Author: Shriharsha

The following code is a python script to take as input the occurence

of IOCs in various ransomwares, then compute a score for each of the

**loCS** 

Version 0.9: All features implemented

Note: Requires data in text file to run

Noticed bugs:

**NULL** 

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import matplotlib.pyplot as plt import numpy as np import math

"

Test values

RansomwareNames=["Cryptowall", "Cryptolocker", "CTB Locker", "Locky", "Teslacrypt", "Torrentlocker", "Winlocker"]

IOCs=["Delete Shadow Copy", "I2P Anonymity Network", "Connect to tor2web", "Request to high Entropy Domain Name",

"File Encryption", "Encrypts File Name", "Locks Screen", "Deletes original Files from disk",

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"Import and Links to Crypto Libraries",
"Packed/obfuscated", "Create RWX memory"]
weights=[1,2,1,3,1,2,1,1,3,2,1]
#Below matrix is such that IOC_Occurences[i,j]
represnts whether IOCs[j] is detected from
RansomwareNames[i]
IOC Occurences=[[1,1,1,1,1,1,0,0,1,1,1],
          [1,0,1,0,1,0,0,0,0,1,0],
          [0,0,0,0,1,0,0,0,0,1,0],
          [1,0,1,1,1,0,0,0,0,0,0]
          [1,0,1,0,1,0,0,0,0,1,1],
          [1,0,1,0,1,0,0,0,0,1,0],
          [0,0,0,0,0,0,1,1,0,0,0]
#Initializing values
RansomwareNames=[]
IOCs=[]
weights=[]
IOC_Occurences=[]
with open('ransomnames.txt','r') as f:
  RansomwareNames.append(f.read().split('\n'))
with open('iocs.txt','r') as f:
  IOCs.append(f.read().split('\n'))
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with open('weights','r') as f:
  weights.append(f.read().split('\n'))
with open('IOCoccurences.txt','r') as f:
  row=[]
  row.append(f.read().split('\n'))
  IOC_Occurences.append(row)
n=len(RansomwareNames)
#The scores are respectively calculated as the following
matrix/vector product: Scores=
IOC_Occurences*(Weights)^T
sum=0
Scores=[]
for i in range(len(IOC_Occurences)):
  for j in range(len(weights)):
     sum+=(IOC Occurences[i][j]*weights[j])
  Scores.append(sum)
  sum=0
#Apply Sigmoid function on the scores
z = [1/(1 + np.exp(-x))] for x in Scores]
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percentage=[100*x for x in z]
plt.plot(Scores, z)
plt.xlabel("Score")
plt.ylabel("Sigmoid(score)")
plt.show()
indexes=[enumerate(range(n))]
for i in range(n):
  for j in range(i+1,n):
     if Scores[i]>Scores[j]:
       temp=Scores[i]
       Scores[i]=Scores[j]
       Scores[j]=temp
       temp=indexes[i]
       indexes[i]=indexes[j]
       indexes[j]=temp
print("Ransomwares ranked by scores:")
for i in range(n):
  print(RansomwareNames[i],": ",percentage[i])
```