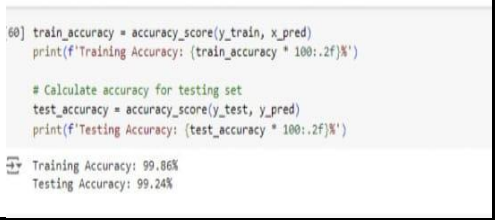
Model Optimization and Tuning Phase Report

Date	15 July 2024
Team ID	740091
Project Title	Thyroid disease classification using machine learning
Maximum Marks	10 Marks

Model Optimization and Tuning Phase

The model optimization and tuning phase in thyroid classification using Machine Learning, adjustments are made to the model parameters to improve its performance in accurately predicting thyroid-related issues.

Hyperparameter Tuning Documentation(6Marks):

Model	Tuned Hyperparameters	Optimal Values
Random forest classifier	**Building the machine learning model** **Random forest classifier** 	**Testing the model** 

Performance Metrics Comparison Report (2 Marks):

Model	Optimized Metric
	Evaluating the model using metrics **Classification report**

Random forest classifier	[57] `print(classification_report(y_test,y_pred))` precision recall f1-score support compensated hypothyroid 0.84 0.88 0.86 24 negative 1.00 1.00 1.00 893 accuracy 0.99 917 macro avg 0.92 0.94 0.93 917 weighted avg 0.99 0.99 0.99 917

Final Model Selection Justification (2 Marks):

Final Model	Reasoning
Random forest classifier	A Random Forest Classifier for thyroid classification using Machine Learning is a model that can predict whether a person has thyroid-related issues based on various input features by using a collection of decision trees.