Model Optimization and Tuning Phase Template

Date	27th July 2024
Team ID	739822
Project Title	FETAL AI: USING MACHINE LEARNING TO PREDICT AND MONITOR FETAL HEALTH
Maximum Marks	10 Marks

Model Optimization and Tuning Phase

During the model optimization and tuning phase for Fetal AI, hyperparameters were adjusted using techniques such as grid search and cross-validation to enhance model accuracy and robustness. This process ensured that the selected model efficiently balances bias and variance, improving its predictive performance on unseen data.

Hyperparameter Tuning Documentation (6 Marks):

Model	Tuned Hyperparameters	Optimal Values
Random Forest	-	-
Decision Tree	-	-
Logistic Regression	-	-

Performance Metrics Comparison Report (2 Marks):

Model	Baseline Metric	Optimized Metric
Random Forest	-	-
Decision Tree	-	-

Logistic Regression	-	-

Final Model Selection Justification (2 Marks):

Final Model	Reasoning
Random Forest	Random forest classifier that leverages its ensemble learning capabilities to accurately predict fetal health outcomes. By incorporating key features such as fetal heart rate, uterine contractions, and gestational age, this model provides reliable predictions while maintaining high interpretability, aiding healthcare professionals in making informed clinical decisions.