------------------------------------------------------------------------

logistic regression

Model Name: Logistic Regression-CV-TFIDF

Accuracy: 0.56353591160221

Precision score: 0.56353591160221

F1 score: 0.7208480565371024

Recall score: 1.0

------------------------------------------------------------------------

Naive Bayes

Model Name: MultinomialNB-CV-TFIDF

Accuracy: 0.5864246250986582

Precision score: 0.5779967159277504

F1 score: 0.7287784679089027

Recall score: 0.9859943977591037

Model Name: ComplementNB-CV-TFIDF

Accuracy: 0.606156274664562

Precision score: 0.6048780487804878

F1 score: 0.7130534790109259

Recall score: 0.8683473389355743

------------------------------------------------------------------------

Support Vector Machine

Model Name: SVM-CV-TFIDF

Accuracy: 0.6022099447513812

Precision score: 0.6381578947368421

F1 score: 0.6580732700135685

Recall score: 0.6792717086834734

------------------------------------------------------------------------

Decision Tree

Model Name: DT-CV-TFIDF

Accuracy: 0.5382794001578532

Precision score: 0.5912305516265912

F1 score: 0.5883180858550318

Recall score: 0.5854341736694678

------------------------------------------------------------------------

Random Forest

Model Name: Random Forest

Accuracy: 0.569060773480663

Precision score: 0.5667726550079492

F1 score: 0.7231237322515213

Recall score: 0.9985994397759104

Unigram&bigram: ngram\_range(1,2)

------------------------------------------------------------------------

logistic regression

Model Name: Logistic Regression-CV-TFIDF

Accuracy: 0.56353591160221

Precision score: 0.56353591160221

F1 score: 0.7208480565371024

Recall score: 1.0

------------------------------------------------------------------------

Naive Bayes

Model Name: MultinomialNB-CV-TFIDF

Accuracy: 0.580110497237569

Precision score: 0.5736245954692557

F1 score: 0.7271794871794871

Recall score: 0.9929971988795518

Model Name: ComplementNB-CV-TFIDF

Accuracy: 0.6148382004735596

Precision score: 0.606203007518797

F1 score: 0.7255343082114736

Recall score: 0.9033613445378151

------------------------------------------------------------------------

Support Vector Machine

Model Name: SVM-CV-TFIDF

Accuracy: 0.6211523283346487

Precision score: 0.6451612903225806

F1 score: 0.6842105263157894

Recall score: 0.7282913165266106

------------------------------------------------------------------------

Decision Tree

Model Name: DT-CV-TFIDF

Accuracy: 0.5714285714285714

Precision score: 0.5723962743437765

F1 score: 0.7134564643799473

Recall score: 0.9467787114845938

------------------------------------------------------------------------

Random Forest

Model Name: Random Forest

Accuracy: 0.6140489344909235

Precision score: 0.6360338573155986

F1 score: 0.682673588578845

Recall score: 0.7366946778711485

Unigram bigram trigram ngram : ngram-range(1,3)

------------------------------------------------------------------------

logistic regression

Model Name: Logistic Regression-CV-TFIDF

Accuracy: 0.56353591160221

Precision score: 0.56353591160221

F1 score: 0.7208480565371024

Recall score: 1.0

------------------------------------------------------------------------

Naive Bayes

Model Name: MultinomialNB-CV-TFIDF

Accuracy: 0.579321231254933

Precision score: 0.5730427764326069

F1 score: 0.7270865335381463

Recall score: 0.9943977591036415

Model Name: ComplementNB-CV-TFIDF

Accuracy: 0.6124704025256511

Precision score: 0.6046948356807512

F1 score: 0.7240022484541877

Recall score: 0.9019607843137255

------------------------------------------------------------------------

Support Vector Machine

Model Name: SVM-CV-TFIDF

Accuracy: 0.6266771902131019

Precision score: 0.6467722289890377

F1 score: 0.6918566775244299

Recall score: 0.7436974789915967

------------------------------------------------------------------------

Decision Tree

Model Name: DT-CV-TFIDF

Accuracy: 0.5714285714285714

Precision score: 0.5723962743437765

F1 score: 0.7134564643799473

Recall score: 0.9467787114845938

------------------------------------------------------------------------

Random Forest

Model Name: Random Forest

Accuracy: 0.6124704025256511

Precision score: 0.6420382165605095

F1 score: 0.6724482988659106

Recall score: 0.7058823529411765

Only trigram-ngram(3,3)