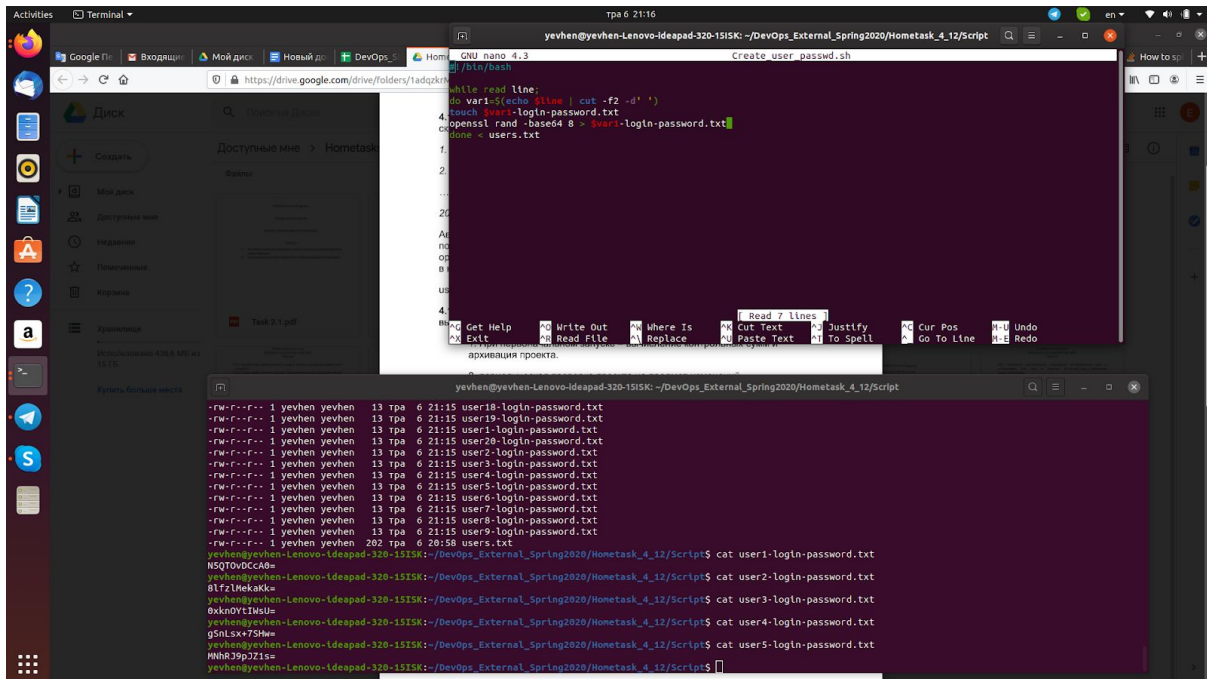


Linux Essentials with Bash

1. Create script for generate password for users into file for each user.

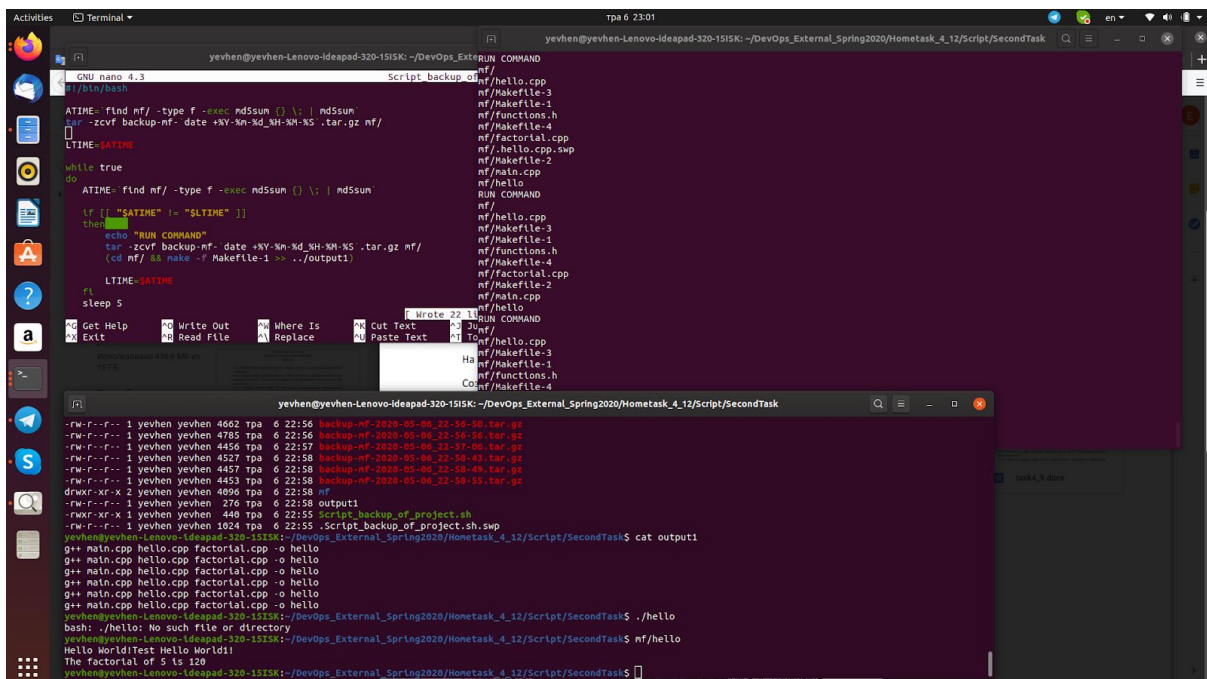


The screenshot shows a Linux desktop environment with a terminal window and a nano editor. The terminal window displays the execution of a script that generates passwords for users. The nano editor shows the script content, which uses a while loop to read lines from a file and generate passwords using the openssl command.

```
while read line; do
  var1=$(echo $line | cut -f2 -d' ')
  echo $var1-login-password.txt
  openssl rand -base64 8 > $var1-login-password.txt
done < users.txt
```

```
yevhen@yevhen-Lenovo-Ideapad-320-15ISK: ~/DevOps_External_Spring2020/Hometask_4/Script$ cat user1-login-password.txt
8lfz1MeKakK+
yevhen@yevhen-Lenovo-Ideapad-320-15ISK:~/DevOps_External_Spring2020/Hometask_4/Script$ cat user2-login-password.txt
8xkn0Yt1M8uL
yevhen@yevhen-Lenovo-Ideapad-320-15ISK:~/DevOps_External_Spring2020/Hometask_4/Script$ cat user3-login-password.txt
g5NLSx*7SHw
yevhen@yevhen-Lenovo-Ideapad-320-15ISK:~/DevOps_External_Spring2020/Hometask_4/Script$ cat user4-login-password.txt
MNR39pJ7is
yevhen@yevhen-Lenovo-Ideapad-320-15ISK:~/DevOps_External_Spring2020/Hometask_4/Script$
```

2. Create script for count checksums and archive project. Check it for change with some period. If project have changed put it to the archive and run recompilation.



The screenshot shows a Linux desktop environment with a terminal window and a nano editor. The terminal window displays the execution of a script that counts checksums and archives projects. The nano editor shows the script content, which uses a while loop to read lines from a file and execute commands to calculate checksums and archive projects.

```
while true; do
  ATIME=$(find nf/ -type f -exec md5sum {} \; | md5sum)
  tar -czvf backup-nf- date +%Y-%m-%d_%H-%M-%S .tar.gz nf/
  LTIME=$ATIME
  sleep 5
done
```

```
yevhen@yevhen-Lenovo-Ideapad-320-15ISK:~/DevOps_External_Spring2020/Hometask_4/Script/SecondTask$ cat output1
nf/
nf/hello.cpp
nf/Makefile-3
nf/Makefile-1
nf/functions.h
nf/Makefile-4
nf/factorial.cpp
nf/hello.cpp.swp
nf/Makefile-2
nf/main.cpp
nf/hello
RUN COMMAND
nf/
nf/hello.cpp
nf/Makefile-3
nf/Makefile-1
nf/functions.h
nf/factorial.cpp
nf/Makefile-2
nf/main.cpp
nf/hello
nf/
nf/hello.cpp
nf/Makefile-3
nf/Makefile-1
nf/functions.h
nf/factorial.cpp
nf/Makefile-2
nf/main.cpp
nf/hello
```

```
yevhen@yevhen-Lenovo-Ideapad-320-15ISK:~/DevOps_External_Spring2020/Hometask_4/Script/SecondTask$ ./hello
Hello World!Test Hello World!
The factorial of 5 is 120
yevhen@yevhen-Lenovo-Ideapad-320-15ISK:~/DevOps_External_Spring2020/Hometask_4/Script/SecondTask$
```

3. Create schedule script that makes log files, run it with crontab and run script to create archive file from this log.

The screenshot shows a terminal window with two windows open. The left window is a nano editor editing a script named 'Script_generate_log.sh'. The script contains a loop that generates log files for CPU context switches, CPU load, and memory usage. The right window is a nano editor editing a crontab file named '/tmp/crontab.SAs0fy/crontab'. The crontab file contains a single entry: '*/5 * * * * yevhen /home/yevhen/DevOps_External_Spring2020/Hometask_4_12/Script/ThirdTask/Script_create_archive.sh'. The terminal output shows the execution of the script, which generates log files for CPU context switches, CPU load, and memory usage.

```
#!/bin/bash
# Script generate_log.sh

# CPU context switches
for (( count=1; count<=30; count++ ))
do
    var=$(vmstat -s | grep "CPU context switches" | awk '{print $13}')
    my_array[count]=$var
    let total+=${var}
    sleep 1
done

echo "date +%Y-%m-%d_%H-%M-%S" >> /home/yevhen/memory/stat.log
echo "CPU context switches" >> /home/yevhen/memory/main.log
echo "${total/2}" >> /home/yevhen/memory/main.log

# CPU load
for (( count=1; count<=15; count++ ))
do
    varCpu=$(top -bn1 | grep "Cpu(s)" | sed "s/./,/" | awk '{print 100 - $1}' | awk '{print $1}')
    sleep 1
done

echo "date +%Y-%m-%d_%H-%M-%S" >> /home/yevhen/memory/main.log
echo "CPU Load %" >> /home/yevhen/memory/main.log
echo "${totalCpu/2}" >> /home/yevhen/memory/main.log

# Pages of memory
echo "date +%Y-%m-%d_%H-%M-%S" >> /home/yevhen/memory/main.log
echo "Pages of memory" >> /home/yevhen/memory/main.log
cat /proc/meminfo | grep Pages >> /home/yevhen/memory/main.log

# vmstat
echo "date +%Y-%m-%d_%H-%M-%S" >> /home/yevhen/memory/main.log
vmstat -b >> /home/yevhen/memory/main.log
```

```
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will be run
# and what command to run for the task
#
# To define the time you can provide concrete values for
# minute (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').
#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezones.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tar.gz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
#
# * * * * * command
*/5 * * * * yevhen /home/yevhen/DevOps_External_Spring2020/Hometask_4_12/Script/ThirdTask/Script_create_archive.sh
*/2 * * * * yevhen /home/yevhen/DevOps_External_Spring2020/Hometask_4_12/Script/ThirdTask/Script_generate_log.sh
```

The screenshot shows a terminal window displaying system logs and service status. The logs show the execution of the script, which generates log files for CPU context switches, CPU load, and memory usage. The service status shows the Tracker metadata database store and lookup manager, and the Tracker metadata database store and lookup manager, both running successfully.

```
total 794076
drwxr-xr-x 20 yevhen yevhen 4096 tpa 7 22:05
drwxr-xr-x 15 root root 4096 tpa 2 13:51
-rw-r--r-- 1 yevhen yevhen 186 ktl 13 23:12 2020-04-13-20-12-36-005-VBoxSVC-7976.log
-rw-r--r-- 1 yevhen yevhen 47 ktl 8 18:02 anazon.txt
-rw-r--r-- 1 yevhen yevhen 4096 ktl 21 12:00
-rw-r--r-- 1 yevhen yevhen 596 tpa 7 21:55 backup-log-2020-05-07_21-55-01.tar.gz
-rw-r--r-- 1 yevhen yevhen 802 tpa 7 22:00 backup-log-2020-05-07_22-00-01.tar.gz
-rw-r--r-- 1 yevhen yevhen 911 tpa 7 22:05 backup-log-2020-05-07_22-05-01.tar.gz
-rw-r--r-- 1 yevhen yevhen 454 tpa 7 21:55 backup-stat-2020-05-07_21-55-01.tar.gz
-rw-r--r-- 1 yevhen yevhen 494 tpa 7 22:00 backup-stat-2020-05-07_22-00-01.tar.gz
-rw-r--r-- 1 yevhen yevhen 521 tpa 7 22:05 backup-stat-2020-05-07_22-05-01.tar.gz
-rw-r--r-- 1 yevhen yevhen 44203 tpa 7 21:33 .bash_history
-rw-r--r-- 1 yevhen yevhen 220 ktl 3 21:16 .bash_logout
-rw-r--r-- 1 yevhen yevhen 3771 ktl 3 21:16 .bashrc
-rw-r--r-- 1 yevhen yevhen 4096 ktl 21 23:14 .cache
-rw-r--r-- 1 yevhen yevhen 61188384 ktl 3 22:09 centos.tar
drwxr-xr-x 27 yevhen yevhen 4096 tpa 7 20:53 config
```

```
404363 merged writes
23346768 written sectors
509166 mlll writing
0 Inprogress IO
389 mlll spent IO
2020-05-07 22-05-20
CPU context switches
5193231788
2020-05-07 22-05-45
CPU load %
673
2020-05-07 22-05-45
Pages of Memory
AnonPages: 3049804 kB
AnonHugePages: 0 kB
ShmemHugePages: 0 kB
HugePages_Total: 0
HugePages_Free: 0
HugePages_Rsvd: 0
HugePages_Surp: 0
2020-05-07 22-05-45
disks
20 disks
1 partitions
363187 total reads
40724 merged reads
6926942 read sectors
168466 mlll reading
1289964 writes
404333 merged writes
23355956 written sectors
509475 mlll writing
0 Inprogress IO
389 mlll spent IO
```

```
May 7 21:59:01 yevhen-Lenovo-IdeaPad-320-15ISK: CRON[17633]: (CRON) info (No MTA installed, discarding output)
May 7 22:00:01 yevhen-Lenovo-IdeaPad-320-15ISK: CRON[17789]: (yevhen) CMD (echo "Hello World")
May 7 22:00:01 yevhen-Lenovo-IdeaPad-320-15ISK: CRON[17798]: (yevhen) CMD (/home/yevhen/DevOps_External_Spring2020/Hometask_4_12/Script/ThirdTask/Script_generate_log.sh && /tmp/errors)
May 7 22:00:01 yevhen-Lenovo-IdeaPad-320-15ISK: CRON[17791]: (yevhen) CMD (/home/yevhen/DevOps_External_Spring2020/Hometask_4_12/Script/ThirdTask/Script_create_archive.sh && /tmp/errors)
May 7 22:00:01 yevhen-Lenovo-IdeaPad-320-15ISK: CRON[17786]: (CRON) info (No MTA installed, discarding output)
May 7 22:00:01 yevhen-Lenovo-IdeaPad-320-15ISK: dbus-daemon[2759]: [session uid=1000 pid=2759] Activating via s
May 7 22:00:01 yevhen-Lenovo-IdeaPad-320-15ISK: system[2732]: Starting Tracker metadata database store and look
May 7 22:00:01 yevhen-Lenovo-IdeaPad-320-15ISK: tracker-store[17809]: OK
May 7 22:00:01 yevhen-Lenovo-IdeaPad-320-15ISK: system[2732]: tracker-store.service: Succeeded.
May 7 22:01:01 yevhen-Lenovo-IdeaPad-320-15ISK: CRON[17933]: (yevhen) CMD (echo "Hello World")
May 7 22:01:01 yevhen-Lenovo-IdeaPad-320-15ISK: CRON[17932]: (CRON) info (No MTA installed, discarding output)
May 7 22:02:01 yevhen-Lenovo-IdeaPad-320-15ISK: CRON[18083]: (yevhen) CMD (echo "Hello World")
May 7 22:02:01 yevhen-Lenovo-IdeaPad-320-15ISK: CRON[18084]: (yevhen) CMD (/home/yevhen/DevOps_External_Spring2020/Hometask_4_12/Script/ThirdTask/Script_generate_log.sh && /tmp/errors)
May 7 22:02:01 yevhen-Lenovo-IdeaPad-320-15ISK: CRON[18079]: (CRON) info (No MTA installed, discarding output)
May 7 22:03:01 yevhen-Lenovo-IdeaPad-320-15ISK: CRON[18196]: (yevhen) CMD (echo "Hello World")
May 7 22:03:01 yevhen-Lenovo-IdeaPad-320-15ISK: CRON[18195]: (CRON) info (No MTA installed, discarding output)
May 7 22:04:01 yevhen-Lenovo-IdeaPad-320-15ISK: CRON[18339]: (yevhen) CMD (/home/yevhen/DevOps_External_Spring2020/Hometask_4_12/Script/ThirdTask/Script_generate_log.sh && /tmp/errors)
May 7 22:04:01 yevhen-Lenovo-IdeaPad-320-15ISK: CRON[18340]: (yevhen) CMD (echo "Hello World")
May 7 22:04:01 yevhen-Lenovo-IdeaPad-320-15ISK: CRON[18337]: (CRON) info (No MTA installed, discarding output)
May 7 22:05:01 yevhen-Lenovo-IdeaPad-320-15ISK: CRON[18450]: (yevhen) CMD (echo "Hello World")
May 7 22:05:01 yevhen-Lenovo-IdeaPad-320-15ISK: CRON[18451]: (yevhen) CMD (/home/yevhen/DevOps_External_Spring2020/Hometask_4_12/Script/ThirdTask/Script_create_archive.sh && /tmp/errors)
May 7 22:05:01 yevhen-Lenovo-IdeaPad-320-15ISK: system[2732]: Starting Tracker metadata database store and lookup manager...
May 7 22:05:01 yevhen-Lenovo-IdeaPad-320-15ISK: dbus-daemon[2759]: [session uid=1000 pid=2759] Successfully activated service 'org.freedesktop.Tracker1'
May 7 22:05:01 yevhen-Lenovo-IdeaPad-320-15ISK: system[2732]: Started Tracker metadata database store and lookup manager.
May 7 22:05:31 yevhen-Lenovo-IdeaPad-320-15ISK: tracker-store[18460]: OK
May 7 22:05:31 yevhen-Lenovo-IdeaPad-320-15ISK: system[2732]: tracker-store.service: Succeeded.
```