

## Network Engineering 2019 Exercises - Unit 3

### 0.1 Netmask Calculation

**What is the netmask for this network?**

101.152.0.0/13

Put your answer on a single line in `unit3/answers.txt`, with 0: at the beginning of the line, e.g., 0:255.255.255.0

**What is the netmask for this network?**

35.87.229.96/27

Put your answer on a single line in `unit3/answers.txt`, with 1: at the beginning of the line, e.g., 1:255.255.255.0

**What is the netmask for this network?**

57.42.0.0/15

Put your answer on a single line in `unit3/answers.txt`, with 2: at the beginning of the line, e.g., 2:255.255.255.0

**What is the netmask for this network?**

100.134.0.0/18

Put your answer on a single line in `unit3/answers.txt`, with 3: at the beginning of the line, e.g., 3:255.255.255.0

**What is the netmask for this network?**

64.0.0.0/2

Put your answer on a single line in `unit3/answers.txt`, with 4: at the beginning of the line, e.g., 4:255.255.255.0

**What is the netmask for this network?**

2.2.110.192/26

Put your answer on a single line in `unit3/answers.txt`, with 5: at the beginning of the line, e.g., 5:255.255.255.0

**What is the netmask for this network?**

104.225.32.0/19

Put your answer on a single line in `unit3/answers.txt`, with 6: at the beginning of the line, e.g., 6:255.255.255.0

**What is the netmask for this network?**

46.89.0.0/16

Put your answer on a single line in `unit3/answers.txt`, with 7: at the beginning of the line, e.g., 7:255.255.255.0

**What is the netmask for this network?**

94.216.0.0/13

Put your answer on a single line in `unit3/answers.txt`, with 8: at the beginning of the line, e.g., 8:255.255.255.0

**What is the netmask for this network?**

64.0.128.0/17

Put your answer on a single line in `unit3/answers.txt`, with 9: at the beginning of the line, e.g., 9:255.255.255.0

**What is the netmask for this network?**

0.0.0.0/0

Put your answer on a single line in `unit3/answers.txt`, with 10: at the beginning of the line, e.g., 10:255.255.255.0

**What is the netmask for this network?**

84.0.0.0/6

Put your answer on a single line in `unit3/answers.txt`, with 11: at the beginning of the line, e.g., 11:255.255.255.0

**What is the netmask for this network?**

0.0.0.0/1

Put your answer on a single line in `unit3/answers.txt`, with 12: at the beginning of the line, e.g., 12:255.255.255.0

**What is the netmask for this network?**

120.109.88.128/25

Put your answer on a single line in `unit3/answers.txt`, with 13: at the beginning of the line, e.g., 13:255.255.255.0

**What is the netmask for this network?**

33.14.143.128/25

Put your answer on a single line in `unit3/answers.txt`, with 14: at the beginning of the line, e.g., 14:255.255.255.0

**What is the netmask for this network?**

98.232.0.0/17

Put your answer on a single line in `unit3/answers.txt`, with 15: at the beginning of the line, e.g., 15:255.255.255.0

**What is the netmask for this network?**

22.231.227.192/26

Put your answer on a single line in `unit3/answers.txt`, with 16: at the beginning of the line, e.g., 16:255.255.255.0

**What is the netmask for this network?**

108.41.31.64/26

Put your answer on a single line in `unit3/answers.txt`, with 17: at the beginning of the line, e.g., 17:255.255.255.0

**What is the netmask for this network?**

48.0.0.0/7

Put your answer on a single line in `unit3/answers.txt`, with 18: at the beginning of the line, e.g., 18:255.255.255.0

**What is the netmask for this network?**

38.128.0.0/10

Put your answer on a single line in `unit3/answers.txt`, with 19: at the beginning of the line, e.g., 19:255.255.255.0

**What is the netmask for this network?**

116.107.64.0/18

Put your answer on a single line in `unit3/answers.txt`, with 20: at the beginning of the line, e.g., 20:255.255.255.0

**What is the netmask for this network?**

114.55.120.0/24

Put your answer on a single line in `unit3/answers.txt`, with 21: at the beginning of the line, e.g., 21:255.255.255.0

**What is the netmask for this network?**

0.0.0.0/1

Put your answer on a single line in `unit3/answers.txt`, with 22: at the beginning of the line, e.g., 22:255.255.255.0

**What is the netmask for this network?**

13.254.128.0/17

Put your answer on a single line in `unit3/answers.txt`, with 23: at the beginning of the line, e.g., 23:255.255.255.0

**What is the netmask for this network?**

97.64.0.0/11

Put your answer on a single line in `unit3/answers.txt`, with 24: at the beginning of the line, e.g., 24:255.255.255.0

**What is the netmask for this network?**

21.31.0.0/17

Put your answer on a single line in `unit3/answers.txt`, with 25: at the beginning of the line, e.g., 25:255.255.255.0

**What is the netmask for this network?**

0.0.0.0/0

Put your answer on a single line in `unit3/answers.txt`, with 26: at the beginning of the line, e.g., 26:255.255.255.0

**What is the netmask for this network?**

29.8.0.0/13

Put your answer on a single line in `unit3/answers.txt`, with 27: at the beginning of the line, e.g., 27:255.255.255.0

**What is the netmask for this network?**

100.240.135.224/28

Put your answer on a single line in `unit3/answers.txt`, with 28: at the beginning of the line, e.g., 28:255.255.255.0

**What is the netmask for this network?**

82.0.0.0/10

Put your answer on a single line in `unit3/answers.txt`, with 29: at the beginning of the line, e.g., 29:255.255.255.0

**What is the netmask for this network?**

83.224.0.0/11

Put your answer on a single line in `unit3/answers.txt`, with 30: at the beginning of the line, e.g., 30:255.255.255.0

**What is the netmask for this network?**

12.167.93.176/28

Put your answer on a single line in `unit3/answers.txt`, with 31: at the beginning of the line, e.g., 31:255.255.255.0

**What is the netmask for this network?**

59.0.0.0/8

Put your answer on a single line in `unit3/answers.txt`, with 32: at the beginning of the line, e.g., 32:255.255.255.0

**What is the netmask for this network?**

58.244.0.0/14

Put your answer on a single line in `unit3/answers.txt`, with 33: at the beginning of the line, e.g., 33:255.255.255.0

**What is the netmask for this network?**

64.0.0.0/4

Put your answer on a single line in `unit3/answers.txt`, with 34: at the beginning of the line, e.g., 34:255.255.255.0

**What is the netmask for this network?**

15.173.184.192/26

Put your answer on a single line in `unit3/answers.txt`, with 35: at the beginning of the line, e.g., 35:255.255.255.0

**What is the netmask for this network?**

10.87.127.208/29

Put your answer on a single line in `unit3/answers.txt`, with 36: at the beginning of the line, e.g., 36:255.255.255.0

**What is the netmask for this network?**

27.55.244.0/27

Put your answer on a single line in `unit3/answers.txt`, with 37: at the beginning of the line, e.g., 37:255.255.255.0

**What is the netmask for this network?**

34.118.111.64/26

Put your answer on a single line in `unit3/answers.txt`, with 38: at the beginning of the line, e.g., 38:255.255.255.0

**What is the netmask for this network?**

94.24.0.0/13

Put your answer on a single line in `unit3/answers.txt`, with 39: at the beginning of the line, e.g., 39:255.255.255.0

## **0.2 Variable Length Sub-net Masking**

**What is the VLSM name of the network corresponding to the following?**

119.54.21.38 netmask 255.254.0.0

Put your answer on a single line in `unit3/answers.txt`, with 40: at the beginning of the line, e.g., 40:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

5.55.125.126 netmask 255.255.192.0

Put your answer on a single line in `unit3/answers.txt`, with 41: at the beginning of the line, e.g., 41:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

95.61.59.112 netmask 255.255.252.0

Put your answer on a single line in `unit3/answers.txt`, with 42: at the beginning of the line, e.g., `42:10.0.0.0/8`

**What is the VLSM name of the network corresponding to the following?**

41.208.165.223 netmask 255.255.192.0

Put your answer on a single line in `unit3/answers.txt`, with 43: at the beginning of the line, e.g., `43:10.0.0.0/8`

**What is the VLSM name of the network corresponding to the following?**

55.181.38.210 netmask 248.0.0.0

Put your answer on a single line in `unit3/answers.txt`, with 44: at the beginning of the line, e.g., `44:10.0.0.0/8`

**What is the VLSM name of the network corresponding to the following?**

74.44.218.220 netmask 254.0.0.0

Put your answer on a single line in `unit3/answers.txt`, with 45: at the beginning of the line, e.g., `45:10.0.0.0/8`

**What is the VLSM name of the network corresponding to the following?**

48.221.149.16 netmask 255.255.255.0

Put your answer on a single line in `unit3/answers.txt`, with 46: at the beginning of the line, e.g., `46:10.0.0.0/8`

**What is the VLSM name of the network corresponding to the following?**

118.147.27.132 netmask 255.255.252.0

Put your answer on a single line in `unit3/answers.txt`, with 47: at the beginning of the line, e.g., `47:10.0.0.0/8`

**What is the VLSM name of the network corresponding to the following?**

79.164.181.161 netmask 255.255.255.224

Put your answer on a single line in `unit3/answers.txt`, with 48: at the beginning of the line, e.g., `48:10.0.0.0/8`

**What is the VLSM name of the network corresponding to the following?**

87.135.213.36 netmask 255.255.128.0

Put your answer on a single line in `unit3/answers.txt`, with 49: at the beginning of the line, e.g., `49:10.0.0.0/8`

**What is the VLSM name of the network corresponding to the following?**

19.47.86.31 netmask 255.255.255.248

Put your answer on a single line in `unit3/answers.txt`, with 50: at the beginning of the line, e.g., `50:10.0.0.0/8`

**What is the VLSM name of the network corresponding to the following?**

87.15.208.107 netmask 255.255.248.0

Put your answer on a single line in `unit3/answers.txt`, with 51: at the beginning of the line, e.g., `51:10.0.0.0/8`

**What is the VLSM name of the network corresponding to the following?**

105.26.191.90 netmask 255.255.255.248

Put your answer on a single line in `unit3/answers.txt`, with 52: at the beginning of the line, e.g., `52:10.0.0.0/8`

**What is the VLSM name of the network corresponding to the following?**

34.80.145.16 netmask 255.255.255.0

Put your answer on a single line in `unit3/answers.txt`, with 53: at the beginning of the line, e.g., `53:10.0.0.0/8`



**What is the VLSM name of the network corresponding to the following?**

27.126.123.23 netmask 255.255.255.240

Put your answer on a single line in `unit3/answers.txt`, with 54: at the beginning of the line, e.g., 54:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

15.71.205.165 netmask 255.255.255.248

Put your answer on a single line in `unit3/answers.txt`, with 55: at the beginning of the line, e.g., 55:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

115.162.102.140 netmask 240.0.0.0

Put your answer on a single line in `unit3/answers.txt`, with 56: at the beginning of the line, e.g., 56:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

84.41.171.239 netmask 255.255.255.240

Put your answer on a single line in `unit3/answers.txt`, with 57: at the beginning of the line, e.g., 57:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

54.190.240.218 netmask 255.252.0.0

Put your answer on a single line in `unit3/answers.txt`, with 58: at the beginning of the line, e.g., 58:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

23.13.101.78 netmask 255.240.0.0

Put your answer on a single line in `unit3/answers.txt`, with 59: at the beginning of the line, e.g., 59:10.0.0.0/8

### 0.3 Configure Network Interfaces using the ifconfig and ip commands

What is ip command sequence equivalent to the following ifconfig command (apply any options in the order listed)?

```
ifconfig eth0 121.221.107.179 netmask 255.192.0.0 txqueuelen 2790
```

Put your answer on a single line in `unit3/answers.txt`, with 60: at the beginning of the line, e.g., 60:ip blah blah; ip again with other options; ip again with yet other options

What is the ifconfig command to setup interface eth0 with the following network settings (apply any options in the order listed)?

```
32.215.185.181 netmask 32.215.128.0/17, PPP remote address 82.247.32.198,  
TX queue length = 3975
```

Put your answer on a single line in `unit3/answers.txt`, with 61: at the beginning of the line, e.g., 61:ifconfig moo0 1.2.3.4 netmask 255.0.0.0 -broadcast

What is ip command sequence to setup interface eth0 with the following network settings (apply any options in the order listed)?

```
24.98.89.242 netmask 24.98.89.242/31, in promiscuous mode
```

Put your answer on a single line in `unit3/answers.txt`, with 62: at the beginning of the line, e.g., 62:ip blah blah; ip again with other options; ip again with yet other options

What is ifconfig command equivalent to the following ip command sequence (apply any options in the order listed)?

```
ip address add 100.99.195.99/19 dev eth0; ip link set dev eth0 arp  
off
```

Put your answer on a single line in `unit3/answers.txt`, with 63: at the beginning of the line, e.g., 63:ip blah blah; ip again with other options; ip again with yet other options

What is ifconfig command equivalent to the following ip command sequence (apply any options in the order listed)?

```
ip address add 20.76.148.128/15 dev eth0ip link set dev eth0 mtu  
911; ip link set dev eth0 promisc on
```

Put your answer on a single line in `unit3/answers.txt`, with 64: at the beginning of the line, e.g., 64:ip blah blah; ip again with other options; ip again with yet other options

**What is ifconfig command equivalent to the following ip command sequence (apply any options in the order listed)?**

```
ip address add 124.217.67.33/28 dev eth0; ip link set dev eth0 promisc
on
```

Put your answer on a single line in `unit3/answers.txt`, with 65: at the beginning of the line, e.g., `65:ip blah blah; ip again with other options; ip again with yet other options`

**What is the ifconfig command to setup interface eth0 with the following network settings (apply any options in the order listed)?**

```
108.77.250.164 netmask 108.77.250.164/31, PPP remote address 64.247.143.243
```

Put your answer on a single line in `unit3/answers.txt`, with 66: at the beginning of the line, e.g., `66:ifconfig moo0 1.2.3.4 netmask 255.0.0.0 -broadcast`

**What is ifconfig command equivalent to the following ip command sequence (apply any options in the order listed)?**

```
ip address add 30.4.145.205/17 dev eth0; ip link set eth0 down
```

Put your answer on a single line in `unit3/answers.txt`, with 67: at the beginning of the line, e.g., `67:ip blah blah; ip again with other options; ip again with yet other options`

**What is the ifconfig command to setup interface eth0 with the following network settings (apply any options in the order listed)?**

```
58.132.145.22 netmask 58.132.145.16/28, MTU = 1543, TX queue
length = 4153
```

Put your answer on a single line in `unit3/answers.txt`, with 68: at the beginning of the line, e.g., `68:ifconfig moo0 1.2.3.4 netmask 255.0.0.0 -broadcast`

**What is ip command sequence equivalent to the following ifconfig command (apply any options in the order listed)?**

```
ifconfig eth0 59.36.242.60 netmask 240.0.0.0 promisc
```

Put your answer on a single line in `unit3/answers.txt`, with 69: at the beginning of the line, e.g., `69:ip blah blah; ip again with other options; ip again with yet other options`

**What is ip command sequence equivalent to the following ifconfig command (apply any options in the order listed)?**

```
ifconfig eth0 113.105.118.101 netmask 248.0.0.0 down
```

Put your answer on a single line in `unit3/answers.txt`, with 70: at the beginning of the line, e.g., 70:ip blah blah; ip again with other options; ip again with yet other options

**What is ip command sequence equivalent to the following ifconfig command (apply any options in the order listed)?**

```
ifconfig eth0 59.216.0.0 netmask 255.224.0.0 -arp
```

Put your answer on a single line in `unit3/answers.txt`, with 71: at the beginning of the line, e.g., 71:ip blah blah; ip again with other options; ip again with yet other options

**What is ip command sequence equivalent to the following ifconfig command (apply any options in the order listed)?**

```
ifconfig eth0 108.93.195.196 netmask 255.255.254.0 -arp txqueuelen 4395
```

Put your answer on a single line in `unit3/answers.txt`, with 72: at the beginning of the line, e.g., 72:ip blah blah; ip again with other options; ip again with yet other options

**What is ip command sequence to setup interface eth0 with the following network settings (apply any options in the order listed)?**

```
93.39.197.236 netmask 93.39.197.0/24, MTU = 1509
```

Put your answer on a single line in `unit3/answers.txt`, with 73: at the beginning of the line, e.g., 73:ip blah blah; ip again with other options; ip again with yet other options

**What is ifconfig command equivalent to the following ip command sequence (apply any options in the order listed)?**

```
ip address add 114.143.172.177/15 dev eth0; ip link set eth0 down;  
ip link set dev eth0 promisc on; ip link set dev eth0 txqueuelen 709
```

Put your answer on a single line in `unit3/answers.txt`, with 74: at the beginning of the line, e.g., 74:ip blah blah; ip again with other options; ip again with yet other options

**What is ip command sequence to setup interface eth0 with the following network settings (apply any options in the order listed)?**

14.118.99.131 netmask 14.118.96.0/22

Put your answer on a single line in `unit3/answers.txt`, with 75: at the beginning of the line, e.g., 75:ip blah blah; ip again with other options; ip again with yet other options

**What is ip command sequence to setup interface eth0 with the following network settings (apply any options in the order listed)?**

115.251.243.54 netmask 115.251.224.0/19, in promiscuous mode

Put your answer on a single line in `unit3/answers.txt`, with 76: at the beginning of the line, e.g., 76:ip blah blah; ip again with other options; ip again with yet other options

**What is the ifconfig command to setup interface eth0 with the following network settings (apply any options in the order listed)?**

39.7.230.34 netmask 39.0.0.0/12, without ARP, in promiscuous mode,  
TX queue length = 2442

Put your answer on a single line in `unit3/answers.txt`, with 77: at the beginning of the line, e.g., 77:ifconfig moo0 1.2.3.4 netmask 255.0.0.0 -broadcast

**What is ip command sequence equivalent to the following ifconfig command (apply any options in the order listed)?**

ifconfig eth0 36.158.21.172 netmask 255.0.0.0

Put your answer on a single line in `unit3/answers.txt`, with 78: at the beginning of the line, e.g., 78:ip blah blah; ip again with other options; ip again with yet other options

**What is the ifconfig command to setup interface eth0 with the following network settings (apply any options in the order listed)?**

82.159.244.236 netmask 64.0.0.0/2, MTU = 3126, TX queue length  
= 3921

Put your answer on a single line in `unit3/answers.txt`, with 79: at the beginning of the line, e.g., 79:ifconfig moo0 1.2.3.4 netmask 255.0.0.0 -broadcast

## 0.4 Configure Network Interfaces using `/etc/network/interfaces` file

### 0.4.1 Prepare `unit3/iface0-solution.txt`

Produce an `interfaces` file in `unit3/iface0-solution.txt`, that contains the following:

- A template called `moths0`, that specifies an MTU of 6100 and MAC address `08:32:B4:99:E2:34`.
- A template called `moths1`, that specifies an MTU of 2310 and MAC address `E0:57:69:10:95:96`.
- A template called `castle2`, that specifies an MTU of 5058 and MAC address `E5:6A:85:CD:8D:9B`.
- An interface named `ftdi0`, with IPv4 address `75.133.130.158` and netmask `255.240.0.0`, and inherits the template `moths0`.
- An interface named `eth1`, with IPv4 settings configured by DHCP and inherits the template `moths0`.
- An interface named `wlan2`, with IPv4 address `120.124.224.79` and netmask `255.255.255.128`.

### 0.4.2 Prepare `unit3/iface1-solution.txt`

Produce an `interfaces` file in `unit3/iface1-solution.txt`, that contains the following:

- A template called `moths0`, that specifies an MTU of 718 and MAC address `3E:79:E8:00:5E:52`.
- A template called `ruins1`, that specifies an MTU of 5207 and MAC address `DF:20:66:7D:4D:E4`.
- An interface named `ftdi0`, with IPv4 address `100.58.87.230` and netmask `240.0.0.0`, and inherits the template `ruins1`.
- An interface named `ftdi1`, with IPv4 settings configured by DHCP and inherits the template `ruins1`.
- An interface named `ftdi2`, with IPv4 settings configured by DHCP.

### 0.4.3 Prepare `unit3/iface2-solution.txt`

Produce an `interfaces` file in `unit3/iface2-solution.txt`, that contains the following:

- A template called `castle0`, that specifies an MTU of 2922 and MAC address `82:35:8C:AE:14:AC`.

- A template called `wealth1`, that specifies an MTU of 1702 and MAC address `F9:F8:EA:DF:9D:7D`.
- An interface named `eth0`, with IPv4 settings configured by DHCP.
- An interface named `wlan1`, with IPv4 address `47.41.138.74` and netmask `255.255.255.0`.
- An interface named `ftdi2`, with IPv4 settings configured by DHCP.
- An interface named `wlan3`, with IPv4 settings configured by DHCP.
- An interface named `eth4`, with IPv4 address `83.133.145.1` and netmask `248.0.0.0`.
- An interface named `ftdi5`, with IPv4 settings configured by DHCP and inherits the template `wealth1`.
- An interface named `wlan6`, with IPv4 settings configured by DHCP and inherits the template `wealth1`.

#### 0.4.4 Prepare `unit3/iface3-solution.txt`

Produce an `interfaces` file in `unit3/iface3-solution.txt`, that contains the following:

- A template called `castle0`, that specifies an MTU of 5050 and MAC address `D4:0E:44:9A:6E:FC`.
- A template called `moths1`, that specifies an MTU of 6741 and MAC address `E9:BF:E1:EA:C4:86`.
- An interface named `eth0`, with IPv4 address `126.155.244.195` and netmask `224.0.0.0`, and inherits the template `moths1`.
- An interface named `ftdi1`, with IPv4 address `30.126.38.214` and netmask `128.0.0.0`, and inherits the template `moths1`.
- An interface named `wlan2`, with IPv4 address `117.210.69.178` and netmask `255.255.192.0`.
- An interface named `wlan3`, with IPv4 settings configured by DHCP and inherits the template `castle0`.
- An interface named `jam4`, with IPv4 address `23.39.71.79` and netmask `255.192.0.0`.
- An interface named `ftdi5`, with IPv4 address `113.168.210.44` and netmask `255.255.254.0`.
- An interface named `jam6`, with IPv4 address `100.83.204.174` and netmask `255.255.0.0`.

#### 0.4.5 Prepare unit3/iface4-solution.txt

Produce an `interfaces` file in `unit3/iface4-solution.txt`, that contains the following:

- A template called `moths0`, that specifies an MTU of 293 and MAC address 95:C2:37:67:44:58.
- A template called `castle1`, that specifies an MTU of 7440 and MAC address BD:4F:D2:1E:F7:22.
- An interface named `wlan0`, with IPv4 settings configured by DHCP.
- An interface named `eth1`, with IPv4 settings configured by DHCP and inherits the template `castle1`.
- An interface named `jam2`, with IPv4 address 72.104.59.163 and netmask 255.254.0.0.

#### 0.5 Create and delete routes

**0.5.1 Create files `unit3/routes0add.sh` and `unit3/routes0del.sh` that contains commands that will respective establish and delete the following routes**

- 80.36.18.128/25 via the interface to your 2nd VM
- 96.11.11.240/29 via the interface to your 2nd VM
- 13.253.0.0/17 via the interface to your 2nd VM
- 125.227.58.128/25 via the interface to your 2nd VM
- 126.153.123.86/31 via the IP address of your 2nd VM
- 15.66.176.0/20 via the IP address of your 2nd VM

**0.5.2 Create files `unit3/routes1add.sh` and `unit3/routes1del.sh` that contains commands that will respective establish and delete the following routes**

- 56.225.106.128/26 via the IP address of your 2nd VM
- 117.197.162.48/31 via the IP address of your 2nd VM
- 115.218.48.0/22 via the interface to your 2nd VM
- 65.170.194.0/24 via the IP address of your 2nd VM
- 16.155.60.0/26 via the IP address of your 2nd VM
- 111.185.66.0/24 via the IP address of your 2nd VM



**0.5.3 Create files `unit3/routes2add.sh` and `unit3/routes2del.sh` that contains commands that will respective establish and delete the following routes**

- 99.247.99.0/24 via the IP address of your 2nd VM
- 74.89.255.112/30 via the IP address of your 2nd VM
- 17.165.208.0/20 via the IP address of your 2nd VM
- 14.26.120.0/21 via the IP address of your 2nd VM
- 17.192.96.0/23 via the IP address of your 2nd VM
- 116.131.115.0/25 via the IP address of your 2nd VM

**0.5.4 Create files `unit3/routes3add.sh` and `unit3/routes3del.sh` that contains commands that will respective establish and delete the following routes**

- 52.70.224.0/20 via the IP address of your 2nd VM
- 25.229.192.0/19 via the interface to your 2nd VM
- 81.30.48.128/25 via the IP address of your 2nd VM
- 20.0.0.0/16 via the IP address of your 2nd VM
- 35.145.0.0/17 via the IP address of your 2nd VM
- 35.242.128.0/17 via the interface to your 2nd VM

**0.5.5 Create files `unit3/routes4add.sh` and `unit3/routes4del.sh` that contains commands that will respective establish and delete the following routes**

- 40.145.160.0/21 via the interface to your 2nd VM
- 90.111.80.128/26 via the IP address of your 2nd VM
- 58.116.0.0/17 via the IP address of your 2nd VM
- 30.69.72.0/22 via the IP address of your 2nd VM
- 41.201.64.0/18 via the interface to your 2nd VM
- 114.86.64.0/20 via the interface to your 2nd VM