In [1]:
```
import sys, urllib.request, re
from bs4 import BeautifulSoup
from urllib.request import urlopen
```

In [3]:
```
def scoreMITRE_CVEs(homePageAbstract):
        score = 0
        abstractDict = {}
        for line in homePageAbstract.split():
            if line in abstractDict.keys():
                abstractDict[line] += 1
            else:
                abstractDict[line] = 1

        for val in scoreCard.keys():
            pattern = '.*(' + val + '|' + val.upper() + '|' + val.capitalize() + '|' + val.lower() +
').*'
            for key in abstractDict.keys():
                if re.search(pattern, key):
                    score += scoreCard[val] * abstractDict[key]
        return score
```

In [ ]:
```
########################################
# Reference used
# Sweigart, A. (2018). Cracking Codes with Python: An Introduction to Building and Breaking Ciphers. ht
tp://inventwithpython.com/cracking/
########################################

UPPERLETTERS = 'ABCDEFGHIJKLMNOPQRSTUVWXYZ'
LETTERS_AND_SPACE = UPPERLETTERS + UPPERLETTERS.lower() + ' \t\n'
def loadDictionary():
    dictionaryFile = open('english_wordDict.txt')
    englishWords = {}
    for word in dictionaryFile.read().split('\n'):
        englishWords[word] = None

    dictionaryFile.close()
    return englishWords

ENGLISH_WORDS = loadDictionary()

def getEnglishCount(message):
    message = message.upper()
    message = removeNonLetters(message)
    possibleWords = message.split()
    if possibleWords == []:
        return 0.0 # no words at all, so return 0.0
    matches = 0
    for word in possibleWords:
        if word in ENGLISH_WORDS:
            matches += 1
    return float(matches) / len(possibleWords)
def removeNonLetters(message):
    lettersOnly = []
    for symbol in message:
        if symbol in LETTERS_AND_SPACE:
            lettersOnly.append(symbol)
    return ''.join(lettersOnly)
def isEnglish(message, wordPercentage=20, letterPercentage=85):
    wordsMatch = getEnglishCount(message) * 100 >= wordPercentage
    numLetters = len(removeNonLetters(message))
    messageLettersPercentage = float(numLetters) / len(message) * 100
    lettersMatch = messageLettersPercentage >= letterPercentage
    return wordsMatch and lettersMatch
```

In [6]:
```
def findText(soup):
    td = soup.findAll('td')
    for i in td:
        for x in i:
            try:
                if isEnglish(x) == True and len(x) > 100:
                    return x
            except:
                continue
```

In [20]:
```
########################################
# Reference use
# Amos, D. (2020). A Practical Introduction to Web Scraping in Python. https://realpython.com/python-we
b-scraping-practical-introduction/
########################################

def CVEparser(scoreCard, threshold):
    url_MITRE_Validator = '^/cgi-bin/cvename.cgi[?]name=CVE-[0-9]{4}-[0-9]{4,}$'
    links = []
    template = "https://cve.mitre.org/cgi-bin/cvekey.cgi?keyword="
    searches = ["linux", "root", "privilege"]
    baseUrl = template + "+".join(searches)
    page = urlopen(baseUrl)
    html = page.read().decode("utf-8")
    soup = BeautifulSoup(html, "html.parser")
    for link in soup.find_all("a"):
        if re.search(url_MITRE_Validator, link["href"]):
            testPage = urlopen("https://cve.mitre.org"+link["href"])
            testHtml = testPage.read().decode("utf-8")
            testSoup = BeautifulSoup(testHtml, "html.parser")
            words = findText(testSoup)
            if scoreMITRE_CVEs(words) > threshold:
                links.append("https://cve.mitre.org"+link["href"])
    return links
```

In [21]:
```
scoreCard = {'vulnerability': 3, 'root': 20, 'Linux':10, 'malware':5}
threshold = 35
researchLinks = CVEparser(scoreCard, threshold)
```

In [22]:
```
print(researchLinks)
```

```
['https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2020-3948', 'https://cve.mitre.org/cgi-bin/cvena
me.cgi?name=CVE-2020-3423', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2020-3393', 'https://
cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2020-3234', 'https://cve.mitre.org/cgi-bin/cvename.cgi?nam
e=CVE-2020-3218', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2020-3210', 'https://cve.mitre.
org/cgi-bin/cvename.cgi?name=CVE-2020-3205', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2020
-3176', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2020-3169', 'https://cve.mitre.org/cgi-bi
n/cvename.cgi?name=CVE-2020-24561', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2020-2016',
'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2020-1989', 'https://cve.mitre.org/cgi-bin/cvenam
e.cgi?name=CVE-2019-7656', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-7588', 'https://c
ve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-3693', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name
=CVE-2019-3691', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-3689', 'https://cve.mitre.o
rg/cgi-bin/cvename.cgi?name=CVE-2019-19882', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019
-1936', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-1919', 'https://cve.mitre.org/cgi-bi
n/cvename.cgi?name=CVE-2019-18898', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-18897',
'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-1862', 'https://cve.mitre.org/cgi-bin/cvenam
e.cgi?name=CVE-2019-1839', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-1795', 'https://c
ve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-1784', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name
=CVE-2019-1783', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-1778', 'https://cve.mitre.o
rg/cgi-bin/cvename.cgi?name=CVE-2019-1776', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-
1770', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-1769', 'https://cve.mitre.org/cgi-bi
n/cvename.cgi?name=CVE-2019-1756', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-17436',
'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-1652', 'https://cve.mitre.org/cgi-bin/cvenam
e.cgi?name=CVE-2019-16155', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-16005', 'http
s://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-15992', 'https://cve.mitre.org/cgi-bin/cvename.cg
i?name=CVE-2019-15957', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-13272', 'https://cv
e.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-12717', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name
=CVE-2019-12709', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-12661', 'https://cve.mitr
e.org/cgi-bin/cvename.cgi?name=CVE-2019-12579', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2
019-12578', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-12575', 'https://cve.mitre.org/c
gi-bin/cvename.cgi?name=CVE-2018-6964', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2018-1862
9', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2018-15368', 'https://cve.mitre.org/cgi-bin/c
vename.cgi?name=CVE-2018-0481', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2018-0477', 'http
s://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2018-0324', 'https://cve.mitre.org/cgi-bin/cvename.cg
i?name=CVE-2018-0194', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2018-0193', 'https://cve.m
itre.org/cgi-bin/cvename.cgi?name=CVE-2018-0185', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE
-2018-0184', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2018-0183', 'https://cve.mitre.org/c
gi-bin/cvename.cgi?name=CVE-2018-0182', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2018-017
6', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2018-0169', 'https://cve.mitre.org/cgi-bin/cv
ename.cgi?name=CVE-2018-0141', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2017-7184', 'http
s://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2017-6640', 'https://cve.mitre.org/cgi-bin/cvename.cg
i?name=CVE-2017-6639', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2017-6516', 'https://cve.m
itre.org/cgi-bin/cvename.cgi?name=CVE-2016-8657', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE
-2016-6276', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2016-5425', 'https://cve.mitre.org/c
gi-bin/cvename.cgi?name=CVE-2012-5519', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2011-408
0', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2011-1549', 'https://cve.mitre.org/cgi-bin/cv
ename.cgi?name=CVE-2011-1548', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2007-3105', 'http
s://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2006-3626', 'https://cve.mitre.org/cgi-bin/cvename.cg
i?name=CVE-2006-2916', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2004-2073', 'https://cve.m
itre.org/cgi-bin/cvename.cgi?name=CVE-2004-1452', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE
-2004-0186', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2003-0262', 'https://cve.mitre.org/c
gi-bin/cvename.cgi?name=CVE-2000-1043', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2000-104
2', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2000-0800', 'https://cve.mitre.org/cgi-bin/cv
ename.cgi?name=CVE-2000-0749', 'https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2000-0017', 'http
s://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-1999-1327', 'https://cve.mitre.org/cgi-bin/cvename.cg
i?name=CVE-1999-1186']
```

In [ ]:
```
```