Model Development Phase Template

Date	30 June 2024
Team ID	SWTID1720196555
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:

Model	Description	Hyperparameters	Performance Metric (e.g., Accuracy, F1 Score)
Logistic Regression	Handles binary outcomes,predicts customer satisfaction,and provides insights into feature significance for eCommerce prediction	'LogisticRegression': (LogisticRegression(), {'C': [0.1, 1, 10]}),	Name Accuracy f1_score Recall Precision LogisticRegression 59.27 44.12 59.27 35.13
LogisticRegression CV	LogisticRegressionCV;effective, handle binary	(LogisticRegressionCV(), {'Cs': [1, 10, 100]}),	1 LogisticRegressionCV 63.45 63.61 63.45 63.84 Accuracy 63.45

	classification , optimizes regularization, and provides coefficient significance for ecommerce prediction		
XGBoost	efficient, highly accurate, handles missing data, provides robust prediction, and feature importance for ecommerce prediction	(XGBClassifier(), {'n_estimators': [50, 100], 'learning_rate': [0.01, 0.1]}),	Name Accuracy f1_score Recall Precision 2 XGBoost 67.68 67.74 67.68 72.06 Accuracy = 67.88
Ridge Classifier	Effective for high-dimensional data, handles multicollinearity ,provides regularization, and is ideal for ecommerce prediction using features like 'Customer_care_ calls','Customer_ rating', 'Cost_of_the_Pr oduct','Prior_pur chases', 'Discount_offere d','Weight_in_g	(RidgeClassifier(), {'alpha': [0.1, 1, 10]}),	Name Accuracy f1_score Recall Precision 3 Ridge Classifier 60.95 52.94 60.95 60.20 Accuracy = 60.95

	ms', 'Warehouse_blo ck','Mode_of_Sh ipment', 'Product_import ance','Gender'		
Knn	Classifies based on nearest neighbors; adapts well to data patterns,effectiv ely	(KNeighborsClassifier (), {'n_neighbors': [3, 5, 7]}),	Name Accuracy f1_score Recall Precision Knn 64.09 64.32 64.09 64.80 Accuracy 64.09
Random Forest	Random Forest of ecommerce prediction; robust, handles complex relationships,red uces overfitting,and provides feature importance .	(RandomForestClassif ier(), {'n_estimators': [50, 100], 'max_depth': [None, 10, 20]}),	Name Accuracy f1_score Recall Precision Random Forest 68.00 67.94 68.00 73.25
Support Vector Classifier	Support Vector Classifier;efficie nt, handles high-dimensional spaces,mitigates overfitting	(SVC(), {'C': [0.1, 1, 10], 'kernel': ['linear', 'rbf']})	Name Accuracy f1_score Recall Precision 6 Support Vector Classifier 65.86 66.12 65.86 66.83