**Model Optimization and Tuning Phase Template**

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| Date | 17September 2024 |
| Team ID | LTVIP2024MID24802 |
| Project Title | Analysis of Amazon cell phone reviews |
| 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** |
| Model 1 | LSTM units, Batch size, Learning rate, Dropout | 128, 64, 0.001,0.3 |
| Model 2 | LSTM units, Batch size, Learning rate, Dropout | 256, 32, 0.0005, 0.4 |
| ... | ... | ... |

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

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| **Model** | **Baseline Metric** | **Optimized Metric** |
| Model 1 | 0.75 Accuracy | 0.85 Accuracy |
| Model 2 | 0.80 Accuracy | 0.88 Accuracy |

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

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| --- | --- |
| **Final Model** | **Reasoning** |
| Model 2 | Model 2 showed better accuracy and reduced overfitting, Making it the optimal choice |