Bài Thực Hành Lab 6

1. As below

a) Run a bash script that contains command sleep 300 in the background and get the PID of the process.

```
#!/bin/bash
sleep 300 &
pid=$!
echo "PID cua tien trinh sleep: $pid"
```

```
ubuntu@ubuntu-2274802010449:~$ vim bai1a.sh
ubuntu@ubuntu-2274802010449:~$ chmod +x bai1a.sh
ubuntu@ubuntu-2274802010449:~$ ./bai1a.sh
PID cua tien trinh sleep: 395
```

b) Bing the background process above to foreground (using job ID).

```
#!/bin/bash
sleep 300 &
jobs
fg %1
```

```
ubuntu@ubuntu-2274802010449:~$ vim bai1b.sh
ubuntu@ubuntu-2274802010449:~$ chmod +x bai1b.sh
ubuntu@ubuntu-2274802010449:~$ ./bai1b.sh
[1]+  Running                 sleep 300 &
./bai1b.sh: line 4: fg: no job control
ubuntu@ubuntu-2274802010449:~$ sleep 300 &
[1] 1522
ubuntu@ubuntu-2274802010449:~$ jobs
[1]+  Running                 sleep 300 &
ubuntu@ubuntu-2274802010449:~$ fg 1%
bash: fg: 1%: no such job
ubuntu@ubuntu-2274802010449:~$ fg %1
sleep 300
```

2. Write a Bash script that receive SIGINT/SIGTERM/SIGSTOP signal (Ctrl+C) and prints the corresponding signal number instead of terminating (google trap). Find a way to exit this script.

```bash
#!/bin/bash

trap "echo 'Nhan tin hieu SIGINT (2)'" SIGINT
trap "echo 'Nhan tin hieu SIGTERM (15)'" SIGTERM
trap "echo 'SIGSTOP khong the bat truc tiep'" SIGTSTP

echo "Nhan Ctrl+C de gui SIGINT hoac chay 'kill -TERM <PID>' de gui SIGTERM"
echo "Nhan Ctrl+Z de tam dung tien trinh"

while true; do
    sleep 1
done
```

```
ubuntu@ubuntu-2274802010449:~$ vim bai2.sh
ubuntu@ubuntu-2274802010449:~$ chmod +x bai2.sh
ubuntu@ubuntu-2274802010449:~$ ./bai2.sh
Nhan Ctrl+C de gui SIGINT hoac chay 'kill -TERM <PID>' de gui SIGTERM
Nhan Ctrl+Z de tam dung tien trinh
^CNhan tin hieu SIGINT (2)
```

3. Write a script that has: - A counting from 0 to N function. - A counting from N to 0 function. Run those functions parallel and print the number to terminal (google how to run multi process inside bash script).

```bash
#!/bin/bash

count_up() {
    for ((i=0; i<=$1; i++)); do
        echo "Dem len: $i"
        sleep 0.5
    done
}

count_down() {
    for ((i=$1; i>=0; i--)); do
        echo "Dem xuong: $i"
        sleep 0.5
    done
}

N=10
count_up $N &
count_down $N &
wait
echo "Hoan thanh"
```

```
ubuntu@ubuntu-2274802010449:~$ vim bai3.sh
ubuntu@ubuntu-2274802010449:~$ chmod +x bai3.sh
ubuntu@ubuntu-2274802010449:~$ ./bai3.sh
Dem len: 0
Dem xuong: 10
Dem len: 1
Dem xuong: 9
Dem len: 2
Dem xuong: 8
Dem len: 3
Dem xuong: 7
Dem len: 4
Dem xuong: 6
Dem len: 5
Dem xuong: 5
Dem len: 6
Dem xuong: 4
Dem len: 7
Dem xuong: 3
Dem len: 8
Dem xuong: 2
Dem len: 9
Dem xuong: 1
Dem len: 10
Dem xuong: 0
Hoan thanh
```

4. Write a script that scans all information from user given network interface. List all systems in the same network of that interface and their IP addresses, open ports.

```
#!/bin/bash

read -p "Nhap ten giao dien mang (vi du: eth0): " interface
echo "Danh sach cac thiet bi trong mang $interface:"
sudo arp-scan --interface=$interface --localnet
```

```
ubuntu@ubuntu-2274802010449:~$ vim bai4.sh
ubuntu@ubuntu-2274802010449:~$ chmod +x bai4.sh
ubuntu@ubuntu-2274802010449:~$ ./bai4.sh
Nhap ten giao dien mang (vi du: eth0): eth0
Danh sach cac thiet bi trong mang eth0:
Interface: eth0, type: EN10MB, MAC: 02:42:ac:13:00:42, IPv4: 172.19.0.66
Starting arp-scan 1.9.7 with 65536 hosts (https://github.com/royhills/arp-scan)
172.19.0.1      02:42:44:1b:c7:bb       (Unknown: locally administered)
172.19.0.1      02:42:ac:13:00:97       (Unknown: locally administered) (DUP: 2)
172.19.0.1      02:42:ac:13:00:86       (Unknown: locally administered) (DUP: 3)
172.19.0.2      02:42:ac:13:00:73       (Unknown: locally administered)
172.19.0.2      02:42:ac:13:00:02       (Unknown: locally administered) (DUP: 2)
172.19.0.3      02:42:ac:13:00:03       (Unknown: locally administered)
172.19.0.4      02:42:ac:13:00:04       (Unknown: locally administered)
172.19.0.5      02:42:ac:13:00:05       (Unknown: locally administered)
172.19.0.6      02:42:ac:13:00:06       (Unknown: locally administered)
172.19.0.7      02:42:ac:13:00:07       (Unknown: locally administered)
172.19.0.8      02:42:ac:13:00:08       (Unknown: locally administered)
172.19.0.9      02:42:ac:13:00:09       (Unknown: locally administered)
172.19.0.10     02:42:ac:13:00:97       (Unknown: locally administered)
172.19.0.10     02:42:ac:13:00:0a       (Unknown: locally administered) (DUP: 2)
172.19.0.11     02:42:ac:13:00:0b       (Unknown: locally administered)
172.19.0.12     02:42:ac:13:00:0c       (Unknown: locally administered)
172.19.0.13     02:42:ac:13:00:0d       (Unknown: locally administered)
172.19.0.14     02:42:ac:13:00:0e       (Unknown: locally administered)
172.19.0.15     02:42:ac:13:00:0f       (Unknown: locally administered)
172.19.0.16     02:42:ac:13:00:10       (Unknown: locally administered)
172.19.0.17     02:42:ac:13:00:11       (Unknown: locally administered)
172.19.0.18     02:42:ac:13:00:12       (Unknown: locally administered)
172.19.0.19     02:42:ac:13:00:13       (Unknown: locally administered)
172.19.0.20     02:42:ac:13:00:14       (Unknown: locally administered)
172.19.0.21     02:42:ac:13:00:15       (Unknown: locally administered)
172.19.0.22     02:42:ac:13:00:16       (Unknown: locally administered)
172.19.0.23     02:42:ac:13:00:17       (Unknown: locally administered)
172.19.0.24     02:42:ac:13:00:18       (Unknown: locally administered)
172.19.0.25     02:42:ac:13:00:19       (Unknown: locally administered)
172.19.0.26     02:42:ac:13:00:1a       (Unknown: locally administered)
172.19.0.27     02:42:ac:13:00:1b       (Unknown: locally administered)
172.19.0.28     02:42:ac:13:00:1c       (Unknown: locally administered)
172.19.0.29     02:42:ac:13:00:1d       (Unknown: locally administered)
172.19.0.30     02:42:ac:13:00:1e       (Unknown: locally administered)
```

5. Write a DNS resolver script: takes input URL and gives back the IP address and the route to that URL.

```bash
#!/bin/bash

read -p "Nhap URL: " url
ip=$(dig +short $url | tail -n 1)

if [[ -n "$ip" ]]; then
    echo "Dia chi IP cua $url la: $ip"
    traceroute $url
else
    echo "Khong tim thay dia chi IP cho $url"
fi
```

```
ubuntu@ubuntu-2274802010449:~$ vim bai5.sh
ubuntu@ubuntu-2274802010449:~$ chmod +x bai5.sh
ubuntu@ubuntu-2274802010449:~$ ./bai5.sh
Nhap URL: www.google.com
Dia chi IP cua www.google.com la: 142.250.76.4
traceroute to www.google.com (142.250.76.4), 30 hops max, 60 byte packets
 1  172.19.0.1 (172.19.0.1)  0.096 ms  0.033 ms  0.027 ms
 2  192.168.1.254 (192.168.1.254)  0.284 ms  0.257 ms  0.234 ms
 3  172.16.124.124 (172.16.124.124)  1.943 ms  2.017 ms  2.006 ms
 4  adsl.hnpt.com.vn (203.210.144.238)  2.839 ms  2.830 ms  2.780 ms
 5  172.17.5.201 (172.17.5.201)  2.542 ms 172.17.5.29 (172.17.5.29)  2.883 ms 172.17.100.61 (172.17.100.61)  2.477 ms
 6  static.vnpt.vn (113.171.48.93)  6.698 ms static.vnpt.vn (113.171.48.217)  1.975 ms static.vnpt.vn (113.171.48.93)  6.815 ms
 7  static.vnpt.vn (113.171.50.41)  38.375 ms  38.414 ms static.vnpt.vn (113.171.49.209)  39.813 ms
 8  113.171.50.222 (113.171.50.222)  44.035 ms static.vnpt.vn (113.171.44.74)  38.115 ms static.vnpt.vn (113.171.50.21)  2.654 ms
 9  static.vnpt.vn (113.171.36.53)  40.085 ms  40.547 ms  44.601 ms
10  192.178.69.164 (192.178.69.164)  43.942 ms  42.064 ms  39.852 ms
11  192.178.109.207 (192.178.109.207)  41.145 ms 192.178.109.121 (192.178.109.121)  43.365 ms 142.250.60.235 (142.250.60.235)  39.509 ms
12  142.251.229.66 (142.251.229.66)  38.840 ms 142.251.71.154 (142.251.71.154)  42.470 ms 142.251.49.190 (142.251.49.190)  40.864 ms
13  142.251.230.145 (142.251.230.145)  41.348 ms 142.251.229.66 (142.251.229.66)  44.023 ms 216.239.35.154 (216.239.35.154)  43.685 ms
14  142.251.68.130 (142.251.68.130)  57.136 ms 216.239.35.174 (216.239.35.174)  42.195 ms 216.239.35.154 (216.239.35.154)  42.160 ms
15  142.251.68.130 (142.251.68.130)  55.073 ms 216.239.62.164 (216.239.62.164)  58.567 ms 216.239.35.150 (216.239.35.150)  54.091 ms
16  142.250.59.29 (142.250.59.29)  52.188 ms  53.009 ms 142.251.240.103 (142.251.240.103)  54.372 ms
17  72.14.235.205 (72.14.235.205)  54.884 ms  53.182 ms 142.251.240.103 (142.251.240.103)  54.760 ms
18  72.14.235.205 (72.14.235.205)  55.335 ms  54.400 ms nchkga-ac-in-f4.1e100.net (142.250.76.4)  53.400 ms
```