**Model Optimization and Tuning Phase Report**

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| Date | 15 July 2024 |
| Team ID | 739966 |
| Project Title | Beansense: Precision Bean Classification For Enhanced Agricultural And Culinary Applications |
| Maximum Marks | 10 Marks |

**Model Optimization and Tuning Phase**

The Model Optimization and Tuning Phase involves refining machine learning models for peak performance. It includes optimized model code, fine-tuning hyperparameters, comparing performance metrics, and justifying the final model selection for enhanced predictive accuracy and efficiency.

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| **Model** | **Tuned Hyperparameters** | **Optimal Values** |
| Decision Tree |  |  |
| Random  Forest |  |  |
| Hyperparameter Tuning |  |  |

**Performance Metrics Comparison Report (2 Marks):**

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| --- | --- |
| **Model** | **Optimized Metric** |
| Decision Tree |  |

|  |  |
| --- | --- |
| Random Forest |  |
| Hyperparameter Tuning |  |

**Final Model Selection Justification (2 Marks):**

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| --- | --- |
| **Final Model** | **Reasoning** |
| Classifier | Classifiers in machine learning are algorithms that learn to classify data into predefined categories or classes based on labeled training data. They enable tasks like spam detection, image recognition, and sentiment analysis by predicting the class of new, unseen data points. |