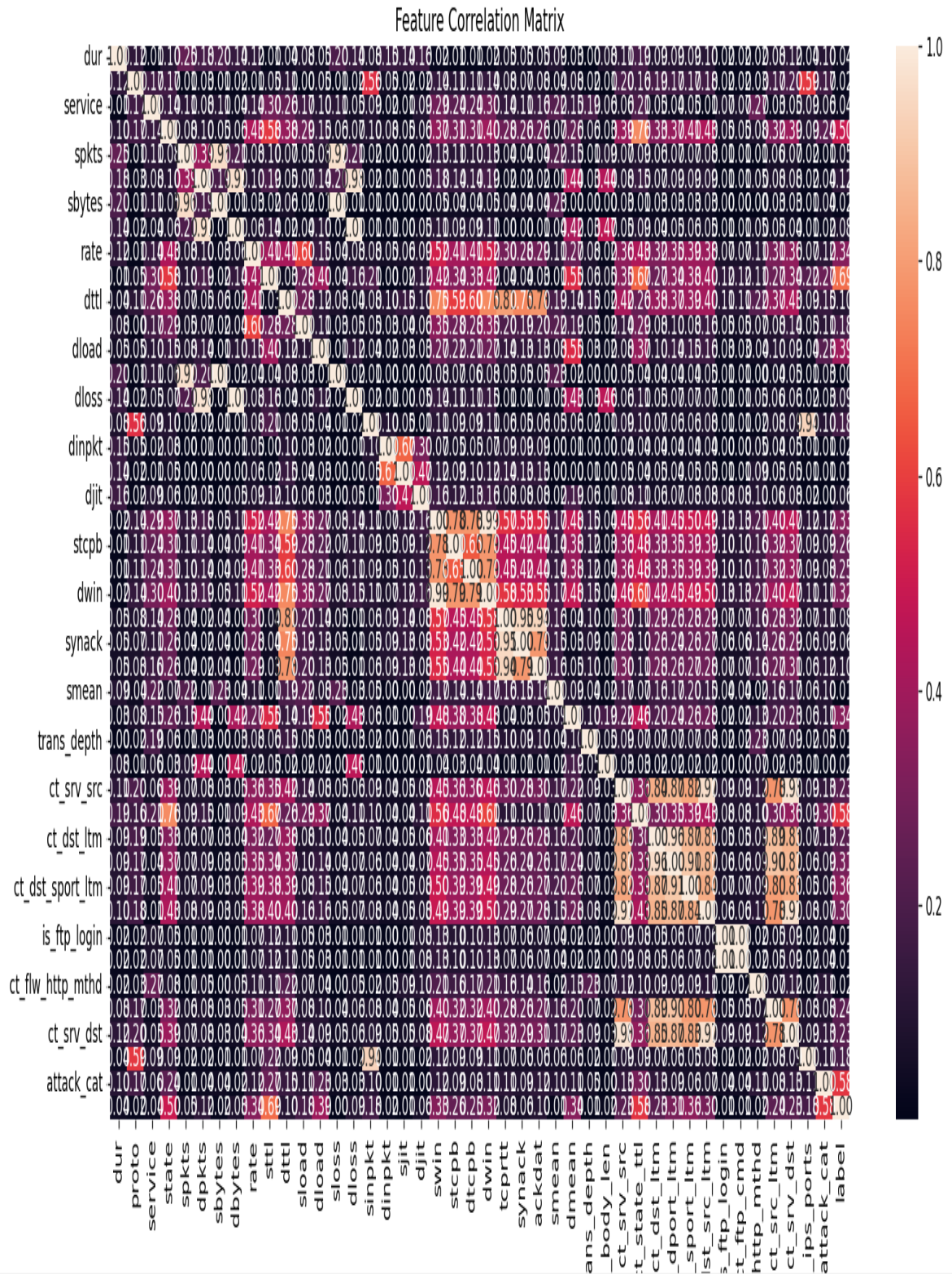


CORRELATION MATRIX



TRAINING OUTPUT

Training SVM with linear kernel...

Classification Report for training data:

	precision	recall	f1-score	support
0	0.87	0.80	0.83	56000
1	0.91	0.94	0.93	119341
accuracy			0.90	175341
macro avg	0.89	0.87	0.88	175341
weighted avg	0.90	0.90	0.90	175341

Classification Report for testing data:

	precision	recall	f1-score	support
0	0.90	0.59	0.71	37000
1	0.74	0.94	0.83	45332
accuracy			0.79	82332
macro avg	0.82	0.77	0.77	82332
weighted avg	0.81	0.79	0.78	82332

Confusion Matrix for training data:

```
[[ 44778 11222]
 [ 6803 112538]]
```

Confusion Matrix for testing data:

```
[[21917 15083]
 [ 2528 42804]]
```

ROC-AUC Score for testing data: 0.7682925026411748

F1 Score for testing data: 0.8293821873879809

Training SVM with rbf kernel...

Classification Report for training data:

	precision	recall	f1-score	support
0	1.00	1.00	1.00	56000
1	1.00	1.00	1.00	119341
accuracy			1.00	175341
macro avg	1.00	1.00	1.00	175341
weighted avg	1.00	1.00	1.00	175341

Classification Report for testing data:

	precision	recall	f1-score	support
0	1.00	1.00	1.00	37000
1	1.00	1.00	1.00	45332
accuracy			1.00	82332
macro avg	1.00	1.00	1.00	82332
weighted avg	1.00	1.00	1.00	82332

Confusion Matrix for training data:

```
[[ 55996      4]
 [    21 119320]]
```

Confusion Matrix for testing data:

```
[[36999      1]
 [    18 45314]]
```

ROC-AUC Score for testing data: 0.9997879512354497

F1 Score for testing data: 0.9997903957108344

Training SVM with poly kernel...

Classification Report for training data:

	precision	recall	f1-score	support
0	0.99	1.00	1.00	56000
1	1.00	1.00	1.00	119341
accuracy			1.00	175341
macro avg	1.00	1.00	1.00	175341
weighted avg	1.00	1.00	1.00	175341

Classification Report for testing data:

	precision	recall	f1-score	support
0	0.99	0.62	0.76	37000
1	0.76	0.99	0.86	45332
accuracy			0.83	82332
macro avg	0.87	0.81	0.81	82332
weighted avg	0.86	0.83	0.82	82332

Confusion Matrix for training data:

```
[[ 55984   16]
 [   427 118914]]
```

Confusion Matrix for testing data:

```
[[22942 14058]
 [   312 45020]]
```

ROC-AUC Score for testing data: 0.8065857493423892

F1 Score for testing data: 0.8623695048367015

```
Best parameters found by GridSearchCV:
{'C': 1, 'gamma': 0.1, 'kernel': 'rbf'}
Classification Report for training data:
      precision    recall  f1-score   support

     0       1.00      1.00      1.00     56000
     1       1.00      1.00      1.00    119341

 accuracy      1.00      1.00      1.00    175341
 macro avg       1.00      1.00      1.00    175341
weighted avg       1.00      1.00      1.00    175341

Classification Report for testing data:
      precision    recall  f1-score   support

     0       1.00      1.00      1.00     37000
     1       1.00      1.00      1.00     45332

 accuracy      1.00      1.00      1.00     82332
 macro avg       1.00      1.00      1.00     82332
weighted avg       1.00      1.00      1.00     82332

Confusion Matrix for training data:
[[ 56000      0]
 [    13 119328]]
Confusion Matrix for testing data:
[[36998      2]
 [      5 45327]]
ROC-AUC Score for testing data: 0.9999178242921295
F1 Score for testing data: 0.9999227892919778
```

