

STUDY GUIDE FOR MODULE NO. LAB 07

## Cybersecurity Skills Using Raspberry Pi - Pac-man



## MODULE OVERVIEW

Learning cyber security skills and how to use Raspberry Pi is valuable in today's digital world due to the increasing threats to data and infrastructure. In this module, we will learn how to find and remove some viruses that are important to protect your device or computer. We will also learn how to set up a Raspberry Pi and how to use the commands on the terminal correctly. The mission of this laboratory is to manually find and delete viruses or ghosts that are represented by .txt files. It is important to have basic knowledge of how to clean and protect our computers from hackers.



## MODULE LEARNING OUTCOMES

By the end of this module, participants should be able to:

- Learn how to set up Raspberry Pi properly
- Learn how to remove some viruses from the computer
- Know the uses of commands used in this laboratory
- Learn some cybersecurity skills to protect computers from hackers
- Learn to identify malicious files in the computer



## LEARNING CONTENT

**STEP 1:** To download a file or script capable of unleashing ghosts or viruses using the bash command, we use the 'wget' command with the '-O' option. This allows us to retrieve files from the internet using the HTTPS protocol, and the downloaded content should be written to standard output. Subsequently, the '.txt' files represent the ghosts that initiate the process of spreading and infiltrating various files. The ghost images displayed below depict the figures of these downloaded '.txt' files.

```
sna3@raspberrypi: ~/Documents
File Edit Tabs Help
sna3@raspberrypi:~/Documents $ wget -O - https://rpf.io/pacmanstart | bash
--2023-10-05 02:36:12-- https://rpf.io/pacmanstart
Resolving rpf.io (rpf.io)... 104.21.45.241, 172.67.220.190, 2606:4700:3037::6815:2df1, ...
Connecting to rpf.io (rpf.io)|104.21.45.241|:443... connected.
HTTP request sent, awaiting response... Read error (The request is invalid.) in
headers.
Retrying.

--2023-10-05 02:36:29-- (try: 2) https://rpf.io/pacmanstart
Connecting to rpf.io (rpf.io)|104.21.45.241|:443... connected.
HTTP request sent, awaiting response... 301 Moved Permanently
Location: http://raw.githubusercontent.com/raspberrypilearning/pacman-terminal/master/en/resources/pacman_start [following]
URL transformed to HTTPS due to an HSTS policy
--2023-10-05 02:36:38-- https://raw.githubusercontent.com/raspberrypilearning/pacman-terminal/master/en/resources/pacman_start
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.108.133, 185.199.109.133, 185.199.110.133, ...
```



```
sna3@raspberrypi: ~/Documents
File Edit Tabs Help
HTTP request sent, awaiting response... 200 OK
Length: 1173 (1.1K) [text/plain]
Saving to: 'STDOUT'

-
100%[=====] 1.15K --.-KB/s in 0.002s

2023-10-05 02:36:38 (505 KB/s) - written to stdout [1173/1173]

--2023-10-05 02:36:38-- https://raw.githubusercontent.com/raspberrypilearning/p
acman-terminal/master/en/resources/8linky.txt
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.111.1
33, 185.199.110.133, 185.199.109.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|185.199.111.
133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 23 [text/plain]
```

```
sna3@raspberrypi: ~/Documents
File Edit Tabs Help
Length: 23 [text/plain]
Saving to: '/home/sna3/Pictures/8linky.txt'

8linky.txt 100%[=====] 23 --.-KB/s in 0s

2023-10-05 02:36:39 (572 KB/s) - '/home/sna3/Pictures/8linky.txt' saved [23/23]

--2023-10-05 02:36:39-- https://raw.githubusercontent.com/raspberrypilearning/p
acman-terminal/master/en/resources/PiNkY.txt
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.108.1
33, 185.199.111.133, 185.199.110.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|185.199.108.
133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 25 [text/plain]
Saving to: '/home/sna3/Desktop/PiNkY.txt'
```



8linky

```
sna3@raspberrypi: ~/Documents
File Edit Tabs Help
Saving to: '/home/sna3/Desktop/PiNkY.txt'

PiNkY.txt 100%[=====] 25 --.-KB/s in 0s

2023-10-05 02:36:39 (269 KB/s) - '/home/sna3/Desktop/PiNkY.txt' saved [25/25]

--2023-10-05 02:36:39-- https://raw.githubusercontent.com/raspberrypilearning/p
acman-terminal/master/en/resources/lnky.txt
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.109.1
33, 185.199.108.133, 185.199.111.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|185.199.109.
133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 16 [text/plain]
Saving to: '/home/sna3/Templates/lnky.txt'

lnkv.txt 100%[=====] 16 --.-KB/s in 0s
```



PiNkY

```
sna3@raspberrypi: ~/Documents
File Edit Tabs Help

1nky.txt          100%[=====]          16 --.-KB/s   in 0s

2023-10-05 02:36:46 (280 KB/s) - '/home/sna3/Templates/1nky.txt' saved [16/16]

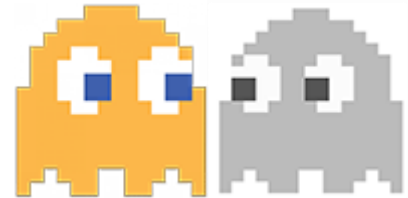
--2023-10-05 02:36:46-- https://raw.githubusercontent.com/raspberrypilearning/p
acman-terminal/master/en/resources/CLYDE.txt
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.110.1
33, 185.199.108.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|185.199.110.
133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 29 [text/plain]
Saving to: '/home/sna3/Documents/python_games/CLYDE.txt'
CLYDE.txt          100%[=====]          29 --.-KB/s   in 0s
```

```
sna3@raspberrypi: ~/Documents
File Edit Tabs Help

CLYDE.txt          100%[=====]          29 --.-KB/s   in 0s

2023-10-05 02:36:46 (795 KB/s) - '/home/sna3/python_games/CLYDE.txt' saved [29/29]

--2023-10-05 02:36:46-- https://raw.githubusercontent.com/raspberrypilearning/p
acman-terminal/master/en/resources/sp00ky.txt
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.111.1
33, 185.199.110.133, 185.199.109.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|185.199.111.
133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 29 [text/plain]
Saving to: '/home/sna3/Documents/sp00ky.txt'
sp00ky.txt          100%[=====]          29 --.-KB/s   in 0s
```



Clyde

sp00ky

```
sna3@raspberrypi: ~/Documents
File Edit Tabs Help

133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 17 [text/plain]
Saving to: '/home/sna3/Documents/funky.txt'
funky.txt          100%[=====]          17 --.-KB/s   in 0s

2023-10-05 02:36:47 (433 KB/s) - '/home/sna3/Documents/funky.txt' saved [17/17]

--2023-10-05 02:36:47-- https://raw.githubusercontent.com/raspberrypilearning/p
acman-terminal/master/en/resources/sue.txt
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.109.1
33, 185.199.108.133, 185.199.111.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|185.199.109.
133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 26 [text/plain]
```



funky

```

File Edit Tabs Help

funky.txt          100%[=====>]      17  --.-KB/s    in 0s
2023-10-05 02:36:47 (433 KB/s) - '/home/sna3/Documents/funky.txt' saved [17/17]

--2023-10-05 02:36:47-- https://raw.githubusercontent.com/raspberrypilearning/p
acman-terminal/master/en/resources/sue.txt
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.109.1
33, 185.199.108.133, 185.199.111.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|185.199.109.
133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 26 [text/plain]
Saving to: '/home/sna3/Music/sue.txt'

sue.txt            100%[=====>]      26  --.-KB/s    in 0s
2023-10-05 02:36:47 (662 KB/s) - '/home/sna3/Music/sue.txt' saved [26/26]

```



sue

**STEP 2:** We need to create a directory or folder where we can copy the ghosts from the terminal. It's important to copy them first and create a backup so that we can inspect the contents of each .txt file before removing them.

```

File Edit Tabs Help

sna3@raspberrypi:~ $ mkdir quarantine

```

**STEP 3:** Let's begin the ghost-hunting process. First, use the 'ls' command to see what is inside each directory. Inside the 'Documents' directory, we can observe two ghosts named 'funky' and 'sp00ky.'

```

File Edit Tabs Help

sna3@raspberrypi:~ $ cd Documents
sna3@raspberrypi:~/Documents $ ls
funky.txt  sp00ky.txt
sna3@raspberrypi:~/Documents $

```

**STEP 4:** We should copy and create a backup of the ghosts, saving them to the quarantine folder. Afterward, we can use the 'rm' command to remove them from the 'Documents' directory.

```

sna3@raspberrypi:~/Documents $ cp funky.txt ~/quarantine/
sna3@raspberrypi:~/Documents $ rm funky.txt
sna3@raspberrypi:~/Documents $

```

**STEP 5:** We repeat the process of copying and removing from the directory where we find the ghosts.

```

sna3@raspberrypi:~/Documents $ cp funky.txt ~/quarantine/
sna3@raspberrypi:~/Documents $ rm funky.txt
sna3@raspberrypi:~/Documents $ ls
sp00ky.txt
sna3@raspberrypi:~/Documents $ cp sp00ky.txt ~/quarantine/
sna3@raspberrypi:~/Documents $ rm sp00ky.txt
sna3@raspberrypi:~/Documents $ ls
sna3@raspberrypi:~/Documents $

```

**STEP 6:** We need to open each directory one by one to locate the ghosts or viruses and then repeat the process.



```
File Edit Tabs Help
sna3@raspberrypi:~/Documents $ cd ..
sna3@raspberrypi:~ $ ls
2023-10-04-104303_800x600_scrot.png Documents Pictures quarantine
Bookshelf Downloads Public Templates
Desktop Music python_games Videos
sna3@raspberrypi:~ $
```

```
File Edit Tabs Help
sna3@raspberrypi:~/Documents $ cd ..
sna3@raspberrypi:~ $ ls
2023-10-04-104303_800x600_scrot.png Documents Pictures quarantine
Bookshelf Downloads Public Templates
Desktop Music python_games Videos
sna3@raspberrypi:~ $ cd Bookshelf
sna3@raspberrypi:~/Bookshelf $ ls
'BeginnersGuide-4thEd-Eng_v2%20(1).pdf'
sna3@raspberrypi:~/Bookshelf $
```

```
File Edit Tabs Help
sna3@raspberrypi:~ $ ls
2023-10-04-104303_800x600_scrot.png Documents Pictures quarantine
Bookshelf Downloads Public Templates
Desktop Music python_games Videos
sna3@raspberrypi:~ $ cd Desktop
sna3@raspberrypi:~/Desktop $ ls
PiNkY.txt
sna3@raspberrypi:~/Desktop $ cp PiNkY.txt ~/quarantine/
sna3@raspberrypi:~/Desktop $ rm PiNkY.txt
sna3@raspberrypi:~/Desktop $ ls
sna3@raspberrypi:~/Desktop $
```

```
File Edit Tabs Help
sna3@raspberrypi:~/Desktop $ cd ..
sna3@raspberrypi:~ $ ls
2023-10-04-104303_800x600_scrot.png Documents Pictures quarantine
Bookshelf Downloads Public Templates
Desktop Music python_games Videos
sna3@raspberrypi:~ $ cd Downloads
sna3@raspberrypi:~/Downloads $ ls
sna3@raspberrypi:~/Downloads $
```

```
File Edit Tabs Help
sna3@raspberrypi:~/Downloads $ cd ..
sna3@raspberrypi:~ $ ls
2023-10-04-104303_800x600_scrot.png Documents Pictures quarantine
Bookshelf Downloads Public Templates
Desktop Music python_games Videos
sna3@raspberrypi:~ $ cd Music
sna3@raspberrypi:~/Music $ ls
sue.txt
sna3@raspberrypi:~/Music $ cp sue.txt ~/quarantine/
sna3@raspberrypi:~/Music $ ls
sue.txt
sna3@raspberrypi:~/Music $ rm sue.txt
sna3@raspberrypi:~/Music $
```

```

File Edit Tabs Help
sna3@raspberrypi:~/Music $ ls
sna3@raspberrypi:~/Music $ cd ..
sna3@raspberrypi:~ $ ls
2023-10-04-104303_800x600_scrot.png Documents Pictures quarantine
Bookshelf Downloads Public Templates
Desktop Music python_games Videos
sna3@raspberrypi:~ $ cd Pictures
sna3@raspberrypi:~/Pictures $ ls
8linky.txt
sna3@raspberrypi:~/Pictures $ cp 8linky.txt
cp: missing destination file operand after '8linky.txt'
Try 'cp --help' for more information.
sna3@raspberrypi:~/Pictures $ cp 8linky.txt ~/quarantine/
sna3@raspberrypi:~/Pictures $ rm 8linky.txt
sna3@raspberrypi:~/Pictures $ ls
sna3@raspberrypi:~/Pictures $ c

File Edit Tabs Help
sna3@raspberrypi:~/Pictures $ cd ..
sna3@raspberrypi:~ $ ls
2023-10-04-104303_800x600_scrot.png Documents Pictures quarantine
Bookshelf Downloads Public Templates
Desktop Music python_games Videos
sna3@raspberrypi:~ $ cd Public
sna3@raspberrypi:~/Public $ ls
sna3@raspberrypi:~/Public $

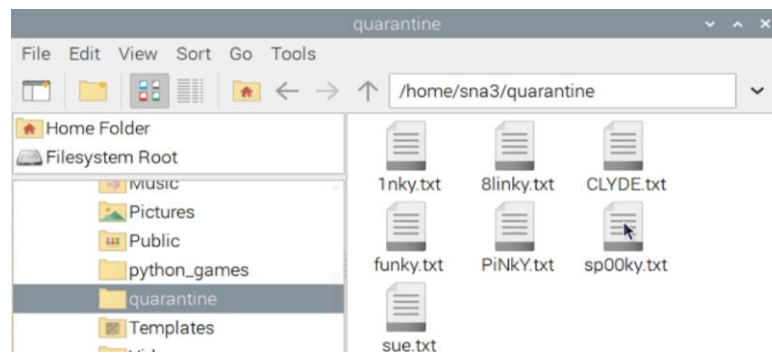
File Edit Tabs Help
sna3@raspberrypi:~/Public $ cd ..
sna3@raspberrypi:~ $ ls
2023-10-04-104303_800x600_scrot.png Documents Pictures quarantine
Bookshelf Downloads Public Templates
Desktop Music python_games Videos
sna3@raspberrypi:~ $ cd python_games
sna3@raspberrypi:~/python_games $ ls
CLYDE.txt
sna3@raspberrypi:~/python_games $ cp CLYDE.txt ~/quarantine/
sna3@raspberrypi:~/python_games $ rm CLYDE.txt
sna3@raspberrypi:~/python_games $

File Edit Tabs Help
sna3@raspberrypi:~/python_games $ cd ..
sna3@raspberrypi:~ $ ls
2023-10-04-104303_800x600_scrot.png Documents Pictures quarantine
Bookshelf Downloads Public Templates
Desktop Music python_games Videos
sna3@raspberrypi:~ $ cd Templates
sna3@raspberrypi:~/Templates $ ls
1nky.txt
sna3@raspberrypi:~/Templates $ cp 1nky.txt ~/quarantine/
sna3@raspberrypi:~/Templates $ rm 1nky.txt
sna3@raspberrypi:~/Templates $ ls
sna3@raspberrypi:~/Templates $

File Edit Tabs Help
sna3@raspberrypi:~/Templates $ cd ..
sna3@raspberrypi:~ $ ls
2023-10-04-104303_800x600_scrot.png Documents Pictures quarantine
Bookshelf Downloads Public Templates
Desktop Music python_games Videos
sna3@raspberrypi:~ $ cd Videos
sna3@raspberrypi:~/Videos $ ls
sna3@raspberrypi:~/Videos $

```

**STEP 7:** Once we have made copies or backups of the ghosts we hunted, we can now navigate to the directory where we can open the .txt files.



**STEP 8:** To do that, we need to use the 'cat' command to display the contents of the .txt files.

```

File Edit Tabs Help
sna3@raspberrypi:~ $ cd quarantine
sna3@raspberrypi:~/quarantine $ ls
1nky.txt 8linky.txt CLYDE.txt funky.txt PiNkY.txt sp00ky.txt sue.txt
sna3@raspberrypi:~/quarantine $ cat 1nky.txt
apple
key
peach
sna3@raspberrypi:~/quarantine $ cat 8linky.txt
strawberry
cherry
bell
sna3@raspberrypi:~/quarantine $ cat CLYDE.txt
galaxian boss
grapes
cherry
sna3@raspberrypi:~/quarantine $
galaxian boss
grapes
cherry
sna3@raspberrypi:~/quarantine $ cat funky.txt
peach
cherry
key
sna3@raspberrypi:~/quarantine $ cat PiNkY.txt
apple
strawberry
cherry
sna3@raspberrypi:~/quarantine $ cat sp00ky.txt
galaxian boss
grapes
cherry
sna3@raspberrypi:~/quarantine $ cat sue.txt
bell
galaxian boss
peach

```








**STEP 9:** To proceed, we must remove the directory where we saved the .txt files. We should remove them one by one to clean the directory.<sup>[13]</sup>

```






File Edit Tabs Help
sna3@raspberrypi:~/quarantine $ ls
1nky.txt 8linky.txt CLYDE.txt funky.txt PiNkY.txt sp00ky.txt sue.txt
sna3@raspberrypi:~/quarantine $ rm 1nky.txt
sna3@raspberrypi:~/quarantine $ rm 8linky.txt
sna3@raspberrypi:~/quarantine $ rm CLYDE.txt
sna3@raspberrypi:~/quarantine $ rm funky.txt
sna3@raspberrypi:~/quarantine $ rm PiNkY.txt
sna3@raspberrypi:~/quarantine $ rm sp00ky.txt
sna3@raspberrypi:~/quarantine $ rm sue.txt
sna3@raspberrypi:~/quarantine $ ls
sna3@raspberrypi:~/quarantine $

```

These are the ghosts that we need to locate and remove in this laboratory. They are represented by .txt files containing treasures, each with their respective point values.

Ghost	Name
	Blinky
	Clyde
	Spooky
	Pinky
	Inky
	Funky
	Sue




Each fruit or treasure corresponds to a specific point value.

Treasure		Points
	Cherry	100
	Strawberry	300
	Peach	500
	Apple	700
	Grapes	1000



## Study Guide in (Elective 1 – Systems and Network Administration 1)

Module No. Lab 07

	<b>Galaxian Boss</b>	<b>2000</b>
	<b>Bell</b>	<b>3000</b>
	<b>Key</b>	<b>5000</b>

Here is the total of treasures and their respective points:

```

1nky.txt
apple          = 700
key            = 5000
peach          = 500
Total          = 6200

8linky.txt
strawberry     = 300
cherry         = 100
bell           = 3000
Total          = 3400

CLYDE.txt
galaxian boss  = 2000
grapes         = 1000
cherry         = 100
Total          = 3100

funky.txt
peach          = 500
cherry         = 100
key            = 5000
Total          = 5600

PiNkY.txt
apple          = 700
strawberry     = 300
cherry         = 100
Total          = 1100

sp00ky.txt
galaxian boss  = 2000
grapes         = 1000
cherry         = 100
Total          = 3100

sue.txt
bell           = 3000
galaxian boss  = 2000
peach          = 500
Total          = 5500
Total Points: 28000

```

**STEP 10:** We should use the 'rmdir' command to remove the directory.<sup>[14]</sup>

```

File Edit Tabs Help
sna3@raspberrypi:~ $ ls
2023-10-04-104303_800x600_scrot.png  Documents  Pictures  quarantine
Bookshelf                           Downloads  Public    Templates
Desktop                             Music      python_games  Videos
sna3@raspberrypi:~ $ rmdir quarantine
sna3@raspberrypi:~ $ ls
2023-10-04-104303_800x600_scrot.png  Documents  Pictures  Templates
Bookshelf                           Downloads  Public    Videos
Desktop                             Music      python_games
sna3@raspberrypi:~ $

```



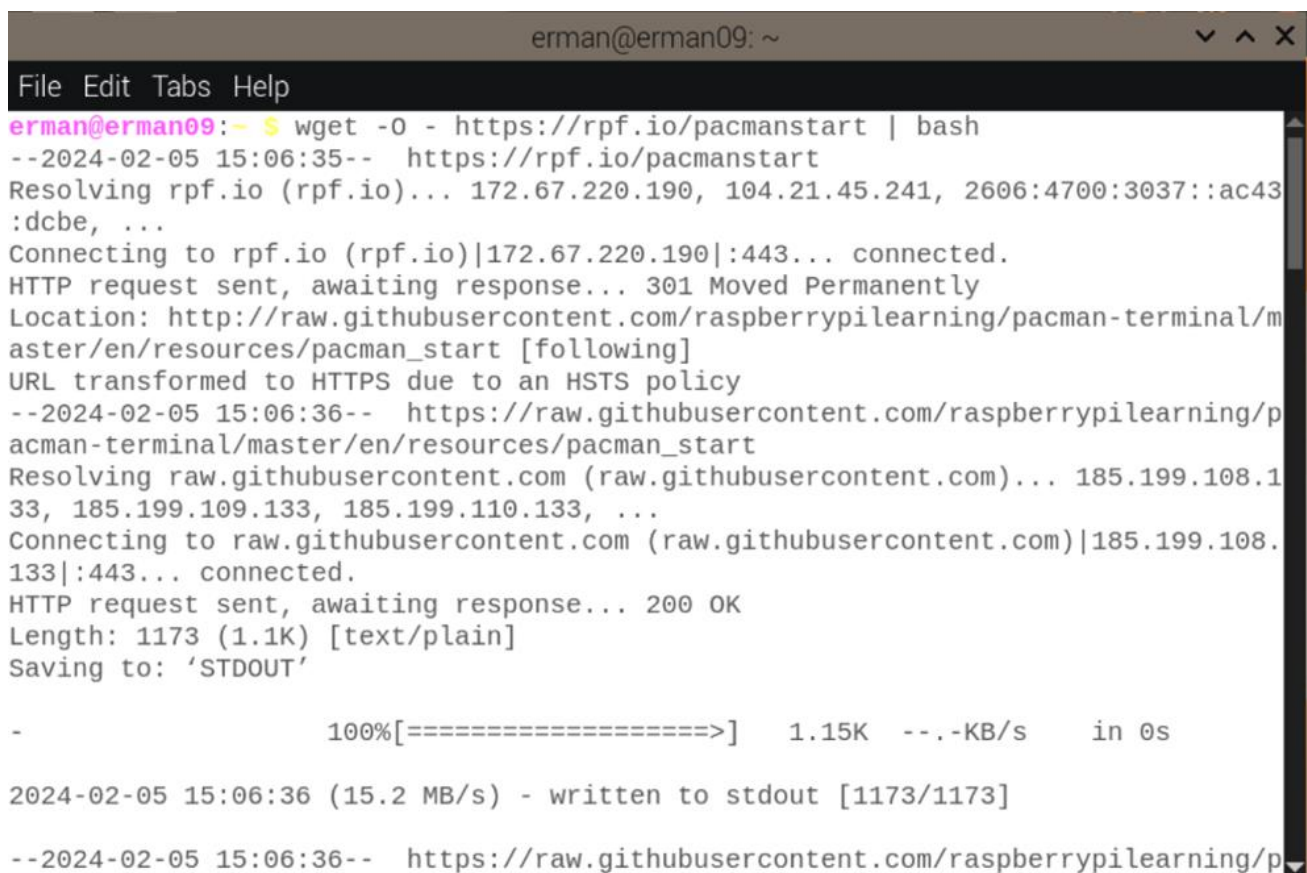
### LEARNING ACTIVITY 1



Name: Cerujano, Erman Ace M. Cerujano Due date: March 18, 2024

Create a detailed step-by-step method with pictures and detailed description on how you installed Pac-Man cyber security exercise in a Raspberry Pi operating system.

**STEP 1:** To download a file or script capable of unleashing ghosts or viruses using the bash command, we use the 'wget' command with the '-O' option. This allows us to retrieve files from the internet using the HTTPS protocol, and the downloaded content should be written to standard output. Subsequently, the '.txt' files represent the ghosts that initiate the process of spreading and infiltrating various files. The ghost images displayed below depict the figures of these downloaded '.txt' files.



```

erman@erman09: ~
File Edit Tabs Help
erman@erman09:~$ wget -O - https://rpfi.io/pacmanstart | bash
--2024-02-05 15:06:35-- https://rpfi.io/pacmanstart
Resolving rpfi.io (rpfi.io)... 172.67.220.190, 104.21.45.241, 2606:4700:3037::ac43:dcbf, ...
Connecting to rpfi.io (rpfi.io)|172.67.220.190|:443... connected.
HTTP request sent, awaiting response... 301 Moved Permanently
Location: http://raw.githubusercontent.com/raspberrypilearning/pacman-terminal/master/en/resources/pacman_start [following]
URL transformed to HTTPS due to an HSTS policy
--2024-02-05 15:06:36-- https://raw.githubusercontent.com/raspberrypilearning/pacman-terminal/master/en/resources/pacman_start
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.108.133, 185.199.109.133, 185.199.110.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|185.199.108.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 1173 (1.1K) [text/plain]
Saving to: 'STDOUT'

-                               100%[=====>]   1.15K  --.-KB/s    in 0s

2024-02-05 15:06:36 (15.2 MB/s) - written to stdout [1173/1173]

--2024-02-05 15:06:36-- https://raw.githubusercontent.com/raspberrypilearning/p

```

```

erman@erman09: ~
File Edit Tabs Help
133]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 17 [text/plain]
Saving to: '/home/erman/Documents/funky.txt'

funky.txt          100%[=====>]          17 --.-KB/s    in 0s

2024-02-05 15:06:40 (577 KB/s) - '/home/erman/Documents/funky.txt' saved [17/17]

--2024-02-05 15:06:40-- https://raw.githubusercontent.com/raspberrypilearning/p
acman-terminal/master/en/resources/sue.txt
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.109.1
33, 185.199.108.133, 185.199.111.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|185.199.109.
133]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 26 [text/plain]
Saving to: '/home/erman/Music/sue.txt'

sue.txt            100%[=====>]          26 --.-KB/s    in 0s

2024-02-05 15:06:40 (334 KB/s) - '/home/erman/Music/sue.txt' saved [26/26]

erman@erman09:~$

```



8linky

```

File Edit Tabs Help
Length: 23 [text/plain]
Saving to: '/home/sna3/Pictures/8linky.txt'

8linky.txt          100%[=====>]          23 --.-KB/s    in 0s

2023-10-05 02:36:39 (572 KB/s) - '/home/sna3/Pictures/8linky.txt' saved [23/23]

--2023-10-05 02:36:39-- https://raw.githubusercontent.com/raspberrypilearning/p
acman-terminal/master/en/resources/PiNkY.txt
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.108.1
33, 185.199.111.133, 185.199.110.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|185.199.108.
133]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 25 [text/plain]
Saving to: '/home/sna3/Desktop/PiNkY.txt'

```



```

File Edit Tabs Help
Saving to: '/home/sna3/Desktop/PiNkY.txt'
PiNkY.txt          100%[=====>]          25 --.-KB/s   in 0s
2023-10-05 02:36:39 (269 KB/s) - '/home/sna3/Desktop/PiNkY.txt' saved [25/25]
--2023-10-05 02:36:39-- https://raw.githubusercontent.com/raspberrypilearning/p
acman-terminal/master/en/resources/inky.txt
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.109.1
33, 185.199.108.133, 185.199.111.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|185.199.109.
133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 16 [text/plain]
Saving to: '/home/sna3/Templates/inky.txt'
Inkv.txt           100%[=====>]          16 --.-KB/s   in 0s

```



PiNkY

```

File Edit Tabs Help
Inky.txt           100%[=====>]          16 --.-KB/s   in 0s
2023-10-05 02:36:40 (280 KB/s) - '/home/sna3/Templates/inky.txt' saved [16/16]
--2023-10-05 02:36:40-- https://raw.githubusercontent.com/raspberrypilearning/p
acman-terminal/master/en/resources/CLYDE.txt
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.110.1
33, 185.199.109.133, 185.199.108.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|185.199.110.
133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 29 [text/plain]
Saving to: '/home/sna3/python_games/CLYDE.txt'
CLYDE.txt          100%[=====>]          29 --.-KB/s   in 0s

```

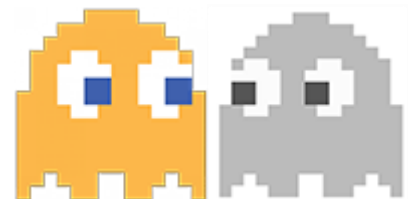


Inky

```

File Edit Tabs Help
CLYDE.txt          100%[=====>]          29 --.-KB/s   in 0s
2023-10-05 02:36:46 (795 KB/s) - '/home/sna3/python_games/CLYDE.txt' saved [29/2
9]
--2023-10-05 02:36:46-- https://raw.githubusercontent.com/raspberrypilearning/p
acman-terminal/master/en/resources/sp00ky.txt
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.111.1
33, 185.199.110.133, 185.199.109.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|185.199.111.
133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 29 [text/plain]
Saving to: '/home/sna3/Documents/sp00ky.txt'
sp00ky.txt         100%[=====>]          29 --.-KB/s   in 0s

```



Clyde

sp00ky

```

File Edit Tabs Help
133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 17 [text/plain]
Saving to: '/home/sna3/Documents/funky.txt'

funky.txt          100%[=====]          17  --.-KB/s   in 0s

2023-10-05 02:36:47 (433 KB/s) - '/home/sna3/Documents/funky.txt' saved [17/17]

--2023-10-05 02:36:47-- https://raw.githubusercontent.com/raspberrypilearning/p
acman-terminal/master/en/resources/sue.txt
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.109.1
33, 185.199.108.133, 185.199.111.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|185.199.109.
133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 26 [text/plain]

```



funky

```

File Edit Tabs Help

funky.txt          100%[=====]          17  --.-KB/s   in 0s

2023-10-05 02:36:47 (433 KB/s) - '/home/sna3/Documents/funky.txt' saved [17/17]

--2023-10-05 02:36:47-- https://raw.githubusercontent.com/raspberrypilearning/p
acman-terminal/master/en/resources/sue.txt
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.109.1
33, 185.199.108.133, 185.199.111.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|185.199.109.
133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 26 [text/plain]
Saving to: '/home/sna3/Music/sue.txt'

sue.txt            100%[=====]          26  --.-KB/s   in 0s

2023-10-05 02:36:47 (662 KB/s) - '/home/sna3/Music/sue.txt' saved [26/26]

```



sue

**STEP 2:** We need to create a directory or folder where we can copy the ghosts from the terminal. It's important to copy them first and create a backup so that we can inspect the contents of each .txt file before removing them.

```

erman@erman09:~$ mkdir quarantine/
erman@erman09:~$ ls
Bookshelf  Documents  Music      Public      quarantine  Videos
Desktop    Downloads  Pictures   python_games  Templates
erman@erman09:~$

```

**STEP 3:** Let's begin the ghost-hunting process. First, use the 'ls' command to see what is inside each directory. Inside the 'Documents' directory, we can observe two ghosts named 'funky' and 'sp00ky.'

```

erman@erman09:~$ cd Documents
erman@erman09:~/Documents$ ls
funky.txt  sp00ky.txt
erman@erman09:~/Documents$

```

**STEP 4:** We should copy and create a backup of the ghosts, saving them to the quarantine folder. Afterward, we can use the 'rm' command to remove them from the 'Documents' directory.

```
erman@erman09:~/python_games $ cp CLYDE.txt ~/quarantine/
erman@erman09:~/python_games $ rm CLYDE.txt
erman@erman09:~/python_games $ cd ..
```

**STEP 5:** We repeat the process of copying and removing from the directory where we find the ghosts.

```
erman@erman09:~/Documents $ cp spooky.txt ~/quarantine/
erman@erman09:~/Documents $ rm spooky.txt
erman@erman09:~/Documents $ ls
funky.txt
erman@erman09:~/Documents $ cp funky.txt ~/quarantine/
erman@erman09:~/Documents $ rm funky.txt
erman@erman09:~/Documents $ ls
erman@erman09:~/Documents $ cd..
```

**STEP 6:** We need to open each directory one by one to locate the ghosts or viruses and then repeat the process.

```
erman@erman09: ~/quarantine
File Edit Tabs Help
erman@erman09:~ $ ls
Bookshelf Documents Music Public quarantine Videos
Desktop Downloads Pictures python_games Templates
erman@erman09:~ $ cd Templates
erman@erman09:~/Templates $ ls
1nky.txt
erman@erman09:~/Templates $ cp 1nky.txt ~/quarantine/
erman@erman09:~/Templates $ rm 1nky.txt
erman@erman09:~/Templates $ cd ..
erman@erman09:~ $ cd quarantine
erman@erman09:~/quarantine $ ls
1nky.txt funky.txt PiNkY.txt spooky.txt sue.txt
```



```

erman@erman09: ~/quarantine
File Edit Tabs Help
erman@erman09:~ $ ls
Bookshelf Documents Music Public quarantine Videos
Desktop Downloads Pictures python_games Templates
erman@erman09:~ $ cd python_games
erman@erman09:~/python_games $ ls
CLYDE.txt
erman@erman09:~/python_games $ cp CLYDE.txt ~/quarantine/
erman@erman09:~/python_games $ rm CLYDE.txt
erman@erman09:~/python_games $ cd ..
erman@erman09:~ $ cd quarantine
erman@erman09:~/quarantine $ ls
1nky.txt CLYDE.txt funky.txt PiNKY.txt sp00ky.txt sue.txt

erman@erman09: ~/quarantine
File Edit Tabs Help
erman@erman09:~ $ ls
Bookshelf Documents Music Public quarantine Videos
Desktop Downloads Pictures python_games Templates
erman@erman09:~ $ cd Pictures
erman@erman09:~/Pictures $ ls
20240205_14h11m16s_grim.png 20240205_14h11m30s_grim.png
20240205_14h11m17s_grim.png 20240205_14h12m50s_grim.png
20240205_14h11m20s_grim.png 20240205_14h18m28s_grim.png
20240205_14h11m26s_grim.png 20240205_14h18m29s_grim.png
20240205_14h11m27s_grim.png 20240205_14h19m08s_grim.png
20240205_14h11m28s_grim.png 8linky.txt
20240205_14h11m29s_grim.png
erman@erman09:~/Pictures $ cp 8linky.txt ~/quarantine/
erman@erman09:~/Pictures $ rm 8linky.txt

```

**STEP 7:** Once we have made copies or backups of the ghosts we hunted, we can now navigate to the directory where we can open the .txt files.

```

erman@erman09:~ $ cd quarantine
erman@erman09:~/quarantine $ ls
1nky.txt 8linky.txt CLYDE.txt funky.txt PiNKY.txt sp00ky.txt sue.txt
erman@erman09:~/quarantine $ █

```

**STEP 8:** To do that, we need to use the 'cat' command to display the contents of the .txt files.



```

erman@erman09: ~/quarantine
File Edit Tabs Help
erman@erman09:~/quarantine $ ls
1nky.txt 8linky.txt CLYDE.txt funky.txt PiNkY.txt sp00ky.txt sue.txt
erman@erman09:~/quarantine $ cat 1nky.txt
apple
key
peach
erman@erman09:~/quarantine $ cat 8linky.txt
strawberry
cherry
bell
erman@erman09:~/quarantine $ cat CLYDE.txt
galaxian boss
grapes
cherry
erman@erman09:~/quarantine $ cat funky.txt
peach
cherry
key
erman@erman09:~/quarantine $ cat PiNkY.txt
apple
strawberry
cherry
erman@erman09:~/quarantine $ cat sp00ky.txt
galaxian boss

```

```








erman@erman09: ~/quarantine
File Edit Tabs Help
strawberry
cherry
bell
erman@erman09:~/quarantine $ cat CLYDE.txt
galaxian boss
grapes
cherry
erman@erman09:~/quarantine $ cat funky.txt
peach
cherry
key
erman@erman09:~/quarantine $ cat PiNkY.txt
apple
strawberry
cherry
erman@erman09:~/quarantine $ cat sp00ky.txt
galaxian boss
grapes
cherry
erman@erman09:~/quarantine $ cat sue.txt
bell
galaxian boss
peach
erman@erman09:~/quarantine $ █

```



**STEP 9:** To proceed, we must remove the directory where we saved the .txt files. We should remove them one by one to clean the directory.<sup>[13]</sup>

```
erman@erman09: ~/quarantine
File Edit Tabs Help
erman@erman09:~/quarantine $ ls
1nky.txt 8linky.txt CLYDE.txt funky.txt PiNkY.txt sp00ky.txt sue.txt
erman@erman09:~/quarantine $ rm 1nky.txt
erman@erman09:~/quarantine $ rm 8linky.txt
erman@erman09:~/quarantine $ rm CLYDE.txt
erman@erman09:~/quarantine $ rm funky.txt
erman@erman09:~/quarantine $ rm PiNkY.txt
erman@erman09:~/quarantine $ rm sp00ky.txt
erman@erman09:~/quarantine $ rm sue.txt
erman@erman09:~/quarantine $ ls
erman@erman09:~/quarantine $
```

These are the ghosts that we need to locate and remove in this laboratory. They are represented by .txt files containing treasures, each with their respective point values.

Ghost	Name
	Blinky
	Clyde
	Spooky
	Pinky
	Inky
	Funky
	Sue

Each fruit or treasure corresponds to a specific point value.

Treasure		Points
	Cherry	100
	Strawberry	300

## Study Guide in (Elective 1 – Systems and Network Administration 1)

Module No. Lab 07

	<b>Peach</b>	<b>500</b>
	<b>Apple</b>	<b>700</b>
	<b>Grapes</b>	<b>1000</b>
	<b>Galaxian Boss</b>	<b>2000</b>
	<b>Bell</b>	<b>3000</b>
	<b>Key</b>	<b>5000</b>

Here is the total of treasures and their respective points:

```
1nky.txt
apple      = 700
key        = 5000
peach      = 500
Total      = 6200
```

```
8linky.txt
strawberry = 300
cherry     = 100
bell       = 3000
Total      = 3400
```

```
CLYDE.txt
galaxian boss = 2000
grapes        = 1000
cherry        = 100
Total         = 3100
```

```
funky.txt
peach        = 500
cherry       = 100
key          = 5000
Total        = 5600
```

```
PiNky.txt
apple        = 700
strawberry   = 300
cherry       = 100
Total        = 1100
```

```
sp00ky.txt|
galaxian boss = 2000
grapes        = 1000
cherry        = 100
Total         = 3100
```

```
sue.txt
bell         = 3000
galaxian boss = 2000
peach        = 500
Total        = 5500
Total Points: 28000
```

**STEP 10:** We should use the 'rmdir' command to remove the directory.<sup>[14]</sup>

```
erman@erman09: ~
File Edit Tabs Help
erman@erman09:~ $ ls
Bookshelf  Pictures      Videos
Desktop    Public        zabbix-release_5.0-1+buster_all.deb
Documents  python_games  zabbix-release_6.2-2+debian11_all.deb
Downloads  quarantine    zabbix-release_6.4-1+debian9_all.deb
Music      Templates
erman@erman09:~ $ rmdir quarantine
erman@erman09:~ $
```





## SUMMARY / CONCLUSION

In this module, we learned about the comprehensive foundation of cybersecurity principles and their practical application using the Raspberry Pi. By learning to set up the Raspberry Pi effectively and employing different terminal commands to identify and remove viruses, we acquired essential skills crucial for safeguarding digital assets. Thus, this exercise allowed us to grasp the concept more effectively, enabling me to understand the significance of cybersecurity measures in today's digital landscape.

During the ghost-hunting procedure, we were able to locate and eliminate dangerous files, which gave me important knowledge about the structure of online dangers. This experience has highlighted the need of ongoing watchfulness and the requirement for routine maintenance to guarantee the security of our system. Furthermore, becoming proficient with basic terminal commands such as ls, rm, cat, and rmdir has enabled me to confidently use the command-line interface, improving my general computing ability.

Overall, this module has been a valuable learning experience, equipping us with practical skills and knowledge essential for combating cyber threats effectively. Moving forward, we are excited to continue exploring cybersecurity concepts and further honing our skills as we recognize the critical role cybersecurity plays in today's interconnected digital world.

## REFERENCES

Aaron Maurer. (2021, March 4). *Raspberri PI Course - Day 5 - Walkthrough of Pac Man Treasure Hunt on Terminal* [Video]. YouTube. <https://www.youtube.com/watch?v=P1amZ0e6Y-w>

pcap\_pirate. (2020, June 18). *Pentbox HoneyPot demo (Install and Run) Kali Linux* [Video]. YouTube. <https://www.youtube.com/watch?v=YXv3JHoR2ZU>

Raspberry Pi Foundation. (2022). Pacman in the Terminal - Raspberry <https://projects.raspberrypi.org/en/projects/pacman-terminal>

For your additional References that has been used please use the citation tools on the website <https://www.scribbr.com/> using APA 7<sup>th</sup> Edition English, and paste it below.

