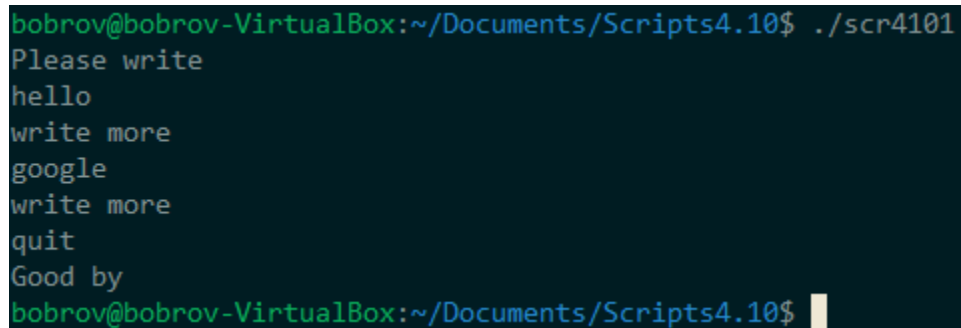


EPAM University Programs
DevOps external course
Module 4 Linux Essentials with Bash
TASK 4.10

4.10.1 Написать скрипт, который выводит приглашения для ввода данных до тех пор, пока не будет введено quit.

```
#!/bin/bash
var2=quit
echo "Please write"
while read var1
do
    if [ "$var1" != "$var2" ]
    then echo "write more"
    else echo "Good by"
    break
    fi
done
```



```
bobrov@bobrov-VirtualBox:~/Documents/Scripts4.10$ ./scr4101
Please write
hello
write more
google
write more
quit
Good by
bobrov@bobrov-VirtualBox:~/Documents/Scripts4.10$
```

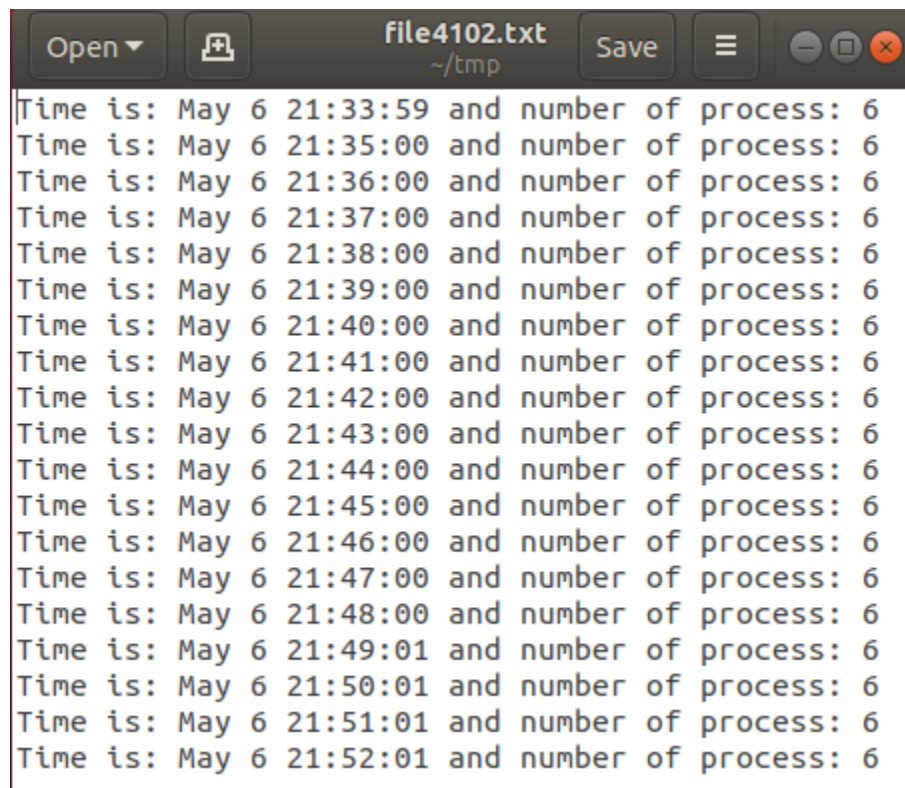
4.10.2 Написать скрипт, который каждую минуту записывает в файл текущее время и дату и количество процессов. При этом файл должен создаваться в директории /home/user/tmp независимо от пользователя и системы. Запустить его в фоновом режиме.

```
#!/bin/bash
var=$(echo "$USER")
mkdir /home/"$var"/tmp
while :
do
    var1=$(date | awk '{print $2,$3,$4}');
    var2=$(ps | awk 'END {print NR}');
    echo "Time is: "$var1" and number of process:\n"$var2"" >> /home/"$var"/tmp/file4102.txt
    sleep 60
done
```

Create a variable with the name of the user who runs the script `var=$(echo "$USER")`.
Create a directory where we will write the results of the script `mkdir /home/"$var"/tmp`.
Create an endless loop that pauses execution for 60 seconds. in this loop we create two variables `var1` and `var2`. The first variable gives the time and date, and the second variable the number of processes. And write the result to a file `file4102.txt`.
Run this script with ampersand (&) so that the script runs in the background.
To stop our script we run command (fg 19) and then `Ctrl+C`.

```
bobrov@bobrov-VirtualBox:~/Documents/Scripts4.10$ ./scr4102&
[19] 3266
```

```
bobrov@bobrov-VirtualBox:~/Documents/Scripts4.10$ fg 19
./scr4102
^Z
[19]+  Stopped                  ./scr4102
```



```
Time is: May 6 21:33:59 and number of process: 6
Time is: May 6 21:35:00 and number of process: 6
Time is: May 6 21:36:00 and number of process: 6
Time is: May 6 21:37:00 and number of process: 6
Time is: May 6 21:38:00 and number of process: 6
Time is: May 6 21:39:00 and number of process: 6
Time is: May 6 21:40:00 and number of process: 6
Time is: May 6 21:41:00 and number of process: 6
Time is: May 6 21:42:00 and number of process: 6
Time is: May 6 21:43:00 and number of process: 6
Time is: May 6 21:44:00 and number of process: 6
Time is: May 6 21:45:00 and number of process: 6
Time is: May 6 21:46:00 and number of process: 6
Time is: May 6 21:47:00 and number of process: 6
Time is: May 6 21:48:00 and number of process: 6
Time is: May 6 21:49:01 and number of process: 6
Time is: May 6 21:50:01 and number of process: 6
Time is: May 6 21:51:01 and number of process: 6
Time is: May 6 21:52:01 and number of process: 6
```

4.10.3 Перевести скрипт из п.2 из фонового режима в приоритетный, потом в фоновый с приостановкой, возобновить его работу в фоновом режиме получить сведения о процессе и завершить работу скрипта передачей соответствующего сигнала.

```

bobrov@bobrov-VirtualBox:~/Documents/Scripts4.10$ fg
./scr4102
^Z
[1]+  Stopped                  ./scr4102
bobrov@bobrov-VirtualBox:~/Documents/Scripts4.10$ bg
[1]+ ./scr4102 &
bobrov@bobrov-VirtualBox:~/Documents/Scripts4.10$ jobs -l
[1]+  16469 Running              ./scr4102 &
bobrov@bobrov-VirtualBox:~/Documents/Scripts4.10$ ps -l
 F S   UID    PID  PPID  C PRI  NI ADDR SZ WCHAN  TTY          TIME CMD
 0 S   1000    4305   4304  0  80   0  -  7793 wait  pts/2    00:00:00 bash
 0 S   1000   16469   4305  0  80   0  -  5373 wait  pts/2    00:00:00 scr4102
 0 S   1000   16486   16469  0  80   0  -  4019 hrtime pts/2    00:00:00 sleep
 0 R   1000   16487   4305  0  80   0  -  9380 -      pts/2    00:00:00 ps
bobrov@bobrov-VirtualBox:~/Documents/Scripts4.10$ kill SIGKILL 16469
-bash: kill: SIGKILL: arguments must be process or job IDs
bobrov@bobrov-VirtualBox:~/Documents/Scripts4.10$ jobs
[1]+  Terminated              ./scr4102
bobrov@bobrov-VirtualBox:~/Documents/Scripts4.10$

```

To put the process to priority mode enter command **fg**

To put the process to background mode and pause press keys **Ctrl+ Z**

To put the process to background mode enter command **bg**

To view info about process use command **jobs -l** and **ps -l**

To kill process **kill SIGKILL 16469**

4.10.4 Просмотреть процессы в реальном режиме времени и вывести те, что используют больше всего памяти. Понизить приоритет самого ресурсоемкого процесса на 2.

top Shift + m

```
top - 22:15:44 up 4:43, 3 users, load average: 0.00, 0.00, 0.00
Tasks: 257 total, 1 running, 189 sleeping, 30 stopped, 0 zombie
%Cpu(s): 0.2 us, 0.2 sy, 0.0 ni, 99.7 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem : 4030684 total, 1019144 free, 980996 used, 2030544 buff/cache
KiB Swap: 1237576 total, 1237576 free, 0 used. 2756412 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
2064	bobrov	20	0	3491864	276568	104512	S	0.0	6.9	1:14.37	gnome-shell
1429	gdm	20	0	3416728	201612	91852	S	0.0	5.0	0:09.69	gnome-shell
2523	bobrov	20	0	1341992	139124	35640	S	0.0	3.5	0:06.28	gnome-software
1882	bobrov	20	0	575408	75332	46856	S	0.0	1.9	0:15.94	Xorg
2435	bobrov	20	0	893624	67312	27400	S	0.0	1.7	0:00.47	evolution-calen
2454	bobrov	20	0	1137336	62416	23480	S	0.0	1.5	0:00.54	evolution-calen
2388	bobrov	20	0	995384	51700	36636	S	0.0	1.3	0:02.71	nautilus-deskto
1490	gdm	20	0	637488	50368	38492	S	0.0	1.2	0:00.16	ibus-x11
16057	bobrov	20	0	905252	49740	35944	S	0.0	1.2	0:02.30	nautilus

Change priority the most resource intensive process **renice 2 2064**

```
bobrov@bobrov-VirtualBox:~/Documents/Scripts4.10$ renice 2 2064
2064 (process ID) old priority 0, new priority 2
bobrov@bobrov-VirtualBox:~/Documents/Scripts4.10$
```

```
top - 22:35:36 up 5:03, 3 users, load average: 0.16, 0.06, 0.01
Tasks: 260 total, 1 running, 190 sleeping, 30 stopped, 0 zombie
%Cpu(s): 0.0 us, 0.2 sy, 0.0 ni, 99.7 id, 0.0 wa, 0.0 hi, 0.2 si, 0.0 st
KiB Mem : 4030684 total, 478052 free, 986040 used, 2566592 buff/cache
KiB Swap: 1237576 total, 1237576 free, 0 used. 2747172 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
2064	bobrov	22	2	3491864	276568	104512	S	0.0	6.9	1:14.89	gnome-shell

4.10.5 Создать скрипт, который выведет квадрат чисел, введенных в качестве аргументов (позиционные параметры), независимо от их количества.

```
#!/bin/bash
for num in "$@"
do
let "sq=$num*$num"
echo "Squared number $num = $sq"
done
```

```
bobrov@bobrov-VirtualBox:~/Documents/Scripts4.10$ ./scr4105 3 4 5
Squared number 3 = 9
Squared number 4 = 16
Squared number 5 = 25
bobrov@bobrov-VirtualBox:~/Documents/Scripts4.10$
```

4.10.6 Создать скрипт для решения линейного уравнения с помощью функции.

```
#!/bin/bash
echo "Solve an equation of the form x=(a+b)/c"

read -p "Enter number a = " a
read -p "Enter number b = " b
read -p "Enter number c = " c

function funcA {
echo "scale=5; ($a+$b)/$c" | bc
}
funcA
```

```
bobrov@bobrov-VirtualBox:~/Documents/Scripts4.10$ ./scr4106
Solve an equation of the form x=(a+b)/c
Enter number a = 5
Enter number b = 6
Enter number c = 8
1.37500
```

4.10.7 Создать скрипт, который регулярно мониторит появление новых пользователей в /etc/passwd и записывает их логины и UID в файл.

```
#!/bin/bash
cat /etc/passwd | awk -F ":" '{print $3,$1}' > fileUsers
while :
do
cat /etc/passwd | awk -F ":" '{print $3,$1}' > fileTemp
diff fileUsers fileTemp | sed '1d' | awk '{print $2,$3}' >> fileUsers
sleep 300
done
```