**Model Development Phase Template**

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| Date | Nov 30,2024 |
| Team ID | 739838 |
| Project Title | Unlocking the Minds: Analyzing Mental Health with NLP |
| 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)** |
| SVC | Its ability to handle both linear and non-linear classification problems. | - | Accuracy score=91 % |
| Decision tree classifier | Simple tree structure; interpretable, captures non-linear relationships, suitable for initial insights into customer segmentation. | - | Accuracy score= 81% |
| Random forest classifier | used primarily for classification tasks can also solve regression problems | **-** | Accuracy score= 88% |
| Ada boost classifier | Is a popular ensemble learning algorithm that combines multiple "weak learners” to create a "strong learner" | **-** | Accuracy score=82% |
| Gradient boosting classifier | It improves the model iteratively by minimizing the error of the previous model using gradient descent | **-** | Accuracy score=86% |
| Logistic Regression | models the probability of a binary outcome (0 or 1) based on one or more independent variables. | **-** | Accuracy score=90% |