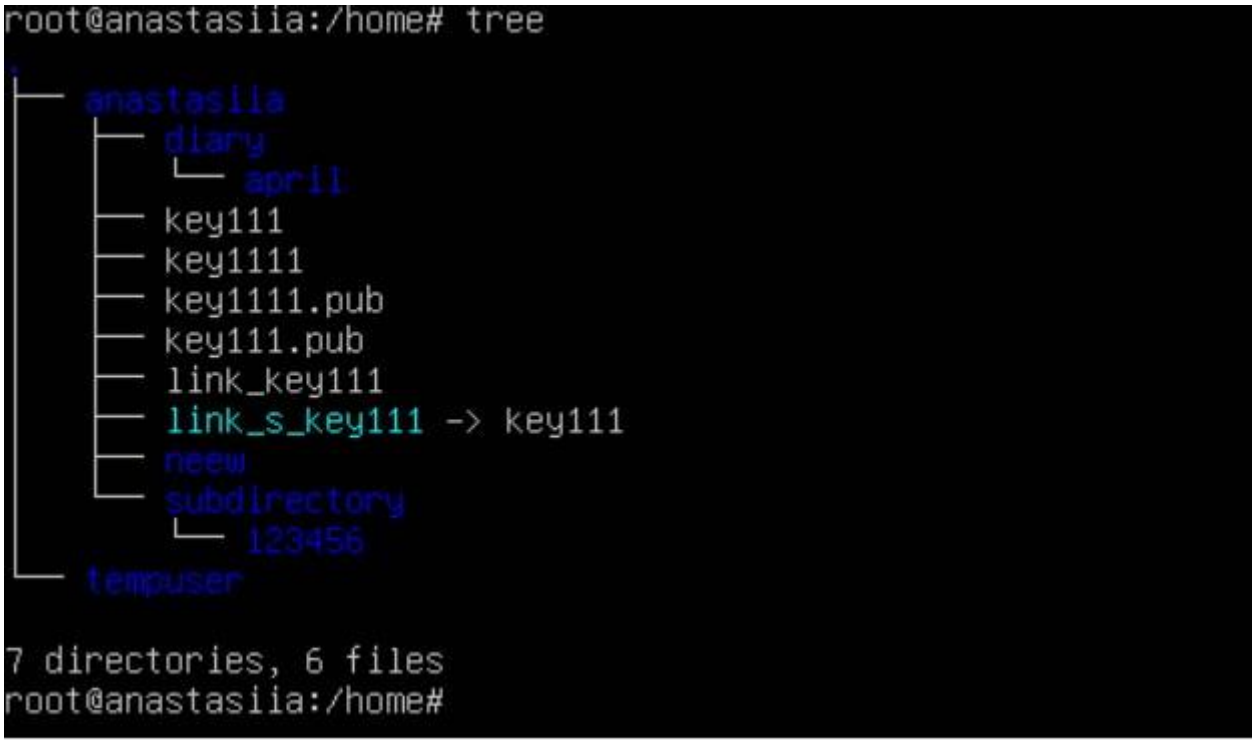
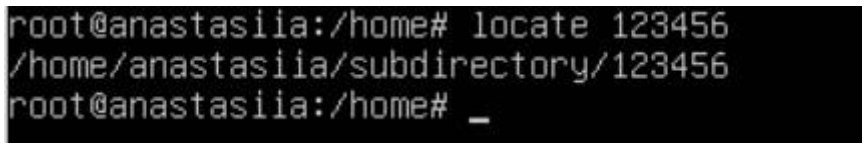
Task1.Part2

1) Examine the tree command. Master the technique of applying a template, for example, display all files that contain a character c, or files that contain a specific sequence of characters. List subdirectories of the root directory up to and including the second nesting level.

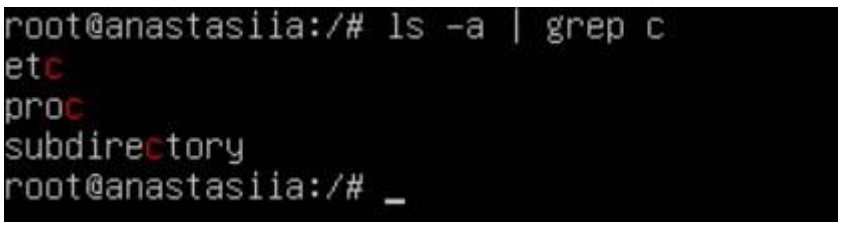


Command “locate” is used to find all the files containing “c”:

Or “123456”:



Command “ls -a |grep c” is used to show a list of files in current directory and find files and directories containing “c” within it:



2) What command can be used to determine the type of file (for example, text or binary)? Give an example.
Command :file <name>

```
root@anastasiia:~# file 2
2: directory
root@anastasiia:~# file .bashrc
.bashrc: ASCII text
root@anastasiia:~#
```

3) Master the skills of navigating the file system using relative and absolute paths. How can you go back to your home directory from anywhere in the filesystem?

```
root@anastasiia:/# cd home/anastasiia/diary
root@anastasiia:/home/anastasiia/diary# cd ../../..
root@anastasiia:/# _
```

4) Become familiar with the various options for the ls command. Give examples of listing directories using different keys. Explain the information displayed on the terminal using the -l and -a switches

```
root@anastasiia:/# ls -a
.    boot  home            lib         media  proc  sbin  subdirectory  usr      vmlinuz.old
..   dev   initrd.img      lib64       mnt    root  snap  sys           var
bin  etc   initrd.img.old  lost+found  opt    run   srv   tmp           vmlinuz
root@anastasiia:/# ls -l
итого 92
drwxr-xr-x   2 root root  4096 Ноя 15 14:16 bin
drwxr-xr-x   4 root root  4096 Ноя 15 14:19 boot
drwxr-xr-x  19 root root  3940 Ноя 17 07:07 dev
drwxr-xr-x  93 root root  4096 Ноя 16 20:04 etc
drwxr-xr-x   4 root root  4096 Ноя 17 07:10 home
lrwxrwxrwx   1 root root    33 Ноя 15 14:11 initrd.img -> boot/initrd.img-4.4.0-186-generic
lrwxrwxrwx   1 root root    33 Ноя 15 14:11 initrd.img.old -> boot/initrd.img-4.4.0-186-generic
drwxr-xr-x  22 root root  4096 Ноя 16 19:25 lib
drwxr-xr-x   2 root root  4096 Ноя 16 19:24 lib64
drwx------   2 root root 16384 Ноя 15 14:11 lost+found
drwxr-xr-x   3 root root  4096 Ноя 15 14:11 media
drwxr-xr-x   2 root root  4096 Авг 10  2020 mnt
drwxr-xr-x   2 root root  4096 Авг 10  2020 opt
dr-xr-xr-x 119 root root     0 Ноя 17 07:07 proc
drwx------   5 root root  4096 Ноя 17 12:53 root
drwxr-xr-x  23 root root   880 Ноя 17 07:07 run
drwxr-xr-x   2 root root 12288 Ноя 15 14:19 sbin
drwxr-xr-x   2 root root  4096 Ноя 15 14:20 snap
drwxr-xr-x   2 root root  4096 Авг 10  2020 srv
drwxr-xr-x   2 root root  4096 Ноя 15 22:35 subdirectory
dr-xr-xr-x  13 root root     0 Ноя 17 13:04 sys
drwxrwxrwt   8 root root  4096 Ноя 17 12:17 tmp
drwxr-xr-x  10 root root  4096 Ноя 15 14:11 usr
drwxr-xr-x  13 root root  4096 Ноя 15 14:16 var
lrwxrwxrwx   1 root root    30 Ноя 15 14:11 vmlinuz -> boot/vmlinuz-4.4.0-186-generic
lrwxrwxrwx   1 root root    30 Ноя 15 14:11 vmlinuz.old -> boot/vmlinuz-4.4.0-186-generic
root@anastasiia:/#
```

Command “ls -a” is used to show all the files in directory (including hidden), “ls -l” shows the list of those files and directories in a form of table with additional information about it.

5) Perform the following sequence of operations:
- create a subdirectory in the home directory; (mkdir subdir)
- in this subdirectory create a file containing information about directories located in the root directory (using I/O redirection operations); (ls -la ../../../root >file.txt)
- view the created file; (cat file.txt)
- copy the created file to your home directory using relative and absolute addressing. - delete the previously created subdirectory with the file requesting removal;
(cp file.txt /home)

- - delete the previously created subdirectory with the file requesting removal; (rm -r subdir)

- - delete the file copied to the home directory (rm /home/file.txt)

```
root@anastasiia:/home/anastasiia/subdir# ls -la ../../../root > file.txt
root@anastasiia:/home/anastasiia/subdir# cat file.txt
итого 36
drwx------x  5 root root 4096 Ноя 17 14:41 .
drwxr-xr-x 24 root root 4096 Ноя 17 14:40 ..
drwxr-xr-x  6 root root 4096 Ноя 17 12:55 1
drwxr-xr-x  2 root root 4096 Ноя 17 12:53 2
drwxr-xr-x  2 root root 4096 Ноя 17 12:53 3
-rw-------  1 root root    0 Ноя 16 14:13 .bash_history
-rw-r--r--  1 root root 3106 Окт 22  2015 .bashrc
-rw-r--r--  1 root root  470 Ноя 17 14:20 info.txt
-rw-r--r-x  1 root root   29 Ноя 17 14:41 .plan
-rw-r--r--  1 root root  148 Авг 17  2015 .profile
root@anastasiia:/home/anastasiia/subdir#
```

```
root@anastasiia:/home/anastasiia/subdir# cp file.txt /home
root@anastasiia:/home/anastasiia/subdir# cd ../
root@anastasiia:/home/anastasiia# rm -r subdir
root@anastasiia:/home/anastasiia# rm /home/file.txt
root@anastasiia:/home/anastasiia#
```

6) Perform the following sequence of operations:

- create a subdirectory test in the home directory; (cd, mkdir test)

```
root@anastasiia:~# mkdir test
root@anastasiia:~# cp /root/.bash_history /root/test >labwork2
root@anastasiia:~#
```

- copy the .bash_history file to this directory while changing its name to labwork2;

- create a hard and soft link to the labwork2 file in the test subdirectory;

```
root@anastasiia:~/test# cp /root/.bash_history /root/test| mv .bash_history  /root/test/labwork2
root@anastasiia:~/test# ls -la
итого 16
drwxr-xr-x 2 root root 4096 Ноя 17 17:18 .
drwx------x 6 root root 4096 Ноя 17 17:03 ..
-rw------- 1 root root  606 Ноя 17 17:18 .bash_history
-rw------- 1 root root  606 Ноя 17 17:11 labwork2
-rw-r--r-- 1 root root    0 Ноя 17 17:11 labwork_h
lrwxrwxrwx 1 root root    8 Ноя 17 17:12 labwork_s_l -> labwork2
lrwxrwxrwx 1 root root    7 Ноя 17 17:07 labwork_soft_l -> labwork
root@anastasiia:~/test#
```

- how to define soft and hard link, what do these concepts;

A **symbolic** or **soft link** is an actual link to the original file, whereas a **hard link** is a mirror copy of the original file.

- change the data by opening a symbolic link. What changes will happen and why

It opens the original file.

- rename the hard link file to hard_lnk_labwork2;

```
root@anastasiia:~/test/test_sub# mv hardlink hard_link_labwork2
root@anastasiia:~/test/test_sub# ls -la
итого 12
drwxr-xr-x 2 root root 4096 Ноя 17 22:16 .
drwxr-xr-t 3 root root 4096 Ноя 17 21:56 ..
-rw------- 3 root root  606 Ноя 17 17:11 hard_link_labwork2
lrwxrwxrwx 1 root root   16 Ноя 17 21:58 labwork2 -> ../test/labwork2
lrwxrwxrwx 1 root root   16 Ноя 17 21:58 softlink -> ../test/labwork2
lrwxrwxrwx 1 root root   11 Ноя 17 22:01 softlink2 -> ../labwork2
root@anastasiia:~/test/test_sub#
```

- rename the soft link file to symb_lnk_labwork2 file;

```
root@anastasiia:~/test/test_sub# mv softlink2  symb_lnk_labwork2
root@anastasiia:~/test/test_sub# ls -la
итого 12
drwxr-xr-x 2 root root 4096 Ноя 17 22:22 .
drwxr-xr-t 3 root root 4096 Ноя 17 21:56 ..
-rw------- 3 root root  606 Ноя 17 17:11 hard_link_labwork2
lrwxrwxrwx 1 root root   16 Ноя 17 21:58 labwork2 -> ../test/labwork2
lrwxrwxrwx 1 root root   16 Ноя 17 21:58 softlink -> ../test/labwork2
lrwxrwxrwx 1 root root   11 Ноя 17 22:01 symb_lnk_labwork2 -> ../labwork2
root@anastasiia:~/test/test_sub# _
```

- then delete the labwork2. What changes have occurred and why?

```
root@anastasiia:~/test# rm labwork2
root@anastasiia:~/test# cd test_sub
root@anastasiia:~/test/test_sub# ls -la
итого 12
drwxr-xr-x 2 root root 4096 Ноя 17 22:22 .
drwxr-xr-t 3 root root 4096 Ноя 17 22:24 ..
-rw------- 2 root root  606 Ноя 17 17:11 hard_link_labwork2
lrwxrwxrwx 1 root root   16 Ноя 17 21:58 labwork2 -> ../test/labwork2
lrwxrwxrwx 1 root root   16 Ноя 17 21:58 softlink -> ../test/labwork2
lrwxrwxrwx 1 root root   11 Ноя 17 22:01 symb_lnk_labwork2 -> ../labwork2
root@anastasiia:~/test/test_sub#
```

The file changed its font color to red which means the link don't direct to any file.

7) Using the locate utility, find all files that contain the squid and traceroute sequence.
Locate "squid" && locate "traceroute"

```
root@anastasiia:~# locate "squid"&& locate "traceroute"
/usr/share/sosreport/sos/plugins/squid.py
/usr/share/sosreport/sos/plugins/__pycache__/squid.cpython-35.pyc
/usr/share/vim/vim74/syntax/squid.vim
/etc/alternatives/traceroute6
/etc/alternatives/traceroute6.8.gz
/lib/modules/4.4.0-186-generic/kernel/drivers/tty/n_tracerouter.ko
/usr/bin/traceroute6
/usr/bin/traceroute6.iputils
/usr/share/man/man8/traceroute6.8.gz
/usr/share/man/man8/traceroute6.iputils.8.gz
/var/lib/dpkg/alternatives/traceroute6
root@anastasiia:~#
```

8) Determine which partitions are mounted in the system, as well as the types of these partitions.

```
root@anastasiia:~# file -sL /dev/sd*
/dev/sda:  DOS/MBR boot sector
/dev/sda1: Linux rev 1.0 ext2 filesystem data (mounted or unclean), UUID=778aedb1-b572-4d9f-8228-f3d
9dd12f9ee (large files)
/dev/sda2: DOS/MBR boot sector; partition 1 : ID=0x8e, start-CHS (0x5d,113,21), end-CHS (0x3ff,254,6
3), startsector 2, 43382784 sectors, extended partition table (last)
/dev/sda5: LVM2 PV (Linux Logical Volume Manager), UUID: 3uYm2Z-AJR5-VmYb-RRai-oiKL-VP5U-EqUQDG, siz
e: 22211985408
root@anastasiia:~# _
```

9) Count the number of lines containing a given sequence of characters in a given file.

```
root@anastasiia:~/test# grep -c 'cd' labwork_h2
13
root@anastasiia:~/test#
```

10) Using the find command, find all files in the /etc directory containing the host character sequence

```
root@anastasiia:/etc# find /etc -name "*host*"
/etc/root/hostcert.conf
/etc/hosts.deny
/etc/hosts
/etc/init.d/hostname.sh
/etc/host.conf
/etc/dbus-1/system.d/org.freedesktop.hostname1.conf
/etc/init/hostname.conf
/etc/init/hostname.sh.conf
/etc/ssh/ssh_host_rsa_key.pub
/etc/ssh/ssh_host_ed25519_key
/etc/ssh/ssh_host_ecdsa_key.pub
/etc/ssh/ssh_host_ecdsa_key
/etc/ssh/ssh_host_rsa_key
/etc/ssh/ssh_host_ed25519_key.pub
/etc/ssh/ssh_host_dsa_key.pub
/etc/ssh/ssh_host_dsa_key
/etc/hosts.allow
/etc/rcS.d/S02hostname.sh
/etc/hostname
root@anastasiia:/etc# _
```

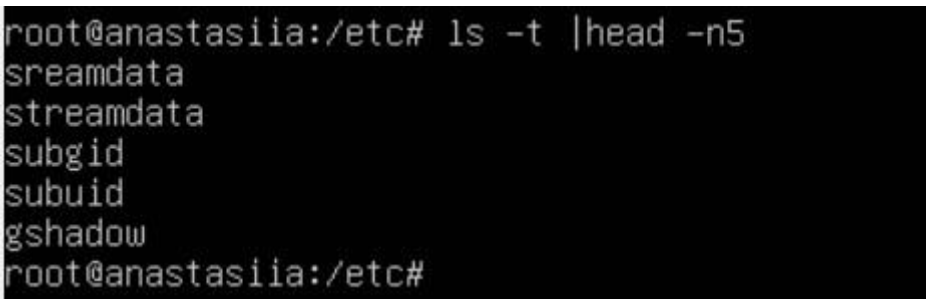
11) List all objects in /etc that contain the ss character sequence. How can I duplicate a similar command using a bunch of grep?
Command: find /etc -name “*ss*”
Grep command: cd /etc
grep -R “*ss*” .

12) Organize a screen-by-screen print of the contents of the /etc directory. Hint: You must use stream redirection operations.

```
root@anastasiia:/etc# ls /etc |less_
```

13) What are the types of devices and how to determine the type of device? Give examples.
Console, hd (IDE hard drive), sd(SESI hard drive), fd(floppy disk), tty(virtual console), pty(pseudo-terminal support files), ttS, null.

14) * List the first 5 directory files that were recently accessed in the /etc directory.


root@anastasiia:/etc# ls -t |head -n5
sreamdata
streamdata
subgid
subuid
gshadow
root@anastasiia:/etc#