Model Development Phase Template

Date	06 JUNE 2024
Team ID	SWTID1720260935
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:

Supportvectormachine

```
svm_model = svm.SVC(gamma='auto',C=5,kernel='rbf')
svm_model.fit(X_train,y_train)
y_pred = svm_model.predict(X_test)
```

Randomforestclassifier

```
params = {'n_estimators':[100,150], 'criterion':['gini', 'entropy']}
#Hyper parameter tuning
rf_model =GridSearchCV(estimator=RandomForestClassifier(),param_grid=params,scoring='accuracy', cv=5)
rf_model = rf_model.fit(X_train,y_train)
y_pred=rf_model.predict(X_test)
```

Aritificialneutalnetwork

```
[39]: predictions = (ann.predict(X_test) > 0.5)
      print(classification_report(y_test,predictions))
```

Logisticregression:

```
lg = LogisticRegression(n_jobs=-1,random_state=1234)
lg_param_grid={
    'C':[6,8,10,15,20],
    'max_iter':[60,80,100]
}
lg_cv = GridSearchCV(lg,lg_param_grid,cv=5,scoring="accuracy",n_jobs=-1,verbose=3)
lg_cv.fit(X_train,y_train)
y_pred=lg_cv.predict(X_test)
```

XG BOOST CLASSIFIER:

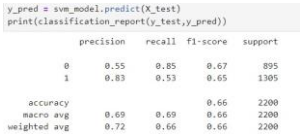
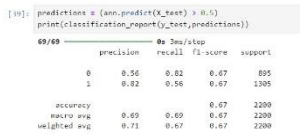
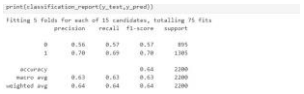
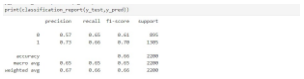
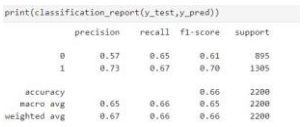
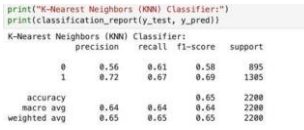
```
xgb = xgb.XGBClassifier(random_state=1234)
xgb.fit(X_train,y_train)
y_pred = xgb.predict(X_test)
```

K- Nearest neighbours classifier:

```
from sklearn.neighbors import KNeighborsClassifier

knn_model = KNeighborsClassifier()
knn_model.fit(X_train, y_train)
y_pred = knn_model.predict(X_test)
print("K-Nearest Neighbors (KNN) Classifier:")
```

Model Validation and Evaluation Report:

Model	Classification Report	Accuracy	Confusion Matrix
Support Vector Machine		66%	
Artificial Neutral Network		67%	
Logistic Regression		64%	
Random Forest Classifirer		66%	
XGBoost Classifier		66%	
KNN Neighbours Classifier		65%	