**Model Development Phase Template**

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| Date | 08 JULY 2024 |
| Team ID | SWTID1720260935 |
| Project Title | Ecommerce Shipping Prediction Using Machine Learning |
| 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)** |
| Logistic Regression | a statistical method that mimics the relationship between attributes and a binary dependent variable. | Learning rate, Batch  size, No. of Iterations | 64% |
| Support Vector Machine (SVM) | A binary linear classifier that is not probabilistic. The separation hyperplane that optimizes the margin between the two classes is found using SVMs. | Kernel function, regularization parameter,Kern el=”linear” | 66% |
| **X-Gradient Boosting Machine** | A machine learning model that produces a prediction model in a stage-wise fashion. It combines weak learning models into a strong learner. | **Number of boosting stages, learning rate** | **66%** |
| **Random Forest** | **Using random feature and data sample selections, multiple decision trees are trained as part of the ensemble tree learning technique. It's sturdy against overfitting and able to handle a lot of features.** | Number of trees in the forest, maximum depth of each tree,N\_Estimators=’7’  ,Criteria=”Entropy”,R andom\_state=’0’ | **66%** |
| **Artificial Neural network** | The network is able to recognize intricate patterns and make judgments depending on incoming data since each neuron processes and relays information to neurons in later layers | The no of neurons,Learning rate,Batch size,Knobs and Switches,Kernel\_initi alizer=”Random\_Uni form”,Activation=”R elu” | **67%** |
| **K-Nearest Neighbour** | **Whereas traditional parametric models derive explicit equations from data, KNN relies its predictions on the similarity between newly added and previously labeled data points.** | The no of Neighbours,Batch size,N\_neighbours=’7’ | **65%** |