Model Development Phase Template

Date	09 July 2024
Team ID	SWTID1720499933
Project Title	Ecommerce Shipping Prediction Using Machine Learning
Maximum Marks	4 Marks

Initial Model Training Code, Model Validation and Evaluation Report

The initial model training code will be showcased in the future through a screenshot. The model validation and evaluation report will include classification reports, accuracy, and confusion matrices for multiple models, presented through respective screenshots.

Initial Model Training Code:

```
lg=LogisticRegression(max_iter=1000)
lg.fit(X_train,Y_train)
print("LogisticRegression Training Score=",lg.score(X_train,Y_train))
print("LogisticRegression Test Score=",lg.score(X_test,Y_test))
print(classification_report(y_pred=lg.predict(X_test),y_true=Y_test))
print(confusion_matrix(y_pred=lg.predict(X_test),y_true=Y_test))
```

✓ 0.3s

```
lcv=LogisticRegressionCV(max_iter=1000)
lcv.fit(X_train,Y_train)
print("LogisticRegressionCV Training Score=",lcv.score(X_train,Y_train))
print("LogisticRegressionCV Test Score=",lcv.score(X_test,Y_test))
print(classification_report(y_pred=lcv.predict(X_test),y_true=Y_test))
print(confusion_matrix(y_pred=lcv.predict(X_test),y_true=Y_test))
```

✓ 0.3s

```
xgb=XGBClassifier()
xgb.fit(X_train,Y_train)
print("XGBoost Training Score=",xgb.score(X_train,Y_train))
print("XGBoost Test Score=",xgb.score(X_test,Y_test))
print(classification_report(y_pred=xgb.predict(X_test),y_true=Y_test))
print(confusion_matrix(y_pred=xgb.predict(X_test),y_true=Y_test))
```

✓ 0.1s

```
rg=RidgeClassifier()
rg.fit(X_train,Y_train)
print("RidgeClassifier Training Score=",rg.score(X_train,Y_train))
print("RidgeClassifier Test Score=",rg.score(X_test,Y_test))
print(classification_report(y_pred=rg.predict(X_test),y_true=Y_test))
print(confusion_matrix(y_pred=rg.predict(X_test),y_true=Y_test))
```

✓ 0.0s

```
knn=KNeighborsClassifier()
knn.fit(X_train,Y_train)
print("KNN Training Score=",knn.score(X_train,Y_train))
print("KNN Test Score=",knn.score(X_test,Y_test))
print(classification_report(y_pred=knn.predict(X_test),y_true=Y_test))
print(confusion_matrix(y_pred=knn.predict(X_test),y_true=Y_test))
```

✓ 1.0s

```
rfc=RandomForestClassifier()
rfc.fit(X_train,Y_train)
print("RandomForestClassifier Training Score=",rfc.score(X_train,Y_train))
print("RandomForestClassifier Test Score=",rfc.score(X_test,Y_test))
print(classification_report(y_pred=rfc.predict(X_test),y_true=Y_test))
print(confusion_matrix(y_pred=rfc.predict(X_test),y_true=Y_test))
```

✓ 1.6s

Model Validation and Evaluation Report:

Model	Classification Report	F1 Score	Confusion Matrix
Logistic Regression	LogisticRegression Training Score= 0.642459370382998 LogisticRegression Test Score= 0.639090909090909 precision recall f1-score support 0 0.55 0.58 0.57 896 1 0.70 0.68 0.69 1304 accuracy 0.64 2200 macro avg 0.63 0.63 0.63 2200 weighted avg 0.64 0.64 0.64 2200	69%	[[521 375] [419 885]]

Logistic Regression CV	LogisticRegressionCV Training Score= 0.6431412660529605 LogisticRegressionCV Test Score= 0.6381818181818182 precision recall f1-score support 0 0.55 0.58 0.57 896 1 0.70 0.68 0.69 1304 accuracy 0.64 2200 macro avg 0.63 0.63 0.63 2200 weighted avg 0.64 0.64 0.64 2200	69%	[[518 378] [418 886]]
XGBoost	XGBoost Training Score= 0.9136265484714172 XGBoost Test Score= 0.6368181818181818 precision recall f1-score support 0 0.55 0.60 0.57 896 1 0.71 0.66 0.68 1304 accuracy 0.64 2200 macro avg 0.63 0.63 0.63 2200 weighted avg 0.64 0.64 0.64 2200	68%	[[537 359] [440 864]]
Ridge Classifier	RidgeClassifier Training Score= 0.6530287532674167 RidgeClassifier Test Score= 0.649090909090909 precision recall f1-score support 0 0.57 0.59 0.58 896 1 0.71 0.69 0.70 1304 accuracy 0.65 2200 macro avg 0.64 0.64 0.64 2200 weighted avg 0.65 0.65 0.65 2200	70%	[[532 364] [408 896]]
K Nearest Neighbour	KNN Training Score= 0.7769064666439368 KNN Test Score= 0.6359090909090909 precision recall f1-score support 0 0.55 0.58 0.57 896 1 0.70 0.67 0.69 1304 accuracy 0.64 2200 macro avg 0.63 0.63 0.63 2200 weighted avg 0.64 0.64 0.64 2200	69%	[[521 375] [426 878]]
Random Forest Classifier	RandomForestClassifier Training Score= 1.0 RandomForestClassifier Test Score= 0.6618181818181819 precision recall f1-score support 0 0.57 0.70 0.63 896 1 0.76 0.63 0.69 1304 accuracy 0.66 2200 macro avg 0.66 0.67 0.66 2200 weighted avg 0.68 0.66 0.66 2200	69%	[[628 268] [476 828]]
Support Vector Machine Classifier	SVM Classifier Training Score= 0.6907603136720082 SVM Classifier Test Score= 0.6495454545454545 precision recall f1-score support 0 0.55 0.75 0.63 896 1 0.77 0.58 0.66 1304 accuracy 0.65 2200 macro avg 0.66 0.66 0.65 2200 weighted avg 0.68 0.65 0.65 2200	66%	[[670 226] [545 759]]