**Model Development Phase Template**

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| Date | 15 March 2024 |
| Team ID | LTVIP2024TMID24955 |
| Project Title | SMS Spam Detection - AIML |
| 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 Selection Report:**

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| **Model** | **Description** | **Hyperparameters** | **Performance Metric (e.g., Accuracy, F1 Score)** |
| Multinomial Naïve Bayes | A probabilistic classifier based on applying Bayes' theorem, commonly used for text classification like spam detection. | - Alpha (smoothing): 1.0  - Fit prior: True | Accuracy: 96%  - F1 Score: 0.97 |
| SVC (Sigmoid Kernel) | A Support Vector Classifier using the sigmoid kernel for non-linear decision boundaries. | - C: 1.0  - Kernel: Sigmoid  - Gamma: Scale | - Accuracy: 96%  - F1 Score: 0.95 |
| SVC (RBF Kernel) | A Support Vector Classifier with a Radial Basis Function (RBF) kernel, often effective in high-dimensional spaces. | - C: 1.0  - Kernel: RBF  - Gamma: Auto | - Accuracy: 94%  - F1 Score: 0.89 |
| Decision Tree Classifier | A tree-based model that splits the data based on feature values to create decision rules for classification. | - Criterion: Gini  - Max depth: None  - Min samples split: 2 | - Accuracy: 94%  - F1 Score: 0.87 |