

## PROGETTO FINALE M2

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Il progetto finale del secondo modulo sarà diviso in 2 parti ben distinte, la prima parte riguarda l'utilizzo dei comandi Linux attraverso GameShell installato sulla macchina Kali; Mentre la seconda parte riguarda la creazione di un programma (in C o Python...io ho scelto Python) che permetta l'esecuzione di un brute force attack ad un servizio SSH su una macchina Debian/Ubuntu, il programma verrà descritto nella seconda parte di questo file mentre lo script si trova qui:

[https://github.com/rauligno6/ConsegneCorsoCS/tree/main/PROGETTI\\_FINALI/M2.](https://github.com/rauligno6/ConsegneCorsoCS/tree/main/PROGETTI_FINALI/M2)

### Prima Parte:

la prima parte sarà divisa per ogni livello completato contenente le seguenti informazioni:

- screenshot di verifica dei comandi
- piccolo commento esplicativo del livello

### Lv1)

```
[use 'gsh help' to get a list of available commands]
[mission 1] $ ls
Castle Forest Garden Mountain Stall

[use 'gsh help' to get a list of available commands]
[mission 1] $ cd castle
Cellar Great_hall Main_building Main_tower Observatory

[use 'gsh help' to get a list of available commands]
[mission 1] $ cd Main_tower
First_floor

[use 'gsh help' to get a list of available commands]
[mission 1] $ cd First_floor
Second_floor

[use 'gsh help' to get a list of available commands]
[mission 1] $ cd Second_floor
Top_of_the_tower

[use 'gsh help' to get a list of available commands]
[mission 1] $ cd Top_of_the_tower
[use 'gsh help' to get a list of available commands]
[mission 1] $ gsh check
Congratulations, mission 1 has been successfully completed!
[ progress was saved in /home/raul/gameshell-save.sh ]

|-----|
| Use the command |
|   $ gsh help   |
| to get the list of "gsh" commands. |
|-----|
```

Il livello 1 consisteva solo nel raggiungere la cima della torre utilizzando il comando cd ed ls per spostarsi e capire “dove andare”.

## Lv2)

```
[mission 2] $ cd /home/raul/gameshell/World/Castle
[use 'gsh help' to get a list of available commands]
[mission 2] $ ls
Cellar  Great_hall  Main_building  Main_tower  Observatory

[use 'gsh help' to get a list of available commands]
[mission 2] $ cd Cellar

[use 'gsh help' to get a list of available commands]
[mission 2] $ gsh check

Congratulations, mission 2 has been successfully completed!
[ progress was saved in /home/raul/gameshell-save.sh ]
```

Il livello 2 aveva sempre lo stesso scopo del livello 1 ma in questo caso dovevamo raggiungere il ‘Cellar’.

## Lv3)

```
[mission 3] $ cd
[use 'gsh help' to get a list of available commands]
[mission 3] $ cd Castle/Main_building/Throne_room

[use 'gsh help' to get a list of available commands]
[mission 3] $ gsh check
```

Il livello 3 chiedeva di arrivare alla ‘Throne\_room’ solo con 2 comandi, quindi utilizzando cd per raggiungere la repository principale e successivamente inserendo il path completo nel secondo comando.

## Lv4)

```
~/Forest
[mission 4] $ mkdir Hut
~/Forest
[mission 4] $ cd Hut
~/Forest/Hut
[mission 4] $ mkdir Chest
~/Forest/Hut
[mission 4] $ gsh check

Congratulations, mission 4 has been successfully completed!
[ progress was saved in /home/raul/gameshell-save.sh ]
```

Il livello 4 richiedeva l’utilizzo di mkdir per creare le directory ‘Hut’ e ‘Chest’.

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### Lv5)

```
~/Forest/Hut
[mission 5] $ cd

~
[mission 5] $ ls
Castle Forest Garden Mountain Stall

~
[mission 5] $ cd Castle

~/Castle
[mission 5] $ ls
Cellar Great_hall Main_building Main_tower Observatory

~/Castle
[mission 5] $ cd Cellar

~/Castle/Cellar
[mission 5] $ ls
barrel_of_apples bat_1 bat_2 spider_1 spider_2 spider_3

~/Castle/Cellar
[mission 5] $ rm spider_1 spider_2 spider_3

~/Castle/Cellar
[mission 5] $ ls
barrel_of_apples bat_1 bat_2

~/Castle/Cellar
[mission 5] $ gsh check

Congratulations, mission 5 has been successfully completed!
[ progress was saved in /home/raul/gameshell-save.sh ]
```

Il livello 5 richiedeva di usare rm per rimuovere i ragni dal ‘Cellar’.

### Lv6)

```
~/Castle/Cellar
[mission 6] $ cd

~
[mission 6] $ ls
Castle Forest Garden Mountain Stall

~
[mission 6] $ cd Garden

~/Garden
[mission 6] $ ls
coin_1 coin_2 coin_3 Flower_garden Maze Shed

~/Garden
[mission 6] $ mv coin_1 coin_2 coin_3 /home/raul/gameshell/World/Forest/Hut/Chest

~/Garden
[mission 6] $ gsh check

Congratulations, mission 6 has been successfully completed!
[ progress was saved in /home/raul/gameshell-save.sh ]
```

Il livello 6 richiedeva di spostare con mv i ‘coin’ dal garden alla nostra chest.

### Lv7)

```
~/Garden
[mission 7] $ ls -A
.31682_coin_3 .41450_coin_1 .5265_coin_2 Flower_garden Maze Shed

~/Garden
[mission 7] $ mv
.31682_coin_3 .41450_coin_1 .5265_coin_2 Flower_garden/ Maze/
~/Garden
[mission 7] $ mv .
./ .31682_coin_3 .41450_coin_1 .5265_coin_2

~/Garden
[mission 7] $ mv .
./ .31682_coin_3 .41450_coin_1 .5265_coin_2

~/Garden
[mission 7] $ mv .31682_coin_3 .41450_coin_1 .5265_coin_2 /home/raul/gameshell/World/Forest/Hut/Chest

~/Garden
[mission 7] $ gsh check

Congratulations, mission 7 has been successfully completed!
[ progress was saved in /home/raul/gameshell-save.sh ]
```

Il livello 7 richiedeva l’utilizzo di ls -A per verificare l’esistenza di ‘coin’ nascosti e spostarli nella nostra chest.

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## Lv8)

```
./Garden
[mission 8] $ cd /home/raul/gameshell/World/Castle/Cellar
~/Castle/Cellar
[mission 8] $ ls -A
10018_spider_17 11815_spider_39 13348_spider_2 16438_spider_46 20733_spider_16 25391_spider_41 27943_spider_43 31155_spider_33 6195_spider_23 9838_spider_12
10352_spider_37 11973_spider_31 14000_spider_29 17320_spider_49 21100_spider_25 25589_spider_45 28314_spider_20 31751_spider_50 6786_spider_48 barrel_of_apples
12481_spider_1 13137_spider_38 14220_spider_47 15011_spider_9 15546_spider_40 16128_spider_42 16591_spider_5 17296_spider_4 17871_spider_7 18850_spider_8 22890_spider_21 27085_spider_10 28981_spider_3 3272_spider_49
10754_spider_4 13189_bat_4 15011_spider_9 18850_spider_8 22890_spider_21 27085_spider_10 28981_spider_3 3272_spider_49 8831_spider_30
11077_spider_1 13341_spider_15 15044_spider_32 20619_spider_5 24787_spider_36 29215_spider_6 41_spider_11 8421_spider_14
11651_spider_22 13296_bat_3 15038_spider_38 20639_spider_13 24894_spider_35 30897_bat_1 4842_spider_42 9629_spider_34
~/Castle/Cellar
[mission 8] $ rm *spider*
~/Castle/Cellar
[mission 8] $ ls -A
13109_bat_4 13296_bat_3 20619_bat_5 30897_bat_1 8012_bat_2 barrel_of_apples
~/Castle/Cellar
[mission 8] $ gsh check
Congratulations, mission 8 has been successfully completed!
[ progress was saved in /home/raul/gameshell-save.sh ]
```

Il livello 8 richiedeva di tornare al ‘Cellar’ e rimuovere con rm i ragni nascosti utilizzando “\*” o “?” per filtrare i nomi.

## Lv9)

```
~/Castle/Cellar
[mission 9] $ ls -A
10018_spider_37 11103_spider_39 .15041_bat_5 .18441_spider_36 .22805_spider_20 .25590_spider_10 .29037_spider_17 .4045_spider_5 .6592_spider_16
11043_spider_31 11189_bat_4 .15546_spider_40 .20012_bat_3 .22808_spider_32 .26010_spider_26 .29462_spider_43 .6320_spider_35 .990_spider_9
.11308_spider_19 .11317_spider_38 .16128_spider_42 20619_bat_5 .23380_spider_46 .2614_spider_3 .30057_spider_24 .6737_spider_14 .9348_spider_48
.11837_spider_47 13296_bat_3 .16790_spider_50 .20759_spider_25 .23507_bat_1 .26775_spider_8 .30690_spider_29 .7237_spider_7 .947_spider_18
.1205_spider_6 .14109_spider_12 .16976_spider_1 .21057_spider_27 .24073_spider_34 .26988_spider_11 30897_bat_1 .7259_spider_13 barrel_of_apples
.1226_spider_33 .1487_spider_44 .17456_spider_20 .23097_spider_15 .25115_spider_45 .27042_bat_2 .31899_spider_41 .7731_spider_4
.13048_spider_23 .14010_bat_4 .18820_spider_10 .22124_spider_22 .25154_spider_2 .28842_spider_49 .3540_spider_21 8012_bat_2
~/Castle/Cellar
[mission 9] $ rm *.spider*
rm: cannot remove "spiders": No such file or directory
~/Castle/Cellar
[mission 9] $ rm *.spider*
rm: cannot remove ".spider*": No such file or directory
~/Castle/Cellar
[mission 9] $ rm .*spider*
~/Castle/Cellar
[mission 9] $ ls
13109_bat_4 13296_bat_3 20619_bat_5 30897_bat_1 8012_bat_2 barrel_of_apples
~/Castle/Cellar
[mission 9] $ gsh check
```

Il livello 9 aveva lo stesso obiettivo del precedente solamente applicando il carattere ‘.’ davanti al nome del file per mostrare la differenza nel filtro.

## Lv10)

```
~/Castle/Cellar
[mission 10] $ cd
~
[mission 10] $ ls
Castle/ Forest/ Garden/ Mountain/ Stall/
~
[mission 10] $ cd Castle/Great_Hall
bash: cd: Castle/Great_Hall: No such file or directory
~
[mission 10] $ cd Castle/Great_hall/
~/Castle/Great_hall
[mission 10] $ ls
20639_decorative_shield 40097_stag_head 6385_suit_of_armour standard_1 standard_2 standard_3 standard_4
~/Castle/Great_hall
[mission 10] $ cp standard_1 /home/raul/gameshell/World/Forest/Hut/Chest
~/Castle/Great_hall
[mission 10] $ cp standard_2 /home/raul/gameshell/World/Forest/Hut/Chest
~/Castle/Great_hall
[mission 10] $ cp standard_3 /home/raul/gameshell/World/Forest/Hut/Chest
~/Castle/Great_hall
[mission 10] $ cp standard_4 /home/raul/gameshell/World/Forest/Hut/Chest
~/Castle/Great_hall
[mission 10] $ gsh check
Congratulations, mission 10 has been successfully completed!
[ progress was saved in /home/raul/gameshell-save.sh ]
```

Il livello 10 richiedeva di copiare gli ‘standard’ dalla sala del trono alla nostra chest.

## Lv11)

```
~/Castle/Great_hall
[mission 11] $ ls
13347_tapestry_04 2308_tapestry_08 26836_tapestry_09 30302_tapestry_03 41016_tapestry_05 46393_stag_head 56076_tapestry_01 standard_2 standard_4
1584_tapestry_02 25949_tapestry_10 2756_tapestry_06 33909_suit_of_armour 4267_decorative_shield 55254_tapestry_07 standard_1 standard_3
~/Castle/Great_hall
[mission 11] $ cp *tapestry* /home/raul/gameshell/World/Forest/Hut/Chest
~/Castle/Great_hall
[mission 11] $ gsh check
Congratulations, mission 11 has been successfully completed!
[ progress was saved in /home/raul/gameshell-save.sh ]
```

Il livello 11 richiedeva di copiare le ‘tapestry’ dalla Hall alla nostra chest utilizzando il carattere “\*”.

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Lv12)

Il livello 12 insegna l'utilizzo dei comandi ‘cat’ e ‘ls -l’ per verificare il contenuto di un file e per verificare informazioni aggiuntive rispetto al semplice ls (come permessi e data creazione).

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Lv13)

```

--/Castle/Main_tower/First_floor
[mission 13] $ cal 1918
          January           February          March
Su Mo Tu We Th Fr Sa   Su Mo Tu We Th Fr Sa   Su Mo Tu We Th Fr Sa
  1  2  3  4  5           1  2                   1  2
  6  7  8  9 10 11 12    3  4  5  6  7  8  9   3  4  5  6  7  8  9
13 14 15 16 17 18 19    10 11 12 13 14 15 16  10 11 12 13 14 15 16
20 21 22 23 24 25 26    17 18 19 20 21 22 23  17 18 19 20 21 22 23
27 28 29 30 31         24 25 26 27 28       24 25 26 27 28 29 30
                                         31

          April            May             June
Su Mo Tu We Th Fr Sa   Su Mo Tu We Th Fr Sa   Su Mo Tu We Th Fr Sa
  1  2  3  4  5  6       1  2  3  4           1
  7  8  9 10 11 12 13    5  6  7  8  9 10 11  2  3  4  5  6  7  8
14 15 16 17 18 19 20    12 13 14 15 16 17 18  9 10 11 12 13 14 15
21 22 23 24 25 26 27    19 20 21 22 23 24 25 16 17 18 19 20 21 22
28 29 30                 26 27 28 29 30 31   23 24 25 26 27 28 29
                                         30

          July            August          September
Su Mo Tu We Th Fr Sa   Su Mo Tu We Th Fr Sa   Su Mo Tu We Th Fr Sa
  1  2  3  4  5  6       1  2  3           1  2  3  4  5  6  7
  7  8  9 10 11 12 13    4  5  6  7  8  9 10  8  9 10 11 12 13 14
14 15 16 17 18 19 20    11 12 13 14 15 16 17 15 16 17 18 19 20 21
21 22 23 24 25 26 27    18 19 20 21 22 23 24 22 23 24 25 26 27 28
28 29 30 31             25 26 27 28 29 30 31 29 30 31

          October          November        December
Su Mo Tu We Th Fr Sa   Su Mo Tu We Th Fr Sa   Su Mo Tu We Th Fr Sa
  1  2  3  4  5       1  2  3           1  2  3  4  5  6  7
  6  7  8  9 10 11 12    3  4  5  6  7  8  9   8  9 10 11 12 13 14
13 14 15 16 17 18 19    10 11 12 13 14 15 16 15 16 17 18 19 20 21
20 21 22 23 24 25 26    17 18 19 20 21 22 23 22 23 24 25 26 27 28
27 28 29 30 31         24 25 26 27 28 29 30 29 30 31

--/Castle/Main_tower/First_floor
[mission 13] $ gsh check
What was the day of the week for the 12-16-1918?
 1 : Monday
 2 : Tuesday
 3 : Wednesday
 4 : Thursday
 5 : Friday
 6 : Saturday
 7 : Sunday
Your answer: 1

Congratulations, mission 13 has been successfully completed!

[ progress was saved in /home/raul/gameshell-save.sh ]

```

Il livello 13 insegna l'utilizzo di cal.

Lv14)

Il livello 14 insegna l'utilizzo di alias e come semplificare dei comandi assegnandoli a delle stringhe più semplici.

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### Lv15)

```
~/Castle/Main_tower/First_floor  
[mission 15] $ cd /home/raul/gameshell/World/Forest/Hut/Chest  
  
~/Forest/Hut/Chest  
[mission 15] $ nano journal.txt  
  
~/Forest/Hut/Chest  
[mission 15] $ gsh check  
  
Congratulations, mission 15 has been successfully completed!  
[ progress was saved in /home/raul/gameshell-save.sh ]
```

Il livello 15 insegna ad utilizzare nano come editor di testo.

### Lv16)

```
~/Forest/Hut/Chest  
[mission 16] $ alias journal='nano /home/raul/gameshell/World/Forest/Hut/Chest/journal.txt'  
  
~/Forest/Hut/Chest  
[mission 16] $ journal  
  
~/Forest/Hut/Chest  
[mission 16] $ gsh check  
  
Congratulations, mission 16 has been successfully completed!
```

Nel livello 16 ho creato un alias per poter modificare facilmente il ‘journal.txt’.

### Lv17)

```
~/Castle/Cellar  
[mission 17] $ cd .Lair_of_the_spider_queen\ UXWQNenfhuDuTAOg UVwHHHlvHmcWKoPu/  
  
~/Castle/Cellar/.Lair_of_the_spider_queen UXWQNenfhuDuTAOg UVwHHHlvHmcWKoPu  
[mission 17] $ ls  
wSIAwCmRSaGZIYE_baby_bat_jpbxtekxQfrUqHNP zSXvjYrqwkLMmpPg_spider_queen_GExiPthIohTzRfck  
  
~/Castle/Cellar/.Lair_of_the_spider_queen UXWQNenfhuDuTAOg UVwHHHlvHmcWKoPu  
[mission 17] $ rm zSXvjYrqwkLMmpPg_spider_queen_GExiPthIohTzRfck  
  
~/Castle/Cellar/.Lair_of_the_spider_queen UXWQNenfhuDuTAOg UVwHHHlvHmcWKoPu  
[mission 17] $ gsh check  
Perfect, it took you only 16 seconds to complete this mission!  
  
Congratulations, mission 17 has been successfully completed!  
[ progress was saved in /home/raul/gameshell-save.sh ]
```

Il livello 17 implicava di entrare nel covo del ragno e rimuovere il ragno regina, tutto in meno di 20s quindi implica l’utilizzo del tasto tab (essendo il livello contiene stringhe inutilmente lunghe).

### Lv18)

```
~/Castle/Cellar/.Lair_of_the_spider_queen UXWQNenfhuDuTAOg UVwHHHlvHmcWKoPu  
[mission 18] $ xeyes  
^c  
  
~/Castle/Cellar/.Lair_of_the_spider_queen UXWQNenfhuDuTAOg UVwHHHlvHmcWKoPu  
[mission 18] $ xeyes &  
[1] 139637  
  
~/Castle/Cellar/.Lair_of_the_spider_queen UXWQNenfhuDuTAOg UVwHHHlvHmcWKoPu  
[mission 18] $ gsh check  
  
Congratulations, mission 18 has been successfully completed!  
[ progress was saved in /home/raul/gameshell-save.sh ]
```

Il livello 18 insegna l’utilizzo di ‘xeyes’.

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Lv19)

Il livello 19 insegna la concatenazione di diversi comandi attraverso il carattere ‘&’.

Lv20)

Nel livello 20 ho dovuto trovare una concatenazione di 4 caratteri che facesse funzionare l'incantesimo, dopo vari tentativi falliti (che dovevo fermare con `ctrl+c`) ho trovato ‘gggg’.

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## Lv21)

```
-/Garden/Maze/4d76f90cc046bbbfa0bbb
[mission 21] $ ls
8e4ddc8f6373/  aef3fec3758/
-/Garden/Maze/4d76f90cc046bbbfa0bbb
[mission 21] $ cd ..
-/Garden/Maze
[mission 21] $ ls
4d76f90cc046bbbfa0bbb/  dc3af067524c241648/
-/Garden/Maze
[mission 21] $ cd dc3af067524c241648/
-/Garden/Maze/dc3af067524c241648
[mission 21] $ ls
b2789987b9db19161d1/  e2e93d6326508aca46f/
-/Garden/Maze/dc3af067524c241648
[mission 21] $ cd b2789987b9db19161d1/
-/Garden/Maze/dc3af067524c241648/b2789987b9db19161d1
[mission 21] $ ls
07df04ab494cca7b6f7a6382b4e8ec0/  ae043ea46ff4e/
-/Garden/Maze/dc3af067524c241648/b2789987b9db19161d1
[mission 21] $ cd 07df04ab494cca7b6f7a6382b4e8ec0/
-/Garden/Maze/dc3af067524c241648/b2789987b9db19161d1/07df04ab494cca7b6f7a6382b4e8ec0
[mission 21] $ ls
00000_copper_coin_00000
-/Garden/Maze/dc3af067524c241648/b2789987b9db19161d1/07df04ab494cca7b6f7a6382b4e8ec0
[mission 21] $ mv 00000_copper_coin_00000 /home/raul/gameshell/World/Forest/Hut/Chest
-/Garden/Maze/dc3af067524c241648/b2789987b9db19161d1/07df04ab494cca7b6f7a6382b4e8ec0
[mission 21] $ gsh check
Congratulations, mission 21 has been successfully completed!
```

Il livello 21 implicava una semplice ricerca del ‘copper\_coin’ dentro al labirinto utilizzando cd ed ls.

## Lv22)

```
[mission 22] $ ls
Castle/  Forest/  Garden/  Mountain/  Stall/
~/mission 22] $ cd .. /Garden/Maze/28ff9cd05e4a7ec6075231b57a7dfd1/eafff6f0b7e/4b70666c18b7640a4a6aaa
~/Garden/Maze/28ff9cd05e4a7ec6075231b57a7dfd1/eafff6f0b7e/4b70666c18b7640a4a6aaa
[mission 22] $ ls
00000_silver_coin_00000
~/Garden/Maze/28ff9cd05e4a7ec6075231b57a7dfd1/eafff6f0b7e/4b70666c18b7640a4a6aaa
[mission 22] $ mv 00000_silver_coin_00000 ./Forest/Hut/Chest
mv: cannot move '00000_silver_coin_00000' to './Forest/Hut/Chest': No such file or directory
~/Garden/Maze/28ff9cd05e4a7ec6075231b57a7dfd1/eafff6f0b7e/4b70666c18b7640a4a6aaa
[mission 22] $ pwd
/home/raul/gameshell/World/Garden/Maze/28ff9cd05e4a7ec6075231b57a7dfd1/eafff6f0b7e/4b70666c18b7640a4a6aaa
~/Garden/Maze/28ff9cd05e4a7ec6075231b57a7dfd1/eafff6f0b7e/4b70666c18b7640a4a6aaa
[mission 22] $ mv 00000_silver_coin_00000 /home/raul/gameshell/World/Forest/Hut/Chest
~/Garden/Maze/28ff9cd05e4a7ec6075231b57a7dfd1/eafff6f0b7e/4b70666c18b7640a4a6aaa
[mission 22] $ ls
~/Garden/Maze/28ff9cd05e4a7ec6075231b57a7dfd1/eafff6f0b7e/4b70666c18b7640a4a6aaa
[mission 22] $ gsh check
Congratulations, mission 22 has been successfully completed!
You are back at the entrance of the maze...
[ progress was saved in /home/raul/gameshell-save.sh ]
```

Il livello 22 implicava l’utilizzo del comando ‘ls -R’ per cercare la moneta d’argento e spostarla nella nostra solita chest.

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### Lv23)

```
~/Garden/Maze
[mission 23] $ find -name "*gold*"
./a384c765004793/07e294058ee1edeee01e5858/783a012317635/gold_coin_1

~/Garden/Maze
[mission 23] $ find -iname "*gold*"
./a384c765004793/08aaff55617d1309a747/c65cc879ce2b757dd7954352/Gold_CoIN_2
./a384c765004793/07e294058ee1edeee01e5858/783a012317635/gold_coin_1

~/Garden/Maze
[mission 23] $ cd ./a384c765004793/08aaff55617d1309a747/c65cc879ce2b757dd7954352/
~/Garden/Maze/a384c765004793/08aaff55617d1309a747/c65cc879ce2b757dd7954352
[mission 23] $ ls
Gold_CoIN_2

~/Garden/Maze/a384c765004793/08aaff55617d1309a747/c65cc879ce2b757dd7954352
[mission 23] $ mv Gold_CoIN_2 /home/raul/gameshell/World/Forest/Hut/Chest
```

Il livello 23 consisteva nell'utilizzare il comando ‘find’ con l'opzione -iname per trovare tutti i nomi di file che contenessero ciò che si è inserito nell'argomento, nel mio caso \*gold\*.

### Lv24)

```
~/Mountain/Cave/Book_of_potions
[mission 24] $ cd ..

~/Mountain/Cave
[mission 24] $ head -n 6 Book_of_potions/page_07
vvvvvvvv
Herbal tea
^^^^^^^^^
1) Boil water.
2) Add herbs from the forest.
3) Let it sit for five minutes and drink while hot.

~/Mountain/Cave
[mission 24] $ gsh check

Congratulations, mission 24 has been successfully completed!
[ progress was saved in /home/raul/gameshell-save.sh ]
```

Il livello 24 prevedeva l'utilizzo di head con l'opzione -n per vedere le prime K(6) righe, per trovare la ricetta dell'herbal tea.

### Lv25)

```
~/Mountain/Cave/Book_of_potions
[mission 25] $ cd ..

~/Mountain/Cave
[mission 25] $ tail -n 9 page_12
tail: cannot open 'page_12' for reading: No such file or directory

~/Mountain/Cave
[mission 25] $ tail -n 9 Book_of_potions/page_12
1) Boil water in a cauldron.
2) Add in a few death caps (Amanita phalloides).
3) Also add a few fly agarics (Amanita muscaria).
4) And some destroying angels (Amanita virosa).
5) Mix in a few deadly webcaps (Cortinarius rubellus).
6) Feel free to add in any colourful fungi you have on hand.
7) Let half of the water evaporate.
8) Season with a pinch of salt and a few herbs.
9) Serve hot in a bowl.

~/Mountain/Cave
[mission 25] $ gsh check

Congratulations, mission 25 has been successfully completed!
```

Il livello 25 prevedeva l'utilizzo di tail con l'opzione -n per vedere le ultime K(9) righe, per trovare la ricetta dello stufato.

Lv26)

```
~/Mountain/Cave
[mission 26] $ cat Book_of_potions/page_01 Book_of_potions/page_02
vvvvvvvvvvvvvvvvvv
Transformation potion
XXXXXXXXXXXXXX
1) Boil water in a cauldron.
2) Add 3 measures of fluxweed to the cauldron.
3) Add 2 bundles of knotgrass to the cauldron.
4) Stir 4 times, clockwise.
5) Wave your wand then let potion brew for 80 minutes.
6) Add 4 leeches to the cauldron.
7) Crush 2 scoops of lacewing flies to a fine paste.
8) Add 2 measures of the crushed lacewings to the cauldron.
9) Heat for 30 seconds on a low heat.
10) Add 3 measures of boomslang skin to the cauldron.
11) Crush a bicorn horn into a fine powder.
12) Add 1 measure of the crushed horn to the cauldron.
13) Heat for 20 seconds at a high temperature.
14) Wave your wand then let potion brew for 24 hours.
15) Add 1 additional scoop of lacewings to the cauldron.
16) Stir 3 times, counter-clockwise.
17) Split potion into multiple doses, if desired.
18) Add a pieces of the person you wish to become.
19) Wave your wand to complete the potion.

~/Mountain/Cave
[mission 26] $ gsh check

Congratulations, mission 26 has been successfully completed!
```

Il livello 26 prevedeva l'utilizzo di cat per concatenare due pagine (file) diverse(i).

## Seconda Parte:

Nella seconda parte, per prima cosa, ho configurato la macchina di destinazione installando e avviando il servizio OpenSSH Server. Ho creato un utente dedicato per il test come si vede dall'immagine successiva.

```
(raul@192) ~]$ sudo apt install openssh-server
[sudo] password for raul:
openssh-server is already the newest version (1:10.2p1-2).
openssh-server set to manually installed.
Summary:
  Upgrading: 0, Installing: 0, Removing: 0, Not Upgrading: 155

(raul@192) ~]$ service openssh-server start
Failed to start openssh-server.service: Unit openssh-server.service not found.

(raul@192) ~]$ sudo systemctl start ssh

(raul@192) ~]$ sudo adduser testuser
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for testuser
Enter the new value, or press ENTER for the default
```

Dopo aver verificato manualmente la connessione tramite il comando ssh, ho proceduto allo sviluppo dello script brute-force.

```
(raul@192) ~]$ ssh testuser@192.168.50.100
The authenticity of host '192.168.50.100 (192.168.50.100)' can't be established.
ED25519 key fingerprint is: SHA256:c2Xg+iXC+Jc15720rsAOxjff5Fe1INixKs2hGWTwFF8
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.50.100' (ED25519) to the list of known hosts.
testuser@192.168.50.100's password:
Linux 192 6.16.8+kali-arm64 #1 SMP PREEMPT Kali 6.16.8-1kali1 (2025-09-24) aarch64

1 device has a firmware upgrade available.
Run `fwupdmgr get-upgrades` for more information.

The programs included with the Kali GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Kali GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.

1 device has a firmware upgrade available.
Run `fwupdmgr get-upgrades` for more information.
```

Per implementare l'attacco ho utilizzato la libreria Python **Paramiko**. All'interno del programma ho importato le classi principali necessarie, in particolare **SSHClient**, **AutoAddPolicy**, e le eccezioni **AuthenticationException** e **SSHException** per identificare il risultato di ogni tentativo.

Lo script esegue un brute-force combinando username e password prelevati da due file di testo, **nomi\_utenti.txt** e **password.txt** contenenti le liste di nomi utenti e password create.

**nomi\_utenti.txt**

```
GNU nano 8.6
raul
root
rnicolaus
pastor
raullo
user
utente
```

Raul Pastor

password.txt

```
GNU nano 8.6
password
1234567
12345
ciao
admin
123456789
```

Una volta caricati questi file, l'utente deve inserire l'indirizzo IP della macchina target. A questo punto, il programma avvia due cicli for: per ogni username viene provata ogni password della lista. Ad ogni tentativo viene creato un nuovo client SSH tramite `SSHClient()`, così da garantire che ogni autenticazione sia indipendente dalle precedenti. Prima di connettersi, imposta la politica `AutoAddPolicy()`, che permette di accettare automaticamente la chiave host del server nel caso non sia ancora presente nel file `known_hosts`.

La connessione alla macchina avviene usando il metodo `.connect()` su porta 22 (precedentemente controllata con nmap) passando username e password.

```
(raul@192)-[~] $ nmap -sS 192.168.50.100 -p 22
Starting Nmap 7.95 ( https://nmap.org ) at 2025-11-18 20:04 GMT
Nmap scan report for 192.168.50.100 (192.168.50.100)
Host is up (0.000088s latency).
PORT      STATE SERVICE
22/tcp    open  ssh
          |_ Device has a firmware upgrade available
          Run "sudo dmidecode -s 2.1.1" for more details
Nmap done: 1 IP address (1 host up) scanned in 0.11 seconds
```

Se le credenziali sono errate, Paramiko solleva un'AuthenticationException, che lo script cattura e segnala chiaramente come tentativo fallito. In caso di molti tentativi in rapida successione, il server SSH applica un ritardo crescente per contrastare attività anomale: questa situazione genera una SSHException, che lo script interpreta come rate-limiting, quindi attendendo qualche istante prima di riprovare. Se invece la connessione va a buon fine, significa che è stata trovata una combinazione valida di username e password. In questo caso il programma interrompe i tentativi, segnala il successo e mantiene aperta la sessione SSH, permettendo eventualmente altre operazioni fino alla chiusura manuale da parte dell'utente.

Durante lo sviluppo è stato necessario inserire delle piccole attese (`time.sleep`) tra un tentativo e l'altro, sia per non sovraccaricare il server SSH, sia per rendere l'esercizio più realistico.

Di seguito il lancio del programma con gli output dell'attacco:

Richiesta di inserimento dell'indirizzo IP dopo aver lanciato lo script:

```
(raul@192)-[~/Desktop]
$ python brute_force.py
inserire l'indirizzo IP dell'host: 192.168.50.100
```

Raul Pastor

Una serie di prove con username e password fallite:

```
[raul@192:~/Desktop] device has a Firmware upgrade available
$ python brute_force.py
inserire l'indirizzo IP dell'host: 192.168.50.100
Fallito: con Username - raul | Password - password
Fallito: con Username - raul | Password - 1234567
Fallito: con Username - raul | Password - 12345
Fallito: con Username - raul | Password - ciao
Fallito: con Username - raul | Password - admin
Fallito: con Username - raul | Password - 123456789
```

Il messaggio di login e il print di username e password:

```
SUCCESSO: Username - testuser e Password - 1234567 trovate.
loggato con: testuser - 1234567
-----
Connessione stabilita con testuser!
La connessione è aperta.

Premi INVIO per chiudere la connessione e terminare lo script...
```