

Myrna E Santiago

CYSE-270- Linux System for Cybersecurity Assignment –10

Networking Basics - Subnetting (100 points)

Understanding subnetting takes time and practice. Using the methods covered during the class, fill in the following tables for **Network, broadcast, first IP, Last IP** and **Max. Hosts in the network**.

The column for IP address should be in Decimal format for each, except for the number of hosts. (Refer to the examples in the slide for week 10-Networking Basics)

Task-A: (50 Points)

Category	IP Address	Binary Format
Address	192.168.100.4	11000000.10101000.01100100.00000100
Netmask	28	11111111.11111111.11111111.00000100
Network address	192.168.100.0	11000000.10101000.01100100.00000000
Broadcast address	192.168.100.15	11000000.10101000.01100100.00001111
First IP	192.168.100.1	11000000.10101000.01100100.00000001
Last IP	192.168.100.14	11000000.10101000.01100100.00001110
Maximum host in the network	14	$(2^4)-2=14$

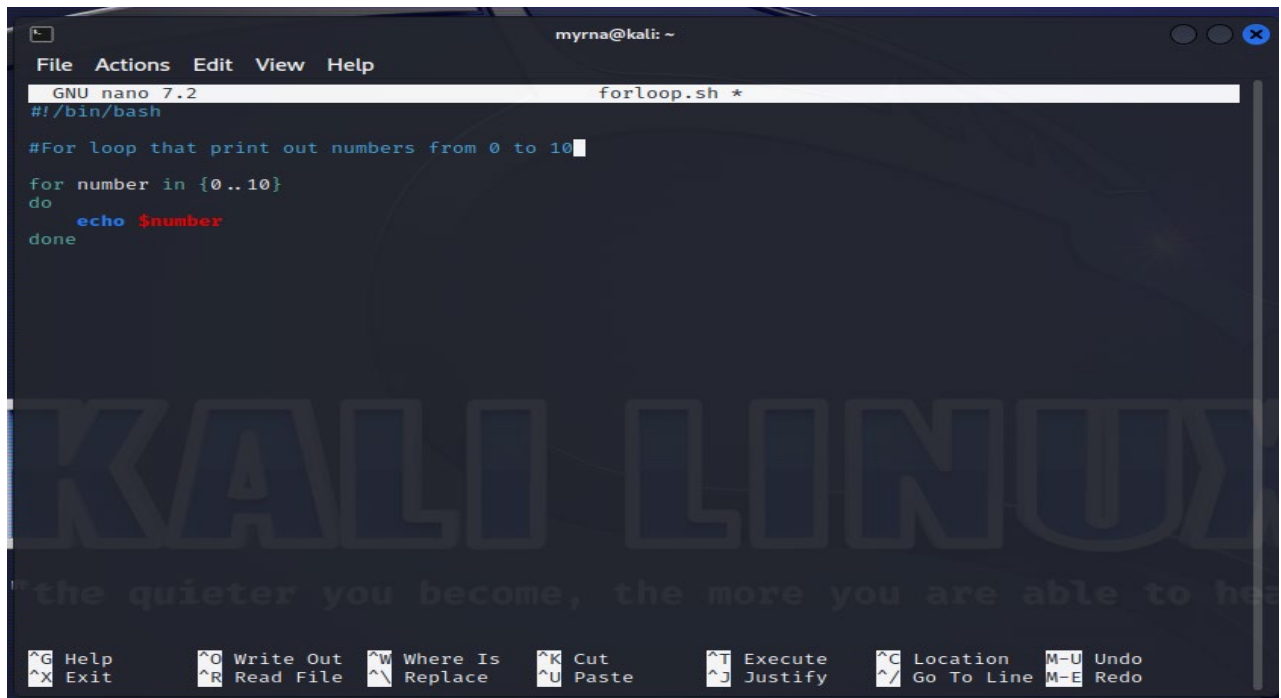
Task-B: (50 points)

Category	IP Address	Binary Format
Address	170.1.0.0	10101010.00000001.00000000.00000000
Netmask	26	11111111.11111111.11111111.11000000
Network address	170.1.0.0	10101010.00000001.00000000.00000000
Broadcast address	170.1.0.63	10101010.00000001.00000000.00111111
First IP	170.1.0.1	10101010.00000001.00000000.00000001
Last IP	170.1.0.62	10101010.00000001.00000000.00111110
Maximum host in the network	62	$(2^6)-2=62$

Extra Credit (10 points)

Write a bash script to print out 0~10 in shell scripts by using for loop and while loop, respectively? Please submit the screenshot for the script and its output, both.

For Loop Script

A screenshot of a terminal window with a nano editor. The window title is 'myrna@kali: ~'. The nano editor shows a file named 'forloop.sh' with the following content:

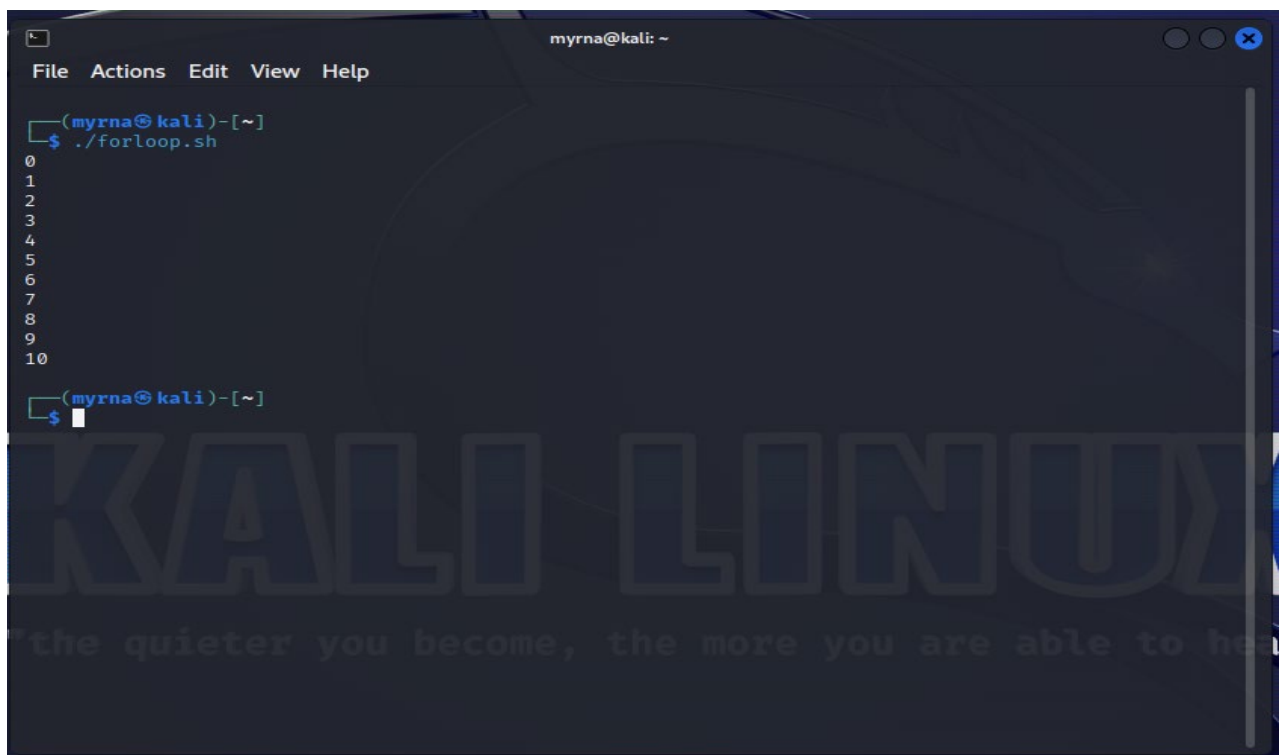
```
#!/bin/bash

#For loop that print out numbers from 0 to 10

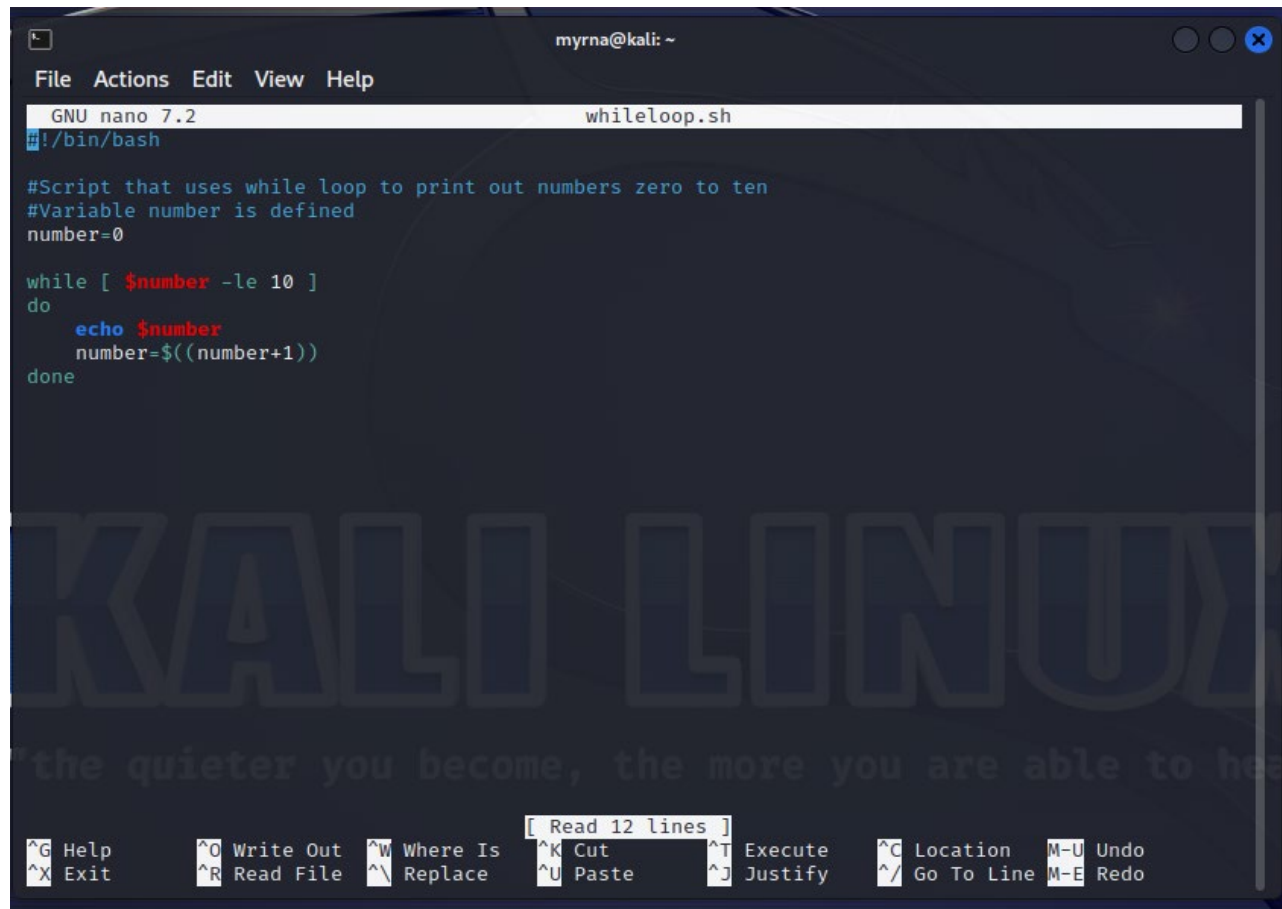
for number in {0..10}
do
    echo $number
done
```

 The nano editor's status bar at the bottom shows various keyboard shortcuts like ^G Help, ^X Exit, ^O Write Out, etc. A large 'KALI LINUX' watermark is visible in the background.

For Loop Output

A screenshot of a terminal window showing the execution of the script. The prompt is '(myrna@kali)-[~]'. The command './forloop.sh' has been entered, and the output is a list of numbers from 0 to 10, one per line. The prompt is now '\$ '. A large 'KALI LINUX' watermark is visible in the background.

While Loop Script



A screenshot of a terminal window with the nano text editor open. The window title is "myrna@kali: ~". The editor shows a file named "whileloop.sh" with the following content:

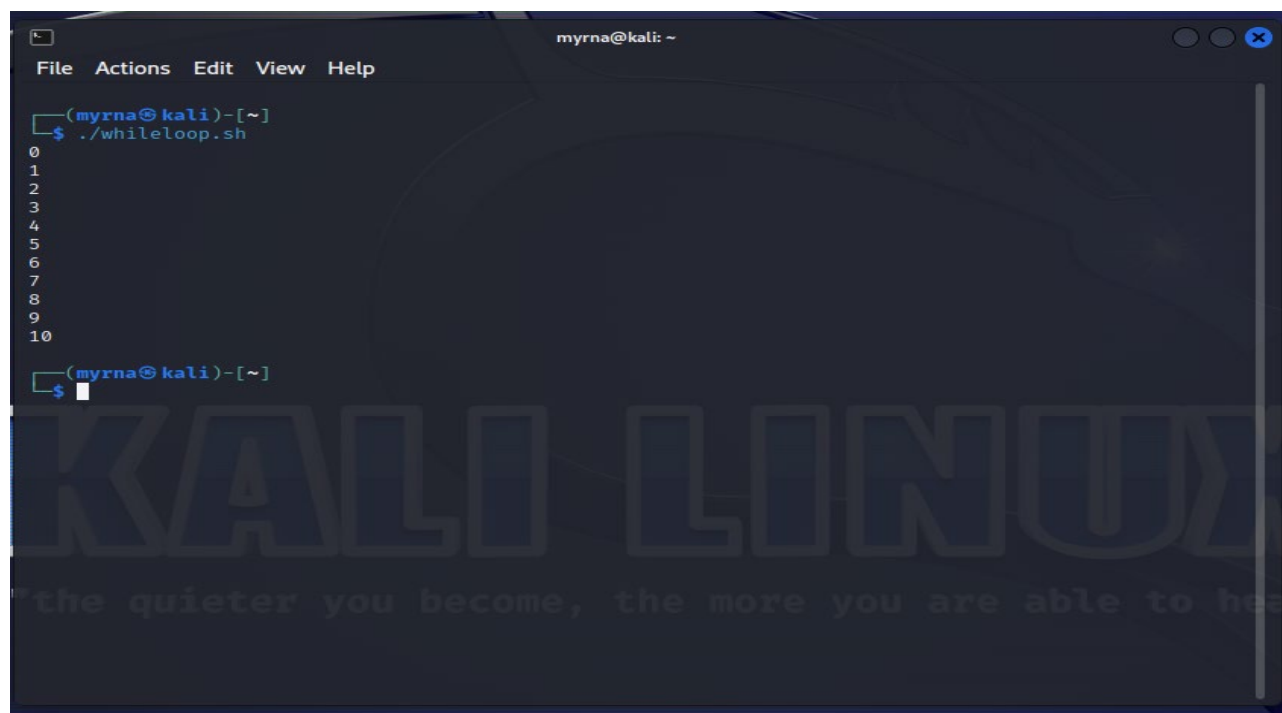
```
GNU nano 7.2 whileloop.sh
#!/bin/bash

#Script that uses while loop to print out numbers zero to ten
#Variable number is defined
number=0

while [ $number -le 10 ]
do
    echo $number
    number=$((number+1))
done
```

The bottom status bar of the nano editor displays various keyboard shortcuts: ^G Help, ^X Exit, ^O Write Out, ^R Read File, ^W Where Is, ^\ Replace, [Read 12 lines], ^K Cut, ^U Paste, ^T Execute, ^J Justify, ^C Location, ^_ Go To Line, M-U Undo, and M-E Redo.

While Loop Output



A screenshot of a terminal window showing the execution of the script. The prompt is "(myrna@kali)-[~]". The command executed is "\$./whileloop.sh". The output is a list of numbers from 0 to 10, each on a new line:

```
(myrna@kali)-[~]
$ ./whileloop.sh
0
1
2
3
4
5
6
7
8
9
10
```

The prompt returns to "(myrna@kali)-[~] \$" after the output.