

# Esercitazione Fine modulo 2 - W8D4

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## Traccia

L'esercitazione prevede l'esecuzione del gioco GameShell, un gioco per familiarizzare con la shell di Linux.

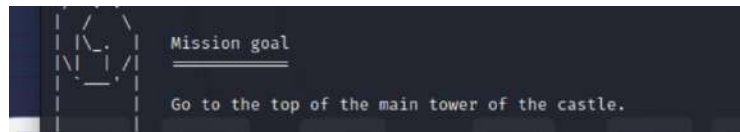
Il gioco è strutturato in livelli (missioni). Completare quanti più livelli possibili e documentare i comandi utilizzati per completare il livello

## Implementazione

Di seguito sono illustrati, livello per livello, i comandi utilizzati nel tentativo che ha permesso di completare la missione e passare al livello successivo, fino a terminare il gioco con l'ultimo livello 42, come mostrato nella seguente immagine eseguendo il comando `gsh index`

```
~/Castle/Main_building/Library/Merlin's_office/Drawer
[mission 43] $ gsh index
1 basic/01_cd_tower (completed)
2 basic/02_cd_...cellar (completed)
3 basic/03_cd_HOME_throne (completed)
4 basic/04_mkdir_chest (completed)
5 basic/05_rm_spiders_cellar (completed)
6 basic/06_mv_coins_garden (completed)
7 basic/07_mv_hidden_coins_garden (completed)
8 basic/08_rm_wildcard_spiders_cellar (completed)
9 basic/09_rm_wildcard_hidden_spiders_cellar (completed)
10 basic/10_cp_standard_great_hall (completed)
11 basic/11_cp_wildcards_tapestries_great_hall (completed)
12 basic/12_cp_ls_mtime_paintings_tower (completed)
13 misc/01_cal_nostradamus (completed)
14 intermediate/01_alias_la (completed)
15 misc/02_nano_journal (completed)
16 intermediate/02_alias_journal (completed)
17 intermediate/03_tab_spider_lair (completed)
18 intermediate/04_bg_xeyes (completed)
19 finding_files_maze/01_ls_cd (completed)
20 finding_files_maze/02_tree (completed)
21 finding_files_maze/03_find_1 (completed)
22 pipe_intro_book_of_potions/01_head (completed)
23 pipe_intro_book_of_potions/02_tail (completed)
24 pipe_intro_book_of_potions/03_cat (completed)
25 pipe_intro_book_of_potions/04_pipe (completed)
26 pipe_intro_book_of_potions/05_pipe_head_tail (completed)
27 processes/01_ps_kill (completed)
28 processes/02_ps_kill_signal (completed)
29 processes/03_pstree_kill (completed)
30 stdin_stdout_stderr/01_stdin_additions (completed)
31 stdin_stdout_stderr/02_stdin_redirection_multiplications (completed)
32 stdin_stdout_stderr/03_stdout_redirection_inventory (completed)
33 stdin_stdout_stderr/04_stderr_dev-null_grimoires (completed)
34 stdin_stdout_stderr/05_stdout_stderr_redirection_merlin (completed)
35 permissions/01_chmod_x_dir_king_quarter (completed)
36 permissions/02_chmod_r_file_king_quarter (completed)
37 permissions/03_chmod_rw_file_dir_throne_room (completed)
38 finding_files_maze/04_find_2 (completed)
39 finding_files_maze/05_find_xargs_grep (completed)
40 pipes_merchant_stall/01_pipe_1 (completed)
41 pipes_merchant_stall/02_pipe_2 (completed)
42 misc/03_tr_caesar_shift (completed)
→ 43 FINAL_MISSION
```

## Missione 1

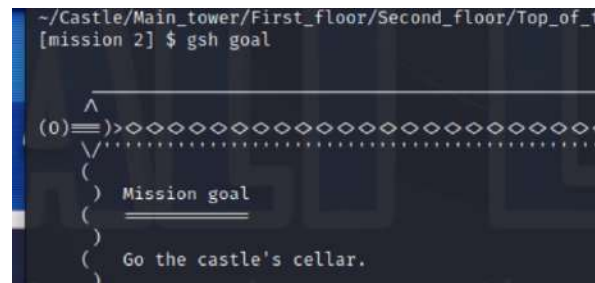


L'obiettivo della missione è quello di andare alla sommità del castello. All'interno dell'albertura delle cartelle sotto Castle esiste per l'appunto una cartella denominata `Top_of_the_tower` ed ho quindi utilizzato il comando `cd` per muovermi all'interno di essa

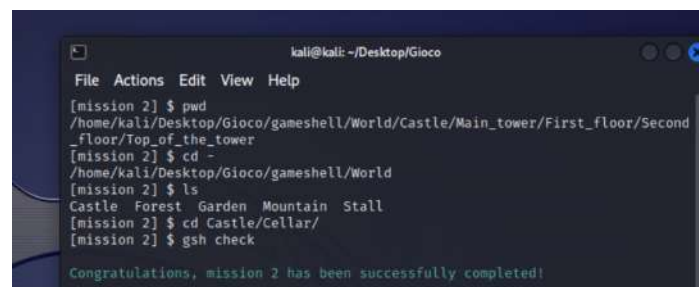
```
[mission 1] $ ls
Castle/ Forest/ Garden/ Mountain/ Stall/

[mission 1] $ cd Castle/Main_tower/First_floor/Second_floor/Top_of_the_tower/
~/Castle/Main_tower/First_floor/Second_floor/Top_of_the_tower
[mission 1] $ gsh check
Congratulations, mission 1 has been successfully completed!
```

## Missione 2



In questo caso la traccia della missione richiede di muoversi all'interno della cartella Cellar sotto Castle. Ho quindi usato il comando `cd -` per ritornare al path precedente (ovvero gameshell/World, la root del gioco) quindi ho usato il comando `cd Castle/Cellar` per entrare nella cartella Cellar usando quindi un path relativo



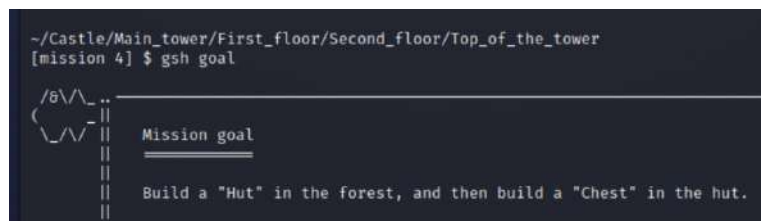
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L'obiettivo della missione è quello di muoversi all'interno della sala del trono in solo 2 comandi. La sala del trono corrisponde alla cartella `Throne_room` sotto la cartella `Main_building` presente in `Castle`. Ho quindi usato il comando `cd` per tornare alla `root` del gioco, quindi ho usato il comando `cd Castle/Main_building/Throne_room` per accedere alla cartella `Throne_room`



## Missione 4



Nella missione 4 bisogna creare le cartelle `Hut` e `Chest` sotto la cartella `Forest`. Ho quindi usato il comando `mkdir -p Forest/Hut/Chest` che permette di creare in un unico passaggio tutta l'alberatura richiesta, considerando anche eventuali cartelli intermedie mancanti nel path.

```
kali@kali: ~/Desktop/Gioco
File Actions Edit View Help

~
[mission 4] $ cd

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

~
[mission 4] $ mkdir -p Forest/Hut/Chest

~
[mission 4] $ gsh check

Congratulations, mission 4 has been successfully completed!
```

## Missione 5

```
~/Castle/Main_tower/First_floor/Second_floor/Top_of_the_tower
[mission 5] $ gsh goal

Mission goal

Go back to the cellar and get rid of all the spiders. Leave the bats
alone: they appear on the castle's coat of arms and are said to confer
luck.
```

Per compiere la missione, una volta entrato nella cartella `Cellar` presente sotto `Castle` ho eliminato tramite il comando `rm` tutte le cartelle denominate `spider` e la cartella `barrel_of_apples`, lasciando solo le cartelle denominate `bat` come richiesto

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

~
[mission 5] $ cd Castle/Cellar/

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

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

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

Congratulations, mission 5 has been successfully completed!
```

## Missione 6

```
~/Castle/Cellar
[mission 6] $ gsh goal

+-----+
| Mission goal |
+-----+
| Collect all the coins that you can find in the garden in front of the |
| castle, and put them in your chest in your hut in the forest. |
+-----+
| Useful commands |
+-----+
| mv FILE1 FILE2 ... FILEn DIRECTORY |
| Move the files to the directory. |
| Remark: ``mv`` is an abbreviation of "move". |
+-----+
| ~ |
| The "~" symbol is an abbreviation for the initial directory. |
| Example: wherever you are, ``~/Tavern`` denotes the directory (or file) |
| "Tavern" in the initial directory. |
+-----+
```

Questa missione prevede di raccogliere tutte le monete nel giardino e di spostarle all'interno del baule nel rifugio nella foresta. Tramite il comando `ls` ho analizzato il contenuto della cartella `Gardened` ed individuato diversi file che contengono la parola `coin`. Ho quindi usato il comando `mv` per spostarli tutti all'interno della cartella `~/Forest/Hut/Chest` creata in precedenza utilizzando un path relativo

```
~/Garden
[mission 6] $ cd

~
[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 ~/Forest/Hut/Chest/

~/Garden
[mission 6] $ gsh check

Congratulations, mission 6 has been successfully completed!
```

## Missione 7

```
+-----+
| 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).                   |
+-----+
```

Alcune monete sono state rese nascoste. Tramite il comando `ls -A` ho potuto analizzare il contenuto completo della cartella `Garden`, comprensivo dei file di denominati coin nascosti. Ho quindi ripetuto il comando `mv` spostando i file individuati

```
~/Garden
[mission 7] $ ls -A
.18515_coin_3 .36255_coin_2 .38173_coin_1 Flower_garden Maze Shed

~/Garden
[mission 7] $ mv .18515_coin_3 .36255_coin_2 .38173_coin_1 ~/Forest/Hut/Chest
/

~/Garden
[mission 7] $ gsh check

Congratulations, mission 7 has been successfully completed!
```

## Missione 8

```
+-----+
| Mission goal                                     |
+-----+
| Get rid of all the spiders that are crawling in the cellar. Again, do  |
| not do not disturb the bats.                                           |
+-----+
```

Leggendo la traccia, l'obiettivo è in questo caso quello di rimuovere tutti i ragni (ovvero dei file che contengono questa denominazione al loro interno) lasciando inalterati i pipistrelli (i file denominati `bat`) presenti in cantina (cartella `Cellar` sotto `Castle`). Ho usato quindi il comando `rm *_spider_*` che permette di rimuovere tutti i file che contengono per l'appunto la stringa `_spider_` (il carattere `*` è una wildcard che significa uno o più caratteri qualsiasi)





```
-rw-r--r-- 1 kali kali 239 Dec 15 14:20 .8449_bat_1
-rw-r--r-- 1 kali kali 34 Dec 15 14:20 .8913_spider_45
-rw-r--r-- 1 kali kali 34 Dec 15 14:20 .9088_spider_35
-rw-r--r-- 1 kali kali 66 Dec 15 14:20 .9254_spider_28
-rw-r--r-- 1 kali kali 192 Dec 15 14:16 9255_bat_4
-rw-r--r-- 1 kali kali 211 Dec 15 14:16 9956_bat_5

~/Castle/Cellar
[mission 9] $ rm .*_spider_*

~/Castle/Cellar
[mission 9] $ gsh check

Congratulations, mission 9 has been successfully completed!
```

## Missione 10

```
~/Castle/Main_tower/First_floor/Second_floor/Top_of_the_tower
[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.
```

Per completare la missione è richiesto di copiare gli standardi presenti nella Great Hall nel forziere presente nella capanna nella foresta. Una volta acceduto alla cartella `Great_hall` sotto `Castle`, ne ho quindi analizzato il contenuto tramite il comando `ls` e tramite il comando `cp standard_* ~/Forest/Hut/Chest` ho copiato tutti i file che iniziavano con la stringa `standard` nella cartella `Chest` come richiesto

```
~/
[mission 10] $ cd

~/
[mission 10] $ cd Castle/Great_hall/

~/Castle/Great_hall
[mission 10] $ ls
32900_stag_head      64138_suit_of_armour  standard_2  standard_4
51188_decorative_shield  standard_1          standard_3

~/Castle/Great_hall
[mission 10] $ cp standard_* ~/Forest/Hut/Chest/

~/Castle/Great_hall
[mission 10] $ gsh check

Congratulations, mission 10 has been successfully completed!
```



## Missione 11

```
~/Castle/Great_hall
[mission 11] $ gsh goal

Mission goal

The tapestries in the castle's great hall are also particularly
beautiful. Put a copy of each in your chest.
```

In questo caso è richiesto di copiare gli arazzi nella sala principale nel nostro forziere. Alla stregua della missione precedente ho usato il comando `cp *_tapestry_* ~/Forest/Hut/Chest` per copiare tutti i file che contengono la stringa `_tapestry_` all'interno (wildcard `*` in testa ed in fondo per indicare che deve essere contenuto all'interno del nome)

```
~/Castle/Great_hall
[mission 11] $ ls
10671_tapestry_02      36154_tapestry_03  55357_decorative_shield  standard_3
20019_tapestry_06      37245_tapestry_01  62005_tapestry_10       standard_4
20683_suit_of_armour  42090_tapestry_04  7890_tapestry_08
21694_tapestry_07      42744_tapestry_09  standard_1
35896_tapestry_05      54656_stag_head   standard_2

~/Castle/Great_hall
[mission 11] $ cp *_tapestry_* ~/Forest/Hut/Chest/

~/Castle/Great_hall
[mission 11] $ gsh check

Congratulations, mission 11 has been successfully completed!
```

## Missione 12

```
~/Castle/Great_hall
[mission 12] $ gsh goal

Mission goal

While wandering around the first floor of the main tower, some
magnificent paintings catch your eye. Add a copy of the oldest one to
your chest.
```

Per questa missione, una volta entrato nella cartella `First_floor` che ho individuato essere sotto `Castle/Main_tower`, ho usato il comando `ls -al` per vedere tutti i file presenti con le loro proprietà, tra cui la data. Ho quindi individuato il file più vecchio tra quelli denominati

painting\_ ovvero il file painting\_zPGWIiXf e ho utilizzato il comando cp per copiarlo all'interno della cartella Chest come in precedenza

```
File Actions Edit View Help
[mission 12] $ cd

~
[mission 12] $ cd Castle/Main_tower/First_floor/

~/Castle/Main_tower/First_floor
[mission 12] $ ls -a
./  painting_AFSdbTqy  painting_zPGWIiXf
../  painting_RcecdFOg  Second_floor/

~/Castle/Main_tower/First_floor
[mission 12] $ ls -al
total 24
drwxr-xr-x 3 kali kali 4096 Dec 15 14:38 ./
drwxr-xr-x 3 kali kali 4096 Dec 15 13:27 ../
-rw-r--r-- 1 kali kali 1503 Jul 23  2004 painting_AFSdbTqy
-rw-r--r-- 1 kali kali 1455 Mar 28  2010 painting_RcecdFOg
-rw-r--r-- 1 kali kali 1054 Mar  3  1981 painting_zPGWIiXf
drwxr-xr-x 3 kali kali 4096 Dec 15 13:27 Second_floor/

~/Castle/Main_tower/First_floor
[mission 12] $ cp painting_zPGWIiXf ~/Forest/Hut/Chest/

~/Castle/Main_tower/First_floor
[mission 12] $ gsh check

Congratulations, mission 12 has been successfully completed!
```

## Missione 13

```

+-----+
| Mission goal                                     |
+-----+
| Nostradamus predicted a spectacular star conjunction on the 01-18-1926. |
| But what will the day of the week be on that date?                     |
| When you have it, run the command ``gsh check``.                     |
+-----+
```

In questo caso la missione richiede di individuare il giorno della settimana corrispondente allo 01-18-1926. Tramite il comando `cal 1926` ho stampato a schermo l'intero calendario dell'anno 1926, ed ho verificato che il giorno corrispondente è lunedì. Ho così potuto rispondere al quesito che mi ha permesso di superare il livello 13.

```
~/Castle/Main_tower/First_floor
[mission 13] $ cal 1926
```

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	1	2	3	4	5	6	1	2	3	4	5	6									
3	4	5	6	7	8	9	7	8	9	10	11	12	13	7	8	9	10	11	12	13							
10	11	12	13	14	15	16	14	15	16	17	18	19	20	14	15	16	17	18	19	20							
17	18	19	20	21	22	23	21	22	23	24	25	26	27	21	22	23	24	25	26	27							
24	25	26	27	28	29	30	28							28	29	30	31										
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						1	1	2	3	4	5		
4	5	6	7	8	9	10	2	3	4	5	6	7	8	6	7	8	9	10	11	12
11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19
18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22	23	24	25	26
25	26	27	28	29	30		23	24	25	26	27	28	29	27	28	29	30			
							30	31												

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	1	2	3	4	5	6	7					1	2	3	4
4	5	6	7	8	9	10	8	9	10	11	12	13	14	5	6	7	8	9	10	11		
11	12	13	14	15	16	17	15	16	17	18	19	20	21	12	13	14	15	16	17	18		
18	19	20	21	22	23	24	22	23	24	25	26	27	28	19	20	21	22	23	24	25		
25	26	27	28	29	30	31	29	30	31					26	27	28	29	30				

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	1	2	3	4	5	6					1	2	3	4
3	4	5	6	7	8	9	7	8	9	10	11	12	13	5	6	7	8	9	10	11
10	11	12	13	14	15	16	14	15	16	17	18	19	20	12	13	14	15	16	17	18
17	18	19	20	21	22	23	21	22	23	24	25	26	27	19	20	21	22	23	24	25
24	25	26	27	28	29	30	28	29	30					26	27	28	29	30	31	
31																				

```
~/Castle/Main_tower/First_floor
[mission 13] $ gsh check
What was the day of the week for the 01-18-1926?
1 : Monday
2 : Tuesday
3 : Wednesday
4 : Thursday
5 : Friday
6 : Saturday
7 : Sunday
Your answer: 1

Congratulations, mission 13 has been successfully completed!
```

## Missione 14

```
[mission 14] $ gsh goal

Mission goal

Checking for hidden files is taking too long!

Create an alias "la" to run the command "ls -A" in order to list all
files, including hidden ones, with only 2 letters.

Define the synonym

la

for the command

ls -A

and check that it works as expected.

How fortunate, there is a nice rock hidden just where you are.
```

Come richiesto dalla missione ho creato un alias del comando `ls -A` tramite il comando `alias` e l'ho denominato `la`. L'ho quindi utilizzato nella cartella `First_floor` per visualizzare eventuali file nascosti

```
~/Castle/Main_tower/First_floor
[mission 14] $ alias la='ls -A'

~/Castle/Main_tower/First_floor
[mission 14] $ la
.nice_rock          painting_RcecdFOg  Second_floor/
painting_AFSDbTqy   painting_zPGWIiXf

~/Castle/Main_tower/First_floor
[mission 14] $ gsh check

Congratulations, mission 14 has been successfully completed!
```

## Missione 15

```
Mission goal

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.
```

Questa missione prevede la creazione di un file di testo denominato `journal.txt`. Ho utilizzato quindi il comando `nano` per editare il file con un messaggio a piacere e salvarlo in chiusura con in seguito alla combinazione `CTRL+X`

```
~/Castle/Main_tower/First_floor
[mission 15] $ nano ~/Forest/Hut/Chest/journal.txt

~/Castle/Main_tower/First_floor
[mission 15] $ gsh check

Congratulations, mission 15 has been successfully completed!
```

## Missione 16

```

+-----+
| Mission goal                                     |
+-----+
| Create an alias "journal" in order to easily edit your journal file |
| wherever you are.                               |
+-----+
```

Per permettere l'editing diretto del file journal.txt creato in precedenza ho in questo caso creato un alias del comando e l'ho denominato journal come richiesto. A questo punto è possibile aprire il file con nano per l'editing direttamente con l'alias `journal` appena creato

```
~/Castle/Main_tower/First_floor
[mission 16] $ alias journal='nano ~/Forest/Hut/Chest/journal.txt'

~/Castle/Main_tower/First_floor
[mission 16] $ journal

~/Castle/Main_tower/First_floor
[mission 16] $ gsh check

Congratulations, mission 16 has been successfully completed!
```

## Missione 17

```

+-----+
| 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 "?".                                                  |
+-----+
```

Per completare la missione ho individuato all'interno della cartella nascosta `.Laire_of_the_spider_queen...` presente sotto `Castle/Cellar` un file contenente nel nome la stringa `spider_queen` e l'ho semplicemente rimosso con il comando `rm`.

```

ch file or directory
~/Castle/Cellar
[mission 17] $ cd .Lair_of_the_spider_queen\ udltVwsmqLcjipzj rENAhzCHxdZGvcV
I/

~/Castle/Cellar/.Lair_of_the_spider_queen udltVwsmqLcjipzj rENAhzCHxdZGvcVI
[mission 17] $ ls
cetnxKBKkaFrXybw_spider_queen_djzaagviYSnAYNJa
FAVmWxaHhdCPWugh_baby_bat_uywPJxehmLUNvBjn

~/Castle/Cellar/.Lair_of_the_spider_queen udltVwsmqLcjipzj rENAhzCHxdZGvcVI
[mission 17] $ rm cetnxKBKkaFrXybw_spider_queen_djzaagviYSnAYNJa

~/Castle/Cellar/.Lair_of_the_spider_queen udltVwsmqLcjipzj rENAhzCHxdZGvcVI
[mission 17] $ gsh check
Perfect, it took you only 16 seconds to complete this mission!

Congratulations, mission 17 has been successfully completed!

```

## Missione 18

```

+-----+
| Mission goal |
+-----+
|
| As you are walking around the castle, you feel like you are being
| watched... Turn your head quickly enough and you may see one of the
| paintings' eyes following you.
|
| 1/ Run the ``xeyes`` command, and stop it.
| 2/ Run the ``xeyes`` command in the background.
|
+-----+

```

In questa missione ho semplicemente lanciato il comando `xeyes` una prima volta normalmente in foreground e stoppato con il comando `Ctrl+C`. Quindi l'ho avviato in background con il comando `xeyes &` che ritorna subito il terminale disponibile ed effettuato il check di completamento della missione

```

~/Castle/Cellar/.Lair_of_the_spider_queen udltVwsmqLcjipzj rENAhzCHxdZGvcVI
[mission 18] $ xeyes
^C

~/Castle/Cellar/.Lair_of_the_spider_queen udltVwsmqLcjipzj rENAhzCHxdZGvcVI
[mission 18] $ xeyes &
[1] 88174

~/Castle/Cellar/.Lair_of_the_spider_queen udltVwsmqLcjipzj rENAhzCHxdZGvcVI
[mission 18] $ gsh check

Congratulations, mission 18 has been successfully completed!

```



## Missione 19

```
+-----+
| Mission goal                                     |
+-----+
| Find the copper coin in the small maze in the garden and move it to your |
| chest.                                           |
|                                                 |
| If you want, you can use a graphical file manager. The maze is to be   |
| found in directory                             |
| /home/kali/Desktop/Gioco/gameshell/World/Garden/Maze                     |
+-----+
```

Per trovare le monete di rame nel labirinto del giardino ho utilizzato il comando `find ~ -name "*copper*"` in maniera da ritrovare tutti i file con la stringa copper all'interno nella cartella Maze in cui mi ero posizionato in precedenza. Ho quindi usato il comando `mv` per spostare le monete individuate (1 in questo caso) nel forziere nel capanno della foresta (cartella `~/Forest/Hut/Chest`)

```
~/Garden/Maze
[mission 19] $ find ~ -name "*copper*"
/home/kali/Desktop/Gioco/gameshell/World/Garden/Maze/388fa05ecdb60ad253297d/e
678d11df918/0ee53c427e71f90ecb258d74e96bc45/00000_copper_coin_00000

~/Garden/Maze
[mission 19] $ mv /home/kali/Desktop/Gioco/gameshell/World/Garden/Maze/388fa0
5ecdb60ad253297d/e678d11df918/0ee53c427e71f90ecb258d74e96bc45/00000_copper_co
in_00000 ~/Forest/Hut/Chest/

~/Garden/Maze
[mission 19] $ gsh check

Congratulations, mission 19 has been successfully completed!
```

## Missione 20

```
+-----+
| Mission goal                                     |
+-----+
| Find the silver coin in the maze in the garden and move it to your chest |
| using the shell.                             |
+-----+
```

La missione è simile alla precedente e richiede di spostare nel proprio forziere le monete d'argento presenti nel labirinto. Ho in questo caso usato il comando `tree` come suggerito per controllare visivamente la presenza di monete d'argento nel path corrente (Maze) e le ho spostate come in precedenza con il comando `mv`

```

~/Garden/Maze
[mission 20] $ tree
.
├── 12b7fdbed39
│   ├── 74eb2354fd823108190ca3e335c3b1
│   │   ├── cf9b217c5
│   │   │   ├── efccd7837ac9ef76dfea37c372
│   │   │   │   └── 00000_silver_coin_00000
│   │   └── f27698d58504beda341628525
│   ├── c906230f569b83420b1
│   │   ├── 06635c236375c80734d
│   │   ├── 0b54e0c7b7deb83d32
│   │   └── 8494168e91a5a1d957c3daa6c451bb3
│   └── e5ed0d6bc
│       ├── 43e548e6722a
│       ├── accf95010d840
│       └── c308c59b5cc57a24e6
├── 2a1cb2765461e86221f95
│   ├── 0f9b1dc4
│   │   ├── 0a1acadc6569487913dab6f8cfe
│   │   ├── 8a62a79c2d2cca5a4bf86d92d70
│   │   └── b269bfcaced9ff27601d
│   ├── d49bc6a0bcfb
│   │   ├── 043e2b7f1a1b8d43e5c
│   │   ├── 5ef16b44b931acac524dab9ff9
│   │   └── e5627bcfc42281717a27
│   ├── faaaa7da45b4257cc
│   │   ├── 095f4b999df4ce115196a761b823b90
│   │   ├── 389e772c60a9d32318b02b2aaa
│   │   └── 889023520e0ab4bcb62237bccc53
│   └── f3dea7a444d2
│       ├── 06a0570dfc00986cb0c6f3009a95dc
│       ├── 513209fc53af30ef91d57289
│       ├── 7736c640cbcd46eb24b15caa
│       ├── dbfcaedbed8
│       ├── 0774112a476ccb3b50b54a9
│       ├── 1fa83b295de2cd221
│       ├── 42c6f83b82
│       ├── 87e756a7e99bf5888bd4c
│       ├── d31263d84988c1644b0b1957
│       ├── 0019b980f31b7af3
│       ├── 17c9fcf3cad90b3af202f
│       └── ba51191c99d8da33a16c0ad0
└── 40 directories, 1 file

~/Garden/Maze
[mission 20] $ mv 12b7fdbed39/74eb2354fd823108190ca3e335c3b1/efccd7837ac9ef76dfea37c372/00000_silver_coin_00000 ~/Forest/Hut/Chest/

~/Garden/Maze
[mission 20] $ gsh check

Congratulations, mission 20 has been successfully completed!

```

## Missione 21

```

+-----+
| Mission goal |
+-----+
| Find the gold coins in the maze hidden in the garden and move them to |
| your chest. |
+-----+

```



Per trovare le monete d'oro nel labirinto ho in questo caso usato il comando `find ~ -iname "*gold*"` per filtrare in base al nome tutti i file contenenti la stringa gold nella cartella Maze evitando la distinzione tra maiuscole e minuscole. Ho quindi spostato le monete d'oro trovate (2 in questo caso) con il comando `mv` nella cartella Chest

```
~/Garden/Maze
[mission 21] $ find ~ -iname "*gold*"
/home/kali/Desktop/Gioco/gameshell/World/Forest/Hut/Chest/gold_coin_1
/home/kali/Desktop/Gioco/gameshell/World/Forest/Hut/Chest/Gold_Coin_2
/home/kali/Desktop/Gioco/gameshell/World/Garden/Maze/3af784c9b7eac/c787418f09f16dbf450/5ac0de09a1234f6e/gold_coin_1
/home/kali/Desktop/Gioco/gameshell/World/Garden/Maze/ec00d118f7b74493f9527e28e64/dd89d85e/ba988c47337abf6302126c3124dc7/Gold_Coin_2

~/Garden/Maze
[mission 21] $ mv 3af784c9b7eac/c787418f09f16dbf450/5ac0de09a1234f6e/gold_coin_1 ~/Forest/Hut/Chest/

~/Garden/Maze
[mission 21] $ mv c00d118f7b74493f9527e28e64/dd89d85e/ba988c47337abf6302126c3124dc7/Gold_Coin_2 ~/Forest/Hut/Chest/
mv: cannot stat 'c00d118f7b74493f9527e28e64/dd89d85e/ba988c47337abf6302126c3124dc7/Gold_Coin_2': No such file or directory

~/Garden/Maze
[mission 21] $ mv ec00d118f7b74493f9527e28e64/dd89d85e/ba988c47337abf6302126c3124dc7/Gold_Coin_2 ~/Forest/Hut/Chest/

~/Garden/Maze
[mission 21] $ gsh check

Congratulations, mission 21 has been successfully completed!
```

## Missione 22

```

Mission goal
-----
A forgetful old hermit called Servillus has set up camp in a cave with
his old, leather-bound potion book.
Go to the cave and help him remember the recipe of his famous herbal
tea.

In order to validate the mission, you need to be in the cave with
Servillus **and** your last command prior to "gsh check" must show
the recipe (including its title), but nothing else.

Note: you shouldn't alter the content of the book of potions.
```

La cartella `Book_of_potions` sotto `Mountain/Cave` rappresenta il libro delle pozioni dell'eremita Servillus. Ho analizzato il contenuto del libro leggendo l'indice (file `table_of_contents`). La ricetta del the alle erbe corrisponde alla pagina 7. Ho usato quindi il comando `cat Book_of_potions/page_07` per leggerne il contenuto dall'interno della cava (cartella Cave) come richiesto.

```
~/Mountain/Cave
[mission 22] $ cat Book_of_potions/table_of_contents
1. Transformation potion _____ pages 1-2
2. Elixir of youth _____ pages 3-4
3. Philter of love _____ page 5
4. Bottled death (powerful poison) _____ page 6
5. Herbal tea _____ page 7
6. Draft of invisibility _____ pages 7-8
7. Homeopathic healing potion (part 1) _____ pages 8-9
8. Homeopathic healing potion (part 2) _____ page 10
9. Homeopathic healing potion (part 3) _____ page 11
10. Toadstool stew _____ page 12
11. Distilled water _____ page 13
12. King's ale _____ Page 13

~/Mountain/Cave
[mission 22] $ cat Book_of_potions/page_07
Herbal tea
_____

1) Boil water.
2) Add herbs from the forest.
3) Let it sit for five minutes and drink while hot.

Draft of invisibility (instruction in invisible ink)
_____

~/Mountain/Cave
[mission 22] $ head -n 6 Book_of_potions/page_07
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 22] $ gsh check

Congratulations, mission 22 has been successfully completed!
```

## Missione 23

```
Mission goal
=====

The old man seems to enjoy your company very much. He invites you to
stay for supper, and starts preparing a delicious stew for the both of
you. While getting the cauldron ready he asks for your help.
Read him the steps of the recipe from his book.

In order to validate the mission, you need to be in the cave with
Servillus **and** last command prior to "gsh check" must show the
steps of the recipe (without its title).

Note: you shouldn't alter the content of the book of potions.
```

La missione prevede in questo caso di leggere dall'interno della cava la ricetta dello stufato presente nel libro delle ricette mostrando solo i passi della ricetta senza il titolo. Dall'indice (table\_of\_contents) si evince che la ricetta dello stufato è alla pagina 12. Stampando a video una prima volta la ricetta con il comando `cat Book_of_potions/page_12` si nota che i passi della ricetta corrispondono alle ultime 9 righe del file. Ho quindi utilizzato il comando `tail -9 Book_of_potions/page_12` per stampare a video le ultime 9 righe e superare la missione

```

~/Mountain/Cave
[mission 23] $ cat Book_of_potions/table_of_contents
1. Transformation potion _____ pages 1-2
2. Elixir of youth _____ pages 3-4
3. Philter of love _____ page 5
4. Bottled death (powerful poison) _____ page 6
5. Herbal tea _____ page 7
6. Draft of invisibility _____ pages 7-8
7. Homeopathic healing potion (part 1) _____ pages 8-9
8. Homeopathic healing potion (part 2) _____ page 10
9. Homeopathic healing potion (part 3) _____ page 11
10. Toadstool stew _____ page 12
11. Distilled water _____ page 13
12. King's ale _____ Page 13

~/Mountain/Cave
[mission 23] $ cat Book_of_potions/page_12
Toadstool stew
_____

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 23] $ 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 23] $ gsh check

Congratulations, mission 23 has been successfully completed!

```

## Missione 24

```

/ |
/ | Mission goal
/ |
/ |
/ | While cleaning the dishes, Servillus mentions an interesting potion
/ | that lets the drinker (temporarily) take the physical appearance of
/ | anyone.
/ | Read the recipe of the potion from the hermit's book.
/ |
/ | In order to validate the mission, you need to be in the cave with
/ | Servillus **and** your last command prior to ``gsh check`` must show
/ | the whole recipe (with its title).
/ |
/ | Note: you shouldn't alter the content of the book of potions.
/ |

```

Per questa missione è richiesto di mostrare a video la ricetta che permette temporaneamente di trasformarsi in qualcun altro. Analizzando l'indice ho individuato la ricetta 1. Transformation potion che sembra rispondere alla descrizione. La ricetta in questo caso è su 2 pagine (pagina 1-2). Per stamparla per intero ho quindi usato il comando `cat Book_of_potions/page_01_Book Book_of_potions/page_02` che stampa a video il contenuto dei due file uno di seguito all'altro.

```
~/Mountain/Cave
[mission 24] $ cat Book_of_potions/table_of_contents
1. Transformation potion _____ pages 1-2
2. Elixir of youth _____ pages 3-4
3. Philter of love _____ page 5
4. Bottled death (powerful poison) _____ page 6
5. Herbal tea _____ page 7
6. Draft of invisibility _____ pages 7-8
7. Homeopathic healing potion (part 1) _____ pages 8-9
8. Homeopathic healing potion (part 2) _____ page 10
9. Homeopathic healing potion (part 3) _____ page 11
10. Toadstool stew _____ page 12
11. Distilled water _____ page 13
12. King's ale _____ Page 13

~/Mountain/Cave
[mission 24] $ cat Book_of_potions/page_01 Book_of_potions/page_02
Transformation potion
_____

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 24] $ gsh check

Congratulations, mission 24 has been successfully completed!
```

## Missione 25

```
=====
The old hermit notices your interest for potion recipes, and sees
promise in your ability to lookup lists of ingredients. He challenges
you to find the steps for the elixir of Youth.

In order to validate the mission, you need to be in the cave with
Servillus **and** your last command prior to ``gsh check`` must show
the steps for the recipe and nothing else.

Note: you shouldn't alter the content of the book of potions.
```



In questa missione è richiesto di stampare a video i soli passaggi della ricetta dell'elisir di giovinezza. Questa ricetta è su due pagine (pagine 3 e 4). Dopo aver stampato una prima volta l'intera ricetta con il comando `cat Book_of_potions/page_03 Book_of_potions/page_04` ho potuto vedere che i passaggi della ricetta corrispondono alle ultime 16 righe. Ho quindi usato il comando `tail -n 16 Book_of_potions/page_03 Book_of_potions/page_04` per stamparle a video dalla cartella Cave come richiesto dalla missione

```
The Wizards' Edit View Help
[mission 25] $ cat Book_of_potions/table_of_contents
1. Transformation potion _____ pages 1-2
2. Elixir of youth _____ pages 3-4
3. Philter of love _____ page 5
4. Bottled death (powerful poison) _____ page 6
5. Herbal tea _____ page 7
6. Draft of invisibility _____ pages 7-8
7. Homeopathic healing potion (part 1) _____ pages 8-9
8. Homeopathic healing potion (part 2) _____ page 10
9. Homeopathic healing potion (part 3) _____ page 11
10. Toadstool stew _____ page 12
11. Distilled water _____ page 13
12. King's ale _____ Page 13

~/Mountain/Cave
[mission 25] $ cat Book_of_potions/page_03 Book_of_potions/page_04
Elixir of youth
_____

Warning: **do not** drink if you are older than 30.

1) Fill a cauldron with used bath water.
2) Put a moderately large frog in the water.
3) Let the preparation rest overnight.
4) The next morning thank and free your little green friend.
5) Boil the water and add in a few sticks of oak tree.
6) Crush 5 river stones to a fine powder.
7) Mix in a third of the powder and stir vigorously.
8) Let the preparation rest for a day.
9) Add hairs from the tail of a squirrel (willingly given).
10) Add the remaining stone powder.
11) Stir the potion very vigorously, in all directions.
12) Take some time to rest after such an effort.
13) Rest a little bit more.
14) Even take a nap if you want.
15) Add a few larch tree needles for seasoning.
16) Drink the potion from the cauldron.

~/Mountain/Cave
[mission 25] $ cat Book_of_potions/page_03 Book_of_potions/page_04 | tail -n 16
1) Fill a cauldron with used bath water.
2) Put a moderately large frog in the water.
3) Let the preparation rest overnight.
4) The next morning thank and free your little green friend.
5) Boil the water and add in a few sticks of oak tree.
6) Crush 5 river stones to a fine powder.
7) Mix in a third of the powder and stir vigorously.
8) Let the preparation rest for a day.
9) Add hairs from the tail of a squirrel (willingly given).
10) Add the remaining stone powder.
11) Stir the potion very vigorously, in all directions.
12) Take some time to rest after such an effort.
13) Rest a little bit more.
14) Even take a nap if you want.
15) Add a few larch tree needles for seasoning.
16) Drink the potion from the cauldron.

~/Mountain/Cave
[mission 25] $ gsh check
Congratulations, mission 25 has been successfully completed!
```

## Missione 26

```
~/Mountain/Cave
[mission 26] $ gsh goal

Mission goal

The old hermit is thirsty and he would like you lookup the recipe for
distilled water.

In order to validate the mission, you need to be in the cave with
Servillus **and** your last command prior to "gsh check" must show
the steps for the recipe and nothing else.

Note: you shouldn't alter the content of the book of potions.
```

In questo caso è richiesto di stampare la ricetta dell'acqua distillata che corrisponde alla pagina 13. Questa pagina contiene però anche la ricetta della birra del re. Per stampare i soli passi della ricetta come richiesta ho quindi prima preso le ultime 9 righe (ovvero tutte le righe a partire dal punto 1 della ricetta dell'acqua distillata) tramite il comando `tail` e poi ho preso le prime 3 righe dell'output del comando precedente con il comando `head`. L'intero comando utilizzato è quindi `cat Book_of_potion/page_13 | tail -n 9 | head -n3` che fa uso del simbolo `|` (pipe) per concatenare i passaggi in maniera che l'output del comando a destra sia l'input del comando a sinistra del pipe ed eseguire quindi in un singolo passaggio un comando più complesso.

```
~/Mountain/Cave
[mission 26] $ cat Book_of_potions/table_of_contents
1. Transformation potion _____ pages 1-2
2. Elixir of youth _____ pages 3-4
3. Philter of love _____ page 5
4. Bottled death (powerful poison) _____ page 6
5. Herbal tea _____ page 7
6. Draft of invisibility _____ pages 7-8
7. Homeopathic healing potion (part 1) _____ pages 8-9
8. Homeopathic healing potion (part 2) _____ page 10
9. Homeopathic healing potion (part 3) _____ page 11
10. Toadstool stew _____ page 12
11. Distilled water _____ page 13
12. King's ale _____ Page 13

~/Mountain/Cave
[mission 26] $ cat Book_of_potions/page_13
Distilled water

1) Boil water in a big pot.
2) Condense the vapor in a fresh container.
3) Add minerals for a better taste (optional).

King's ale

1) Go to the castle's cellar and grab a bottle.
2) Serve cold, in a pint.

~/Mountain/Cave
[mission 26] $ cat Book_of_potions/page_13 | tail -n 9 | head -n 3
1) Boil water in a big pot.
2) Condense the vapor in a fresh container.
3) Add minerals for a better taste (optional).

~/Mountain/Cave
[mission 26] $ gsh check
Congratulations, mission 26 has been successfully completed!
```

## Missione 27

```

Mission goal
-----
A mischievous imp cast a spell that puts smudges of coal everywhere in
the castle.
Find this spell and remove it.

Remark
-----
The spell is a process.
```

La missione richiede di eliminare l'incantesimo che sporca di carbone il castello. L'incantesimo come suggerito è un processo individuabile con il comando `ps`. Tramite il comando `kill <PID>` ho potuto distruggere il processo eliminando l'incantesimo

```

~/Mountain/Cave
[mission 27] $

          *#@*
          @_**/~
          !$~#

ps
  PID TTY          TIME CMD
 1430 pts/0        00:00:00 zsh
 3530 pts/0        00:00:00 bash
 3556 pts/0        00:00:03 bash
143543 pts/0        00:00:00 spell
145206 pts/0        00:00:00 ps

~/Mountain/Cave
[mission 27] $

          *#@*
          @_**/~
          !$~#

kill 1435
          *#@*
          @_**/~
          !$~#

43

~/Mountain/Cave
[mission 27] $ gsh check

Congratulations, mission 27 has been successfully completed!
```

## Missione 28

```

Mission goal
-----
The mischievous imp has more than one trick up his sleeve. He managed
to protect his spell against most tampering.
You need to find this spell and try to remove it with standard signal.
If it doesn't work, use a more brutal signal.
```

Questa missione è simile alla precedente ma l'incantesimo è più furbo e ha la capacità di replicarsi. Dopo un primo tentativo di distruzione del processo spell individuato tramite il comando `ps` con il comando `kill`, ho dovuto utilizzare il comando `kill -9` su 2 processi `spell` (l'incantesimo aveva avuto modo di replicarsi) forzandone la distruzione ed eliminando completamente l'incantesimo.

```
ps
  PID TTY          TIME CMD
  1430 pts/0    00:00:00 zsh
  3530 pts/0    00:00:00 bash
  3556 pts/0    00:00:03 bash
 155682 pts/0    00:00:00 spell
 156067 pts/0    00:00:00 ps

~/Mountain/Cave
[mission 28] $

*#@*
G_**/~
!$-#

kill 1
*#@*
G_**/~
!$-#

55682
You'll need to do better than that to kill my spell!

*#@*
G_**/~
!$-#

*#@*
G_**/~
!$-#

~/Mountain/Cave
[mission 28] $ ps

  PID TTY          TIME CMD
  1430 pts/0    00:00:00 zsh
  3530 pts/0    00:00:00 bash
  3556 pts/0    00:00:03 bash
 155682 pts/0    00:00:00 spell
 156189 pts/0    00:00:00 spell
 156253 pts/0    00:00:00 ps

~/Mountain/Cave
[mission 28] $

*#@*
G_**/~
!$-#

kill -9 155682
*#@*
G_**/~
!$-#

~/Mountain/Cave
[mission 28] $

*#@*
G_**/~
!$-#

kill -9 156189

~/Mountain/Cave
[mission 28] $ gsh check

Congratulations, mission 28 has been successfully completed!
```



## Missione 29

```
~/Mountain/Cave
[mission 29] $ gsh goal

()=(
Mission goal
The imp is comparing his magic with a fairy. They met in the cellar,
and imp is conjuring lumps of coal while the fairy is conjuring
delicate snowflakes.
Remove the imp's spells and the coal that litters the cellar, but
don't touch the snowflakes!
```

La traccia della missione richiede in questo caso di stoppare tutti gli incantesmi dell'impostore che si scontra a colpi di magia con la fata e di rimuovere tutto il carbone presente in cantina.

Si tratta quindi di due passaggi differenti. Per il primo ho usato il comando `ps tree <PID> -p` per individuare tutti i processi `spell` collegati al processo padre `mischievous_imp`. Li ho quindi eliminati con un singolo comando indicandoli come parametri del comando `kill`.

Per il secondo punto ho invece usato il comando `rm *coal*` per rimuovere tutti i file con all'interno la stringa `coal` dalla cartella `Cellar` in cui mi ero in precedenza posizionato.

```
~/Castle/Cellar
[mission 29] $ ps
  PID TTY          TIME CMD
 1430 pts/0    00:00:00 zsh
 3530 pts/0    00:00:00 bash
 3556 pts/0    00:00:03 bash
240681 pts/0    00:00:00 nice_fairy
240682 pts/0    00:00:00 mischievous_imp
240689 pts/0    00:00:00 spell
240690 pts/0    00:00:00 spell
240691 pts/0    00:00:00 spell
240692 pts/0    00:00:00 tail
240705 pts/0    00:00:00 spell
240706 pts/0    00:00:00 spell
240707 pts/0    00:00:00 spell
240709 pts/0    00:00:00 tail
259450 pts/0    00:00:00 sleep
259469 pts/0    00:00:00 sleep
259502 pts/0    00:00:00 sleep
259503 pts/0    00:00:00 sleep
259576 pts/0    00:00:00 sleep
259577 pts/0    00:00:00 sleep
259594 pts/0    00:00:00 ps

~/Castle/Cellar
[mission 29] $ ps tree 240682 -p
mischievous_imp(240682)---spell(240705)---sleep(260624)
                        |---spell(240706)---sleep(260631)
                        |---spell(240707)---sleep(260481)
                        |---tail(240709)

~/Castle/Cellar
[mission 29] $ kill 240705 240706 240707

~/Castle/Cellar
[mission 29] $ ps tree 240682 -p
mischievous_imp(240682)---tail(240709)

~/Castle/Cellar
[mission 29] $ rm *coal*

~/Castle/Cellar
[mission 29] $ gsh check

Congratulations, mission 29 has been successfully completed!
```

## Missione 30

```
~/Castle/Cellar
[mission 30] $ gsh goal

()=(
|
| Mission goal
|
| To get better in the magical art, one needs to know mental math.
|
| Get ready, because Merlin is about to test your precision with sums.
|
| Run the command ``gsh check`` to start.
|
| )=()
```

Questa missione richiede in questo caso di rispondere ad una serie di domande sulla somma di due numeri.

```
~/Castle/Cellar
[mission 30] $ gsh check
41 + 4 = ?? 45
14 + 70 = ?? 84
6 + 91 = ?? 97
2 + 23 = ?? 25
29 + 96 = ?? 125

Congratulations, mission 30 has been successfully completed!
```

## Missione 31

```
{
|
| Mission goal
|
| To get better in the magical art, one needs to know mental math.
|
| Get ready, because Merlin is about to test you speed with products.
|
| Run the command ``gsh check`` to start.
|
| }
```

La missione in questo caso è simile alla precedente e chiede in questo caso di rispondere alle domande di Merlino sul prodotto di due numeri, il tutto complicato da un tempo massimo per la risposta. Dato il tempo stringente non è possibile rispondere manualmente. Leggendo il suggerimento della traccia (non riportato sopra), si deduce che è presente un file con i prodotti richiesti già calcolati (`Mathematics_101`). Per risolvere la missione ho quindi effettuato il check passandogli come input il file tramite il simbolo `<`.

```
~/Castle/Cellar
[mission 31] $ find ~ -iname "library"
/home/kali/Desktop/Gioco/gameshell/World/Castle/Main_building/Library

~/Castle/Cellar
[mission 31] $ ls /home/kali/Desktop/Gioco/gameshell/World/Castle/Main_building/Library
Greek_Latin_and_other_modern_languages  Mathematics_101  Merlin_s_office/

~/Castle/Cellar
[mission 31] $ gsh check < /home/kali/Desktop/Gioco/gameshell/World/Castle/Main_building/Library/Mathematics_101
51 * 75 = ?? 1 * 73 = ?? 39 * 25 = ?? 9 * 35 = ?? 40 * 6 = ?? 19 * 39 = ?? 15 * 94 = ?? 81 * 1 = ??
78 * 69 = ?? 86 * 2 = ?? 100 * 87 = ?? 70 * 86 = ?? 44 * 74 = ?? 96 * 25 = ?? 84 * 66 = ?? 95 * 33 =
?? 52 * 90 = ?? 16 * 54 = ?? 3 * 99 = ?? 23 * 83 = ?? 25 * 49 = ?? 4 * 62 = ?? 20 * 2 = ?? 91 * 90
= ?? 28 * 61 = ?? 85 * 62 = ?? 52 * 90 = ?? 3 * 45 = ?? 25 * 90 = ?? 92 * 69 = ?? 20 * 82 = ?? 48 *
67 = ?? 76 * 48 = ?? 60 * 33 = ?? 30 * 96 = ?? 17 * 5 = ?? 85 * 88 = ?? 65 * 88 = ?? 68 * 70 = ?? 52
* 91 = ?? 67 * 88 = ?? 64 * 76 = ?? 69 * 59 = ?? 9 * 57 = ?? 57 * 50 = ?? 81 * 77 = ?? 15 * 84 = ??
71 * 63 = ?? 57 * 98 = ?? 83 * 80 = ?? 42 * 72 = ?? 91 * 87 = ?? 97 * 22 = ?? 31 * 20 = ?? 57 * 60
= ?? 52 * 96 = ?? 29 * 95 = ?? 36 * 5 = ?? 95 * 74 = ?? 100 * 83 = ?? 71 * 73 = ?? 10 * 64 = ?? 30 *
7 = ?? 63 * 19 = ?? 19 * 45 = ?? 10 * 40 = ?? 18 * 53 = ?? 20 * 43 = ?? 39 * 68 = ?? 24 * 36 = ?? 3
0 * 13 = ?? 42 * 7 = ?? 62 * 25 = ?? 66 * 54 = ?? 74 * 69 = ?? 95 * 6 = ?? 16 * 84 = ?? 76 * 53 = ??
86 * 80 = ?? 81 * 56 = ?? 88 * 36 = ?? 56 * 40 = ?? 33 * 68 = ?? 21 * 92 = ?? 23 * 18 = ?? 62 * 24
= ?? 2 * 34 = ?? 2 * 67 = ?? 29 * 41 = ?? 46 * 54 = ?? 81 * 25 = ?? 75 * 26 = ?? 67 * 34 = ?? 44 * 4
6 = ?? 25 * 70 = ?? 20 * 48 = ?? 36 * 50 = ?? 54 * 68 = ?? 69 * 30 = ?? 86 * 40 = ??
Congratulations, mission 31 has been successfully completed!
```

## Missione 32

```
[mission 32] $ gsh goal

Mission goal

Merlin's old spell books are kept in his office, in the library. You
need to save a list of all those spell books (and nothing else) in a
file called "inventory.txt", in the drawer...
```

In questa missione è richiesto di salvare in un file `inventory.txt` in Drawer la lista di tutti i vecchi libri di incantesimi di Merlino presenti nella sua libreria. Una volta individuata la cartella `Merlin_s_office` sotto `Castle/Main_building/Library` ne ho tramite `ls` analizzato il contenuto. Tutti i file in questo caso iniziano con la stringa `grimoire`. Ho quindi usato il comando `ls grimoire*` per prendere tutti i file con il preambolo `grimoire`, quindi ho ridirezionato il tutto su un file di nome `inventory.txt` tramite il simbolo `>`. Il comando completo per risolvere la missione è quindi `ls grimoire_* > Drawer/inventory.txt`

```

~/Castle/Cellar
[mission 32] $ cd ../Main_building/Library/

~/Castle/Main_building/Library
[mission 32] $ cd M
Mathematics_101 Merlin_s_office/

~/Castle/Main_building/Library
[mission 32] $ cd Merlin_s_office/

~/Castle/Main_building/Library/Merlin_s_office
[mission 32] $ ls
candle          grimoire_13173 grimoire_19256 grimoire_25521 grimoire_3847 grimoire_7387
Drawer/         grimoire_13417 grimoire_19446 grimoire_27157 grimoire_4147 grimoire_7602
grimoire_10409 grimoire_14176 grimoire_19642 grimoire_28389 grimoire_4208 grimoire_8021
grimoire_10411 grimoire_14776 grimoire_20018 grimoire_28511 grimoire_4249 grimoire_8111
grimoire_10532 grimoire_15051 grimoire_2092  grimoire_28945 grimoire_4457 grimoire_8184
grimoire_1077  grimoire_15071 grimoire_21353 grimoire_30254 grimoire_448  grimoire_9099
grimoire_10807 grimoire_15351 grimoire_21910 grimoire_30428 grimoire_4763 grimoire_9493
grimoire_10845 grimoire_15558 grimoire_21916 grimoire_30520 grimoire_5114 grimoire_9576
grimoire_11345 grimoire_16075 grimoire_23060 grimoire_30813 grimoire_5117 grimoire_9611
grimoire_11728 grimoire_16135 grimoire_23313 grimoire_30878 grimoire_5602 grimoire_9632
grimoire_11952 grimoire_16352 grimoire_23362 grimoire_30901 grimoire_5839 grimoire_9654
grimoire_12047 grimoire_17062 grimoire_23401 grimoire_31601 grimoire_5967 grimoire_9685
grimoire_12120 grimoire_17418 grimoire_23775 grimoire_31895 grimoire_6079 inventory.txt
grimoire_12565 grimoire_17438 grimoire_2410  grimoire_31921 grimoire_6482
grimoire_12572 grimoire_17790 grimoire_24181 grimoire_31962 grimoire_6545
grimoire_12666 grimoire_17908 grimoire_24438 grimoire_31991 grimoire_6787
grimoire_12678 grimoire_18297 grimoire_25290 grimoire_32372 grimoire_6827
grimoire_12810 grimoire_18356 grimoire_25319 grimoire_3437  grimoire_7126

~/Castle/Main_building/Library/Merlin_s_office
[mission 32] $ find . -name "grimoire*" > Drawer/inventory.txt

~/Castle/Main_building/Library/Merlin_s_office
[mission 32] $ gsh check
The content of inventory.txt is invalid.
You can check its content with the command
$ less inventory.txt

Sorry, mission 32 hasn't been completed.

While you are waiting, a spider crawls by...

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

~/Castle/Main_building/Library/Merlin_s_office
[mission 32] $ less inventory.txt

[4]+ Stopped less inventory.txt

~/Castle/Main_building/Library/Merlin_s_office
[mission 32] $ less Drawer/inventory.txt

[5]+ Stopped less Drawer/inventory.txt

~/Castle/Main_building/Library/Merlin_s_office
[mission 32] $ ls grimoire_* > Drawer/inventory.txt

~/Castle/Main_building/Library/Merlin_s_office
[mission 32] $ less Drawer/in
ink_and_scroll inventory.txt

~/Castle/Main_building/Library/Merlin_s_office
[mission 32] $ less Drawer/inventory.txt

[6]+ Stopped less Drawer/inventory.txt

~/Castle/Main_building/Library/Merlin_s_office
[mission 32] $ gsh check

Congratulations, mission 32 has been successfully completed!

```

## Missione 33

```
~/Castle/Main_building/Library/Merlin_s_office
[mission 33] $ gsh goal

Mission goal

Merlin's old alchemy books are kept in his office, in the library.
You need to output a list of all the books containing the alchemical
compound 'gsh' (for "Glutathione").
Beware, it can be spelled with a mix of letters in upper and
lowercase.

Some of those books are locked, and you are not allowed to consult
them. Ignore them.
```

Per questa missione è richiesto di individuare tutti i libri di incantesimi che contengono la parola gsh. Per farlo ho usato il comando `grep -li gsh grimoire_*`. Alcuni di questi file sono inaccessibili e vanno ignorati per completare la missione. Ho quindi ridirezionato lo stderr nel null file aggiungendo il comando `2>/dev/null` di seguito al comando precedente.

```
grimoire_XkbXYKbAPhujoYBrCHDQSZgYA
grep: grimoire_XOWypycDCmACQhxiY: Permission denied
grimoire_xvGQIhXzeBU
grep: grimoire_XwJuoLFynMwCea: Permission denied
grep: grimoire_XWwlgIXYVdRHRrkLpN: Permission denied
grimoire_YfykqQPweeVxw
grimoire_ytxUoNHsAncTisREZSqPv
grimoire_YvMBWEQefw
grimoire_ZandXsWRE
grep: grimoire_ZfCHkMOIET: Permission denied
grimoire_ZLNjFrHKgijNYxJDqR
grep: grimoire_zmvExDKwlqr: Permission denied
grep: grimoire_ZuRhfvacQkPKsbfSup: Permission denied

~/Castle/Main_building/Library/Merlin_s_office
[mission 33] $ grep -li gsh grimoire_* 2>/dev/null
grimoire_ACBCrfsOQzquDnhxswQPSKX
grimoire_chPNZmfJgVtFYUqQ
grimoire_CrUiPutotXswsBvh
grimoire_cUwSfgYUcl
grimoire_CYuwhtYJnpVxRjBGPklguPwcPFBUm
grimoire_dgrjgPZZcONFkFVychnyWg
grimoire_DkseyJqWOKYAEpg
grimoire_fduNsFesc
grimoire_fEuLdbbw
grimoire_FODIBMinRgtHgSm
grimoire_hBLleTrIt
grimoire_hrVtZPuUeestOzxRZyLm
grimoire_jmMMeNSCKjYyPvKtWmrIzaaSLJh
grimoire_JTDgmWfsiyJfTTXtyhtnxMoQDMFUmR
grimoire_kiItgynhtZqJVPxRGUgJRYPIeL
grimoire_LHhvJmtVX
grimoire_luyikEac
grimoire_MDcakOhHSw
grimoire_oLhIilDszQ
grimoire_oYnkcQdrMM
grimoire_pSzwuZXZeLZJdnadi
grimoire_rhvbYobbePrBiczIGlqqGmkTX
grimoire_RhWEvXPAGJmAVOUneEGQdkfVL
grimoire_RpSwGGJKRrHCgnQDVQku
grimoire_RzobvcINxwlpbGiQwLimm
grimoire_uyLAZlIdqMkP
grimoire_XkbXYKbAPhujoYBrCHDQSZgYA
grimoire_xvGQIhXzeBU
grimoire_YfykqQPweeVxw
grimoire_ytxUoNHsAncTisREZSqPv
grimoire_YvMBWEQefw
grimoire_ZandXsWRE
grimoire_ZLNjFrHKgijNYxJDqR

~/Castle/Main_building/Library/Merlin_s_office
[mission 33] $ gsh check

Congratulations, mission 33 has been successfully completed!
```



## Missione 34

```
~/Castle/Main_Building/Library/Merlin's_office
[mission 34] $ gsh goal

()=(
| Mission goal
|
| Merlin has turned crazy... He paces around the observatory tower and
| mumbles incoherently.
|
| You need to filter out his ramblings to discover the secret key he is
| the only one to know.
| )=
```

La chiave segreta di Merlino si trova all'interno del file `star_chart` ma è criptata e come suggerisce l'output si trova all'interno dello standard error. Ho quindi redirezionato quest'ultimo in un file (`merlin_secret.txt`) tramite il comando `./merlin < star_chart 2>merlin_secret.txt` e dato in input il file con la chiave al comando di check con il comando `gsh check < merlin_secret.txt`

```
~/Castle/Cellar
[mission 34] $ find -iname observatory
/home/kali/Desktop/Gioco/gameshell/World/Castle/Observatory

~/Castle/Cellar
[mission 34] $ cd ~/Castle/Observatory/

~/Castle/Observatory
[mission 34] $ ./merlin < star_chart
jFUP2bXtJHudGdBEHxQnDQmquDdASAcwIwJRYEYopTEwVctllGCikchaGRouONbJik5EDgSyytjOGTuyKcsOmNrOwBwrbEUE
ukSUKOKIQVRrBPdtIsqXgvqSYOKrcLMFDKQZDSwFVgiNSTDHLrMTjIwJBDCKsIIshFKCUCAcuzOPdLOLHEHfbKlukTcrDgcllaL
CbGKWPtERaPLGdAzaqRncSR

~/Castle/Observatory
[mission 34] $ ./merlin < star_chart 2>merlin_secret.txt
THESECREKEYISONSTDERR

~/Castle/Observatory
[mission 34] $ gsh check < merlin_secret.txt
What is the secret key?
Congratulations, mission 34 has been successfully completed!
```

## Missione 35

```
~/Castle/Observatory
[mission 35] $ gsh goal

()=(
| Mission goal
|
| The door to the King's quarter is in the throne room.
| Go to the King's quarter.
| )=
```

Per risolvere la missione ho individuato la cartella `Kings_quarter` che si trova sotto `Main_building/Throne_room` ma essa è inaccessibile in quanto non dispone dei permessi di esecuzione. Essendone il proprietario ho potuto però utilizzare il comando `chmod u+x Kings_quarter` per aggiungere a me stesso tali diritti e quindi accedervi con il comando `cd` come richiesto.

```
~/Castle/Cellar
[mission 35] $ find ~ -iname "*kings*"
/home/kali/Desktop/Gioco/gameshell/World/Castle/Main_building/Throne_room/Kings_quarter

~/Castle/Cellar
[mission 35] $ cd ../Main_building/Throne_room/

~/Castle/Main_building/Throne_room
[mission 35] $ ls -l
total 4
drw-r--r-- 2 kali kali 4096 Dec 15 13:27 Kings_quarter/

~/Castle/Main_building/Throne_room
[mission 35] $ chmod u+x Kings_quarter/

~/Castle/Main_building/Throne_room
[mission 35] $ cd Kings_quarter/

~/Castle/Main_building/Throne_room/Kings_quarter
[mission 35] $ gsh check

Congratulations, mission 35 has been successfully completed!
```

## Missione 36

```
[mission 36] $ gsh goal

Mission goal
The King is rumored to keep the combination to his safe written on a
note in his room.
Find that combination.
```

Dalla traccia si evince che esiste un file nascosto e non accessibile all'interno della cartella Kings\_quarter. In effetti ho verificato tramite il comando `ls -al` che esiste un file denominato `.secret_note` che ha soli permessi di scrittura per l'utente proprietario. Ho quindi aggiunto i permessi in lettura tramite il comando `chmod u+r .secret_note` il che mi ha permesso di leggere la chiave segreta tramite il comando `cat` e di rispondere alla domanda sulla combinazione per il superamento della missione.

```
~/Castle/Main_building/Throne_room/Kings_quarter
[mission 36] $ ls -al
total 16
drwxr-xr-x 2 kali kali 4096 Dec 16 12:36 ./
drwxr-xr-x 3 kali kali 4096 Dec 15 13:27 ../
-rw-r--r-- 1 kali kali 11 Dec 16 12:39 note
--w----- 1 kali kali 10 Dec 16 12:39 .secret_note

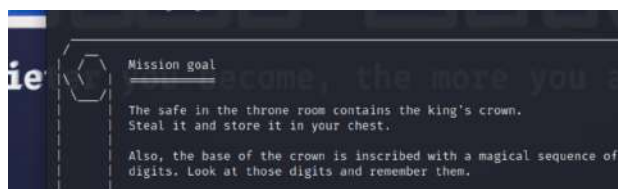
~/Castle/Main_building/Throne_room/Kings_quarter
[mission 36] $ chmod u+r .secret_note

~/Castle/Main_building/Throne_room/Kings_quarter
[mission 36] $ cat .secret_note
894114175

~/Castle/Main_building/Throne_room/Kings_quarter
[mission 36] $ gsh check
What's the combination to open the King's safe? 894114175

Congratulations, mission 36 has been successfully completed!
```

## Missione 37



Dalla traccia si evince che è presente una file crown sotto Safe/Throne\_room il quale non è accessibile. Ho quindi aggiunto tutti i permessi per l'utente proprietario (il mio utente) alla cartella Safe e successivamente al file crown tramite i comandi `chmod u+rwx Safe` e `chmod u+rwx crown`. Ciò mi ha permesso di accedere alla cartella Safe dove è presente il file crown e di leggere il contenuto di tale file tramite il comando `cat`. Il file contiene il disegno di una corona con caratteri e simboli ASCII dove è presente sulla base un numero come indicato nella traccia. Ho quindi spostato il file crown nel forziere con il comando `mv crown ~/Forest/Hut/Chest` e risposto alla domanda finale per il passaggio del livello con il numero individuato in precedenza.

```
~/Castle/Main_building/Throne_room
[mission 37] $ ls -al
total 16
drwxr-xr-x 4 kali kali 4096 Dec 16 12:40 ./
drwxr-xr-x 4 kali kali 4096 Dec 15 13:27 ../
drwxr-xr-x 2 kali kali 4096 Dec 16 12:36 Kings_quarter/
d----- 2 kali kali 4096 Dec 16 12:40 Safe/

~/Castle/Main_building/Throne_room
[mission 37] $ chmod u+rwx Safe/

~/Castle/Main_building/Throne_room
[mission 37] $ cd Safe/

~/Castle/Main_building/Throne_room/Safe
[mission 37] $ ls -al
total 12
drwx----- 2 kali kali 4096 Dec 16 12:40 ./
drwxr-xr-x 4 kali kali 4096 Dec 16 12:40 ../
----- 1 kali kali 48 Dec 16 12:50 crown

~/Castle/Main_building/Throne_room/Safe
[mission 37] $ chmod u+rwx crown

~/Castle/Main_building/Throne_room/Safe
[mission 37] $ cat crown
  _+._
 jgs
(^\/^\/^)
 \@*@\@/
 {_186_}

~/Castle/Main_building/Throne_room/Safe
[mission 37] $ mv crown ~/Forest/Hut/Chest/

~/Castle/Main_building/Throne_room/Safe
[mission 37] $ gsh check
What are the 3 digits inscribed on the base of the crown? 186

Congratulations, mission 37 has been successfully completed!
```



## Missione 38

```
~/Castle/Main_building/Throne_room/Safe
[mission 38] $ gsh goal

()=(
|
| Mission goal
|
| Look for the ruby in the maze in the garden, and move it to your
| chest.
```

Per risolvere una missione ho individuato tutti i file presenti nella cartella Garden/Maze tramite il comando `find . -type f` e ne ho analizzato il contenuto con il comando `cat` fino ad individuare quello contenente il rubino (ruby). Ho quindi completato la missione spostando il file con il comando `mv` nella cartella Chest (il forziere nel capanno nella foresta)

```
~/Castle/Main_building/Throne_room/Safe
[mission 38] $ find -iname "maze"
/home/kali/Desktop/Gioco/gameshell/World/Garden/Maze

~/Castle/Main_building/Throne_room/Safe
[mission 38] $ cd ~/Garden/Maze/

~/Garden/Maze
[mission 38] $ find . -type f
./8ac241ed41e0c24915386b1fb9/e1c0e5caf2c37b012f60/0106601e8bb0e6c72e158b049bdbc/53596
./393db024cd86a450713167d9b454c/7855f15ea7198e586cdf27/91f4f97ce7f2ce805250b5296d/36548
./193faff8b06076964b/e902dccf4ce37d244394e76efb0514/215a2283b54cab4f4a97119d4d/30227
./9572e6b624ea5ea1d8e5e5/f859968af21d137f36/4af4f0a30a8eb9e86/11631
./9572e6b624ea5ea1d8e5e5/44752b45c/0caad65dff/13071
./b23e794a94a51c9e7f5d7a70afe19ae/e93fc44a69bbf552b3780bb078/c53875bb9b56f0f03ad48ebff1/52362

~/Garden/Maze
[mission 38] $ cat ./8ac241ed41e0c24915386b1fb9/e1c0e5caf2c37b012f60/0106601e8bb0e6c72e158b049bdbc/5
3596
53596 stone 66d45293c1a7bee1e605065a50586708045c8415

~/Garden/Maze
[mission 38] $ cat ./393db024cd86a450713167d9b454c/7855f15ea7198e586cdf27/91f4f97ce7f2ce805250b5296d
/36548
36548 stone 9a993e3992b654cc47267a46ec3c441a326b4af4

~/Garden/Maze
[mission 38] $ cat ./193faff8b06076964b/e902dccf4ce37d244394e76efb0514/215a2283b54cab4f4a97119d4d/30
227
30227 ruby 4d231ba5817512dc93da48fbab719d1d6fa41a

~/Garden/Maze
[mission 38] $ mv ./193faff8b06076964b/e902dccf4ce37d244394e76efb0514/215a2283b54cab4f4a97119d4d/302
27 ~/Forest/Hut/Chest/

~/Garden/Maze
[mission 38] $ gsh check

Congratulations, mission 38 has been successfully completed!
```

## Missione 39

```
[mission 39] $ gsh goal

Mission goal

Combine several commands with "|" in order to find the diamond in the
maze, and move it to your chest.
```

In questo caso come richiesto nella traccia ho usato il comando `find . type f | xargs grep -l diamond` per trovare tutti i file nella cartella corrente (comando `find`) e passare questi ultimi come argomento del comando `grep` (comando `xargs`) in maniera da filtrare

quelli con la parola `diamond` all'interno. Una volta individuato il file ho usato il comando `mv` per spostarlo in `Forest/Hut/Chest`

```
~/Garden/Maze
[mission 39] $ find . -type f | xargs grep -l diamond
./c01923bb759/d57a78a5adae5a/e39d836609e2183cd7ad9

~/Garden/Maze
[mission 39] $ mv ./c01923bb759/d57a78a5adae5a/e39d836609e2183cd7ad9 ~/Forest/Hut/Chest/

~/Garden/Maze
[mission 39] $ gsh check

Congratulations, mission 39 has been successfully completed!
```

## Missione 40

```
~/Garden/Maze
[mission 40] $ gsh goal

()=(
|
| Mission goal
|
| Next to the castle, there is a merchant stall. People often buy on
| credit and reimburse their debt when they can.
| The shopkeeper keeps books on everyone's debt on a scroll. Whenever
| someone pays his debt, he inscribes "PAID" next to the corresponding
| transaction.
|
| Combine several commands with ``|`` in order to find the King's debt.
```

La missione richiede di analizzare nel registro quelli che sono i debiti del re, ovvero tutte le righe nei file nella cartella `Stall` che non hanno la voce `PAID` e di rispondere al quesito. Per farlo ho usato il comando `ls | grep -v "boring_object" | xargs grep King | grep -v "PAID"` che utilizzo il pipe per concatenare una serie di comandi intermedi ed ottenere un comando complesso che permette di ottenere il risultato atteso. Nello specifico `ls` elenca tutti i file, tramite `grep -v "boring_object"` vengono esclusi i file `boring_object` su cui non sono trascritti i debiti, tramite `xargs` questi sono passati al comando `grep King` che filtra le righe che contengono la parola `King`, ovvero le voci di registro relative al re, infine tramite l'ultimo `grep` (`grep -v "PAID"`) vengono rimosse le voci con la dicitura `PAID` ovvero i debiti già pagati. Contando i debiti del re tra le righe filtrate essi ammontano quindi a 22 coppers.

```
(0)
~/Stall
[mission 40] $ ls | grep -v "boring_object" | xargs grep King | grep -v "PAID"
the King bought a pin for 4 coppers.
the King bought a leather bag for 4 coppers.
the King bought a piece of soap for 6 coppers.
the King bought a wooden spoon for 2 coppers.
the King bought a chackal for 6 coppers.
(1)
~/Stall
[mission 40] $ gsh check
How much does the king owe? 22

Congratulations, mission 40 has been successfully completed!
```

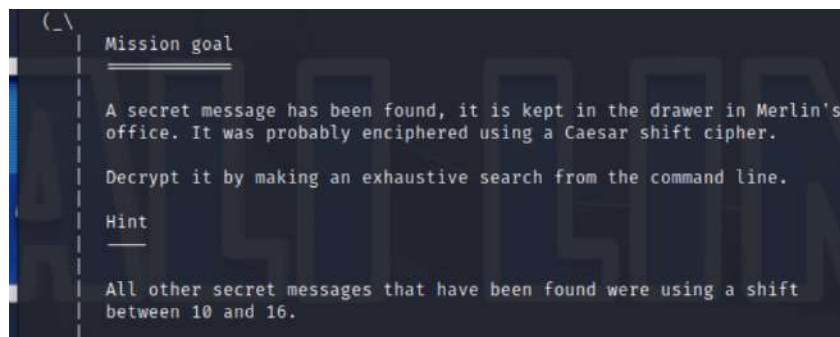
## Missione 41



In questo caso è richiesto di contare all'interno del registro il numero di elementi non pagati (ovvero le righe di registro che non presentano la voce PAID). In questo caso, una volta filtrate le righe come in precedenza, ho fatto ricorso al comando `wc -l` per contare le righe e dare il risultato in pasto al check. Il comando finale è illustrato in figura.

```
~/Stall
[mission 41] $ ls | grep -v "boring_object" | xargs grep -v "PAID" | wc -l | gsh check
How many unpaid items are there?
Congratulations, mission 41 has been successfully completed!
```

## Missione 42



La missione finale consiste nel decifrare un messaggio segreto codificato mediante il cifrario di Cesare che consiste nello spostare ogni lettera dell'alfabeto di un numero prefissato di posizioni. Nella traccia è indicato che questo numero è compreso tra 10 e 16. Tramite il comando `tr` ho fatto diversi tentativi fino ad individuare che le lettere a-z erano traslate di 11 posizioni ("m-za-l" - comando `tr "a-z" "m-za-l" < secret_message`). Una volta decodificato il messaggio ho potuto rispondere al quesito con la chiave segreta richiesta.

```
~/Castle/Main_building/Library/Merlin_s_office/Drawer
[mission 42] $ tr "a-z" "l-za-i" < secret_message
gdqd hr lx vhii:
xnt vhii fds lx bgdrs, zmc dudqxsghmf hs bnmszhmr.
sghr bgdrs hr hm sgd bdiizq, zmc sgd vnqc sn lzid
hs qd-zoodzq hr: umqw
ldqihm sgd dmbgzmsdq
```

```
~/Castle/Main_building/Library/Merlin_s_office/Drawer
[mission 42] $ tr "a-z" "m-za-l" < secret_message
here is my will:
you will get my chest, and everything it contains.
this chest is in the cellar, and the word to make
it re-appear is: vnrx
merlin the enchanter
```

```
~/Castle/Main_building/Library/Merlin_s_office/Drawer
[mission 42] $ gsh check
What's the key that will make Merlin's chest to appear?
vnrx
```

Congratulations, mission 42 has been successfully completed!

CONGRATULATIONS!

You have finished all the missions.