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| --- | --- |
| Date | 12 JULY 2024 |
| ID | 740036 |
| Project Title | Lymphography Classification using ML |
| Maximum Marks | 10 Marks |

**Model Optimization and Tuning Phase Report**

**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.

|  |  |  |
| --- | --- | --- |
| **Model** | **Tuned Hyperparameters** | **Optimal Values** |
| Logistic Regression |  |  |
| SVM |  |  |

**Hyperparameter Tuning Documentation (6 Marks):**

|  |  |  |
| --- | --- | --- |
| KNN |  |  |
| Gradient  Boosting |  |  |

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

|  |  |
| --- | --- |
| **Model** | **Optimized Metric** |
| Logistic Regression |  |

|  |  |
| --- | --- |
| SVM |  |
| KNN |  |
| Gradient Boosting |  |

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

|  |  |
| --- | --- |
| **Final Model** | **Reasoning** |
| KNN | The KNN 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. |