Model Development Phase Template

Date	11 July 2024
Team ID	SWTID1720108776
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:

```
#logistic regression
lr=LogisticRegression()
lr.fit(x_train,y_train)
```

```
LogisticRegression
LogisticRegression()
```

```
#random forest
rf=RandomForestClassifier(criterion='entropy',random_state=1)
rf.fit(x_train,y_train)
```

```
RandomForestClassifier
RandomForestClassifier(criterion='entropy', random_state=1)
```

```
#decision tree
dt=DecisionTreeClassifier(criterion='entropy',random_state=0)
dt.fit(x_train,y_train)
```

```
DecisionTreeClassifier
DecisionTreeClassifier(criterion='entropy', random_state=0)
```

```
#KNN
knn=KNeighborsClassifier()
knn.fit(x_train, y_train)
```

```
KNeighborsClassifier
KNeighborsClassifier()
```

```
#SVM
model= SVC()
model.fit(x_train,y_train)
```

```
SVC
SVC()
```

```
#XG Boost
xg=xgb.XGBClassifier()
xg.fit(x_train,y_train)
```

```
XGBClassifier
XGBClassifier(base_score=None, booster=None, callbacks=None,
              colsample_bylevel=None, colsample_bynode=None,
              colsample_bytree=None, device=None, early_stopping_rounds=None,
              enable_categorical=False, eval_metric=None, feature_types=None,
              gamma=None, grow_policy=None, importance_type=None,
              interaction_constraints=None, learning_rate=None, max_bin=None,
              max_cat_threshold=None, max_cat_to_onehot=None,
              max_delta_step=None, max_depth=None, max_leaves=None,
              min_child_weight=None, missing=nan, monotone_constraints=None,
              multi_strategy=None, n_estimators=None, n_jobs=None,
              num_parallel_tree=None, random_state=None, ...)
```

Model Validation and Evaluation Report:

Model	Classification Report	Accuracy	Confusion Matrix
LogisticRegression	`print(classification_report(y_test,ypred))` precision recall f1-score support 0 0.66 0.72 0.69 1321 1 0.69 0.62 0.65 1305 accuracy 0.67 2626 macro avg 0.67 0.67 0.67 2626 weighted avg 0.67 0.67 0.67 2626	67%	`print(confusion_matrix(y_test,ypred))` [[955 366] [497 808]]
Random Forest	`print(classification_report(y_test,ypred1))` precision recall f1-score support 0 0.69 0.86 0.77 1321 1 0.81 0.60 0.69 1305 accuracy 0.73 2626 macro avg 0.75 0.73 0.73 2626 weighted avg 0.75 0.73 0.73 2626	73%	`print(confusion_matrix(y_test,ypred1))` [[1141 180] [520 785]]
Decision Tree	`print(classification_report(y_test,ypred2))` precision recall f1-score support 0 0.71 0.70 0.71 1321 1 0.70 0.71 0.71 1305 accuracy 0.71 2626 macro avg 0.71 0.71 0.71 2626 weighted avg 0.71 0.71 0.71 2626	71%	`print(confusion_matrix(y_test,ypred2))` [[927 394] [376 929]]

KNN	`print(classification_report(y_test,ypred3))` precision recall f1-score support 0 0.68 0.78 0.72 1321 1 0.73 0.62 0.67 1305 accuracy 0.70 2626 macro avg 0.71 0.70 0.70 2626 weighted avg 0.70 0.70 0.70 2626	70%	`print(confusion_matrix(y_test,ypred3))` [[1028 293] [494 811]]
SVM	`print(classification_report(y_test,ypred4))` precision recall f1-score support 0 0.66 0.94 0.78 1321 1 0.89 0.51 0.65 1305 accuracy 0.73 2626 macro avg 0.78 0.72 0.71 2626 weighted avg 0.78 0.73 0.71 2626	73%	`print(confusion_matrix(y_test,ypred4))` [[1243 78] [642 663]]
XG Boost	`print(classification_report(y_test,ypred5))` precision recall f1-score support 0 0.70 0.78 0.74 1321 1 0.75 0.65 0.70 1305 accuracy 0.72 2626 macro avg 0.72 0.72 0.72 2626 weighted avg 0.72 0.72 0.72 2626	72%	`print(confusion_matrix(y_test,ypred5))` [[1035 286] [451 854]]