Linux Commands and File System: Homework

All tasks should be performed on any educational server (192.168.40.14, or 100, or 150).

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 **-cftuvSUX** 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** <u>at the end</u> of their home directories (username) + appended **one of the symbols** (*/=>@|) to filenames (home directories (usernames))

The result from my terminal:

```
[nkhaytovich@c7-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@c7-sandbox Test2]$ cd
[[nkhaytovich@c7-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@c7-sandbox ~]$ cd ~/Test2
[[nkhaytovich@c7-sandbox Test2]$ ls -l
 total 0
[[nkhaytovich@c7-sandbox Test2]$ mv ../*.log .
[[nkhaytovich@c7-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@c7-sandbox Test2]$ cd
[[nkhaytovich@c7-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
-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
```

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 ~~file extension~~ 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