

-----Shape Of Classification DataSet -----

```
('Shape X_train:', (5057, 4))
('Shape y_train:', (5057L,))
('Shape X_test:', (494617, 4))
('Shape y_test:', (494617L,))
```

-----Shape Of Regression DataSet -----

```
('Shape X_train_reg:', (5057, 4))
('Shape y_train_reg:', (5057L,))
('Shape X_test_reg:', (494617, 4))
('Shape y_test_reg:', (494617L,))
```

```
('Time taken for Preparing Train and Test Data for Classification & Regression ', 0.2518166661262512)
```

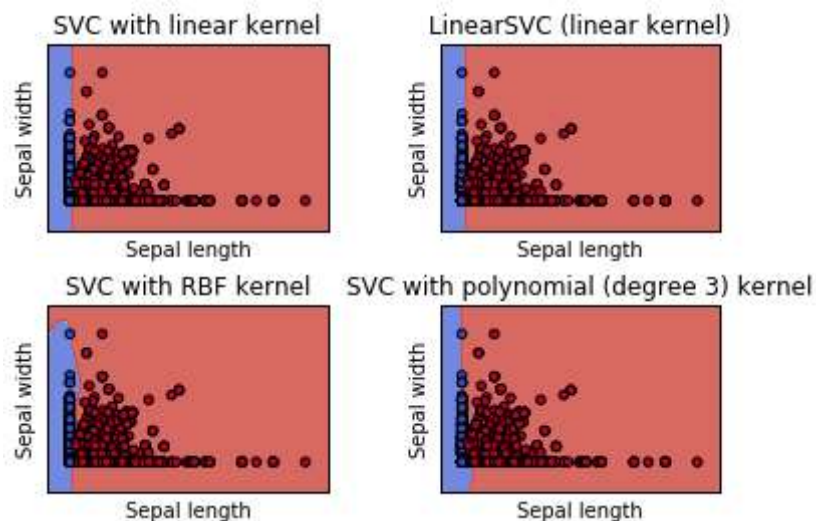
===== Classification Results =====

```
('Classification Random Forest Score :', 1.0)
```

ChangedBehaviorWarning)

```
('Area Under Curve =', 0.91530291755953419)
```

```
('Classification KNN Score :', 0.66831813871755186)
```



```
('Classification SVM Score :', 0.97021736009882398)
```

```
('Classification GradientBoostingClassifier Score :', 1.0)
```

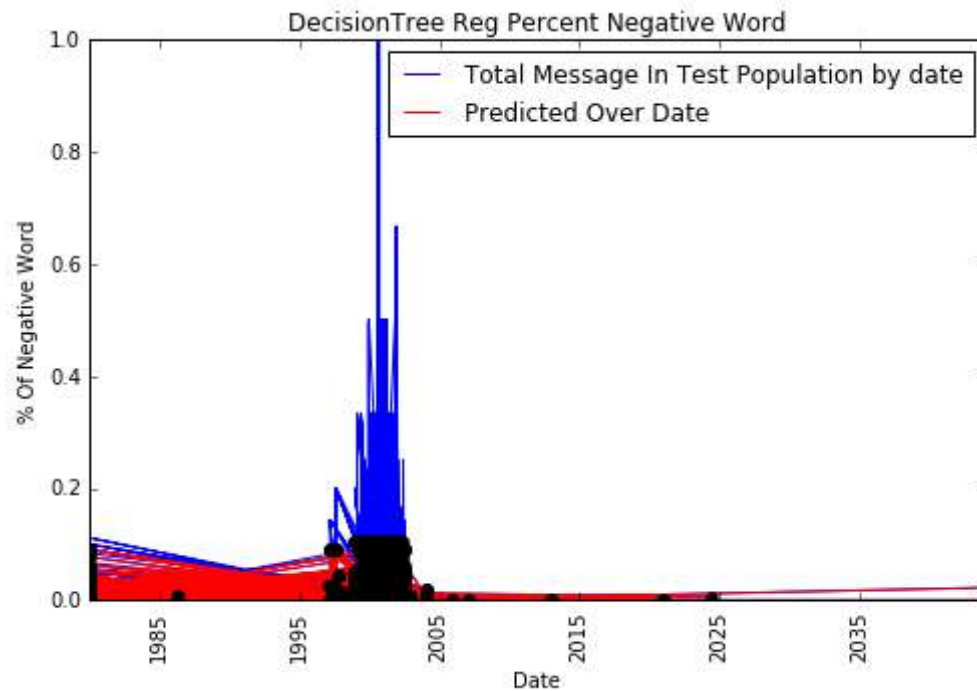
('Classification Gradient Tree Score :', 1.0)

('Classification QDA Score :', 0.54108128107202136)

(' Time taken for All Classification = ', 0.9763499975204468)

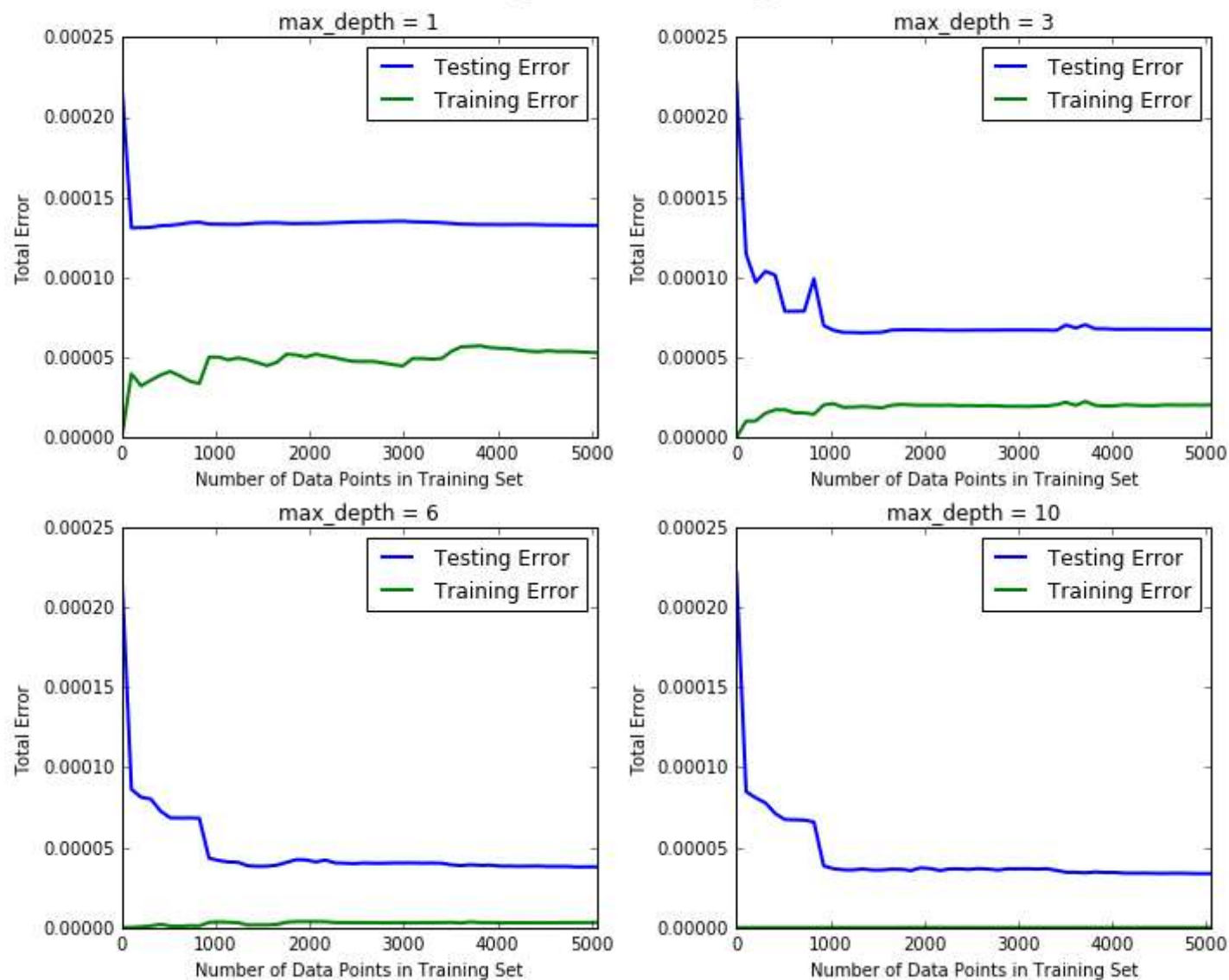
===== Regression Results =====

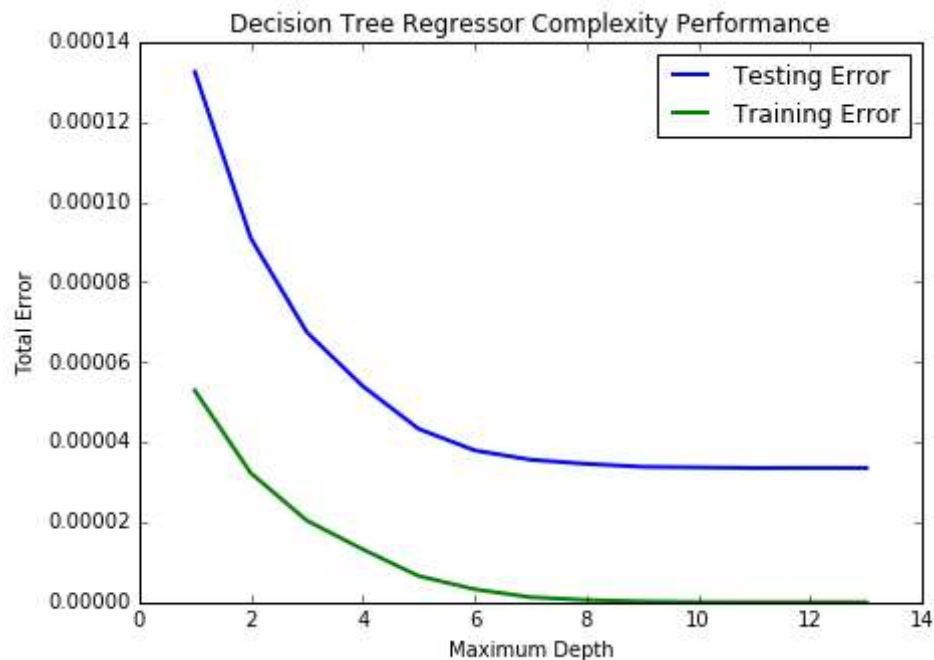
('DecisionTreeRegressor = ', 0.8124255772594221)



Creating learning curve graphs for max_depths of 1, 3, 6, and 10. . .
 Creating a model complexity graph. . .

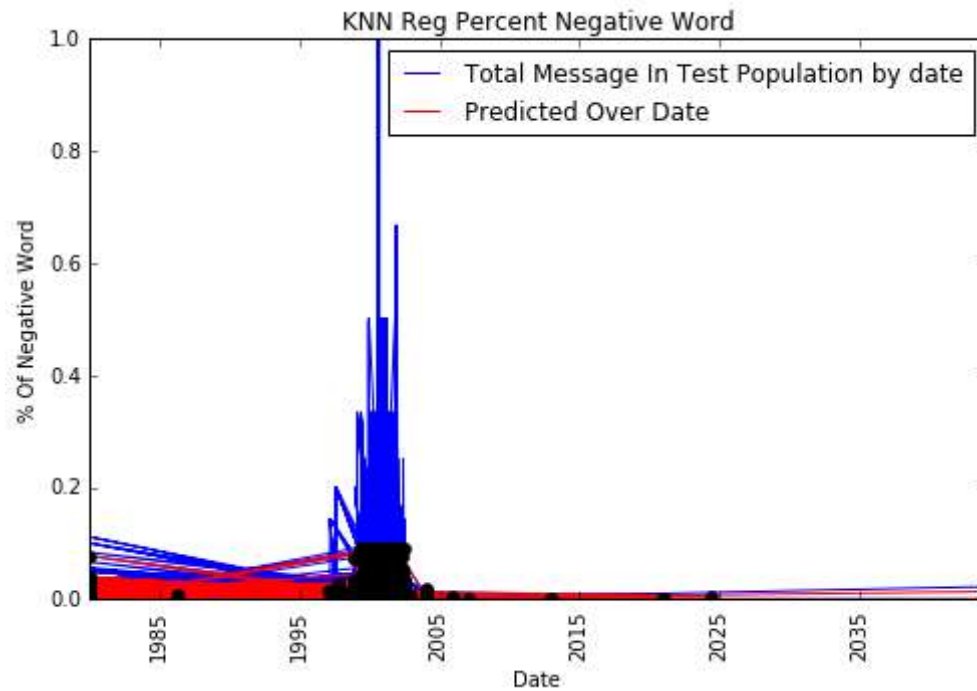
Decision Tree Regressor Learning Performances





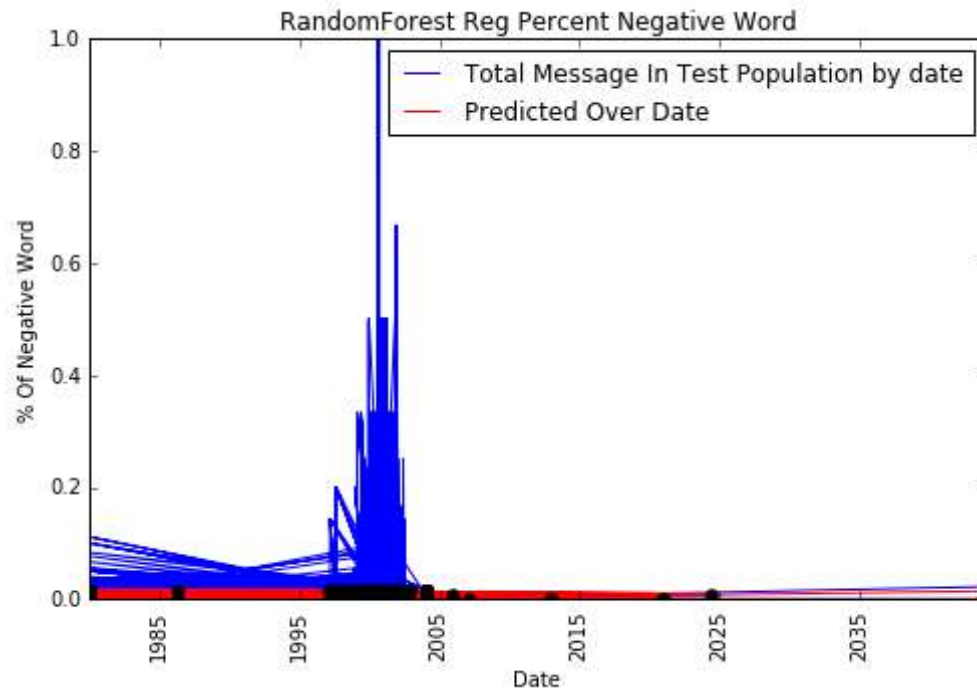
```
('GridSearchCV Tuning on Decision Tree Regressor ', ('DecisionTreeRegressor Best Estimator ',
DecisionTreeRegressor(criterion='mse', max_depth=17, max_features=None,
max_leaf_nodes=None, min_samples_leaf=1, min_samples_split=2,
min_weight_fraction_leaf=0.0, presort='True', random_state=None,
splitter='best'), 'DecisionTreeRegressor MSE =', 3.3715633622982165e-05, 'DecisionTreeRegressor R2 =',
0.8124255772594221))
```

```
('KNeighborsRegressor Score = ', 0.40521031866236257)
```



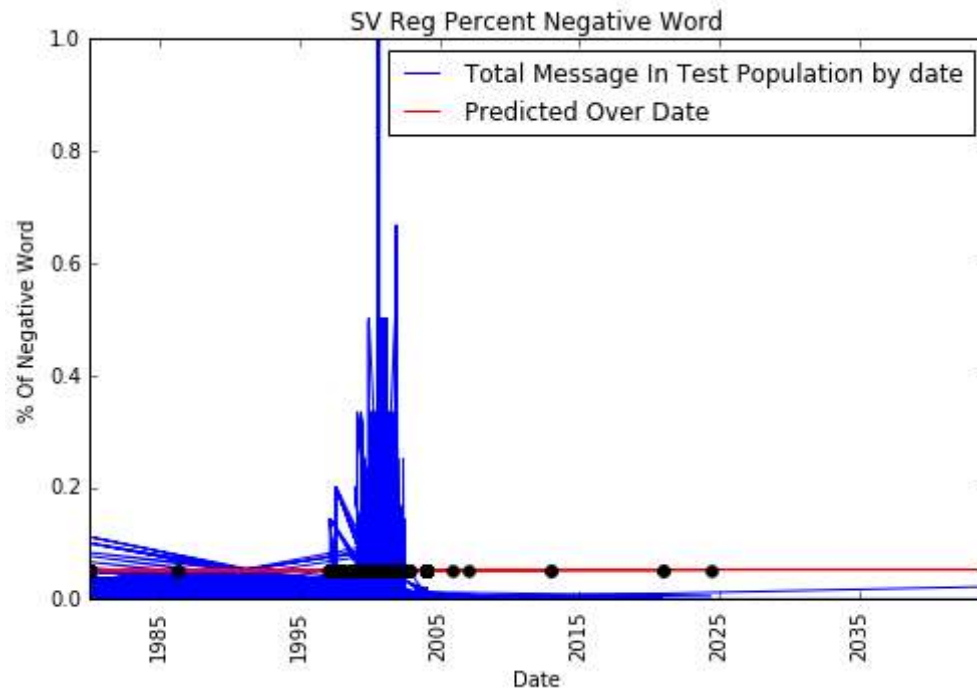
('KNN Regression Score ', ('KNeighborsRegressor MSE =', 0.00010691069009150085, 'KNeighborsRegressor R2 =', 0.40521031866236257))

('RandomForestRegressor Score = ', 0.30269589928888885)



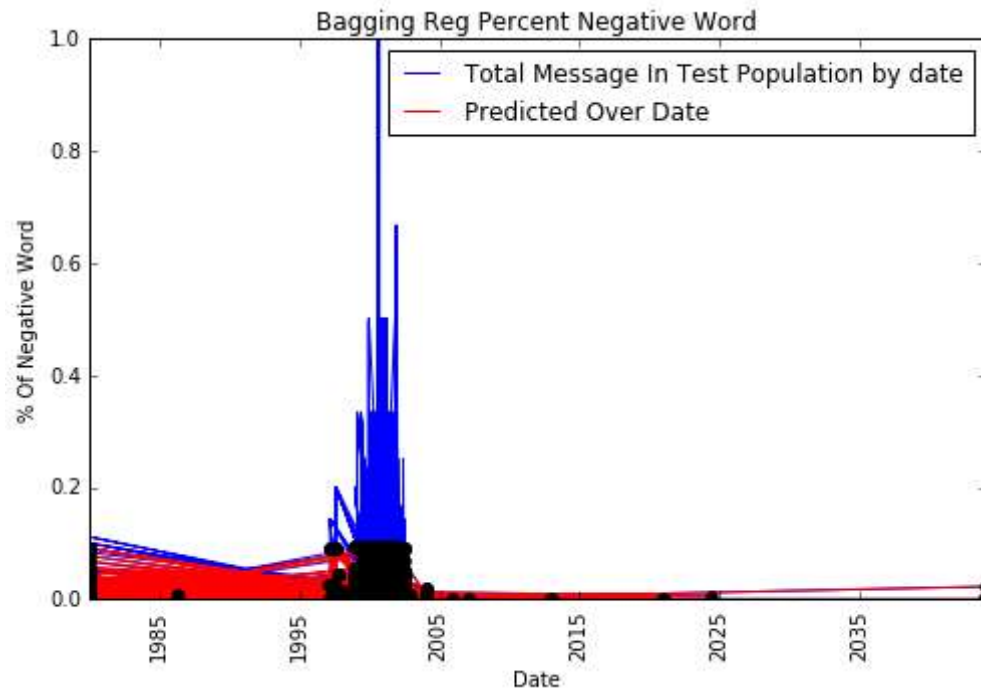
('RandomForest Regression Score ', ('Random Forest Predicted Mean Square Error =', 0.00012533718211621056, 'and Random Forest R-Square =', 0.30269589928888885))

('SVR Score = ', -11.853011302116995)



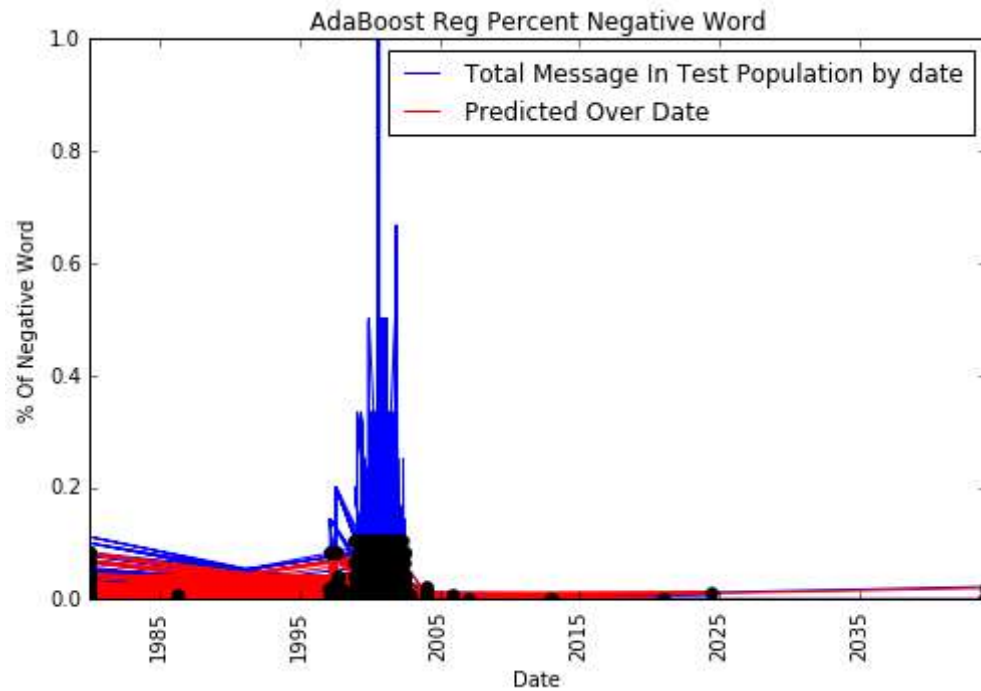
('SVR Regression Score ', ('SVR Mean Square Error =', 0.0023102692450428616, 'SVR R2 =', -11.853011302116995))

('BaggingRegressor Score = ', 0.81416079195557656)



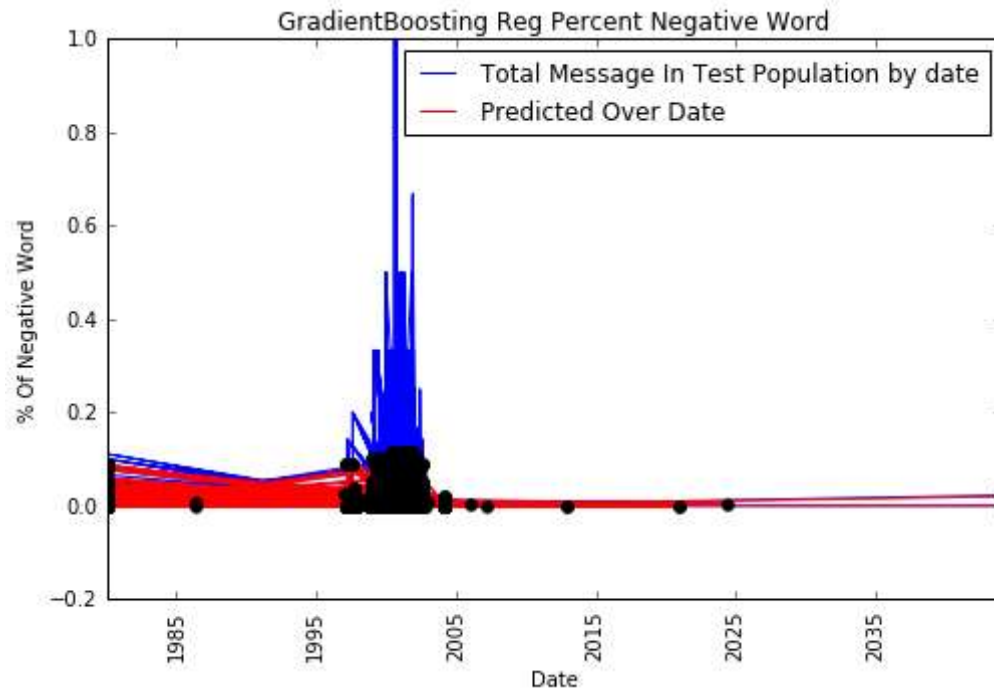
('Bagging Regression Score ', ('BaggingRegressor MSE =', 3.3403736819047052e-05, 'BaggingRegressor R2 =', 0.81416079195557656))

('AdaBoostRegressor Score = ', 0.74175604937748907)



('AdaBoost Regression Score ', ('AdaBoost MSE =', 4.6418153911005084e-05, 'AdaBoost R2 =', 0.74175604937748907))

('GradientBoostingRegressor Score = ', 0.81627848758979804)



```
('GradientBoosting Regression Score ', ('GradientBoosting MSE =', 3.3023090838186723e-05, 'GradientBoosting R2 =',  
0.81627848758979804))  
( ' Time taken for All Regression = ', 1.4824833353360494)
```

