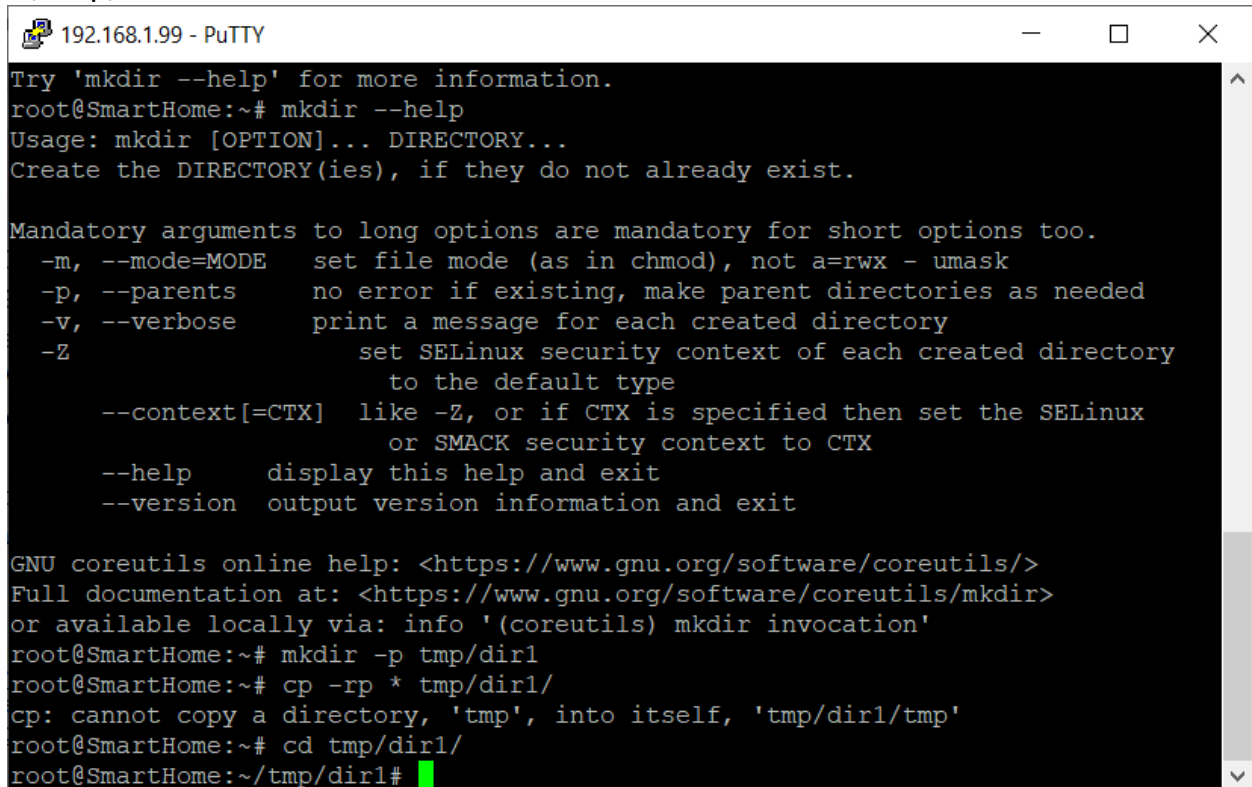


EPAM University Programs
DevOps external course
Module 4 Linux Essentials with Bash
TASK 4.4

4.4.1 Перейти (при необходимости создать) в папку в домашней директории .../tmp/dir1.



```
192.168.1.99 - PuTTY
Try 'mkdir --help' for more information.
root@SmartHome:~# mkdir --help
Usage: mkdir [OPTION]... DIRECTORY...
Create the DIRECTORY(ies), if they do not already exist.

Mandatory arguments to long options are mandatory for short options too.
  -m, --mode=MODE      set file mode (as in chmod), not a=rwx - umask
  -p, --parents         no error if existing, make parent directories as needed
  -v, --verbose         print a message for each created directory
  -Z                   set SELinux security context of each created directory
                        to the default type
  --context[=CTX]      like -Z, or if CTX is specified then set the SELinux
                        or SMACK security context to CTX
  --help               display this help and exit
  --version             output version information and exit

GNU coreutils online help: <https://www.gnu.org/software/coreutils/>
Full documentation at: <https://www.gnu.org/software/coreutils/mkdir>
or available locally via: info '(coreutils) mkdir invocation'
root@SmartHome:~# mkdir -p tmp/dir1
root@SmartHome:~# cp -rp * tmp/dir1/
cp: cannot copy a directory, 'tmp', into itself, 'tmp/dir1/tmp'
root@SmartHome:~# cd tmp/dir1/
root@SmartHome:~/tmp/dir1#
```

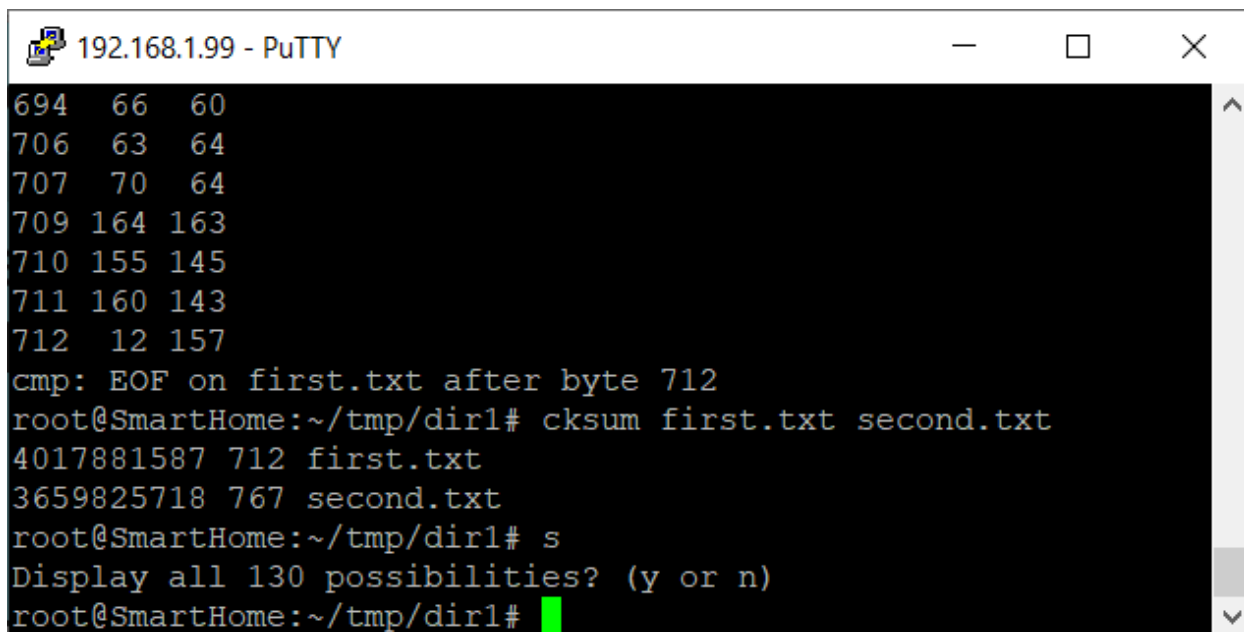
4.4.2 Создать файл с любым именем. Перенаправить в него длинный листинг текущего каталога. Просмотреть содержимое файла (screenshot/textout with command).

```
192.168.1.99 - PuTTY
Full documentation at: <https://www.gnu.org/software/coreutils/mkdir>
or available locally via: info '(coreutils) mkdir invocation'
root@SmartHome:~# mkdir -p tmp/dir1
root@SmartHome:~# cp -rp * tmp/dir1/
cp: cannot copy a directory, 'tmp', into itself, 'tmp/dir1/tmp'
root@SmartHome:~# cd tmp/dir1/
root@SmartHome:~/tmp/dir1# ls -la > first.txt
root@SmartHome:~/tmp/dir1# less first.txt
root@SmartHome:~/tmp/dir1# cat first.txt
total 320
drwxr-xr-x  9 root root   4096 Apr 22 14:40 .
drwxr-xr-x  3 root root   4096 Apr 22 14:38 ..
drwxrwxr-x  5 pi   pi     4096 Oct 24 15:59 bcm2835-1.60
-rw-r--r--  1 root root 265906 Jul 23  2019 bcm2835-1.60.tar.gz
drwxr-xr-x  2 pi   pi     4096 Oct 23 15:31 bmp180-c
drwxr-xr-x  2 root root   4096 Jul 13  2017 bmp180-python
-rw-r--r--  1 root root   4425 Jul 25  2017 bmp180-python.tar.gz
-rw-r--r--  1 root root      0 Apr 22 14:40 first.txt
-rw-r--r--  1 root root  13328 Apr 18 18:48 get-docker.sh
drwxr-xr-x 17 root root   4096 Oct 25 13:17 mraa
drwxr-xr-x  4 root root   4096 Oct 24 16:01 Raspberry
drwxr-xr-x  8 root root   4096 Oct 25 13:32 RF24
drwxr-xr-x  3 root root   4096 Apr 22 14:38 tmp
root@SmartHome:~/tmp/dir1#
```

4.4.3 Создать второй файл. В него также перенаправить расширенный листинг текущего каталога. Сравнить эти файлы двумя способами. (screenshot with commands)

I used diff, cmp, cksum,

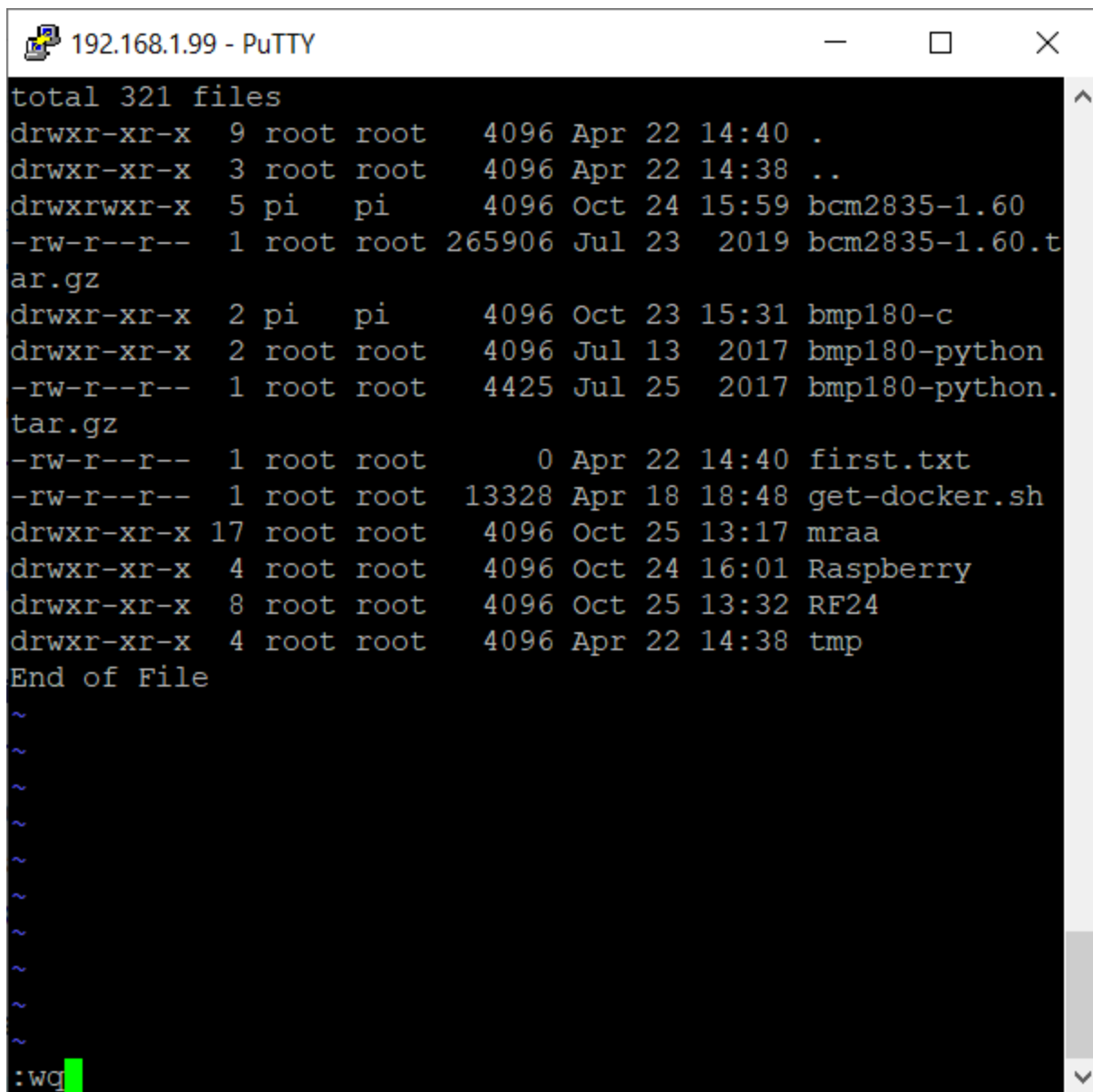
```
192.168.1.99 - PuTTY
-rw-r--r-- 1 root root 4425 Jul 25 2017 bmp180-python.tar.gz
-rw-r--r-- 1 root root 0 Apr 22 14:40 first.txt
-rw-r--r-- 1 root root 13328 Apr 18 18:48 get-docker.sh
drwxr-xr-x 17 root root 4096 Oct 25 13:17 mraa
drwxr-xr-x 4 root root 4096 Oct 24 16:01 Raspberry
drwxr-xr-x 8 root root 4096 Oct 25 13:32 RF24
drwxr-xr-x 3 root root 4096 Apr 22 14:38 tmp
root@SmartHome:~/tmp/dir1# ls -la > second.txt
root@SmartHome:~/tmp/dir1# diff first.txt second.txt
1,2c1,2
< total 320
< drwxr-xr-x 9 root root 4096 Apr 22 14:40 .
---
> total 324
> drwxr-xr-x 9 root root 4096 Apr 22 14:44 .
9c9
< -rw-r--r-- 1 root root 0 Apr 22 14:40 first.txt
---
> -rw-r--r-- 1 root root 712 Apr 22 14:40 first.txt
13a14
> -rw-r--r-- 1 root root 0 Apr 22 14:44 second.txt
root@SmartHome:~/tmp/dir1# cm
cmake cmp
root@SmartHome:~/tmp/dir1# cm
cmake cmp
root@SmartHome:~/tmp/dir1# cmp first.txt second.txt -l
 9 60 64
53 60 64
428 40 67
429 40 61
430 60 62
665 144 55
668 170 55
671 170 55
674 170 55
677 63 61
691 64 40
692 60 40
693 71 40
694 66 60
706 63 64
707 70 64
709 164 163
710 155 145
711 160 143
712 12 157
cmp: EOF on first.txt after byte 712
root@SmartHome:~/tmp/dir1#
```



```
192.168.1.99 - PuTTY
694  66  60
706  63  64
707  70  64
709 164 163
710 155 145
711 160 143
712  12 157
cmp: EOF on first.txt after byte 712
root@SmartHome:~/tmp/dir1# cksum first.txt second.txt
4017881587 712 first.txt
3659825718 767 second.txt
root@SmartHome:~/tmp/dir1# s
Display all 130 possibilities? (y or n)
root@SmartHome:~/tmp/dir1#
```

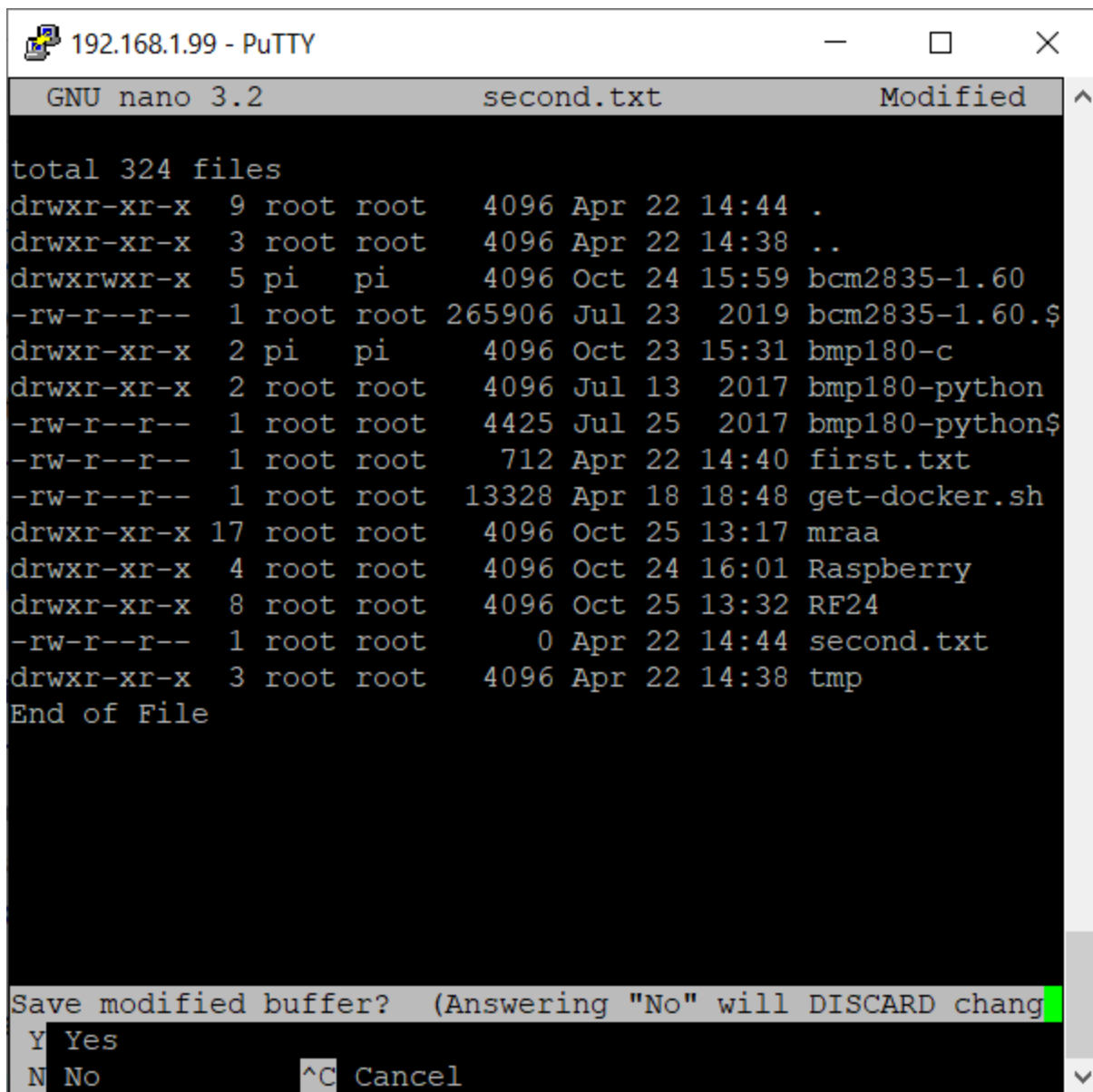
4.4.4 Открыть первый файл в редакторе vi. Добавить последнюю строку с надписью End of File. (:A - **append и добавить**)

Заменить строку, указывающую общее количество файлов с вида total n на n files, где n – цифра. (:s/321/321 files) Сохранить изменения в файле (screenshot with vi commands) и выйти из редактора (:wq).



```
192.168.1.99 - PuTTY
total 321 files
drwxr-xr-x  9 root root    4096 Apr 22 14:40 .
drwxr-xr-x  3 root root    4096 Apr 22 14:38 ..
drwxrwxr-x  5 pi  pi      4096 Oct 24 15:59 bcm2835-1.60
-rw-r--r--  1 root root 265906 Jul 23  2019 bcm2835-1.60.t
ar.gz
drwxr-xr-x  2 pi  pi      4096 Oct 23 15:31 bmp180-c
drwxr-xr-x  2 root root    4096 Jul 13  2017 bmp180-python
-rw-r--r--  1 root root    4425 Jul 25  2017 bmp180-python.
tar.gz
-rw-r--r--  1 root root      0 Apr 22 14:40 first.txt
-rw-r--r--  1 root root 13328 Apr 18 18:48 get-docker.sh
drwxr-xr-x 17 root root    4096 Oct 25 13:17 mraa
drwxr-xr-x  4 root root    4096 Oct 24 16:01 Raspberry
drwxr-xr-x  8 root root    4096 Oct 25 13:32 RF24
drwxr-xr-x  4 root root    4096 Apr 22 14:38 tmp
End of File
~
~
~
~
~
~
~
~
~
~
~
~
:wq
```

4.4.5 Прodelать тоже самое со вторым файлом в редакторе nano. (screenshot)

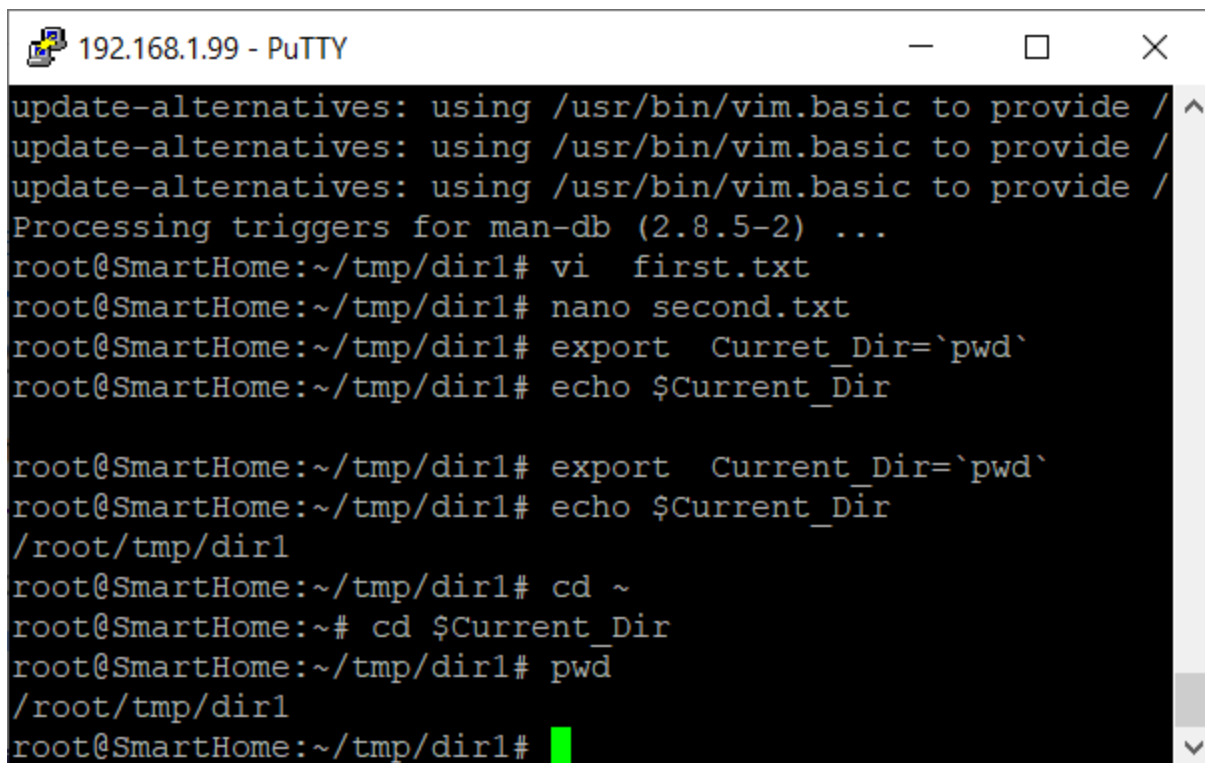


The screenshot shows a PuTTY terminal window titled "192.168.1.99 - PuTTY". Inside, the GNU nano 3.2 editor is open with the file "second.txt". The terminal displays the output of the 'ls' command, listing files and directories with their permissions, sizes, and timestamps. The list includes ".", "..", "bcm2835-1.60", "bcm2835-1.60.\$", "bmp180-c", "bmp180-python", "bmp180-python\$", "first.txt", "get-docker.sh", "mraa", "Raspberry", "RF24", "second.txt", and "tmp". The prompt "End of File" is shown. At the bottom, a prompt asks "Save modified buffer? (Answering 'No' will DISCARD changes)" with options "Y Yes", "N No", and "^C Cancel".

```
GNU nano 3.2 second.txt Modified
total 324 files
drwxr-xr-x  9 root root    4096 Apr 22 14:44 .
drwxr-xr-x  3 root root    4096 Apr 22 14:38 ..
drwxrwxr-x  5 pi  pi      4096 Oct 24 15:59 bcm2835-1.60
-rw-r--r--  1 root root 265906 Jul 23  2019 bcm2835-1.60.$
drwxr-xr-x  2 pi  pi      4096 Oct 23 15:31 bmp180-c
drwxr-xr-x  2 root root    4096 Jul 13  2017 bmp180-python
-rw-r--r--  1 root root   4425 Jul 25  2017 bmp180-python$
-rw-r--r--  1 root root    712 Apr 22 14:40 first.txt
-rw-r--r--  1 root root  13328 Apr 18 18:48 get-docker.sh
drwxr-xr-x 17 root root    4096 Oct 25 13:17 mraa
drwxr-xr-x  4 root root    4096 Oct 24 16:01 Raspberry
drwxr-xr-x  8 root root    4096 Oct 25 13:32 RF24
-rw-r--r--  1 root root      0 Apr 22 14:44 second.txt
drwxr-xr-x  3 root root    4096 Apr 22 14:38 tmp
End of File

Save modified buffer? (Answering "No" will DISCARD changes)
Y Yes
N No      ^C Cancel
```

4.4.6 Создать переменную, содержащую текущий каталог .../tmp/dir1 (из п.1).
Перейти в домашний каталог, используя специальную переменную или метасимвол. Вернуться обратно используя переменную. (screenshot with commands)



```
192.168.1.99 - PuTTY
update-alternatives: using /usr/bin/vim.basic to provide /
update-alternatives: using /usr/bin/vim.basic to provide /
update-alternatives: using /usr/bin/vim.basic to provide /
Processing triggers for man-db (2.8.5-2) ...
root@SmartHome:~/tmp/dir1# vi first.txt
root@SmartHome:~/tmp/dir1# nano second.txt
root@SmartHome:~/tmp/dir1# export Curret_Dir=`pwd`
root@SmartHome:~/tmp/dir1# echo $Current_Dir

root@SmartHome:~/tmp/dir1# export Current_Dir=`pwd`
root@SmartHome:~/tmp/dir1# echo $Current_Dir
/root/tmp/dir1
root@SmartHome:~/tmp/dir1# cd ~
root@SmartHome:~# cd $Current_Dir
root@SmartHome:~/tmp/dir1# pwd
/root/tmp/dir1
root@SmartHome:~/tmp/dir1#
```

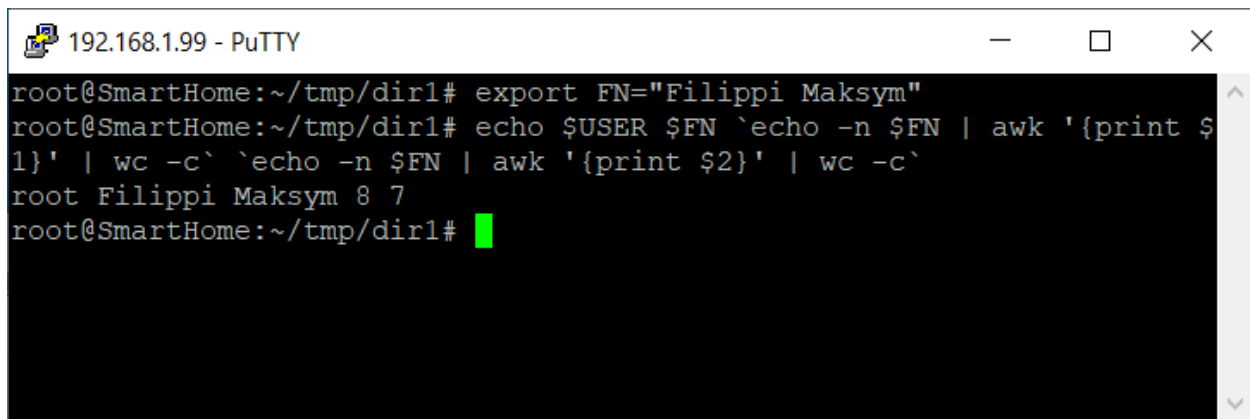
4.4.7 Создать командную последовательность, которая последовательно перенаправит листинг в файл из домашнего каталога и, в случае успеха, из каталога .../tmp/dir1. Просмотреть содержимое файла и убедиться, что там есть оба списка файлов каталогов. (screenshot with commands)

`ls -la ~ > list.txt && ls -la ~/tmp/dir1 >> list.txt`

```
192.168.1.99 - PuTTY
-rw-r--r-- 1 root root 786 Apr 22 14:56 second.txt
drwxr-xr-x 3 root root 4096 Apr 22 14:38 tmp
root@SmartHome:~/tmp/dir1# ls -la ~ > list.txt && ls -la ~/tmp/dir1 >> list.txt
root@SmartHome:~/tmp/dir1# cat list.txt
total 356
drwx----- 12 root root 4096 Apr 22 14:55 .
drwxr-xr-x 22 root root 4096 Oct 23 15:09 ..
-rw----- 1 root root 3937 Apr 18 21:21 .bash_history
-rw-r--r-- 1 root root 570 Sep 9 2019 .bashrc
drwxrwxr-x 5 pi pi 4096 Oct 24 15:59 bcm2835-1.60
-rw-r--r-- 1 root root 265906 Jul 23 2019 bcm2835-1.60.tar.gz
drwxr-xr-x 2 pi pi 4096 Oct 23 15:31 bmp180-c
drwxr-xr-x 2 root root 4096 Jul 13 2017 bmp180-python
-rw-r--r-- 1 root root 4425 Jul 25 2017 bmp180-python.tar.gz
drwx----- 3 root root 4096 Sep 26 2019 .config
-rw-r--r-- 1 root root 13328 Apr 18 18:48 get-docker.sh
drwx----- 3 root root 4096 Sep 26 2019 .gnupg
-rw----- 1 root root 33 Oct 24 15:11 .lessht
drwxr-xr-x 3 root root 4096 Apr 22 14:55 .local
drwxr-xr-x 17 root root 4096 Oct 25 13:17 mraa
-rw-r--r-- 1 root root 148 Sep 9 2019 .profile
drwxr-xr-x 4 root root 4096 Oct 24 16:01 Raspberry
drwxr-xr-x 8 root root 4096 Oct 25 13:32 RF24
drwxr-xr-x 3 root root 4096 Apr 22 14:38 tmp
-rw----- 1 root root 1049 Apr 22 14:55 .viminfo
-rw-r--r-- 1 root root 167 Oct 23 15:35 .wget-hsts
total 332
drwxr-xr-x 9 root root 4096 Apr 22 15:02 .
drwxr-xr-x 3 root root 4096 Apr 22 14:38 ..
drwxrwxr-x 5 pi pi 4096 Oct 24 15:59 bcm2835-1.60
-rw-r--r-- 1 root root 265906 Jul 23 2019 bcm2835-1.60.tar.gz
drwxr-xr-x 2 pi pi 4096 Oct 23 15:31 bmp180-c
drwxr-xr-x 2 root root 4096 Jul 13 2017 bmp180-python
-rw-r--r-- 1 root root 4425 Jul 25 2017 bmp180-python.tar.gz
-rw-r--r-- 1 root root 730 Apr 22 14:55 first.txt
-rw-r--r-- 1 root root 13328 Apr 18 18:48 get-docker.sh
-rw-r--r-- 1 root root 1136 Apr 22 15:04 list.txt
drwxr-xr-x 17 root root 4096 Oct 25 13:17 mraa
drwxr-xr-x 4 root root 4096 Oct 24 16:01 Raspberry
drwxr-xr-x 8 root root 4096 Oct 25 13:32 RF24
-rw-r--r-- 1 root root 786 Apr 22 14:56 second.txt
drwxr-xr-x 3 root root 4096 Apr 22 14:38 tmp
root@SmartHome:~/tmp/dir1#
```

4.4.8 Создать одну переменную, которая будет хранить ваши Фамилия Имя **export FN="Filippi Maksym"**. Создать сложную команду, которая выведет текст «имя_пользователя Фамилия Имя» и количество символов фамилии и имени по отдельности.

echo \$USER \$FN `echo -n \$FN | awk '{print \$1}' | wc -c` `echo -n \$FN | awk '{print \$2}' | wc -c`



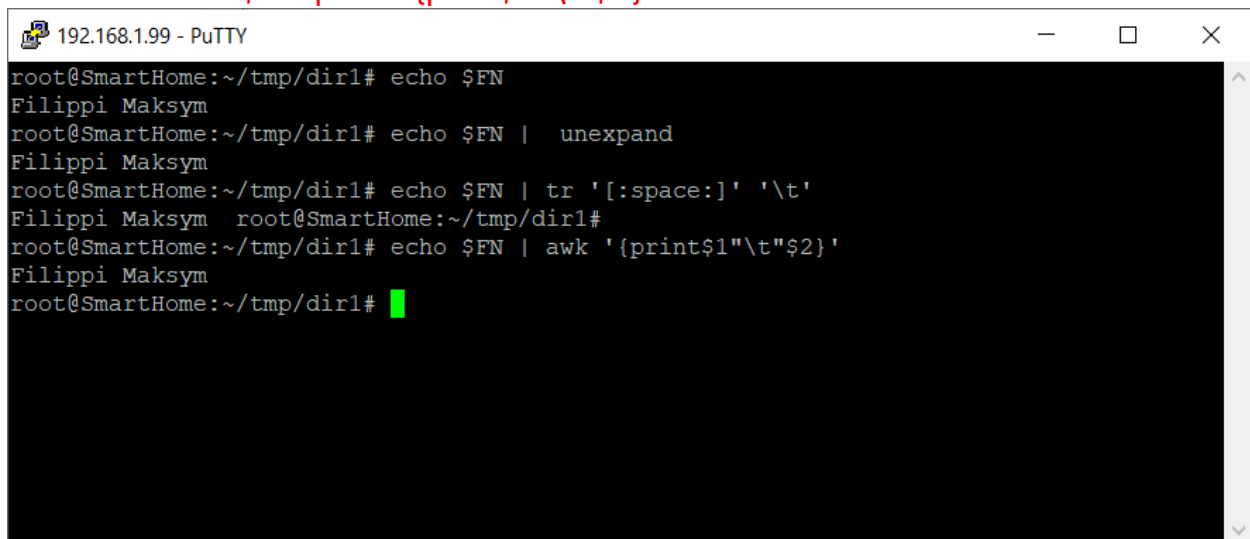
```
192.168.1.99 - PuTTY
root@SmartHome:~/tmp/dir1# export FN="Filippi Maksym"
root@SmartHome:~/tmp/dir1# echo $USER $FN `echo -n $FN | awk '{print $1}' | wc -c` `echo -n $FN | awk '{print $2}' | wc -c`
root Filippi Maksym 8 7
root@SmartHome:~/tmp/dir1#
```

4.4.9 Вывести Фамилия Имя через знак табуляции с помощью непечатных символов. (screenshot with commands)

1 variant: `echo $FN | unexpand`

2 variant: `echo $FN | tr '[:space:]' '\t'`

3 variant: `echo $FN | awk '{print$1"\t"$2}'`

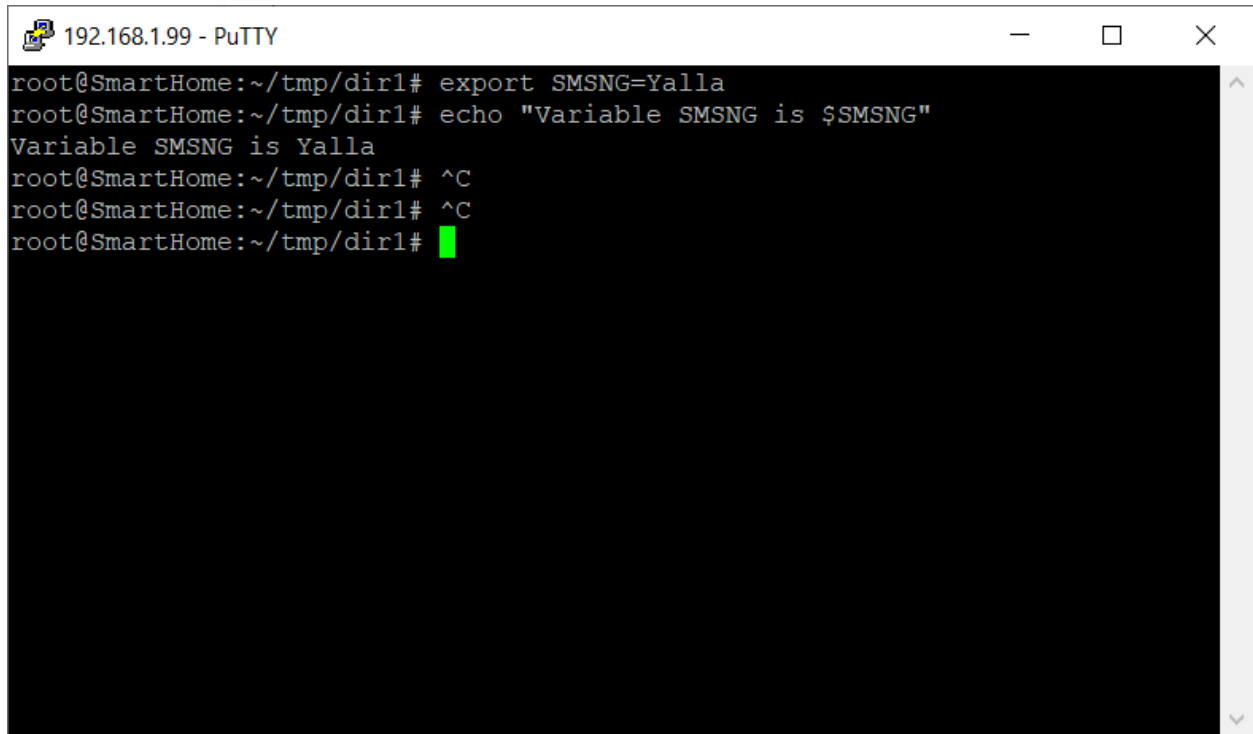


```
192.168.1.99 - PuTTY
root@SmartHome:~/tmp/dir1# echo $FN
Filippi Maksym
root@SmartHome:~/tmp/dir1# echo $FN | unexpand
Filippi Maksym
root@SmartHome:~/tmp/dir1# echo $FN | tr '[:space:]' '\t'
Filippi Maksym  root@SmartHome:~/tmp/dir1#
root@SmartHome:~/tmp/dir1# echo $FN | awk '{print$1"\t"$2}'
Filippi Maksym
root@SmartHome:~/tmp/dir1#
```

4.4.10 Создать переменную и присвоить ей произвольное значение. Вывести на экран фразу в формате «Значение переменной ИМЯ равно ЗНАЧЕНИЕ». (screenshot with commands)

`export SMSNG=Yalla`

`echo "Variable SMSNG is $SMSNG"`



A terminal window titled "192.168.1.99 - PuTTY" with standard window controls. The terminal shows a series of commands and their outputs in a monospaced font. The commands are: `export SMSNG=Yalla`, `echo "Variable SMSNG is $SMSNG"`, `^C`, `^C`, and a final prompt with a green cursor. The output of the `echo` command is "Variable SMSNG is Yalla".

```
root@Smarthome:~/tmp/dir1# export SMSNG=Yalla
root@Smarthome:~/tmp/dir1# echo "Variable SMSNG is $SMSNG"
Variable SMSNG is Yalla
root@Smarthome:~/tmp/dir1# ^C
root@Smarthome:~/tmp/dir1# ^C
root@Smarthome:~/tmp/dir1#
```