
XGBoost	87.39%	N/A%
KNN	54.46%	52.03%
LSTM	83.55%	N/A%

Detailed Classification Reports

Logistic Regression

Classification Report:

	Precision	Recall	F1-Score	Support
Anxiety	0.83	0.77	0.80	379
Bipolar	0.74	0.55	0.63	384
Depression	0.76	0.76	0.76	373
Normal	0.92	0.99	0.95	2183
PTSD	0.87	0.77	0.82	394

Naive Bayes

Classification Report:

	Precision	Recall	F1-Score	Support
Anxiety	0.70	0.73	0.72	379
Bipolar	0.83	0.45	0.58	384
Depression	0.59	0.87	0.70	373
Normal	0.96	0.92	0.94	2183
PTSD	0.71	0.83	0.76	394

SVM

Classification Report:

	Precision	Recall	F1-Score	Support
Anxiety	0.72	0.76	0.74	379

	Precision	Recall	F1-Score	Support
Bipolar	0.62	0.61	0.61	384
Depression	0.74	0.71	0.72	373
Normal	0.94	0.95	0.95	2183
PTSD	0.78	0.74	0.76	394

Random Forest
Classification Report:

	Precision	Recall	F1-Score	Support
Anxiety	0.81	0.70	0.75	379
Bipolar	0.93	0.47	0.62	384
Depression	0.72	0.77	0.74	373
Normal	0.88	1.00	0.93	2183
PTSD	0.92	0.74	0.82	394

XGBoost
Classification Report:

	Precision	Recall	F1-Score	Support
Anxiety	0.81	0.74	0.77	403
Bipolar	0.77	0.62	0.69	397
Depression	0.72	0.81	0.76	387
Normal	0.93	0.98	0.95	2137
PTSD	0.86	0.75	0.80	396

KNN
Classification Report:

	Precision	Recall	F1-Score	Support
Anxiety	0.58	0.31	0.40	379
Bipolar	0.18	0.59	0.28	384
Depression	0.47	0.39	0.43	373
Normal	0.79	0.69	0.73	2183
PTSD	0.80	0.09	0.16	394

LSTM
Classification Report:

	Precision	Recall	F1-Score	Support
Anxiety	0.81	0.68	0.74	403
Bipolar	0.60	0.59	0.60	397
Depression	0.56	0.77	0.65	387
Normal	0.96	0.96	0.96	2137
PTSD	0.76	0.61	0.68	396

After Applying Hyperparameter Tuning

Logistic Regression

Classification Report:

	Precision	Recall	F1-Score	Support
Anxiety	0.83	0.77	0.80	379
Bipolar	0.74	0.55	0.64	384
Depression	0.76	0.76	0.76	373
Normal	0.92	0.99	0.95	2183
PTSD	0.87	0.77	0.82	394

KNN

Classification Report:

	Precision	Recall	F1-Score	Support
Anxiety	0.73	0.23	0.35	379
Bipolar	0.18	0.60	0.27	384
Depression	0.47	0.40	0.43	373
Normal	0.74	0.65	0.69	2183
PTSD	0.83	0.10	0.18	394

SVM

Classification Report:

	Precision	Recall	F1-Score	Support
Anxiety	0.72	0.76	0.74	379
Bipolar	0.62	0.61	0.61	384
Depression	0.74	0.71	0.72	373
Normal	0.94	0.95	0.95	2183
PTSD	0.78	0.74	0.76	394

Naive Bayes

Classification Report:

	Precision	Recall	F1-Score	Support
Anxiety	0.69	0.76	0.72	379
Bipolar	0.75	0.55	0.64	384
Depression	0.60	0.83	0.70	373
Normal	0.96	0.91	0.94	2183
PTSD	0.73	0.79	0.76	394