Model Optimization and Tuning Phase Report

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| Date | 05 July 2024 |
| Team ID | 739951 |
| Project Title | Anticipating Business Bankruptcy |
| 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 :

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| --- | --- | --- |
| **Model** | **Tuned Hyperparameters** | **Optimal Values** |
| Decision Tree | - | - |
| Random Forest classifier | - | - |
| Support Vector classifier | **-** | **-** |

**NOTE**: In our project not provided grid search and hyperparameters topic.

**Performance Metrics Comparison Report :**

|  |  |
| --- | --- |
| **Model** | **Optimized Metric** |
| Decision Tree |  |
| Random forest |  |
| Support vector classifier |  |

# Final Model Selection Justification (2 marks)

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| --- | --- |
| Final Model | Reasoning |
| Random Forest | The Random forest model was selected for its superior performance, exhibiting high accuracy with 94% . Its ability to handle complex relationships, minimize overfitting, and optimize predictive accuracy aligns with project objectives, justifying its selection as the final model. |