

## ESERCIZIO W8D4

Lo scopo dell'esercizio prevede di completare più missioni possibili di Gameshell, un gioco testuale utile per imparare i comandi di Linux.

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

~
[mission 4] $ cd Forest

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

costrisci  
Hut

```
[mission 1] $ ls
Castle Forest Garden Mountain Stall
[mission 1] $ phd
Command 'phd' not found, did you mean:
  command 'thd' from deb triggerhappy
  command 'phc' from deb phcpack
  command 'pdd' from deb pdd
  command 'hd' from deb bsdxtrautils
  command 'pwd' from deb coreutils
  command 'psd' from deb profile-sync-daemon
Try: sudo apt install <deb name>
[mission 1] $ pwd
/home/kali/gameshell/World
[mission 1] $ cd Castle
[mission 1] $ ls
Cellar Great_hall Main_building Main_tower Observatory
[mission 1] $ cd Main_tower
[mission 1] $ ls
First_floor
[mission 1] $ cd First_floor
[mission 1] $ ls
Second_floor
[mission 1] $ cd Second_floor
[mission 1] $ ls
Top_of_the_tower
[mission 1] $ cd Top_of_the_tower
[mission 1] $ ls
[mission 1] $ gsh check
Congratulations, mission 1 has been successfully completed!
```

Primo livello  
completato

```
[mission 2] $ gsh goal
```

### Mission goal

Go to the castle's cellar.

gsh goal-2

### Secondary objective

Understand the difference between ``cd -`` and ``cd ..``.

### Useful commands

cd -

Jump back to the location you were in prior to your last move.

cd ..

Move to the parent directory (one step back along the path to your current location).

pwd

See the path to your current location.

```
[mission 2] $
```

```
[mission 2] $ cd -
/home/kali/gameshell/World/Castle/Main_tower/First_floor/Second_floor
[mission 2] $ ls
Top_of_the_tower
[mission 2] $ cd -
/home/kali/gameshell/World/Castle/Main_tower/First_floor/Second_floor/Top_of_the_tower
[mission 2] $ ls
[mission 2] $ cd -
/home/kali/gameshell/World/Castle/Main_tower/First_floor/Second_floor
[mission 2] $ cd ..
[mission 2] $ ls
Second_floor
[mission 2] $ cd ..
[mission 2] $ ls
First_floor
[mission 2] $ cd ..
[mission 2] $ ls
Cellar  Great_hall  Main_building  Main_tower  Observatory
[mission 2] $ cd Cellar
[mission 2] $ ls
barrel_of_apples
[mission 2] $ gsh check
Congratulations, mission 2 has been successfully completed!
```

Mission 2  
completata

```
(())=()
 |
 | Mission goal
 |
 | Go back to the starting location and then go to the throne room using
 | only two commands.
 |
 | Remark
 |
 | You may experiment with as many commands as you want, but
 | to validate the mission the following conditions need to be met:
 | - the second to last command takes you to the starting point,
 | - the last command takes you directly to the throne room.
 |
 | Useful commands
 |
 | cd
 | Move back to the starting location.
 |
 | cd LOCATION1/LOCATION2/LOCATION3
 | Make several moves in one command.
 |
 | Remark
 |
 | UPPERCASE words appearing in commands are meta-variables: you need to
 | replace them by appropriate (string) values.
)
()=()

```

gsh goal 3

```
[mission 3] $ cd ../../..
You left GameShell's directory structure. Use
$ cd
to go back to the GameShell's starting directory.

[mission 3] $ cd
[mission 3] $ cd Castle/Main_building/Throne_room
[mission 3] $ gsh check

Congratulations, mission 3 has been successfully completed!
```

Well done!!!

From now on, the current location will be shown just before the command prompt.

Terza missione  
completata

The diagram shows a terminal window with the following content:

```
(____^____)-----(^____)
|           |
|           Mission goal
|           _____
|           |
|           Build a "Hut" in the forest, and then build a "Chest" in the hut.
|           |
|           Useful commands
|           _____
|           |
|           mkdir DIRECTORY
|           Create a new directory inside the current directory.
|           Remark: ``mkdir`` is an abbreviation for "make directory".
|           |
|           (^____)-----(^____)
```

A red box highlights the text "gsh goal 4".

```
~/Forest/Hut  
[mission 4] $ mkdir Chest  
  
~/Forest/Hut  
[mission 4] $ gsh check  
  
Congratulations, mission 4 has been successfully completed!
```

Missione 4  
completata

```
~/Forest/Hut
[mission 5] $ pwd
/home/kali/gameshell/World/Forest/Hut

~/Forest/Hut
[mission 5] $ ls
Chest

~/Forest/Hut
[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 spider_1 spider_2 spider_3

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

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

Missione 5  
completata

```
~/Castle/Cellar
[mission 6] $ ls
barrel_of_apples  bat_1  bat_2

~/Castle/Cellar
[mission 6] $ pwd
/home/kali/gameshell/World/Castle/Cellar

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

~
[mission 6] $ pwd
/home/kali/gameshell/World

~
[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 ..../Forest/Hut/Chest

~/Garden
[mission 6] $ cd ..../Forest/Hut/Chest

~/Forest/Hut/Chest
[mission 6] $ ls
coin_1  coin_2  coin_3

~/Forest/Hut/Chest
[mission 6] $ gsh check

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

Missione 6  
completata

```
~/Forest/Hut/Chest  
[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.

**gsh goal 7**

#### 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.

```
~/Forest/Hut/Chest
[mission 7] $ pwd
/home/kali/gameshell/World/Forest/Hut/Chest

~/Forest/Hut/Chest
[mission 7] $ cd ../../Garden
bash: cd: ../../Garden: No such file or directory

~/Forest/Hut/Chest
[mission 7] $ cd ../../Garden
[mission 7] $ ls -A
.M37766_coin_2 .44594_coin_1 .50277_coin_3 Flower_garden Maze Shed
~/Garden
[mission 7] $ mv .37766_coin_2 .44594_coin_1 .50277_coin_3 .. /Forest/Hut/Chest

~/Garden
[mission 7] $ cd .. /Forest/Hut/Chest
~/Forest/Hut/Chest
[mission 7] $ ls -A
.M37766_coin_2 .44594_coin_1 .50277_coin_3 coin_1 coin_2 coin_3
~/Forest/Hut/Chest
[mission 7] $ gsh check

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

Missione 7  
completata

```
~/Forest/Hut/Chest
[mission 8] $ gsh goal

/\|/\_.._____
( \_/\V
  Mission goal
  _____

Get rid of all the spiders that are crawling in the cellar. Again, do
not do not disturb the bats.

Shell patterns
  _____
```

**gsh goal 8**

\*

The "\*" character stands in for any sequence of characters (including an empty sequence).

?

The "?" character stands in for any single character.

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
*0*	→	Folder-1 potato
**	→	error, no matching file
*-?	→	file-1 Folder-1
*-??	→	file-14

## qsh goal 8

```
~/Castle
[mission 8] $ cd Cellar

~/Castle/Cellar
[mission 8] $ ls
11765_spider_20 18725_spider_33 24563_spider_23 27597_spider_43 31410_spider_37 5709_spider_29
12048_spider_31 19235_spider_10 24897_spider_35 27717_spider_19 31805_bat_3 63_bat_4
12769_spider_14 19397_spider_1 25129_spider_6 28242_spider_41 32104_spider_4 6579_spider_2
13709_spider_24 19505_spider_30 25279_spider_48 28425_spider_3 32431_spider_16 8060_spider_27
13904_spider_45 19918_bat_5 25825_spider_47 28574_spider_12 32492_spider_40 9442_spider_42
1424_spider_9 21450_spider_34 26116_spider_21 28878_spider_32 32766_spider_7 barrel_of_apples
15345_spider_13 21536_spider_22 26340_spider_36 29663_spider_39 35_spider_50
15412_spider_18 22701_spider_49 26435_bat_2 29667_spider_8 4245_spider_5
16087_spider_44 23607_spider_26 27028_spider_38 30233_spider_46 448_spider_15
18268_spider_28 24131_spider_11 27228_spider_25 30996_spider_17 5555_bat_1

~/Castle/Cellar
[mission 8] $ ls *spider*
11765_spider_20 18268_spider_28 24131_spider_11 27228_spider_25 30233_spider_46 448_spider_15
12048_spider_31 18725_spider_33 24563_spider_23 27597_spider_43 30996_spider_17 5709_spider_29
12769_spider_14 19235_spider_10 24897_spider_35 27717_spider_19 31410_spider_37 6579_spider_2
13709_spider_24 19397_spider_1 25129_spider_6 28242_spider_41 32104_spider_4 8060_spider_27
13904_spider_45 19505_spider_30 25279_spider_48 28425_spider_3 32431_spider_16 9442_spider_42
1424_spider_9 21450_spider_34 25825_spider_47 28574_spider_12 32492_spider_40
15345_spider_13 21536_spider_22 26116_spider_21 28878_spider_32 32766_spider_7
15412_spider_18 22701_spider_49 26340_spider_36 29663_spider_39 35_spider_50
16087_spider_44 23607_spider_26 27028_spider_38 29667_spider_8 4245_spider_5

~/Castle/Cellar
[mission 8] $ rm *spider*

~/Castle/Cellar
[mission 8] $
~/Castle/Cellar
[mission 8] $ ls
19918_bat_5 26435_bat_2 31805_bat_3 5555_bat_1 63_bat_4 barrel_of_apples

~/Castle/Cellar
[mission 8] $ gsh check

Congratulations, mission 8 has been successfully completed!
```

Missione 8  
completata

```
~/Castle/Cellar  
[mission 9] $ gsh goal
```

gsh goal 9

### Mission goal

The spiders are getting clever: they found a way to hide.  
Get rid of all the spiders that are hiding in the cellar without  
disturbing the bats.

### Shell patterns

\*

The "\*" character stands in for any sequence of characters (including an empty sequence).

?

The "?" character stands in for any single character.

### Remark

The wildcards "\*" and "?" don't see hidden files, you need to add an explicit dot at the start of the pattern.

(/

(\*)  
\\  
))  
^

```
~/Castle/Cellar
[mission 9] $ ls .*spider*
.12087_spider_20 .21272_spider_33 .26186_spider_35 .30493_spider_9 .6293_spider_43
.1285_spider_37 .21712_spider_12 .26768_spider_21 .30740_spider_24 .7009_spider_26
.13825_spider_36 .2206_spider_48 .27207_spider_27 .31216_spider_14 .7278_spider_4
.14479_spider_32 .22846_spider_11 .28169_spider_47 .32049_spider_40 .744_spider_13
.16002_spider_6 .22900_spider_49 .28226_spider_22 .32493_spider_3 .7650_spider_28
.17667_spider_30 .23438_spider_23 .28244_spider_7 .3276_spider_41 .8230_spider_46
.1800_spider_16 .24401_spider_8 .28539_spider_50 .3414_spider_34 .8573_spider_18
.18635_spider_44 .25032_spider_25 .28799_spider_1 .4231_spider_39 .8947_spider_29
.19854_spider_5 .25133_spider_45 .29055_spider_31 .5915_spider_15 .9011_spider_42
.20950_spider_17 .26055_spider_38 .29426_spider_10 .6276_spider_19 .9927_spider_2
```

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

```
~/Castle/Cellar
[mission 9] $ ls -A
.10462_bat_1 19918_bat_5 .30794_bat_4 .31805_bat_5 63_bat_4      barrel_of_apples
.18512_bat_2 26435_bat_2 31805_bat_3 5555_bat_1      .9609_bat_3
```

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

Congratulations, mission 9 has been successfully completed!

Mission 9  
completata

Congratulations !

From now on, the ``ls`` command will automatically show a "/" character at the end of directories.

```
you become, the more you are able to hear
```

gsh goal 10

```
~/Castle
[mission 10] $ ls
Cellar/ Great_hall/ Main_building/ Main_tower/ Observatory/

~/Castle
[mission 10] $ cd Great_hall

~/Castle/Great_hall
[mission 10] $ ls
19969_decorative_shield 64557_suit_of_armour standard_2 standard_4
4139_stag_head           standard_1             standard_3

~/Castle/Great_hall
[mission 10] $ cd standard_4
bash: cd: standard_4: Not a directory

~/Castle/Great_hall
[mission 10] $ ls
19969_decorative_shield 64557_suit_of_armour standard_2 standard_4
4139_stag_head           standard_1             standard_3

~/Castle/Great_hall
[mission 10] $ pwd
/home/kali/gameshell/World/Castle/Great_hall

~/Castle/Great_hall
[mission 10] $ ls
19969_decorative_shield 64557_suit_of_armour standard_2 standard_4
4139_stag_head           standard_1             standard_3

~/Castle/Great_hall
[mission 10] $ cp standard_1 standard_2 standard_3 standard_4 ..../F

~/Castle/Great_hall
[mission 10] $ ls
19969_decorative_shield 64557_suit_of_armour standard_2 standard_4
4139_stag_head           standard_1             standard_3

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

Missione 10  
completata

```
~/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.

  Useful commands
  _____
    cp FILE1 FILE2 ... FILEn DIRNAME
    Copy the files to the directory.
    Remark: 'cp' is an abbreviation of "copy".
```

gsh goal 11

```
( /_
  Shell patterns
  _____
    *
    The "*" character stands in for any sequence of characters
    (including an empty sequence).

    ?
    The "?" character stands in for any single character.
```

```
~/Castle/Great_hall
[mission 11] $ ls
11067_tapestry_09      2065_stag_head      4097_tapestry_10    7406_tapestry_03  standard_4
11931_tapestry_04      26351_suit_of_armour  42550_tapestry_08    standard_1
16830_decorative_shield 3072_tapestry_05      45376_tapestry_06    standard_2
1777_tapestry_01        31689_tapestry_02      59998_tapestry_07    standard_3

~/Castle/Great_hall
[mission 11] $ ls *tapestry*
11067_tapestry_09  1777_tapestry_01  31689_tapestry_02  42550_tapestry_08  59998_tapestry_07
11931_tapestry_04  3072_tapestry_05  4097_tapestry_10    45376_tapestry_06  7406_tapestry_03

~/Castle/Great_hall
[mission 11] $ pwd
/home/kali/gameshell/World/Castle/Great_hall

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

~/Castle/Great_hall
[mission 11] $ cd ../../Forest/Hut/Chest
```

```
~/Castle/Main_tower/First_floor
[mission 12] $ ls
painting_kzoBlrJs  painting_loWygPdU  painting_PqsiSNhh  Second_floor/

~/Castle/Main_tower/First_floor
[mission 12] $ ../../Forest/Hut/Chest
bash: ../../Forest/Hut/Chest: Is a directory

~/Castle/Main_tower/First_floor
[mission 12] $ cd ../../Forest/Hut/Chest
```

Mission 12  
completata

```
~/Forest/Hut/Chest
[mission 12] $ ls
11067_tapestry_09  31689_tapestry_02  59998_tapestry_07  coin_3      standard_3
11931_tapestry_04  4097_tapestry_10   7406_tapestry_03  painting_loWygPdU standard_4
1777_tapestry_01   42550_tapestry_08  coin_1        standard_1
3072_tapestry_05   45376_tapestry_06  coin_2        standard_2

~/Forest/Hut/Chest
[mission 12] $ gsh check

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

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

~/Forest/Hut/Chest  
[mission 13] \$ gsh check

What was the day of the week for the 01-15-1973?

- 1 : Monday
  - 2 : Tuesday
  - 3 : Wednesday
  - 4 : Thursday
  - 5 : Friday
  - 6 : Saturday
  - 7 : Sunday
- Your answer: 1

Mission 13  
completata

Congratulations, mission 13 has been successfully completed!

```
(—^—)—————(—^—)
| 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.
|
| Useful commands
| =====
|
| alias STRING='COMMAND'
| Create a synonym for a string, that will stand for a command.
(—_)—————(—_)
```

gsh goal -14

```
~/Forest/Hut/Chest
[mission 14] $ alias la='ls -A'

~/Forest/Hut/Chest
[mission 14] $ la
11067_tapestry_09 .37766_coin_2 .50277_coin_3 coin_3 standard_3
11931_tapestry_04 4097_tapestry_10 59998_tapestry_07 .nice_rock standard_4
1777_tapestry_01 42550_tapestry_08 7406_tapestry_03 painting_loWygPdU
3072_tapestry_05 .44594_coin_1 coin_1 standard_1
31689_tapestry_02 45376_tapestry_06 coin_2 standard_2

~/Forest/Hut/Chest
[mission 14] $ gsh check
Congratulations, mission 14 has been successfully completed!
```

Mission 14  
complete

```
~/Forest/Hut/Chest
[mission 15] $ gsh goal

' \
  \ 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.

  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!
```

gsh goal 15

```
~/Forest/Hut/Chest
[mission 15] $ nano journal.txt
~/Forest/Hut/Chest
[mission 15] $ gsh check

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

Mission 15  
completata

```
~/Forest/Hut/Chest  
[mission 16] $ gsh goal
```

gsh goal -16

### Mission goal

Create an alias "journal" in order to easily edit your journal file wherever you are.

### Details

To edit the journal file with ``nano`` from, for example, the cellar or the throne room, you need to give the full path to the file: ``~/Forest/ ... /journal.txt``.

To avoid typing this long command each time, you can create an alias just like:

```
alias la='ls -a'
```

### Useful commands

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

**alias STRING='COMMAND'**  
Create a synonym for a string, that will stand for a command.

### Note

If (and only if) you know what you're doing, you can use the ``EDITOR`` variable to define your favorite editor and use it in the alias.

```
~/Forest/Hut
[mission 16] $ cd Chest

~/Forest/Hut/Chest
[mission 16] $ ls
11067_tapestry_09  31689_tapestry_02  59998_tapestry_07  coin_3      standard_3
11931_tapestry_04  4097_tapestry_10   7406_tapestry_03  painting_lowWygPdU standard_4
1777_tapestry_01   42550_tapestry_08  coin_1       standard_1
3072_tapestry_05   45376_tapestry_06  coin_2       standard_2

~/Forest/Hut/Chest
[mission 16] $ nano journal.txt

~/Forest/Hut/Chest
[mission 16] $ alias journal='nano /home/kali/gameshell/World/Forest/Hut/Chest/journal.txt'

~/Forest/Hut/Chest
[mission 16] $ journal

~/Forest/Hut/Chest
[mission 16] $ cd ..

~/Forest/Hut
[mission 16] $ journal
```

Mission 16  
completata

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).

```
~/Forest/Hut  
[mission 17] $ gsh goal
```

### 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

**gsh goal -17**

#### 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] $ la  
.10462_bat_1 .30794_bat_4 63_bat_4  
.18512_bat_2 31805_bat_3 .9609_bat_3  
19918_bat_5 .31805_bat_5 barrel_of_apples  
26435_bat_2 5555_bat_1 .Lair_of_the_spider_queen bripIqJOrjbDhCBK RWCKlaHDCZTboWNY/  
  
~/Castle/Cellar  
[mission 17] $ cd .Lair_of_the_spider_queen\ bripIqJOrjbDhCBK RWCKlaHDCZTboWNY/  
  
~/Castle/Cellar/.Lair_of_the_spider_queen bripIqJOrjbDhCBK RWCKlaHDCZTboWNY  
[mission 17] $ la  
OeKCWnsljAeedemV_spider_queen_RYgIOXbfBHmWbPBO qGznWNw0dyvbTBs0_baby_bat_tgdmPxccwNOEWoG  
  
~/Castle/Cellar/.Lair_of_the_spider_queen bripIqJOrjbDhCBK RWCKlaHDCZTboWNY  
[mission 17] $ d OeKCWnsljAeedemV_spider_queen_RYgIOXbfBHmWbPBO  
  
~/Castle/Cellar/.Lair_of_the_spider_queen bripIqJOrjbDhCBK RWCKlaHDCZTboWNY  
[mission 17] $ gsh check  
Perfect, it took you only 19 seconds to complete this mission!  
  
Congratulations, mission 17 has been successfully completed!
```

**mission 17  
completata**

```
~/Castle  
[mission 18] $ gsh goal
```

```
()=(-----)(@=()  
| 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.  
|  
| Useful commands  
| =====  
| xeyes  
| Open a window with 2 eyes that track your mouse.  
|  
| COMMAND &  
| Run the command in the background.  
|  
| Control-c  
| This key binding usually interrupts the current command by sending it  
| the "INT" signal.  
)-----(@=()  
()
```

gsh goal 18

```
~/Castle  
[mission 18] $ xeyes  
^C  
  
~/Castle  
[mission 18] $ xeyes &  
[1] 85897  
  
~/Castle  
[mission 18] $ gsh check  
  
Congratulations, mission 18 has been successfully completed!
```

Mission 18  
completata

```
[mission 19] $ cd /home/kali/gameshell/World/Garden/Maze
~/Garden/Maze
[mission 19] $ ls -a
./ .. 2c293ce9c09ebf974cfffc62/ 9cc663c017b3d27834925b1ec52/
~/Garden/Maze
[mission 19] $ ls
2c293ce9c09ebf974cfffc62/ 9cc663c017b3d27834925b1ec52/
~/Garden/Maze
[mission 19] $ ls -A
2c293ce9c09ebf974cfffc62/ 9cc663c017b3d27834925b1ec52/
~/Garden/Maze
[mission 19] $ cd 9cc663c017b3d27834925b1ec52/
~/Garden/Maze/9cc663c017b3d27834925b1ec52
[mission 19] $ ls
13fe884f3/ d371a0fc8f53a506601bab4/
~/Garden/Maze/9cc663c017b3d27834925b1ec52
[mission 19] $ cd d371a0fc8f53a506601bab4/
~/Garden/Maze/9cc663c017b3d27834925b1ec52/d371a0fc8f53a506601bab4
[mission 19] $ ls
6487b5f74bfb482056c11/ d18d1ee3be9e28a7/
~/Garden/Maze/9cc663c017b3d27834925b1ec52/d371a0fc8f53a506601bab4
[mission 19] $ cd d18d1ee3be9e28a7/
~/Garden/Maze/9cc663c017b3d27834925b1ec52/d371a0fc8f53a506601bab4/d18d1ee3be9e28a7
[mission 19] $ ls
00000_copper_coin_00000
~/Garden/Maze/9cc663c017b3d27834925b1ec52/d371a0fc8f53a506601bab4/d18d1ee3be9e28a7
[mission 19] $ pwd
/home/kali/gameshell/World/Garden/Maze/9cc663c017b3d27834925b1ec52/d371a0fc8f53a506601bab4/d18d1ee3be9e28a7
~/Garden/Maze/9cc663c017b3d27834925b1ec52/d371a0fc8f53a506601bab4/d18d1ee3be9e28a7
[mission 19] $ mv 00000_copper_coin_00000 /home/kali/gameshell/World/Forest/Hut/Chest
~/Garden/Maze/9cc663c017b3d27834925b1ec52/d371a0fc8f53a506601bab4/d18d1ee3be9e28a7
[mission 19] $ ls
~/Garden/Maze/9cc663c017b3d27834925b1ec52/d371a0fc8f53a506601bab4/d18d1ee3be9e28a7
[mission 19] $ gsh check
Congratulations, mission 19 has been successfully completed!
```

Missione 19  
completata

```
~/Garden/Maze  
[mission 20] $ ls  
8ca9f2dac63304b393f1/ c9cdee74eeabb7399028fa775ceb/ e791627c3b76a89ca4ecb9f6bd6/  
  
~/Garden/Maze  
[mission 20] $ cd c9cdee74eeabb7399028fa775ceb/b85a8efd71a8170ced/7774a40a10ef6145f45a2c591  
  
~/Garden/Maze/c9cdee74eeabb7399028fa775ceb/b85a8efd71a8170ced/7774a40a10ef6145f45a2c591  
[mission 20] $ ls  
00000_silver_coin_00000  
  
~/Garden/Maze/c9cdee74eeabb7399028fa775ceb/b85a8efd71a8170ced/7774a40a10ef6145f45a2c591  
[mission 20] $ mv 00000_silver_coin_00000 /home/kali/gameshell/World/Forest/Hut/Chest  
  
~/Garden/Maze/c9cdee74eeabb7399028fa775ceb/b85a8efd71a8170ced/7774a40a10ef6145f45a2c591  
[mission 20] $ ls  
  
~/Garden/Maze/c9cdee74eeabb7399028fa775ceb/b85a8efd71a8170ced/7774a40a10ef6145f45a2c591  
[mission 20] $ gsh check  
  
Congratulations, mission 20 has been successfully completed!  
  
You are back at the entrance of the maze ...
```

```
~/Garden/Maze
[mission 21] $ gsh goal

^
(_____)-----(^_____)
| Mission goal
| _____
| /| Find the gold coins in the maze hidden in the garden and move them to
| | your chest.
| /| Useful commands
| | _____
| /| find CONDITION
| | Search for files satisfying the condition, starting from your current
| | working directory.
| /| There are many possible conditions. They can constrain the
| | file names, size, modification date, etc. For example -name "PATTERN"
| | -iname "PATTERN"
| | are both related to file names.
| /| man COMMAND
| | Display the manual of the command.
| /| Important key bindings:
| /| q quit
| /| Space scroll down one page
| /| / STRING search for the string
| /| n find the next occurrence of the
| | search string
| /| Remark
| | _____
| /| The description of the ``find`` command is deliberately kept short.
| | You will find more information in the manual. (You can for example
| | search for the string "-name" in the manual.)
| /|
(_____)-----(^_____)
```

gsh goal 21

```
~/Garden/Maze
[mission 21] $ find /home/kali/gameshell/World/Garden/Maze -iname *gold_coins*
~/Garden/Maze
[mission 21] $ find /home/kali/gameshell/World/Garden/Maze -iname *gold*
/home/kali/gameshell/World/Garden/Maze/0d7ac22471f0/a53fb3fc9ef696546/e838ac704f4906793bcb/Gold_Coi
N_2
/home/kali/gameshell/World/Garden/Maze/9b47655dc/8348ece1cf8f/40b875f323e9aa23ceafde2791e1/gold_coi
n_1
```

Missione 21 parte 1

```
~/Garden/Maze  
[mission 22] $ gsh goal
```

### 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.

### Useful commands

`cat FILE`  
Display the contents of the file.

**gsh goal 22**

`head FILE`  
Print the first 10 lines of the file.

`head -n K FILE`  
Print the first K lines of the file.

### Remark

A "FILE" may contain directories if the file in question is not in the current directory.

```
~/Mountain/Cave  
[mission 22] $ head -n 6 Book_of_potions/page_07 gsh check  
=> 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.  
head: cannot open 'gsh' for reading: No such file or directory  
head: cannot open 'check' for reading: No such file or directory

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

**Mission 22  
completata**

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

Congratulations, mission 22 has been successfully completed!

```
~/Mountain/Cave  
[mission 23] $ gsh goal
```

### gsh goal 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.

#### Useful commands

**cat FILE**  
Display the contents of the file.

**tail FILE**  
Print the last 10 lines of the file.

**tail -n K FILE**  
Print the last K lines of the file.

```
~/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.
```

Missione 23  
completata

```
~/Mountain/Cave  
[mission 23] $ tail -n 9 Book_of_potions/page_12  
gsh check  
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.
```

Congratulations, mission 23 has been successfully completed!

```
~/Mountain/Cave  
[mission 24] $ gsh goal
```

### Mission goal

gsh goal 24

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.

### Useful commands

`cat FILE1 FILE2 ... FILEn`

Display the contents of the files in order.

Remark: ``cat`` is an abbreviation for "concatenate".

```
~/Mountain/Cave  
[mission 24] $ cat Book_of_potions/page_01 Book_of_potions/page_02  
gsh check  
Transformation potion
```

Missons 24  
completata

- 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.

Congratulations, mission 24 has been successfully completed!

Mission goal

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.

Useful commands

cat FILE1 FILE2 ... FILEn

Display the contents of the files in order.

tail

Print the last 10 lines sent on the standard input.

tail -n K

Print the last K lines sent on the standard input.

COMMAND1 | COMMAND2

Run the two commands, feeding the "standard output" of the former into the "standard input" of the latter.

Remark: by analogy with plumbing "|" is called "pipe".

Explanations

Many of Unix commands process text: they receive text as input and produce text as output.

It is common for those commands to write their output to their "standard output", which means that (by default) the output is written into the terminal.

Most of those commands can receive input either through files (given as arguments) or from their "standard input". For example:

- ``head FILE`` reads its input from the file,
- ``head`` reads its input on the standard input.

gsh goal 25

[Press space to continue, q to quit.]

```
~/Mountain/Cave
[mission 25] $ tail -n 7 Book_of_potions/page_03 && tail -n 9 Book_of_potions/page_04
gsh check
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.
```

Mission 25  
completata

Congratulations, mission 25 has been successfully completed!

```
~/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.

### Useful commands

gsh goal 26

#### head [-n K] [FILE]

Print the first lines (10 by default, K if ``-n K`` is used) of the given file, or standard input if no file is given.

#### tail [-n K] [FILE]

Print the last lines (10 by default, K if ``-n K`` is used) of the given file, or standard input if no file is given.

#### COMMAND1 | COMMAND2

Run the two commands, feeding the "standard output" of the former into the "standard input" of the latter.  
Remark: by analogy with plumbing "|" is called "pipe".

### Remark

Parts in [square brackets] in command descriptions are stand for optional parts. The brackets are not part of the command.

```
~/Mountain/Cave  
[mission 26] $ sed -n '4,7p' Book_of_potions/page_13  
gsh check  
1) Boil water in a big pot.  
2) Condense the vapor in a fresh container.  
3) Add minerals for a better taste (optional).  
  
If you know awk or sed, what are you doing playing GameShell?  
  
Congratulations, mission 26 has been successfully completed!
```

Mission  
26  
completata

(\| 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.

Useful commands  
\_\_\_\_\_  
  
ps  
List the processes that are currently executed by the shell.  
  
kill N  
Send the termination signal to process number N.  
Remark: N is called PID, or "process identifier".  
  
clear  
Clear the screen.  
The keybinding "Control-L" does the same and is often quicker to use  
in the terminal.

( / ) (\*) \| ) ) ^

gsh goal 27

```
kill 48887  
  
~/Mountain/Cave  
[mission 27] $ gsh check  
  
Congratulations, mission 27 has been successfully completed!
```

Mission  
27  
completata

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

## 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.

## Remark

---

The spell is a process.

gsh goal 28

## Useful commands

---

ps

List the processes that are currently executed by the shell.

kill [OPTIONS] N

Send the termination signal to process number N.

Useful options:

-s SIGNAL choose the signal name

-NUMBER choose the signal number

-l list available signals

clear

Clear the screen.

The keybinding "Control-L" does the same and is often quicker to use in the terminal.

## Details

---

By default ``kill`` sends the "TERM" signal to the processes (TERM stands for "termination").

Processes may ignore some signals, but the "KILL" signal cannot be ignored!

```
kill -9 74667
[1]+  Killed                  "$GSH_TMP/${gettext "spell"}"

~ [mission 28] $
*#@*
&_**/~
!$-#


*#@*
&_**/~
!$-#
```

Mission 28  
completata

```
ps
 PID TTY      TIME CMD
 74189 pts/1    00:00:00 zsh
 74293 pts/1    00:00:00 bash
 74319 pts/1    00:00:00 bash
 76394 pts/1    00:00:00 spell
 77991 pts/1    00:00:00 ps

~ [mission 28] $
*#@*
&_**/~
!$-#


kill -9 76394

~ [mission 28] $ ps
 PID TTY      TIME CMD
 74189 pts/1    00:00:00 zsh
 74293 pts/1    00:00:00 bash
 74319 pts/1    00:00:00 bash
 78128 pts/1    00:00:00 ps

~ [mission 28] $ gsh check

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

```

~ [mission 29] $ gsh goal

()=()
'                                     (ə=()

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!

Remark
-----
Do not kill the imp or the fairy.

Useful commands
=====
pstree PID
Print the list of processes with their parent / child relationship.

If no PID is given, show the list of all processes with their parent /
child relationship.

Useful options:
  -p    show the PID of processes
      $$ This variable contains the PID of the
shell and can be given as the PID.

kill N
Send the termination signal to process number N.
| Remark: N is called PID, or "process identifier".
()=()
'                                     (ə=()

```

gsh goal 29

```

~/Castle/Cellar
[mission 29] $ pstree -p 283606
mischievous_imp(283606)---spell(283617)---sleep(288948)
                           |           |
                           |           spell(283619)---sleep(288800)
                           |           |
                           |           spell(283622)---sleep(288874)
                           |
                           |           tail(283625)

~/Castle/Cellar
[mission 29] $ kill 283617
~/Castle/Cellar
[mission 29] $ kill 28948
bash: kill: (28948) - No such process

~/Castle/Cellar
[mission 29] $ kill 288948
bash: kill: (288948) - No such process

~/Castle/Cellar
[mission 29] $ kill 283619

~/Castle/Cellar
[mission 29] $ kill 283622

```

Mission 29  
parte 1

```
~/Cas ~/Castle/Cellar
[miss [mission 29] $ ps
barre      PID TTY      TIME CMD
~/Cas    74189 pts/1    00:00:00 zsh
~/Cas    74293 pts/1    00:00:00 bash
[miss  74319 pts/1    00:00:00 bash
/home   283605 pts/1    00:00:00 nice_fairy
        283606 pts/1    00:00:00 mischievous_imp
~/Cas   283615 pts/1    00:00:00 spell
[miss  283616 pts/1    00:00:00 spell
        283618 pts/1    00:00:00 spell
~     283621 pts/1    00:00:00 tail
[miss  283625 pts/1    00:00:00 tail
/home   293878 pts/1    00:00:00 sleep
        293935 pts/1    00:00:00 sleep
~     293976 pts/1    00:00:00 sleep
[miss  293985 pts/1    00:00:00 ps
Castl
      ~/Castle/Cellar
~   [mission 29] $ pstree 283606
[miss  mischievous_imp—tail
~/Gai  ~/Castle/Cellar
[miss  [mission 29] $ pstree 283605
coin  nice_fairy—3*[spell—sleep]
      tail
~/Gai
[miss  ~/Castle/Cellar
[mission 29] $ rm *coal*
~/Gai
[miss  ~/Castle/Cellar
[mission 29] $ gsh check
~/For
[miss  Congratulations, mission 29 has been successfully completed!
coin_
```

Mission 29  
completata

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

gsh goal 30

### 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.

```
~/Castle/Cellar
[mission 30] $ gsh check
43 + 48 = ?? 91
42 + 41 = ?? 83
43 + 49 = ?? 92
28 + 15 = ?? 43
70 + 55 = ?? 125
```

Mission 30  
completata

Congratulations, mission 30 has been successfully completed!