

4.4 Linux Commands and File System: Homework

All tasks should be performed on any educational server ***.

1. You are about to execute this command: `ls -lFd /home/*a`
 1. What does every option mean?
 2. What is the expected result?
2. Provide the proper commands to do the following:
 1. Get the content of the directory that stores the main OS & application settings
 2. Jump to the directory with the main system logs
 3. Show the extended information about the content of your home directory
 4. Show the extended information about your home directory itself (not about its content)
3. Imagine you have a lot of log files (their names end up with ".log") in the directory 1 level upper. How to move them into the current working directory with only 1 command?
4. Then, you want to copy these log files, whose names start from "1" and end up with ".log", from your current directory to /tmp. Which command will you use?
5. Execute the following command:
`ls -lF /home/not-your-account`
(put any existing name instead of "not-your-account")
You will see an error. Find any file or directory not in /home that leads to the same error.
6. You have these 2 commands being executed within your HOME (imagine you already have ~/lesson-1 directory there)
`ls -l ./lesson-1`
`ls -l .bashrc`
What's the difference in "." symbol's meaning?
7. Imagine you have the following directory structure:
/home/user
/home/user/photos
/home/user/photos/private
/home/user/docs
/home/user/videos
Now you are in /home/user/videos
How to change your current working directory in one action to /home/user/photos/private by using only relative paths?

1. **You are about to execute this command: `ls -lFd /home/*a`**
 - 1.1. **What does every option mean?**

ls – shows the content of the current directory.

List information about the FILES (the current directory by default). Sort entries alphabetically if none of **-ctuvSUX** nor **--sort** is specified.

ls -l – shows the extended information about the current directory's content.

-l use a long listing format

ls -F – shows information about the FILES (the current directory by default).

-F, --classify append indicator (one of ***/=>@|**) to entries

ls -F appends symbols to filenames. These symbols show useful information about files:

***** means executable.

/ means directory.

= means socket.

> means door.

@ means symbolic link (or that the file has extended attributes).

| means named pipe.

ls -d – shows information about directory, list directories themselves, not their contents.

-d, --directory list directories themselves, not their contents

/home – a typical container for home directories like **/home/your_username**.

/*a – narrowed search according to the last letter of home directories (username) – **a**.

1.2. What is the expected result?

The expected result is:

Extended information about content of a directory **/home** where shown just home directories which has a letter **a** at the end of their home directories

(username) + appended **one of the symbols** (***/=>@|**) to filenames (home directories (usernames))

The result from my terminal:

```
[nkhaytovich@ec7-db ~]$ ls -lFd /home/*a
drwx-----. 3 abaskova      qa 4096 Aug  9 11:12 /home/abaskova/
drwx-----. 2 abazanova    qa 4096 Feb 13 2023 /home/abazanova/
drwx-----. 2 aburlyaeva   qa 4096 Nov  7 2022 /home/aburlyaeva/
drwx-----. 6 agrebennikova qa 4096 Feb 12 2023 /home/agrebennikova/
drwx-----. 4 ahaldina     qa 4096 Jul 24 10:15 /home/ahaldina/
drwx-----. 2 akaminskaya  qa 4096 Oct  4 21:09 /home/akaminskaya/
drwx-----. 3 akritskaya   qa 4096 Jan 29 2023 /home/akritskaya/
drwx-----. 2 amakarcheva  qa 4096 May 27 2023 /home/amakarcheva/
drwx-----. 2 anikitina    qa 4096 Jul 14 18:01 /home/anikitina/
drwx-----. 2 avernigora   qa 4096 Mar 15 2023 /home/avernigora/
drwx-----. 2 dfrolova     qa 4096 Jun 23 20:45 /home/dfrolova/
drwx-----. 2 dgolskaya    qa 4096 Sep 25 2022 /home/dgolskaya/
drwx-----. 2 eaptreeva    qa 4096 Sep 18 2022 /home/eaptreeva/
drwx-----. 3 ekarzina     qa 4096 Jun  5 02:34 /home/ekarzina/
drwx-----. 2 eshiyanova   qa 4096 Nov 14 2022 /home/eshiyanova/
drwx-----. 2 gsitdikova    qa 4096 Dec 15 2022 /home/gsitdikova/
drwx-----. 2 ilaricheva   qa 4096 Oct 10 2022 /home/ilaricheva/
drwx-----. 2 imuslimova    qa 4096 Oct  8 2022 /home/imuslimova/
drwx-----. 2 ipapara      qa 4096 Oct  4 21:09 /home/ipapara/
drwx-----. 2 iyusupova     qa 4096 Jun  2 05:38 /home/iyusupova/
drwx-----. 6 lamirova     qa 4096 Jul 28 00:09 /home/lamirova/
drwx-----. 2 lkozinskaya  qa 4096 Nov 23 13:17 /home/lkozinskaya/
drwx-----. 2 lurmazova    qa 4096 Oct 17 13:11 /home/lurmazova/
drwx-----. 2 makulova     qa 4096 Dec 15 2022 /home/makulova/
drwx-----. 2 mcherepanina  qa 4096 Nov 23 12:44 /home/mcherepanina/
drwx-----. 2 mkozyreva    qa 4096 Sep 21 18:45 /home/mkozyreva/
drwx-----. 2 mtokareva    qa 4096 Sep 21 18:45 /home/mtokareva/
drwx-----. 2 nbannikova     qa 4096 Sep 21 18:45 /home/nbannikova/
drwx-----. 2 nkovaleva     qa 4096 Feb  5 2023 /home/nkovaleva/
drwx-----. 2 nlizunova     qa 4096 Oct  6 15:05 /home/nlizunova/
drwx-----. 3 nsklianova   qa 4096 Feb  9 2023 /home/nsklianova/
drwx-----. 2 nvasileva     qa 4096 Nov  6 2022 /home/nvasileva/
drwx-----. 2 oblinnikova    qa 4096 Jun  6 01:29 /home/oblinnikova/
drwx-----. 2 ookhapkina    qa 4096 Nov 23 21:48 /home/ookhapkina/
drwx-----. 2 ostaseva      qa 4096 Nov 12 06:28 /home/ostaseva/
drwx-----. 3 slarina      qa 4096 Feb  6 2023 /home/slarina/
drwx-----. 2 tfilippova    qa 4096 Feb 13 2023 /home/tfilippova/
drwx-----. 3 tfrolova      qa 4096 Jun  8 02:14 /home/tfrolova/
drwx-----. 2 vkosheleva    qa 4096 Sep 21 18:45 /home/vkosheleva/
drwx-----. 2 vskiba       qa 4096 Nov  7 2022 /home/vskiba/
drwx-----. 2 zkarimova     qa 4096 Nov 11 17:34 /home/zkarimova/
drwx-----. 2 zmukhtarbekova qa 4096 Aug  3 20:09 /home/zmukhtarbekova/
```

2. Provide the proper commands to do the following:

- 2.1. Get the content of the directory that stores the main OS & application settings

```
ls -l /etc
```

- 2.2. Jump to the directory with the main system logs

```
cd /var/log
```

- 2.3. Show the extended information about the content of your home directory

```
ls -l ~, means "/home/nkhaytovich"
```

```
[[nkhaytovich@c7-db private]$ ls -l ~
total 40
-rw-r--r--. 1 nkhaytovich qa      3 Nov 26 23:07 123.log
-rw-r--r--. 1 nkhaytovich qa      3 Nov 26 23:07 1234.log
-rw-r--r--. 1 nkhaytovich qa      3 Nov 26 23:07 12345.log
-rw-r--r--. 1 nkhaytovich qa      3 Nov 26 23:11 234.log
drwxr-xr-x. 2 nkhaytovich qa 4096 Nov 26 23:08 Test
drwxr-xr-x. 2 nkhaytovich qa 4096 Nov 26 23:31 Test1
-rw-r--r--. 1 nkhaytovich qa     24 Nov 26 09:47 file.txt
drwxr-xr-x. 3 nkhaytovich qa 4096 Nov 26 23:32 photos
-rw-r--r--. 1 nkhaytovich qa     74 Nov 26 13:50 result_test.txt
-rw-r--r--. 1 nkhaytovich qa     50 Nov 24 22:51 test-copy.txt
-rw-r--r--. 1 nkhaytovich qa      0 Nov 26 09:32 test.txt
```

2.4. Show the extended information about your home directory itself (not about its content)

`stat ~`

```
[[nkhaytovich@c7-sandbox ~]$ stat ~
  File: '/home/nkhaytovich'
  Size: 4096          Blocks: 8          IO Block: 4096   directory
Device: fd03h/64771d Inode: 1049998      Links: 4
Access: (0700/drwx-----)  Uid: ( 2112/nkhaytovich)   Gid: ( 1001/      qa)
Context: unconfined_u:object_r:user_home_dir_t:s0
Access: 2023-11-30 23:21:32.687917257 +0300
Modify: 2023-11-30 23:21:15.471734388 +0300
Change: 2023-11-30 23:21:15.471734388 +0300
Birth: -
```

3. Imagine you have a lot of log files (their names end up with ".log") in the directory 1 level upper. How to move them into the current working directory with only 1 command?

`mv ../*.log .`

Result: moved 3 *.log files from home directory to the current working directory:

```
[nkhaytovich@ec7-sandbox Test2]$ cd
[nkhaytovich@ec7-sandbox ~]$ ls -l
total 136
-rw-r--r--. 1 nkhaytovich qa      1 Dec  1 15:05 1.log
-rw-r--r--. 1 nkhaytovich qa      1 Dec  1 15:06 2.log
-rw-r--r--. 1 nkhaytovich qa      1 Dec  1 15:06 3.log
drwxr-xr-x. 2 nkhaytovich qa 4096 Dec  1 15:07 Test2
-rw-r--r--. 1 nkhaytovich qa    22 Nov 29 22:20 hello-world.txt
-rw-r--r--. 1 nkhaytovich qa 2395 Nov 30 23:48 merged.out
-rw-r--r--. 1 nkhaytovich qa 2297 Nov 30 23:46 new.err
-rw-r--r--. 1 nkhaytovich qa   98 Nov 30 23:46 new.out
-rw-r--r--. 1 nkhaytovich qa 13423 Nov 30 23:44 result6.txt
-rw-r--r--. 1 nkhaytovich qa  5333 Nov 30 23:16 result_10.txt
-rw-r--r--. 1 nkhaytovich qa  5381 Nov 30 23:21 result_home.txt
-rw-r--r--. 1 nkhaytovich qa 45736 Nov 30 22:45 result_of_3.txt
-rw-r--r--. 1 nkhaytovich qa  8984 Nov 29 23:43 resultfile.txt
-rw-r--r--. 1 nkhaytovich qa    22 Nov 29 23:31 reversed1_hello-world.txt
-rw-r--r--. 1 nkhaytovich qa    22 Nov 29 22:58 reversed2_hello_world.txt
-rw-r--r--. 1 nkhaytovich qa    22 Nov 29 22:45 reversed_hello-world.txt
[nkhaytovich@ec7-sandbox ~]$ cd ~/Test2
[nkhaytovich@ec7-sandbox Test2]$ ls -l
total 0
[nkhaytovich@ec7-sandbox Test2]$ mv ../*.log .
[nkhaytovich@ec7-sandbox Test2]$ ls -l
total 12
-rw-r--r--. 1 nkhaytovich qa 1 Dec  1 15:05 1.log
-rw-r--r--. 1 nkhaytovich qa 1 Dec  1 15:06 2.log
-rw-r--r--. 1 nkhaytovich qa 1 Dec  1 15:06 3.log
[nkhaytovich@ec7-sandbox Test2]$ cd
[nkhaytovich@ec7-sandbox ~]$ ls -l
total 124
drwxr-xr-x. 2 nkhaytovich qa 4096 Dec  1 15:11 Test2
-rw-r--r--. 1 nkhaytovich qa    22 Nov 29 22:20 hello-world.txt
-rw-r--r--. 1 nkhaytovich qa 2395 Nov 30 23:48 merged.out
-rw-r--r--. 1 nkhaytovich qa 2297 Nov 30 23:46 new.err
-rw-r--r--. 1 nkhaytovich qa   98 Nov 30 23:46 new.out
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-rw-r--r--. 1 nkhaytovich qa  5333 Nov 30 23:16 result_10.txt
-rw-r--r--. 1 nkhaytovich qa  5381 Nov 30 23:21 result_home.txt
-rw-r--r--. 1 nkhaytovich qa 45736 Nov 30 22:45 result_of_3.txt
-rw-r--r--. 1 nkhaytovich qa  8984 Nov 29 23:43 resultfile.txt
-rw-r--r--. 1 nkhaytovich qa    22 Nov 29 23:31 reversed1_hello-world.txt
-rw-r--r--. 1 nkhaytovich qa    22 Nov 29 22:58 reversed2_hello_world.txt
-rw-r--r--. 1 nkhaytovich qa    22 Nov 29 22:45 reversed_hello-world.txt
```

4. Then, you want to copy these log files, whose names start from "1" and end up with ".log", from your current directory to /tmp. Which command will you use?

`cp 1*.log /tmp`

`cp 1*.log ~/Test1` - checked in my terminal how it works

5. Execute the following command:

`ls -lF /home/not-your-account`

(put any existing name instead of "not-your-account")

You will see an error. Find any file or directory not in /home that leads to the same error.

`ls -lF /home/abaskova`

ls: cannot open directory /home/abaskova: Permission denied

`ls -lF /lost+found`

`ls: cannot open directory /lost+found: Permission denied`

6. You have these 2 commands being executed within your HOME (imagine you already have ~/lesson-1 directory there)

`ls -l ./lesson-1`

`ls -l .bashrc`

What's the difference in "." symbol's meaning?

`ls -l ./lesson-1` – "." means **current directory** – command shows the extended information about directory's 1 level lower content

`ls -l .bashrc` – "." means a part of the filename.

7. Imagine you have the following directory structure:

`/home/user`

`/home/user/photos`

`/home/user/photos/private`

`/home/user/docs`

`/home/user/videos`

Now you are in `/home/user/videos`

How to change your current working directory in one action to `/home/user/photos/private` by using only relative paths?

`cd ../photos/private`