# Homework: Linux. Basic monitoring. Memory. LA

1 Depending on the configuration of your system, write what is the optimal LA value for your system

6, my system has six-core CPU, 12 threads

2 Using the stress utility, load the systems by 50%, assess the state of the system according to top

VirtualBox VM, 6 CPU are allocated:

```
[testvmadmin@testvm ~]$ stress -c 3
stress: info: [1852] dispatching hogs: 3 cpu, 0 io, 0 vm, 0 hdd

top - 19:24:55 up 47 min,  2 users,  load average: 3.01, 2.20, 1.03
```

3 Use the ps utility to find the processes that are using the maximum memory / CPU on Linux.

CPU:

```
[testvmadmin@testvm ~]$ ps aux --sort=-pcpu | head -n 6
USER         PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
testvma+    1853 99.3  0.0   7976    96 pts/0    R+   19:21   6:47 stress -c 3
testvma+    1854 99.3  0.0   7976    96 pts/0    R+   19:21   6:47 stress -c 3
testvma+    1855 99.2  0.0   7976    96 pts/0    R+   19:21   6:47 stress -c 3
root           1  0.0  1.3 240516 13316 ?        Ss   18:37   0:01
/usr/lib/systemd/systemd --switched-root --system --deserialize 18
root           2  0.0  0.0      0     0 ?        S    18:37   0:00 [kthreadd]
```

RAM:

```
[testvmadmin@testvm ~]$ sudo ps -A --sort -rss -o pid,pmem:40,cmd:500 | head -n 6 | tr -s
" " ";z"
;PID;%MEM;CMD
;845;4.3;/usr/libexec/platform-python;-s;/usr/sbin/firewalld;--nofork;--nopid
;847;4.0;/usr/libexec/sssd/sssd_nss;--uid;0;--gid;0;--logger=files
;873;3.2;/usr/libexec/platform-python;-Es;/usr/sbin/tuned;-l;-P
;825;2.5;/usr/lib/polkit-1/polkitd;--no-debug
;858;1.8;/usr/sbin/NetworkManager;--no-daemon
```

## 4 Use ps utility to display process tree

```
[testvmadmin@testvm ~]$ ps auxf | grep -v ]$
USER         PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root           1  0.0  1.3 240516 13316 ?        Ss   18:37   0:01 /usr/lib/systemd/systemd --switched-root --system --deserialize 18
root         631  0.0  0.8  87596  8296 ?        Ss   18:37   0:00 /usr/lib/systemd/systemd-journald
root         666  0.0  1.1 117840 11784 ?        Ss   18:37   0:00 /usr/lib/systemd/systemd-udevd
root         800  0.0  0.2  67972  2452 ?        S<sl 18:37   0:00 /sbin/auditd
root         823  0.0  0.5 124960  5388 ?        Ssl  18:37   0:00 /usr/sbin/irqbalance --foreground
root         824  0.0  1.4 219104 14544 ?        Ss   18:37   0:00 /usr/sbin/sssd -i --logger=files
root         846  0.0  1.5 227656 15172 ?        S    18:37   0:00  \_ /usr/libexec/sssd/sssd_be --domain implicit_files --uid 0 --gid 0
root         847  0.0  4.0 229264 40820 ?        S    18:37   0:00  \_ /usr/libexec/sssd/sssd_nss --uid 0 --gid 0 --logger=files
polkitd      825  0.0  2.5 1901520 25020 ?       Ssl  18:37   0:00 /usr/lib/polkit-1/polkitd --no-debug
dbus         826  0.0  0.5  64604  5264 ?        Ssl  18:37   0:00 /usr/bin/dbus-daemon --system --address=systemd: --nofork --nopidfile
chrony       828  0.0  0.4 151156  4624 ?        S    18:37   0:00 /usr/sbin/chronyd
root         845  0.0  4.3 307004 43628 ?        Ssl  18:37   0:00 /usr/libexec/platform-python -s /usr/sbin/firewalld --nofork --nopid
root         848  0.0  0.9  82936  9308 ?        Ss   18:37   0:00 /usr/lib/systemd/systemd-logind
root         858  0.0  1.8 391848 18464 ?        Ssl  18:37   0:00 /usr/sbin/NetworkManager --no-daemon
root         871  0.0  0.7  92348  7004 ?        Ss   18:37   0:00 /usr/sbin/sshd -D -oCiphers=aes256-gcm@openssh.com,chacha20-poly1305@
com,aes128-ctr,aes128-cbc -oMACs=hmac-sha2-256-etm@openssh.com,hmac-sha1-etm@openssh.com,umac-128-etm@openssh.com,hmac-sha2-512-etm@oper
hmac-sha2-512 -oGSSAPIKexAlgorithms=gss-curve25519-sha256-,gss-nistp256-sha256-,gss-group14-sha256-,gss-group16-sha512-,gss-gex-sha1-,gs
ve25519-sha256@libssh.org,ecdh-sha2-nistp256,ecdh-sha2-nistp384,ecdh-sha2-nistp521,diffie-hellman-group-exchange-sha256,diffie-hellman-g
llman-group18-sha512,diffie-hellman-group-exchange-sha1,diffie-hellman-group14-sha1 -oHostKeyAlgorithms=ecdsa-sha2-nistp256,ecdsa-sha2-n
a-sha2-nistp384-cert-v01@openssh.com,ecdsa-sha2-nistp521,ecdsa-sha2-nistp521-cert-v01@openssh.com,ssh-ed25519,ssh-ed25519-cert-v01@opens
,rsa-sha2-512,rsa-sha2-512-cert-v01@openssh.com,ssh-rsa,ssh-rsa-cert-v01@openssh.com -oPubkeyAcceptedKeyTypes=ecdsa-sha2-nistp256,ecdsa-
4,ecdsa-sha2-nistp384-cert-v01@openssh.com,ecdsa-sha2-nistp521,ecdsa-sha2-nistp521-cert-v01@openssh.com,ssh-ed25519,ssh-ed25519-cert-v01
sh.com,rsa-sha2-512,rsa-sha2-512-cert-v01@openssh.com,ssh-rsa,ssh-rsa-cert-v01@openssh.com -oCASignatureAlgorithms=ecdsa-sha2-nistp256,e
a-sha2-256,rsa-sha2-512,ssh-rsa
testvma+    1115  0.0  0.5 153444  5576 ?        S    18:38   0:00  |   \_ sshd: testvmadmin@pts/0
testvma+    1116  0.0  0.3  24120  3884 pts/0    Ss   18:38   0:00  |       \_ -bash
testvma+    1852  0.0  0.1   7976  1140 pts/0    S+   19:21   0:00  |           \_ stress -c 3
testvma+    1853 99.3  0.0   7976    96 pts/0    R+   19:21  14:51  |             \_ stress -c 3
testvma+    1854 99.3  0.0   7976    96 pts/0    R+   19:21  14:51  |             \_ stress -c 3
testvma+    1855 99.2  0.0   7976    96 pts/0    R+   19:21  14:50  |             \_ stress -c 3
testvma+    1817  0.0  0.5 153444  5472 ?        S    19:19   0:00      \_ sshd: testvmadmin@pts/1
testvma+    1818  0.0  0.3  24120  3900 pts/1    Ss   19:19   0:00          \_ -bash
testvma+    2203  0.0  0.4  59080  4576 pts/1    R+   19:36   0:00              \_ ps auxf
testvma+    2204  0.0  0.1  12136  1172 pts/1    S+   19:36   0:00              \_ grep --color=auto -v ]$
root         873  0.0  3.2 576088 32212 ?        Ssl  18:37   0:01 /usr/libexec/platform-python -Es /usr/sbin/tuned -l -P
root         879  0.0  0.3  27912  3568 ?        Ss   18:37   0:00 /usr/sbin/crond -n
root         884  0.0  0.1  13656  1636 tty1     Ss+  18:37   0:00 /sbin/agetty -o -p -- \u --noclear tty1 linux
root        1087  0.0  1.0 216592 10556 ?        Ssl  18:37   0:00 /usr/sbin/rsyslogd -n
testvma+    1106  0.0  0.9  89464  9236 ?        Ss   18:38   0:00 /usr/lib/systemd/systemd --user
testvma+    1109  0.0  0.5 162568  5344 ?        S    18:38   0:00  \_ (sd-pam)
root        1470  0.0  0.2  36020  2816 ?        Ss   19:01   0:00 /usr/sbin/anacron -s
[testvmadmin@testvm ~]$
```

5 Using lsof and kill kill all processes of the selected user

Assuming username is «newuser», we can:

```
sudo kill -9 $(sudo lsof | grep newuser | awk '{ print $2 }' | xargs)
```