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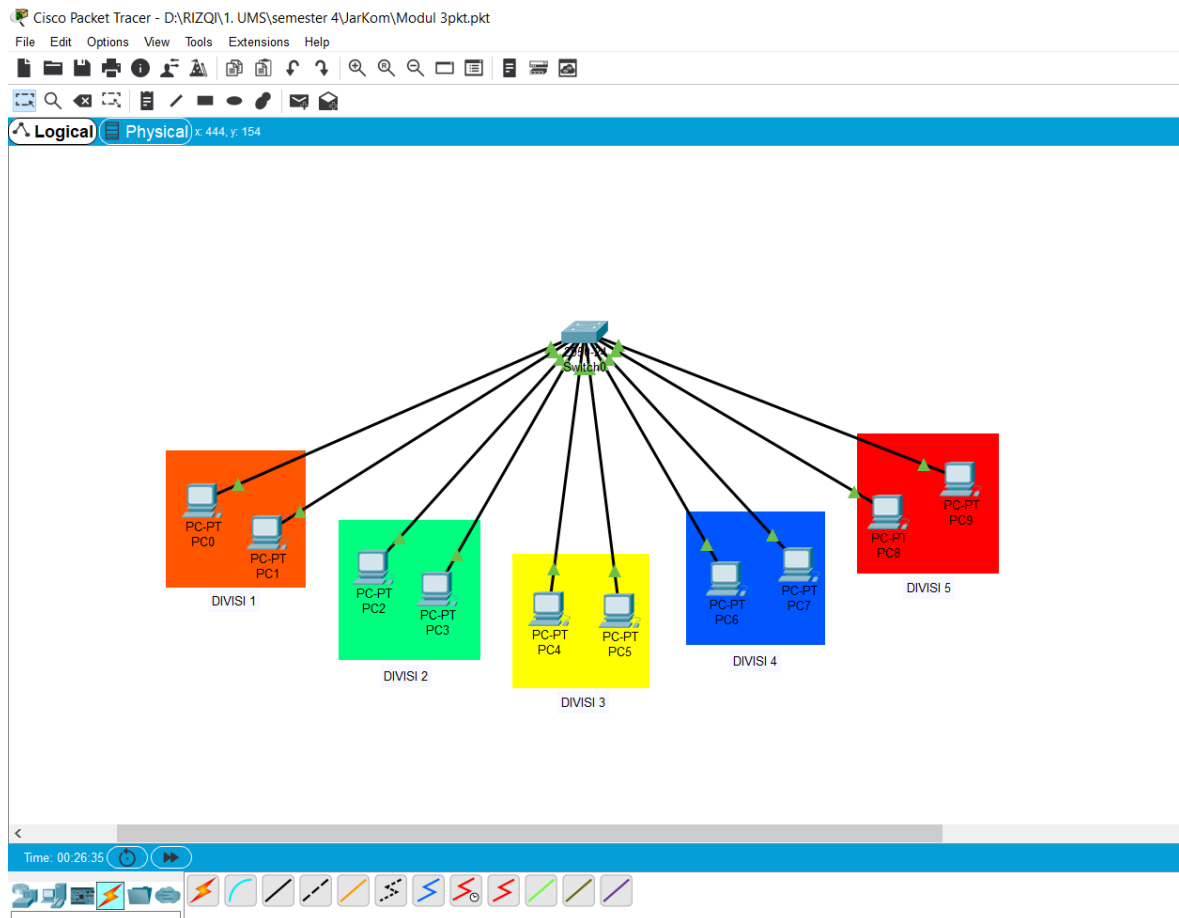
NIM : L200180171

Kelas : D

### TUGAS PRAKTIKUM JARINGAN KOMPUTER MODUL 3

Diketahui sebuah supermarket akan memasang sebuah jaringan computer yang menggunakan network ID 202.155.19.0 dengan subnet mask default 255.255.255.0. Supermarket tersebut mempunyai 5 divisi dan masing-masing divisi dapat berisi hingga 25 komputer.

1. Langkah pertama yang dilakukan yaitu membuat topologi jaringan yang terdiri dari 1 buah switch dan 10 buah unit PC dengan pembagian 2 unit PC tiap divisinya.



2. Menentukan subnet mask yang harus digunakan pada semua computer yaitu dengan berpatokan pada soal bahwa tiap-tiap divisi dapat menampung hingga 25 unit PC dan subnet mask default yaitu 255.255.255.0, berarti blok kosong terakhir dapat di uraikan menjadi (00000000), karena kita hanya membutuhkan 5 subnet untuk masing-masing divisi maka kita cukup mengambil 3 bit dari sebelah kiri lalu kita masukan dalam rumus :

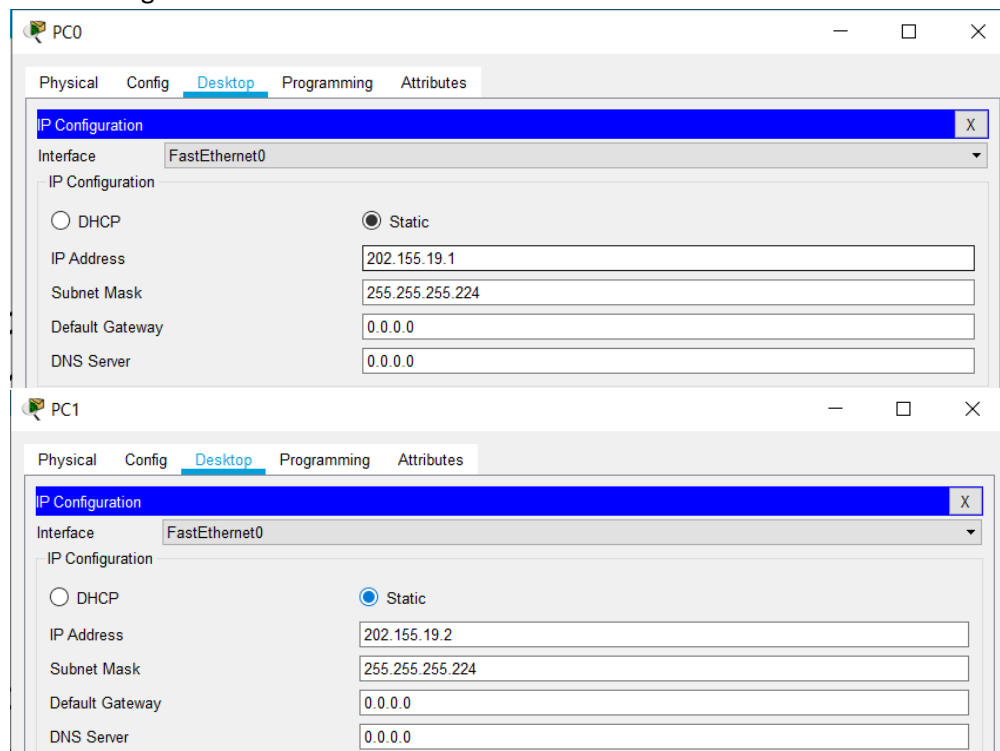
➤  $255.255.255.0 = 11111111 \ 11111111 \ 11111111 \ 00000000$  (biner nya)

- $2^3 - 2 = 6$  subnet, kita ubah bit 0 pada subnet mask default menjadi bit 1 sebanyak 3 bit (**11100000**)
  - Sehingga,  $(1 \times 2^7) + (1 \times 2^6) + (1 \times 2^5) + (0) + (0) + (0) + (0) + (0) = 224$
  - Range IP yang didapat :  $256 - 224 = 32$  IP Address, dimana dengan ini syarat bahwa tiap-tiap divisi dapat menampung hingga 25 komputer dapat terpenuhi
3. Jadi akan menghasilkan range IP Address untuk setiap subnet :

Subnet Address	Alamat IP Awal	Alamat IP Akhir
202.155.19.0	202.155.19.1	202.155.19.31
202.155.19.32	202.155.19.33	202.155.19.63
202.155.19.64	202.155.19.65	202.155.19.95
202.155.19.96	202.155.19.97	202.155.19.127
202.155.19.128	202.155.19.129	202.155.19.159
202.155.19.160	202.155.19.161	202.155.19.191
202.155.19.192	202.155.19.193	202.155.19.223

4. Setelah mendapatkan data range IP Address diatas langkah selanjutnya yaitu memberikan alamat IP pada masing-masing PC berdasarkan masing masing divisi dengan menggunakan subnet mask **255.255.255.224**

- Divisi 1 range IP Address = 202.155.19.1-202.155.19.31



- Divisi 2 range IP Address = 202.155.19.32-202.155.19.63

The image shows two screenshots of network configuration windows for PC2 and PC3. Both windows have tabs for Physical, Config, Desktop, Programming, and Attributes. The 'Desktop' tab is active, showing the 'IP Configuration' section. The 'Interface' is set to 'FastEthernet0'. The 'IP Configuration' section has two radio buttons: 'DHCP' and 'Static'. The 'Static' option is selected. The fields for IP Address, Subnet Mask, Default Gateway, and DNS Server are filled with the following values:

Field	Value
IP Address	202.155.19.33
Subnet Mask	255.255.255.224
Default Gateway	0.0.0.0
DNS Server	0.0.0.0

PC3 has the same configuration, but the IP Address is 202.155.19.34.

- Divisi 3 range IP Address = 202.155.19.65-202.155.19.95

The image shows two screenshots of network configuration windows for PC4 and PC5. Both windows have tabs for Physical, Config, Desktop, Programming, and Attributes. The 'Desktop' tab is active, showing the 'IP Configuration' section. The 'Interface' is set to 'FastEthernet0'. The 'IP Configuration' section has two radio buttons: 'DHCP' and 'Static'. The 'Static' option is selected. The fields for IP Address, Subnet Mask, Default Gateway, and DNS Server are filled with the following values:

Field	Value
IP Address	202.155.19.65
Subnet Mask	255.255.255.224
Default Gateway	0.0.0.0
DNS Server	0.0.0.0

PC5 has the same configuration, but the IP Address is 202.155.19.66.

- Divisi 4 range IP Address = 202.155.19.97-202.155.19.127

PC6

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address 202.155.19.97

Subnet Mask 255.255.255.224

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

PC7

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address 202.155.19.98

Subnet Mask 255.255.255.224

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

- Divisi 5 range IP Address = 202.155.19.129-202.155.19.159

PC8

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address 202.155.19.129

Subnet Mask 255.255.255.224

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

PC9

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address 202.155.19.130

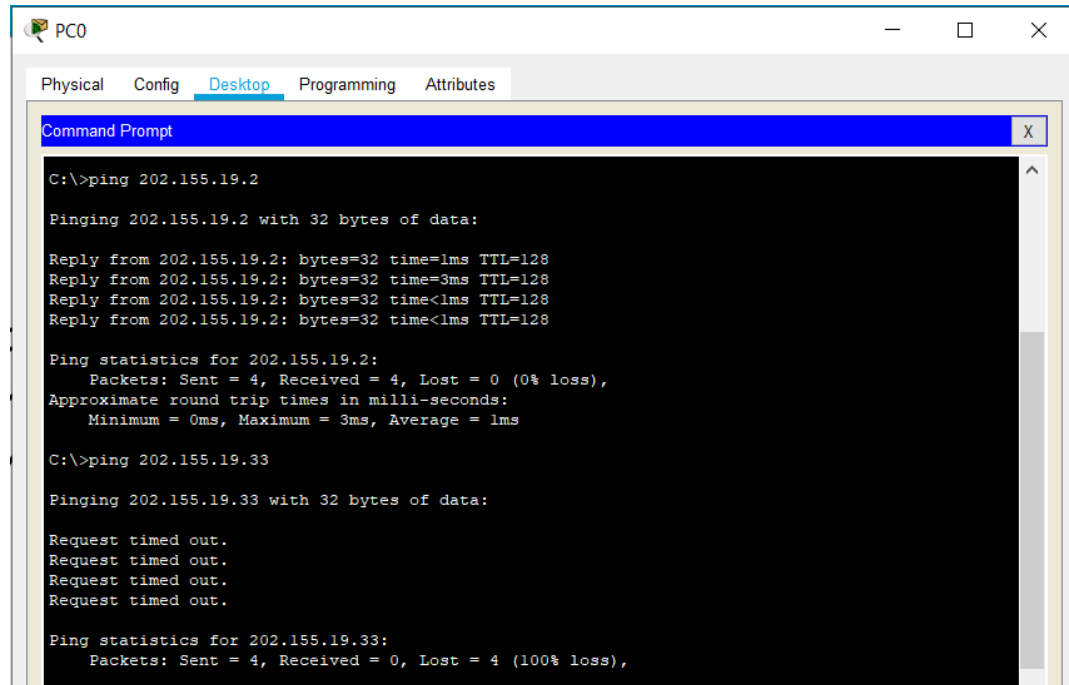
Subnet Mask 255.255.255.224

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

5. Lakukan tes koneksi menggunakan simulator ping yang ada pada tiap-tiap PC. Setiap PC yang ada didalam sebuah subnet hanya bisa menghubungi PC yang mempunyai subnet sama, sehingga tidak akan bisa menghubungi PC yg berada di subnet lainnya.

a) Divisi 1



```
PC0
Physical Config Desktop Programming Attributes
Command Prompt
C:\>ping 202.155.19.2

Pinging 202.155.19.2 with 32 bytes of data:

Reply from 202.155.19.2: bytes=32 time=1ms TTL=128
Reply from 202.155.19.2: bytes=32 time=3ms TTL=128
Reply from 202.155.19.2: bytes=32 time<1ms TTL=128
Reply from 202.155.19.2: bytes=32 time<1ms TTL=128

Ping statistics for 202.155.19.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 3ms, Average = 1ms

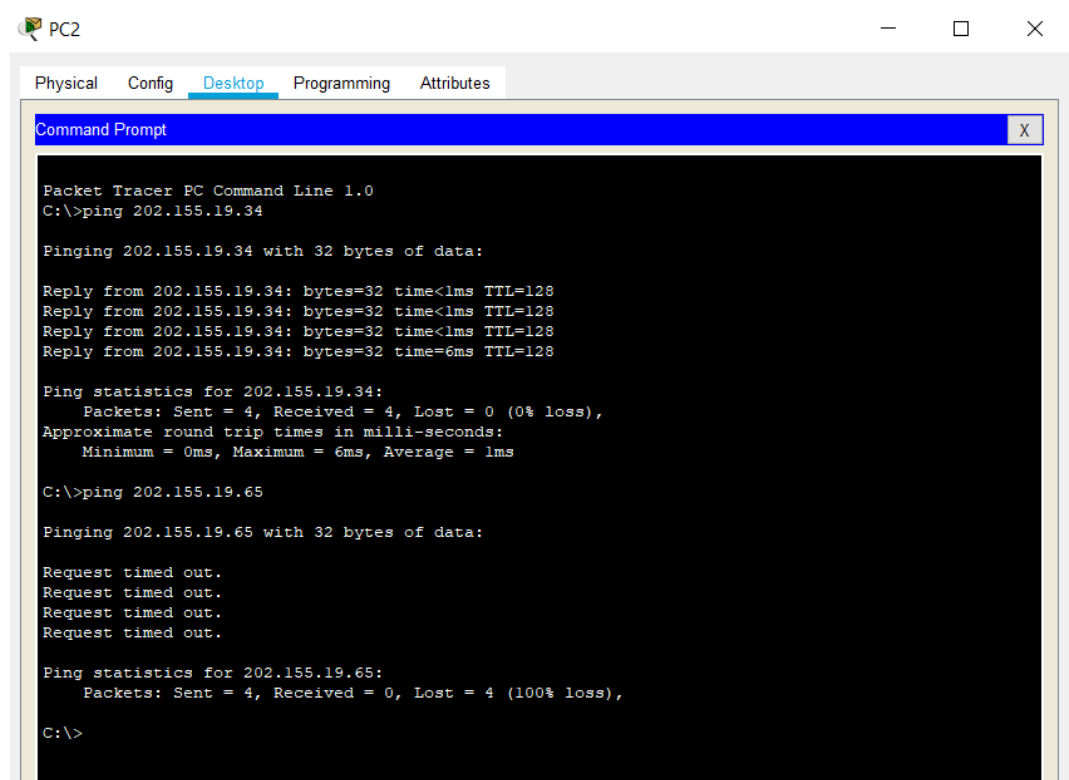
C:\>ping 202.155.19.33

Pinging 202.155.19.33 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 202.155.19.33:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

b) Divisi 2



```
PC2
Physical Config Desktop Programming Attributes
Command Prompt
Packet Tracer PC Command Line 1.0
C:\>ping 202.155.19.34

Pinging 202.155.19.34 with 32 bytes of data:

Reply from 202.155.19.34: bytes=32 time<1ms TTL=128
Reply from 202.155.19.34: bytes=32 time<1ms TTL=128
Reply from 202.155.19.34: bytes=32 time<1ms TTL=128
Reply from 202.155.19.34: bytes=32 time=6ms TTL=128

Ping statistics for 202.155.19.34:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 6ms, Average = 1ms

C:\>ping 202.155.19.65

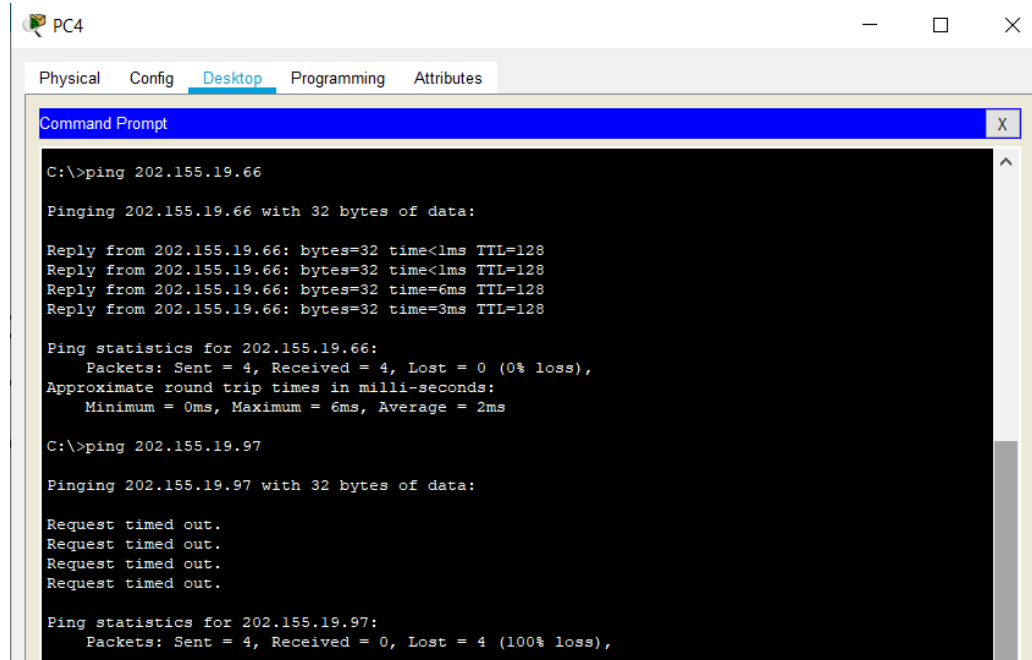
Pinging 202.155.19.65 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 202.155.19.65:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

c) Divisi 3



PC4

Physical Config Desktop Programming Attributes

Command Prompt

```
C:\>ping 202.155.19.66

Pinging 202.155.19.66 with 32 bytes of data:

Reply from 202.155.19.66: bytes=32 time<1ms TTL=128
Reply from 202.155.19.66: bytes=32 time<1ms TTL=128
Reply from 202.155.19.66: bytes=32 time=6ms TTL=128
Reply from 202.155.19.66: bytes=32 time=3ms TTL=128

Ping statistics for 202.155.19.66:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 6ms, Average = 2ms

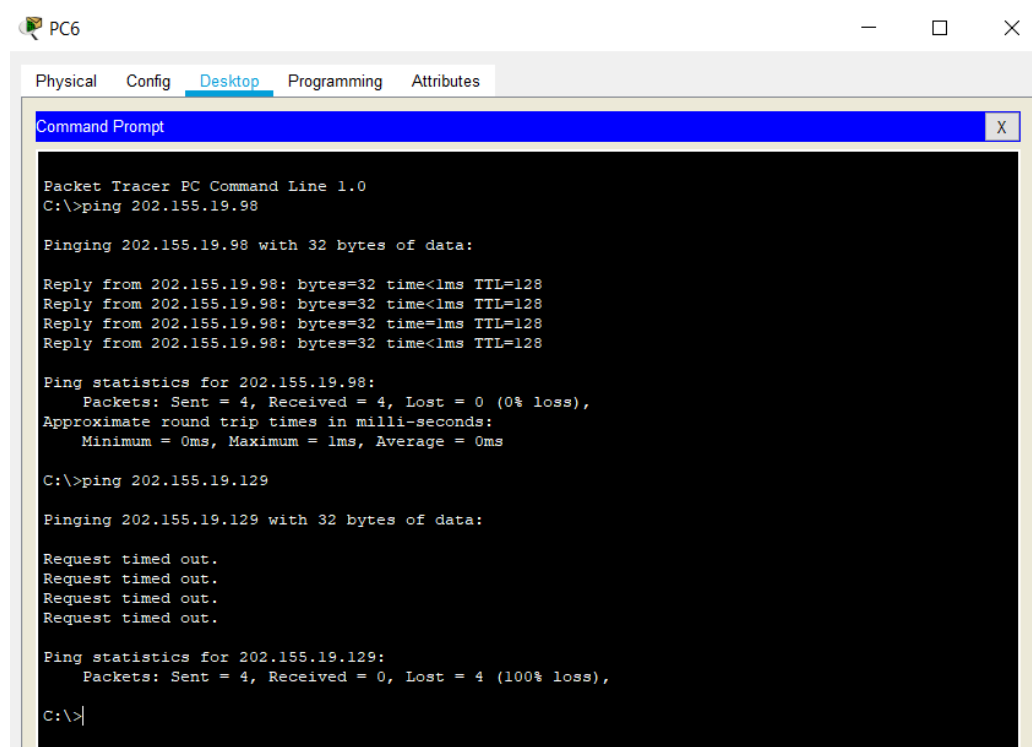
C:\>ping 202.155.19.97

Pinging 202.155.19.97 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 202.155.19.97:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

d) Divisi 4



PC6

Physical Config Desktop Programming Attributes

Command Prompt

```
Packet Tracer PC Command Line 1.0
C:\>ping 202.155.19.98

Pinging 202.155.19.98 with 32 bytes of data:

Reply from 202.155.19.98: bytes=32 time<1ms TTL=128
Reply from 202.155.19.98: bytes=32 time<1ms TTL=128
Reply from 202.155.19.98: bytes=32 time=1ms TTL=128
Reply from 202.155.19.98: bytes=32 time<1ms TTL=128

Ping statistics for 202.155.19.98:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 202.155.19.129

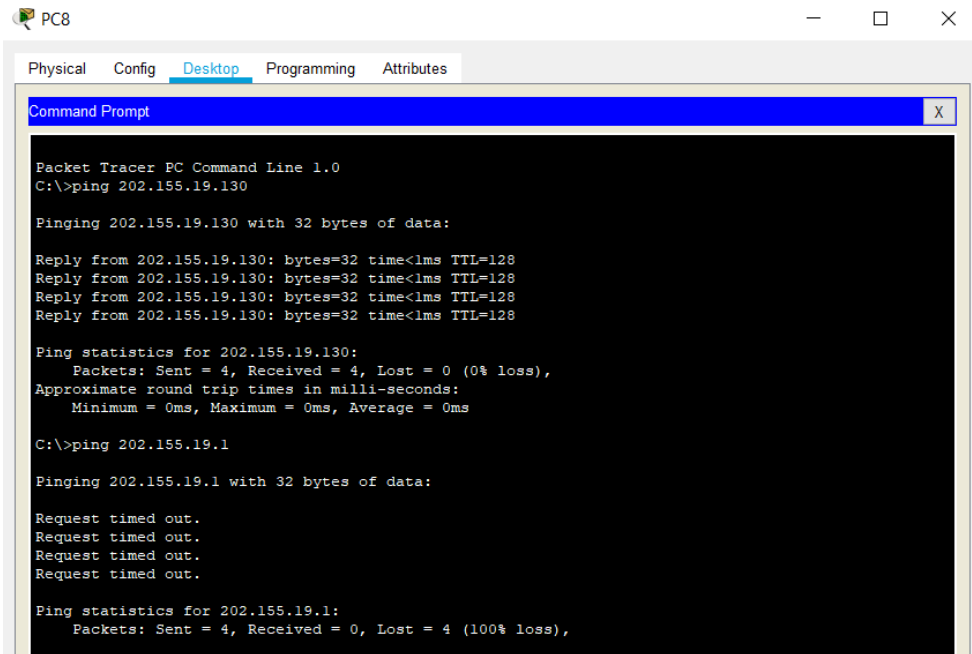
Pinging 202.155.19.129 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 202.155.19.129:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

e) Divisi 5



The screenshot shows a Packet Tracer PC8 window with the 'Desktop' tab selected. A Command Prompt window is open, displaying the results of two ping commands. The first command, 'ping 202.155.19.130', shows successful results with 4 packets received and 0% loss. The second command, 'ping 202.155.19.1', shows failed results with 4 packets lost and 100% loss.

```
Packet Tracer PC Command Line 1.0
C:\>ping 202.155.19.130

Pinging 202.155.19.130 with 32 bytes of data:

Reply from 202.155.19.130: bytes=32 time<1ms TTL=128
Reply from 202.155.19.130: bytes=32 time<1ms TTL=128
Reply from 202.155.19.130: bytes=32 time<1ms TTL=128
Reply from 202.155.19.130: bytes=32 time<1ms TTL=128

Ping statistics for 202.155.19.130:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 202.155.19.1

Pinging 202.155.19.1 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 202.155.19.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```