**Model Optimization and Tuning Phase Report**

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| Date | 15 June 2024 |
| Team ID | 739820 |
| Project Title | Predicting the Unpredictable :A Look into the World of Powerlifting |
| 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):**

|  |  |  |
| --- | --- | --- |
| Linear Regression | - | - |
| Random Forest | - | - |
| Decision Tree | - | - |
| XGboost | - | - |

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

|  |  |
| --- | --- |
| **Model** | **Optimized Metric** |
| LinearRegression | - |
| Random Forest | - |
| Decision Tree | - |
| XGBoost | - |

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

|  |  |
| --- | --- |
| **Final Model** | **Reasoning** |
| XGBoost | The XGBoost model was selected for its superior performance, exhibiting high accuracy during hyperparameter tuning. Its ability to handle complex relationships, minimize overfitting, and optimize predictive accuracy aligns with project objectives, justifying its selection as the final model.  Top of Form  Bottom of Form |