

Project Development Phase Model Performance Test

Date	10 November 2022
Team ID	PNT2022TMID52841
Project Name	Project – Web phishing detection
Maximum Marks	10 Marks

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S.N o.	Parameter	Values	Screenshot
1.	Metrics	Classification Model: Cat Boost Classifier-97.4% accuracy	Attached below
2.	Accuracy	Training accuracy-98.9% Testing accuracy-97%	Attached below

1.METRICS

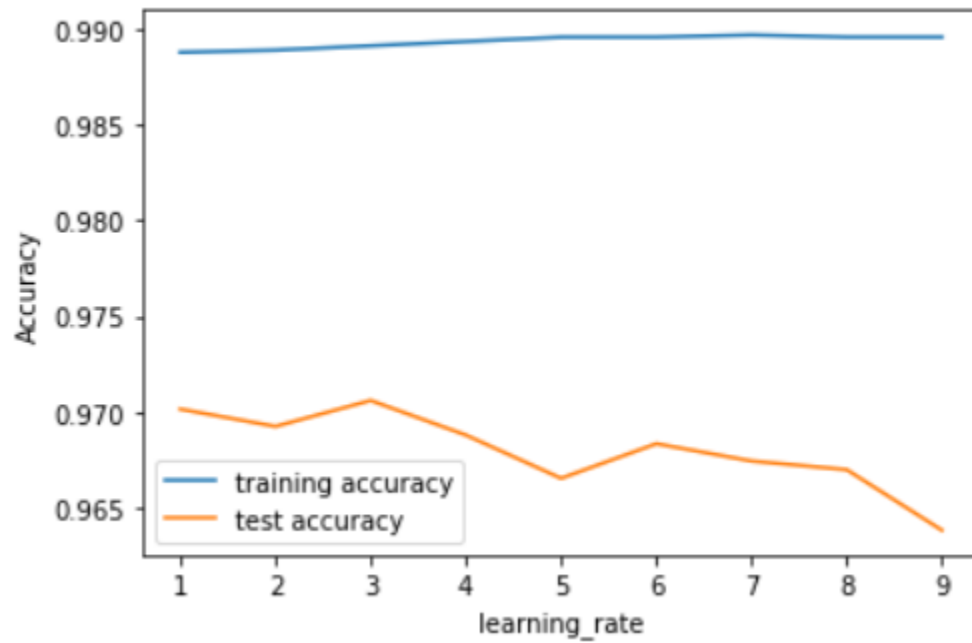
CLASSIFICATION REPORT

```
#computing the classification report of the model
```

```
print(metrics.classification_report(y_test, y_test_cat))
```

	precision	recall	f1-score	support
0	0.98	0.95	0.97	956
1	0.96	0.98	0.97	1255
accuracy			0.97	2211
macro avg	0.97	0.97	0.97	2211
weighted avg	0.97	0.97	0.97	2211

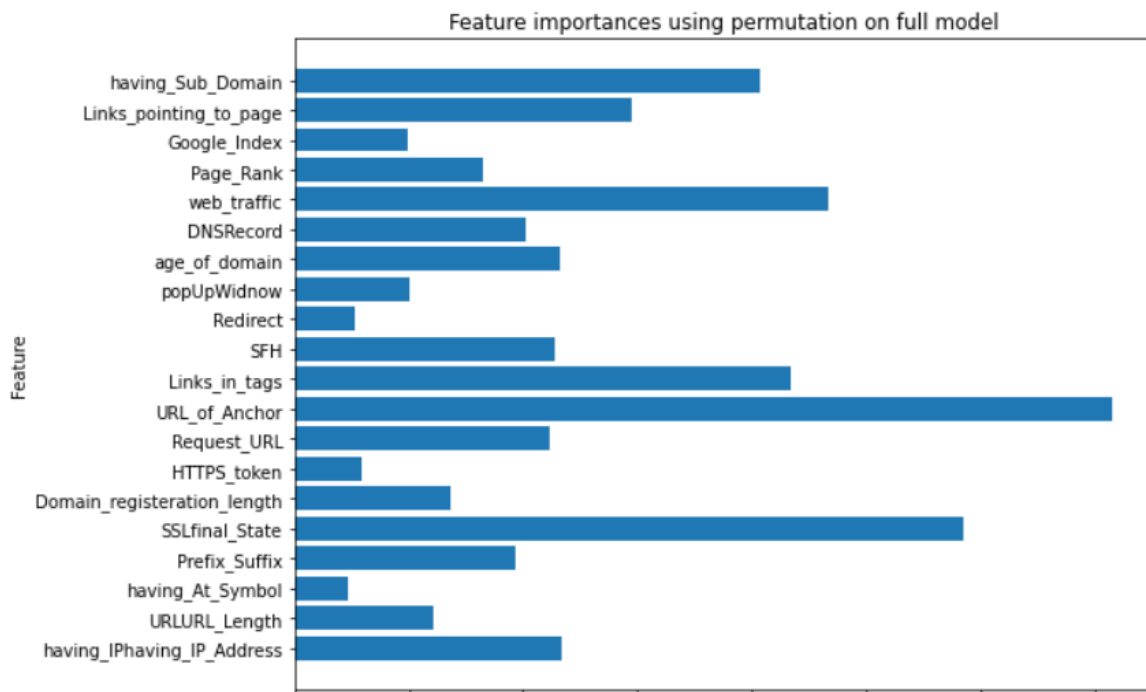
PERFORMANCE



	ML Model	Accuracy	f1_score	Recall	Precision
0	CatBoost Classifier	0.970	0.974	0.994	0.986
1	Random Forest	0.969	0.973	0.991	0.989
2	Gradient Boosting Classifier	0.967	0.971	0.991	0.984
3	Multi-layer Perceptron	0.961	0.966	0.992	0.982
4	Decision Tree	0.960	0.965	0.991	0.990
5	XGBoost Classifier	0.948	0.955	0.965	0.946
6	K-Nearest Neighbors	0.944	0.951	0.991	0.987
7	Logistic Regression	0.925	0.934	0.947	0.926
8	Naive Bayes Classifier	0.578	0.409	0.284	1.000

FEATURES OF THE MODEL

```
#checking the feature improtance in the model
plt.figure(figsize=(9,7))
n_features = X_train.shape[1]
plt.barh(range(n_features), cat.feature_importances_, align='center')
plt.yticks(np.arange(n_features), X_train.columns)
plt.title("Feature importances using permutation on full model")
plt.xlabel("Feature importance")
plt.ylabel("Feature")
plt.show()
```



ACCURACY

) CatBoost Classifier : Accuracy on training Data: 0.989
CatBoost Classifier : Accuracy on test Data: 0.970

CatBoost Classifier : f1_score on training Data: 0.990
CatBoost Classifier : f1_score on test Data: 0.974

CatBoost Classifier : Recall on training Data: 0.994
CatBoost Classifier : Recall on test Data: 0.984

CatBoost Classifier : precision on training Data: 0.986
CatBoost Classifier : precision on test Data: 0.964