# Model Development Phase Template

| | |
|---|---|
| Date | 15 March 2024 |
| Team ID | LTVIP2024TMID24776 |
| Project Title | Early Prediction Of Chronic Kidney Disease |
| 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:**

| Model | Description | Hyperparameters | Performance Metric (e.g., Accuracy, F1 Score) |
|---|---|---|---|
| Multinomial Naïve Bayes | A probabilistic classifier based on Bayes' theorem, suitable for multinomial distributed data, commonly used for text classification tasks. | - Alpha (smoothing): 1.0<br>- Fit prior: True | Accuracy: 96%<br>- F1 Score: 0.97 |
| SVC (Sigmoid Kernel) | Support Vector Classifier using a sigmoid kernel, often used for non-linear classification tasks, can be less effective in high-dimensional spaces. | - C: 1.0<br>- Kernel: Sigmoid<br>- Gamma: Scale | - Accuracy: 96%<br>- F1 Score: 0.95 |

| | | | |
|---|---|---|---|
| SVC (RBF Kernel) | A Support Vector Classifier with a Radial Basis Function (RBF) kernel | - C: 1.0<br>- Kernel: RBF<br>- Gamma: Auto | - Accuracy: 94%<br>- 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<br>- Max depth: None<br>- Min samples split: | - Accuracy: 94%<br>- F1 Score: 0.87 |
| Random Forest Classifier | An ensemble learning method that constructs multiple decision trees during training and outputs the mode of their predictions, effective for handling overfitting. | - n_estimators (number of trees)<br>- Max Depth<br>- Min Samples Split<br>- Min Samples Leaf | - Accuracy: 96%<br>- F1 Score: 0.87 |