ADVANCE LINUX LABORATORY BYOD-2

1. User and Group Management

```
Last login: Thu Apr  3 13:03:40 on console
vyshu@Vyshnavis-MacBook-Air ~ % docker exec -it ubuntu /bin/bash
root@e90dd89dd086:/# sudo useradd -m -d /home/devuser -s /bin/bash -c "Developer User" devuser
root@e90dd89dd086:/# sudo groupadd developers
root@e90dd89dd086:/# sudo usermod -aG developers devuser
root@e90dd89dd086:/# id devuser
uid=1006(devuser) gid=1009(devuser) groups=1009(devuser),1010(developers)
root@e90dd89dd086:/#
```

2. File Permissions

```
root@e90dd89dd086:/# su - devuser
devuser@e90dd89dd086:~$ mkdir ~/projects
devuser@e90dd89dd086:~$ chmod 770 ~/projects
devuser@e90dd89dd086:~$ ls -l ~/projects
total 0
devuser@e90dd89dd086:~$ ls -ld ~/projects
drwxrwx--- 2 devuser devuser 4096 Apr  3 14:41 /home/devuser/projects
devuser@e90dd89dd086:~$ chmod 760 ~/projects
devuser@e90dd89dd086:~$ ls -ld ~/projects
drwxrw---- 2 devuser devuser 4096 Apr  3 14:41 /home/devuser/projects
devuser@e90dd89dd086:~$
```

3. Process Management

```
drwxrw---- 2 devuser devuser 4096 Apr  3 14:41 /home/devuser/projects
devuser@e90dd89dd086:~$ sleep 1000 &
[1] 68
devuser@e90dd89dd086:~$ ps aux | grep sleep
devuser     68  0.0  0.0   2696  1524 pts/1    S    14:43   0:00 sleep 1000
devuser     70  0.0  0.0   3552  1780 pts/1    S+   14:44   0:00 grep --color=auto sleep
devuser@e90dd89dd086:~$ kill 68
devuser@e90dd89dd086:~$ ps aux | grep sleep
devuser     72  0.0  0.0   3552  1784 pts/1    S+   14:44   0:00 grep --color=auto sleep
[1]+  Terminated              sleep 1000
devuser@e90dd89dd086:~$
```

4. Task Scheduling

```
[devuser@e90dd89dd086:~$ cd ~/projects
[devuser@e90dd89dd086:~/projects$ nano hello.sh
[devuser@e90dd89dd086:~/projects$ ./hello.sh
-bash: ./hello.sh: Permission denied
[devuser@e90dd89dd086:~/projects$ chmod +x hello.sh
[devuser@e90dd89dd086:~/projects$ ./hello.sh
Hello, World!
devuser@e90dd89dd086:~/projects$ 
```

```
  GNU nano 7.2                              hello.sh *
#!/bin/bash
echo "Hello, World!"


^G Help       ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location   M-U Undo      M-A Set Mark  M-] To Bracket
^X Exit       ^R Read File  ^\ Replace    ^U Paste      ^J Justify    ^/ Go To Line M-E Redo      M-6 Copy      ^Q Where Was
```

5. Resource Monitoring

```
[devuser@e90dd89dd086:~$ exit
logout
[root@e90dd89dd086:/# free -h
               total        used        free      shared  buff/cache   available
Mem:           7.7Gi       430Mi       7.1Gi       604Ki       246Mi       7.2Gi
Swap:          1.0Gi          0B       1.0Gi
[root@e90dd89dd086:/# top
```

```
top - 14:58:12 up 20 min,  0 user,  load average: 0.67, 0.84, 0.67
Tasks:    total,   running,    sleeping,    stopped,    zombie
%Cpu(s):    us,    sy,    ni,    id,    wa,    hi,    si,    st
MiB Mem :       total,        free,        used,     buff/cache
MiB Swap:       total,        free,        used.     avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
    1 root      20   0    4296   3412   2900 S   0.0   0.0   0:00.00 bash
   13 root      20   0    4296   3504   2992 S   0.0   0.0   0:00.01 bash
```

6. Package Management

```
root@e90dd89dd086:/# sudo apt update
Hit:1 http://ports.ubuntu.com/ubuntu-ports noble InRelease
Get:2 http://ports.ubuntu.com/ubuntu-ports noble-updates InRelease [126 kB]
Hit:3 http://ports.ubuntu.com/ubuntu-ports noble-backports InRelease
Hit:4 http://ports.ubuntu.com/ubuntu-ports noble-security InRelease
Fetched 126 kB in 2s (60.7 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
5 packages can be upgraded. Run 'apt list --upgradable' to see them.
root@e90dd89dd086:/# sudo apt install -y htop
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libnl-3-200 libnl-genl-3-200
Suggested packages:
  lm-sensors lsof strace
The following NEW packages will be installed:
  htop libnl-3-200 libnl-genl-3-200
0 upgraded, 3 newly installed, 0 to remove and 5 not upgraded.
Need to get 240 kB of archives.
After this operation, 791 kB of additional disk space will be used.
Get:1 http://ports.ubuntu.com/ubuntu-ports noble-updates/main arm64 libnl-3-200 arm64 3.7.0-0.3build1.1 [57.5 kB]
Get:2 http://ports.ubuntu.com/ubuntu-ports noble-updates/main arm64 libnl-genl-3-200 arm64 3.7.0-0.3build1.1 [12.2 kB]
Get:3 http://ports.ubuntu.com/ubuntu-ports noble/main arm64 htop arm64 3.3.0-4build1 [171 kB]
Fetched 240 kB in 3s (82.4 kB/s)
debconf: delaying package configuration, since apt-utils is not installed
Selecting previously unselected package libnl-3-200:arm64.
(Reading database ... 10900 files and directories currently installed.)
Preparing to unpack .../libnl-3-200_3.7.0-0.3build1.1_arm64.deb ...
Unpacking libnl-3-200:arm64 (3.7.0-0.3build1.1) ...
Selecting previously unselected package libnl-genl-3-200:arm64.
Preparing to unpack .../libnl-genl-3-200_3.7.0-0.3build1.1_arm64.deb ...
Unpacking libnl-genl-3-200:arm64 (3.7.0-0.3build1.1) ...
Selecting previously unselected package htop.
Preparing to unpack .../htop_3.3.0-4build1_arm64.deb ...
Unpacking htop (3.3.0-4build1) ...
Setting up libnl-3-200:arm64 (3.7.0-0.3build1.1) ...
Setting up libnl-genl-3-200:arm64 (3.7.0-0.3build1.1) ...
Setting up htop (3.3.0-4build1) ...
Processing triggers for libc-bin (2.39-0ubuntu8.4) ...
root@e90dd89dd086:/#
```

```
root@e90dd89dd086:/# htop
root@e90dd89dd086:/# sudo apt remove -y htop
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libnl-3-200 libnl-genl-3-200
Use 'sudo apt autoremove' to remove them.
The following packages will be REMOVED:
  htop
0 upgraded, 0 newly installed, 1 to remove and 5 not upgraded.
After this operation, 455 kB disk space will be freed.
(Reading database ... 10924 files and directories currently installed.)
Removing htop (3.3.0-4build1) ...
root@e90dd89dd086:/#
```