**Model Development Phase Template**

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| Date | 15 March 2024 |
| Team ID | 735799 |
| Project Title | WORLD HAPPINESS REPORT |
| 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)** |
| Linear Regression | A basic statistical method to understand the relationship between dependent and independent variables. It's useful for understanding how various factors (features) contribute to overall happiness. | Regularization parameter | R² Score (coefficient of determination) |
| Random Forest Regressor |  An ensemble learning method that uses multiple decision trees to improve predictive accuracy and control over-fitting.   |  Number of trees (n\_estimators)   Maximum depth of trees (max\_depth)   Minimum samples split (min\_samples\_split) | *  Mean Squared Error (MSE), R² Score    |
| Gradient Boosting Regressor |  An ensemble technique that builds trees sequentially to correct errors made by previous trees, aiming for better accuracy.   |  Learning rate   Number of boosting stages (n\_estimators)   Maximum depth of trees (max\_depth) | Mean Absolute Error (MAE), R² Score |