Model	Description	Hyperparameters	Performance Metric (e.g., Accuracy, F1 Score)
Random Forest	Random forest: Ensemble learning method combining multiple decision trees to predict mental health outcomes. Handles complex relationships and avoids overfitting, achieving high accuracy in diverse datasets.	-	Accuracy score = 78%
Decision Tree	Decision trees: Graphical models that partition data based on features to predict mental health outcomes. Intuitive, interpretable, and useful for identifying significant predictors in complex datasets.	-	Accuracy score = 73%
KNN	K-Nearest Neighbors (KNN): Non-parametric method predicting mental health based on similarity to neighboring data points. Simple, interpretable, but sensitive to irrelevant features and requires careful selection of K.	-	Accuracy score = 51%
XGB Classifier	XGBoost (Extreme Gradient Boosting) Classifier: Advanced machine learning algorithm for mental health prediction, optimizing decision trees sequentially to enhance accuracy, handling complex relationships,		Accuracy score =83%

	and avoiding overfitting with regularization techniques.		
Logistic Regression	Logistic Regression: Statistical method modeling the probability of mental health outcomes based on input variables. Linear relationship assumption, interpretable coefficients, suitable for binary classification tasks with well-defined decision boundaries.		Accuracy score =51%

Model Development Phase Template

Date	20 June 2024
Team ID	739903
Project Title	Mental health prediction
Maximum Marks	6 Marks

Model Selection Report:

Compared logistic regression, XGB Classifier, and random forest for mental health prediction.XGB Classifier outperformed others with 83% accuracy, robust to overfitting and handling nonlinear relationships.