

Homework 4.12  
by Alexander Krupskiy

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```
ak@ubuntu01:~/scripts$ cat ./users.txt
```

```
1. john
2. smith
3. jerry
4. mike
5. elena
6. sam
7. homer
8. july
9. derek
10. sabrina
11. kate
12. eva
13. jimmy
14. oprah
15. debby
```

```
ak@ubuntu01:~/scripts$ tail -n 2 /etc/passwd
```

```
user2:x:1002:1002::/home/user2:/bin/bash
```

```
user3:x:1003:1003::/home/user3:/bin/bash
```

```
ak@ubuntu01:~/scripts$ sudo ./script_4.12.1.sh
```

```
ak@ubuntu01:~/scripts$ ls -l
```

```
total 68
-rw-r--r-- 1 root root 25 May 10 19:52 debby-login-password.txt
-rw-r--r-- 1 root root 25 May 10 19:52 derek-login-password.txt
-rw-r--r-- 1 root root 25 May 10 19:52 elena-login-password.txt
-rw-r--r-- 1 root root 23 May 10 19:52 eva-login-password.txt
-rw-r--r-- 1 root root 25 May 10 19:52 homer-login-password.txt
-rw-r--r-- 1 root root 25 May 10 19:52 jerry-login-password.txt
-rw-r--r-- 1 root root 25 May 10 19:52 jimmy-login-password.txt
-rw-r--r-- 1 root root 24 May 10 19:52 john-login-password.txt
-rw-r--r-- 1 root root 24 May 10 19:52 july-login-password.txt
-rw-r--r-- 1 root root 24 May 10 19:52 kate-login-password.txt
-rw-r--r-- 1 root root 24 May 10 19:52 mike-login-password.txt
-rw-r--r-- 1 root root 25 May 10 19:52 oprah-login-password.txt
-rw-r--r-- 1 root root 27 May 10 19:52 sabrina-login-password.txt
-rw-r--r-- 1 root root 23 May 10 19:52 sam-login-password.txt
-rwxrwxr-x 1 ak ak 487 May 10 19:43 script_4.12.1.sh
-rw-r--r-- 1 root root 25 May 10 19:52 smith-login-password.txt
-rw-rw-r-- 1 ak ak 135 May 10 19:50 users.txt
```

```
ak@ubuntu01:~/scripts$ cat ./jimmy-login-password.txt
```

```
jimmy - t2noXoqTxDDNGl6d
```

```
ak@ubuntu01:~/scripts$ su - jimmy
```

```
Password:
```

```
jimmy@ubuntu01:~$ echo $HOME
```

```
/home/jimmy
```

```
jimmy@ubuntu01:~$ logout
```

```
ak@ubuntu01:~/scripts$
```

---

```
ak@ubuntu01:~$ ls ./mf
```

```
factorial.cpp functions.h hello.cpp main.cpp Makefile
```

```
ak@ubuntu01:~$ ./script_4.12.2.sh
```

```
ak@ubuntu01:~$ ls ./mf
```

```
factorial.cpp factorial.o functions.h hello hello.cpp hello.o main.cpp main.o Makefile
```

```
ak@ubuntu01:~$ ls ./arch
```

```
2020-05-11_175939.tar.gz
```

```
ak@ubuntu01:~$ ./mf/hello
Hello World!
The factorial of 5 is 120
ak@ubuntu01:~$ cat ./mf.md5
8c818bbdc8cad0d908e133bbb35b1d9c /home/ak/mf/factorial.cpp
4d1b492da8ddef3755d9ad44b6c5f3b /home/ak/mf/hello.cpp
fd7833700807dac1ea9f357df37b39f3 /home/ak/mf/main.cpp
af84c4bb41c6c6111b1a7c0bd8a76be1 /home/ak/mf/functions.h
2c2c222872e8eda20fb58676c7b485d0 /home/ak/mf/Makefile
ak@ubuntu01:~$ nano ./mf/hello.cpp
ak@ubuntu01:~$ ./script_4.12.2.sh
ak@ubuntu01:~$ ./mf/hello
Hello EPAM's students!
The factorial of 5 is 120
ak@ubuntu01:~$ cat ./mf.md5
8c818bbdc8cad0d908e133bbb35b1d9c /home/ak/mf/factorial.cpp
eb62a538c9c58c67509fdfcc9033887e /home/ak/mf/hello.cpp
fd7833700807dac1ea9f357df37b39f3 /home/ak/mf/main.cpp
af84c4bb41c6c6111b1a7c0bd8a76be1 /home/ak/mf/functions.h
2c2c222872e8eda20fb58676c7b485d0 /home/ak/mf/Makefile
ak@ubuntu01:~$ ls ./arch
2020-05-11_175939.tar.gz 2020-05-11_180634.tar.gz
ak@ubuntu01:~$ tar -tf ./arch/2020-05-11_180634.tar.gz
home/ak/mf/factorial.cpp
home/ak/mf/hello.cpp
home/ak/mf/main.cpp
home/ak/mf/functions.h
home/ak/mf/Makefile
ak@ubuntu01:~$ crontab -l
# m h dom mon dow command
*/15 * * * * /home/ak/script_4.12.2.sh
```

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```
ak@ubuntu01:~$ crontab -l
# m h dom mon dow command
*/15 * * * * $HOME/script_4.12.2.sh
*/2 * * * * mkdir -p $HOME/memory; vmstat -S K -w | tail -n 1 | awk '{print "Free: "$4"K,
Buff: "$5"K, Cache: "$6"K"}' >> $HOME/memory/stat 2>&1
*/5 * * * * tar -czf $HOME/arch/stat.tar.gz $HOME/memory/* $HOME/logs/* 2>/dev/null
*/2 * * * * $HOME/script_4.12.3.sh
ak@ubuntu01:~$ ls -l ./arch/
total 12
-rw-rw-r-- 1 ak ak 589 May 11 17:59 2020-05-11_175939.tar.gz
-rw-rw-r-- 1 ak ak 605 May 11 18:06 2020-05-11_180634.tar.gz
-rw-rw-r-- 1 ak ak 1192 May 11 22:15 stat.tar.gz
ak@ubuntu01:~$ tar -tf ./arch/stat.tar.gz
home/ak/memory/stat
home/ak/logs/contxt.log
home/ak/logs/la.log
home/ak/logs/pages.log
home/ak/logs/parts.log
ak@ubuntu01:~$ ls -l ./logs/
total 20
-rw-rw-r-- 1 ak ak 1218 May 11 22:18 contxt.log
-rw-rw-r-- 1 ak ak 840 May 11 22:18 la.log
-rw-rw-r-- 1 ak ak 2982 May 11 22:18 pages.log
-rw-rw-r-- 1 ak ak 5334 May 11 22:18 parts.log
ak@ubuntu01:~$ cat ./memory/stat
Free: 233724K, Buff: 35408K, Cache: 641720K
Free: 233220K, Buff: 35440K, Cache: 641780K
Free: 230816K, Buff: 35528K, Cache: 641808K
```

Free: 231808K, Buff: 35648K, Cache: 641912K  
Free: 231560K, Buff: 35724K, Cache: 641912K  
Free: 230192K, Buff: 35820K, Cache: 641940K  
Free: 231612K, Buff: 35852K, Cache: 641972K  
Free: 228704K, Buff: 35924K, Cache: 641972K  
Free: 229100K, Buff: 35964K, Cache: 641988K  
Free: 228084K, Buff: 35980K, Cache: 641992K  
Free: 230460K, Buff: 36048K, Cache: 641988K  
Free: 231108K, Buff: 36068K, Cache: 641996K  
Free: 231232K, Buff: 36100K, Cache: 641996K  
Free: 230984K, Buff: 36152K, Cache: 642000K  
Free: 230860K, Buff: 36168K, Cache: 642000K  
Free: 229128K, Buff: 36216K, Cache: 641984K  
Free: 230796K, Buff: 36232K, Cache: 642012K  
Free: 230788K, Buff: 36264K, Cache: 642016K  
Free: 230632K, Buff: 36308K, Cache: 642008K  
Free: 230392K, Buff: 36324K, Cache: 642016K  
Free: 229904K, Buff: 36356K, Cache: 642016K  
Free: 230656K, Buff: 36388K, Cache: 642028K  
Free: 230400K, Buff: 36420K, Cache: 642036K  
Free: 230260K, Buff: 36468K, Cache: 642036K  
Free: 230656K, Buff: 36528K, Cache: 642044K

ak@ubuntu01:~\$ cat ./logs/ctxt.log

2020-05-11 21:38:01

Average num of context switches is 67

2020-05-11 21:40:01

Average num of context switches is 63

2020-05-11 21:42:02

Average num of context switches is 63

2020-05-11 21:44:01

Average num of context switches is 63

2020-05-11 21:46:01

Average num of context switches is 62

2020-05-11 21:48:01

Average num of context switches is 64

2020-05-11 21:50:01

Average num of context switches is 63

2020-05-11 21:52:01

Average num of context switches is 63

2020-05-11 21:54:01

Average num of context switches is 63

2020-05-11 21:56:01

Average num of context switches is 63

2020-05-11 21:58:01

Average num of context switches is 65

2020-05-11 22:00:01

Average num of context switches is 63

2020-05-11 22:02:02

Average num of context switches is 63

2020-05-11 22:04:01

Average num of context switches is 63

2020-05-11 22:06:01

Average num of context switches is 62

2020-05-11 22:08:01

Average num of context switches is 65

2020-05-11 22:10:01

Average num of context switches is 63

2020-05-11 22:12:01

Average num of context switches is 63

2020-05-11 22:14:01

Average num of context switches is 63

```
2020-05-11 22:16:01
Average num of context switches is 66
2020-05-11 22:18:01
Average num of context switches is 66
ak@ubuntu01:~$ cat ./logs/la.log
2020-05-11 21:38:01
LA for 15 min: 0.00
2020-05-11 21:40:01
LA for 15 min: 0.00
2020-05-11 21:42:02
LA for 15 min: 0.00
2020-05-11 21:44:01
LA for 15 min: 0.00
2020-05-11 21:46:01
LA for 15 min: 0.00
2020-05-11 21:48:01
LA for 15 min: 0.00
2020-05-11 21:50:01
LA for 15 min: 0.00
2020-05-11 21:52:01
LA for 15 min: 0.00
2020-05-11 21:54:01
LA for 15 min: 0.00
2020-05-11 21:56:01
LA for 15 min: 0.00
2020-05-11 21:58:01
LA for 15 min: 0.00
2020-05-11 22:00:01
LA for 15 min: 0.00
2020-05-11 22:02:02
LA for 15 min: 0.00
2020-05-11 22:04:01
LA for 15 min: 0.00
2020-05-11 22:06:01
LA for 15 min: 0.00
2020-05-11 22:08:01
LA for 15 min: 0.00
2020-05-11 22:10:01
LA for 15 min: 0.00
2020-05-11 22:12:01
LA for 15 min: 0.00
2020-05-11 22:14:01
LA for 15 min: 0.00
2020-05-11 22:16:01
LA for 15 min: 0.00
2020-05-11 22:18:01
LA for 15 min: 0.00
ak@ubuntu01:~$ cat ./logs/pages.log
2020-05-11 21:38:01
    679259 pages paged in
    858444 pages paged out
        8 pages swapped in
    18 pages swapped out
2020-05-11 21:40:01
    679259 pages paged in
    859432 pages paged out
        8 pages swapped in
    18 pages swapped out
2020-05-11 21:42:02
    679259 pages paged in
    859992 pages paged out
```

8 pages swapped in  
18 pages swapped out  
2020-05-11 21:44:01  
679259 pages paged in  
860708 pages paged out  
8 pages swapped in  
18 pages swapped out  
2020-05-11 21:46:01  
679259 pages paged in  
861536 pages paged out  
8 pages swapped in  
18 pages swapped out  
2020-05-11 21:48:01  
679259 pages paged in  
861904 pages paged out  
8 pages swapped in  
18 pages swapped out  
2020-05-11 21:50:01  
679259 pages paged in  
862552 pages paged out  
8 pages swapped in  
18 pages swapped out  
2020-05-11 21:52:01  
679259 pages paged in  
863068 pages paged out  
8 pages swapped in  
18 pages swapped out  
2020-05-11 21:54:01  
679259 pages paged in  
863584 pages paged out  
8 pages swapped in  
18 pages swapped out  
2020-05-11 21:56:01  
679259 pages paged in  
864280 pages paged out  
8 pages swapped in  
18 pages swapped out  
2020-05-11 21:58:01  
679259 pages paged in  
864628 pages paged out  
8 pages swapped in  
18 pages swapped out  
2020-05-11 22:00:01  
679259 pages paged in  
865168 pages paged out  
8 pages swapped in  
18 pages swapped out  
2020-05-11 22:02:02  
679259 pages paged in  
865628 pages paged out  
8 pages swapped in  
18 pages swapped out  
2020-05-11 22:04:01  
679259 pages paged in  
866156 pages paged out  
8 pages swapped in  
18 pages swapped out  
2020-05-11 22:06:01  
679259 pages paged in  
866844 pages paged out  
8 pages swapped in

```

18 pages swapped out
2020-05-11 22:08:01
679259 pages paged in
867192 pages paged out
8 pages swapped in
18 pages swapped out
2020-05-11 22:10:01
679259 pages paged in
867680 pages paged out
8 pages swapped in
18 pages swapped out
2020-05-11 22:12:01
679259 pages paged in
868180 pages paged out
8 pages swapped in
18 pages swapped out
2020-05-11 22:14:01
679259 pages paged in
868720 pages paged out
8 pages swapped in
18 pages swapped out
2020-05-11 22:16:01
679259 pages paged in
869432 pages paged out
8 pages swapped in
18 pages swapped out
2020-05-11 22:18:01
679259 pages paged in
870208 pages paged out
8 pages swapped in
18 pages swapped out

```

```

ak@ubuntu01:~$ cat ./logs/parts.log

```

```

2020-05-11 21:38:01
sda1      reads  read sectors  writes  requested writes
          141    10722      10      120
sda2      reads  read sectors  writes  requested writes
          17317   1343658   12086   1716768
2020-05-11 21:40:01
sda1      reads  read sectors  writes  requested writes
          141    10722      10      120
sda2      reads  read sectors  writes  requested writes
          17317   1343658   12235   1718744
2020-05-11 21:42:02
sda1      reads  read sectors  writes  requested writes
          141    10722      10      120
sda2      reads  read sectors  writes  requested writes
          17317   1343658   12330   1719864
2020-05-11 21:44:01
sda1      reads  read sectors  writes  requested writes
          141    10722      10      120
sda2      reads  read sectors  writes  requested writes
          17317   1343658   12430   1721296
2020-05-11 21:46:01
sda1      reads  read sectors  writes  requested writes
          141    10722      10      120
sda2      reads  read sectors  writes  requested writes
          17317   1343658   12562   1722952
2020-05-11 21:48:01
sda1      reads  read sectors  writes  requested writes
          141    10722      10      120
sda2      reads  read sectors  writes  requested writes

```

	17317	1343658	12617	1723688
2020-05-11 21:50:01				
sda1	reads	read sectors	writes	requested writes
	141	10722	10	120
sda2	reads	read sectors	writes	requested writes
	17317	1343658	12700	1724984
2020-05-11 21:52:01				
sda1	reads	read sectors	writes	requested writes
	141	10722	10	120
sda2	reads	read sectors	writes	requested writes
	17317	1343658	12783	1726016
2020-05-11 21:54:01				
sda1	reads	read sectors	writes	requested writes
	141	10722	10	120
sda2	reads	read sectors	writes	requested writes
	17317	1343658	12863	1727048
2020-05-11 21:56:01				
sda1	reads	read sectors	writes	requested writes
	141	10722	10	120
sda2	reads	read sectors	writes	requested writes
	17317	1343658	12978	1728440
2020-05-11 21:58:01				
sda1	reads	read sectors	writes	requested writes
	141	10722	10	120
sda2	reads	read sectors	writes	requested writes
	17317	1343658	13033	1729136
2020-05-11 22:00:01				
sda1	reads	read sectors	writes	requested writes
	141	10722	10	120
sda2	reads	read sectors	writes	requested writes
	17317	1343658	13111	1730216
2020-05-11 22:02:01				
sda1	reads	read sectors	writes	requested writes
	141	10722	10	120
sda2	reads	read sectors	writes	requested writes
	17317	1343658	13183	1731136
2020-05-11 22:04:01				
sda1	reads	read sectors	writes	requested writes
	141	10722	10	120
sda2	reads	read sectors	writes	requested writes
	17317	1343658	13264	1732192
2020-05-11 22:06:01				
sda1	reads	read sectors	writes	requested writes
	141	10722	10	120
sda2	reads	read sectors	writes	requested writes
	17317	1343658	13374	1733568
2020-05-11 22:08:01				
sda1	reads	read sectors	writes	requested writes
	141	10722	10	120
sda2	reads	read sectors	writes	requested writes
	17317	1343658	13431	1734264
2020-05-11 22:10:01				
sda1	reads	read sectors	writes	requested writes
	141	10722	10	120
sda2	reads	read sectors	writes	requested writes
	17317	1343658	13504	1735240
2020-05-11 22:12:01				
sda1	reads	read sectors	writes	requested writes
	141	10722	10	120
sda2	reads	read sectors	writes	requested writes
	17317	1343658	13580	1736240

2020-05-11 22:14:01				
sda1	reads	read sectors	writes	requested writes
	141	10722	10	120
sda2	reads	read sectors	writes	requested writes
	17317	1343658	13668	1737320
2020-05-11 22:16:01				
sda1	reads	read sectors	writes	requested writes
	141	10722	10	120
sda2	reads	read sectors	writes	requested writes
	17317	1343658	13786	1738744
2020-05-11 22:18:01				
sda1	reads	read sectors	writes	requested writes
	141	10722	10	120
sda2	reads	read sectors	writes	requested writes
	17317	1343658	13910	1740296
2020-05-11 22:20:01				
sda1	reads	read sectors	writes	requested writes
	141	10722	10	120
sda2	reads	read sectors	writes	requested writes
	17317	1343658	14001	1741680