

## Model Development Phase Template

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|---------------|--|
| Date          | 19 June 2025   |
| Team ID       | SWTID1750050475  |
| Project Title | SmartLender - Applicant Credibility Prediction for Loan Approval |
| Maximum Marks | 6 Marks  |

### Model Selection Report

In the forthcoming Model Selection Report, various models will be outlined, detailing their descriptions, hyperparameters, and performance metrics, including Accuracy or F1 Score. This comprehensive report will provide insights into the chosen models and their effectiveness.

| Model         | Description   | Hyperparameters | Performance Metric (e.g., Accuracy, F1 Score) |
|---------------|---|-----------------|---|
| Random Forest | Ensemble of decision trees; robust, handles complex relationships, reduces overfitting, and provides feature importance for loan approval prediction. | -               | Accuracy score = 84%                          |
| Decision Tree | Simple tree structure; interpretable, captures non-linear relationships, suitable for initial insights into loan approval patterns.                   | -               | Accuracy score = 79%                          |
| KNN           | Classifies based on nearest neighbors; adapts well to data patterns, effective  | -               | Accuracy score = 69%                          |

|                   |  |   |                      |
|-------------------|--|---|----------------------|
|                   | for local variations in loan approval criteria.  |   |                      |
| Gradient Boosting | Gradient boosting with trees; optimizes predictive performance, handles complex relationships, and is suitable for accurate loan approval predictions. | - | Accuracy score = 83% |