**Model Optimization and Tuning Phase Template**

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| Date | 15 March 2024 |
| Team ID | xxxxxx |
| Project Title | xxxxxx |
| 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):

|  |  |  |
| --- | --- | --- |
| **Model** | **Tuned Hyperparameters** | **Optimal Values** |
| Decision Tree Regressor | {'criterion', 'max\_depth', 'min\_samples\_split', 'splitter' | 'friedman\_mse', 10, 10, 'best' |
| Model 2 | Hyperparam1, Hyperparam2, ... | Value1, Value2, ... |
| ... | ... | ... |

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

|  |  |  |
| --- | --- | --- |
| **Model** | **Baseline Metric** | **Optimized Metric** |
| Decision Tree Regressor | Baseline value | Optimized value |
| Model 2 | Baseline value | Optimized value |

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

|  |  |
| --- | --- |
| **Final Model** | **Reasoning** |
| Model 1 (or other) | Explanation of why this model was chosen as the final optimized model |