

## Model Development Phase Template

Date	15 July 2024
Team ID	739935
Project Title	Panic Disorder Detection
Maximum Marks	6 Marks

### Model Selection Report

In the forthcoming Model Selection Report, various models will be outlined, detailing their descriptions, hyperparameters, and performance metrics, including Accuracy or F1 Score. This comprehensive report will provide insights into the chosen models and their effectiveness.

### Model Selection Report:

Model	Description	Hyperparameters	Performance Metric (e.g., Accuracy, F1 Score)
Decision Tree	A decision tree is a valuable machine learning technique for panic disorder detection due to its transparency, interpretability, and ability to handle both numerical and categorical data. By leveraging decision trees, healthcare providers can enhance	{'criterion': 'Gini', 'max_depth': 5, 'max_features': None, 'min_samples_leaf': 1, 'min_samples_split': 2}	Accuracy value=0.7750

	diagnostic accuracy, tailor treatment plans based on individual risk factors, and improve outcomes for individuals affected by panic disorder.		
Random Forest	Implementing a random forest for panic disorder detection requires expertise in both machine learning and clinical psychology to ensure that the model is accurate, reliable, and clinically meaningful.	{ 'max _depth': 5, 'max _features': 'sqrt', 'min _samples _leaf': 1, 'min _ samples _ split': 2, 'n _ estimators ': 200 }	Accuracy value=0.7973
<b>XG Boost</b>	Xg Boost (extreme Gradient Boosting) is another powerful machine learning algorithm that can be used for panic disorder detection, similar to random forest	{ ' Col sample _ by tree ': 0.8, 'gamma': 0, 'max _ depth': 4, 'min_ child _ weight': 20 }	<b>Accuracy Value=0.77600</b>
<b>KNN</b>	KNN's simplicity	{ 'algorithm': 'brute',	<b>Accuracy Value=0.7499</b>

	and interpretability can be advantageous, but its computational cost and sensitivity to noisy or irrelevant features should also be considered	<b>'leaf size': 20, 'neighbors': 7, 'p': 1, 'weights': 'uniform'}</b>	
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