```
In [3]:        'C:/Users/User/Desktop/Java/Project/bagofwords.py'      ='C:/Users/User/
Desktop/Java/Project'
RF Accuracy: 0.9450636942675159
RF CLassification Report
              precision    recall  f1-score   support

       CWE15       0.91      0.97      0.94       167
       CWE23       0.94      0.97      0.95       339
       CWE36       1.00      1.00      1.00        48
       CWE78       1.00      1.00      1.00        39
       CWE89       1.00      1.00      1.00        21
       CWE80       1.00      1.00      1.00        37
      CWE113       0.90      0.93      0.92        82
      CWE129       1.00      1.00      1.00       214
    Non-Vuln       0.92      0.85      0.88       309

    accuracy                           0.95      1256
   macro avg       0.96      0.97      0.97      1256
weighted avg       0.95      0.95      0.94      1256


RF Confusion Metrix
[[162   0   0   0   0   0   0   0   5]
 [  0 328   0   0   0   0   0   0  11]
 [  0   0  48   0   0   0   0   0   0]
 [  0   0   0  39   0   0   0   0   0]
 [  0   0   0   0  21   0   0   0   0]
 [  0   0   0   0   0  37   0   0   0]
 [  0   0   0   0   0   0  76   0   6]
 [  0   0   0   0   0   0   0 214   0]
 [ 17  22   0   0   0   0   8   0 262]]
SVM Accuracy: 0.9442675159235668
SVM CLassification Report
              precision    recall  f1-score   support

       CWE15       0.91      0.95      0.93       167
       CWE23       0.93      0.96      0.94       339
       CWE36       1.00      1.00      1.00        48
       CWE78       1.00      1.00      1.00        39
       CWE89       1.00      1.00      1.00        21
       CWE80       1.00      1.00      1.00        37
      CWE113       0.92      0.96      0.94        82
      CWE129       1.00      1.00      1.00       214
    Non-Vuln       0.92      0.85      0.89       309

    accuracy                           0.94      1256
   macro avg       0.96      0.97      0.97      1256
weighted avg       0.94      0.94      0.94      1256


SVM Confusion Metrix
[[159   0   0   0   0   0   0   0   8]
 [  0 325   0   0   0   0   0   0  14]
 [  0   0  48   0   0   0   0   0   0]
 [  0   0   0  39   0   0   0   0   0]
```

```
 [  0   0   0   0  21   0   0   0   0]
 [  0   0   0   0   0  37   0   0   0]
 [  3   0   0   0   0   0  79   0   0]
 [  0   0   0   0   0   0   0 214   0]
 [ 13  25   0   0   0   0   7   0 264]]
NB Accuracy: 0.8320063694267515
NB CLassification Report
```

NB CLassification Report

	precision	recall	f1-score	support
CWE15	0.67	0.99	0.80	167
CWE23	0.77	0.98	0.86	339
CWE36	0.81	1.00	0.90	48
CWE78	1.00	0.97	0.99	39
CWE89	0.84	1.00	0.91	21
CWE80	1.00	1.00	1.00	37
CWE113	0.93	0.95	0.94	82
CWE129	1.00	0.94	0.97	214
Non-Vuln	0.95	0.40	0.56	309
accuracy			0.83	1256
macro avg	0.88	0.92	0.88	1256
weighted avg	0.87	0.83	0.81	1256

```
NB Confusion Metrix
[[166   1   0   0   0   0   0   0   0]
 [  3 333   1   0   0   0   0   0   2]
 [  0   0  48   0   0   0   0   0   0]
 [  0   0   0  38   0   0   0   0   1]
 [  0   0   0   0  21   0   0   0   0]
 [  0   0   0   0   0  37   0   0   0]
 [  2   0   0   0   0   0  78   0   2]
 [  0   0   7   0   4   0   0 201   2]
 [ 77 100   3   0   0   0   6   0 123]]
LR Accuracy: 0.9339171974522293
LR CLassification Report
```

LR CLassification Report

	precision	recall	f1-score	support
CWE15	0.89	0.96	0.93	167
CWE23	0.91	0.96	0.93	339
CWE36	1.00	1.00	1.00	48
CWE78	0.95	1.00	0.97	39
CWE89	1.00	1.00	1.00	21
CWE80	1.00	1.00	1.00	37
CWE113	0.90	0.99	0.94	82
CWE129	1.00	1.00	1.00	214
Non-Vuln	0.92	0.80	0.86	309
accuracy			0.93	1256
macro avg	0.95	0.97	0.96	1256
weighted avg	0.93	0.93	0.93	1256

```
LR Confusion Metrix
[[161   0   0   0   0   0   0   0   6]
 [  0 324   0   0   0   0   0   0  15]
 [  0   0  48   0   0   0   0   0   0]
```

```
[  0   0   0  39   0   0   0   0   0]
[  0   0   0   0  21   0   0   0   0]
[  0   0   0   0   0  37   0   0   0]
[  1   0   0   0   0   0  81   0   0]
[  0   0   0   0   0   0   0 214   0]
[ 18  32   0   2   0   0   9   0 248]]
```
KNN Accuracy: 0.8869426751592356
KNN CLassification Report

	precision	recall	f1-score	support
CWE15	0.83	0.87	0.85	167
CWE23	0.91	0.93	0.92	339
CWE36	0.78	0.94	0.85	48
CWE78	0.97	0.92	0.95	39
CWE89	0.84	1.00	0.91	21
CWE80	1.00	0.95	0.97	37
CWE113	0.77	0.76	0.76	82
CWE129	0.95	0.98	0.97	214
Non-Vuln	0.88	0.79	0.83	309
accuracy			0.89	1256
macro avg	0.88	0.90	0.89	1256
weighted avg	0.89	0.89	0.89	1256

KNN Confusion Metrix
```
[[146   0   1   0   0   0  11   0   9]
 [  5 316   0   0   0   0   0   0  18]
 [  0   0  45   0   0   0   2   0   1]
 [  0   0   0  36   3   0   0   0   0]
 [  0   0   0   0  21   0   0   0   0]
 [  0   0   0   0   0  35   0   2   0]
 [  7   0   4   0   0   0  62   4   5]
 [  1   2   0   0   0   0   1 209   1]
 [ 16  30   8   1   1   0   5   4 244]]
```

In [4]:
```