**Model Optimization and Tuning Phase Template**

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| Date | 25 March 2025 |
| Team ID | SWTID1749753590 |
| Project Title | early prediction for chronic kidney disease detection: a progressive approach to health |
| 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.

### Hyperparameter Tuning Documentation (6 Marks):

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| --- | --- | --- |
| **Model** | **Tuned Hyperparameters** | **Optimal Values** |
| Logistic Regression | No tuning performed | Default parameters used |

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

|  |  |  |
| --- | --- | --- |
| **Model** | **Baseline Metric** | **Optimized Metric** |
| Logistic Regression | 98% | 98% |

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

|  |  |
| --- | --- |
| **Final Model** | **Reasoning** |
| Logistic Regression | The model achieved **98% accuracy** with simple architecture and no tuning, making it both efficient and interpretable for CKD prediction. |