Internet dan Aplikasinya
TUGAS 1 : Wired LAN

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2024

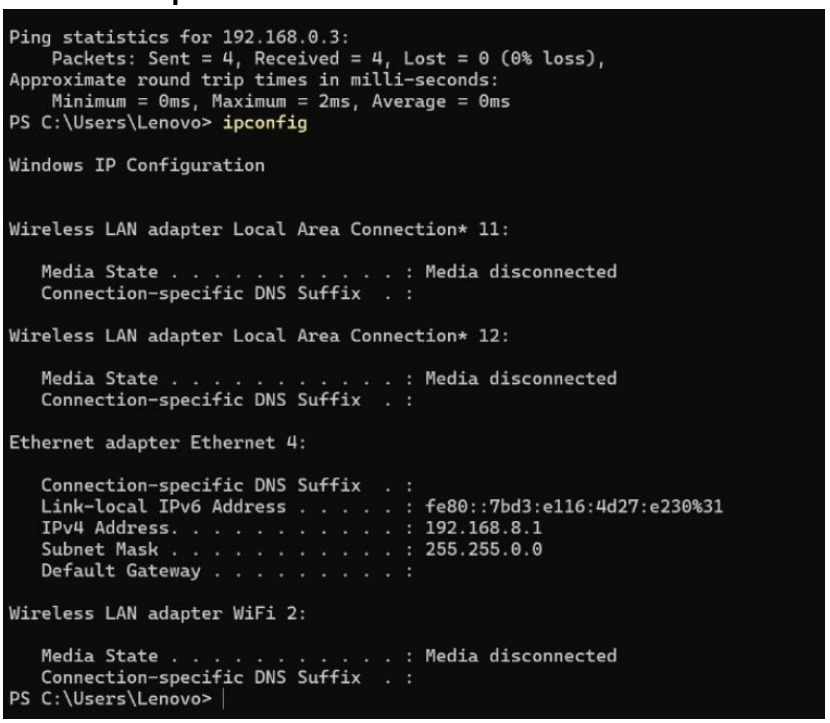
A. Screenshot Percobaan 1

```
PS C:\Users\asus> ipconfig

Windows IP Configuration


Wireless LAN adapter Local Area Connection* 1:

   Media State . . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 2:

   Media State . . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::a851:ecc2:f2ba:fae8%14
   IPv4 Address. . . . . . . . . . . : 192.168.0.2
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . :

Wireless LAN adapter Wi-Fi:

   Media State . . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Ethernet adapter Bluetooth Network Connection:

   Media State . . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
PS C:\Users\asus>
```

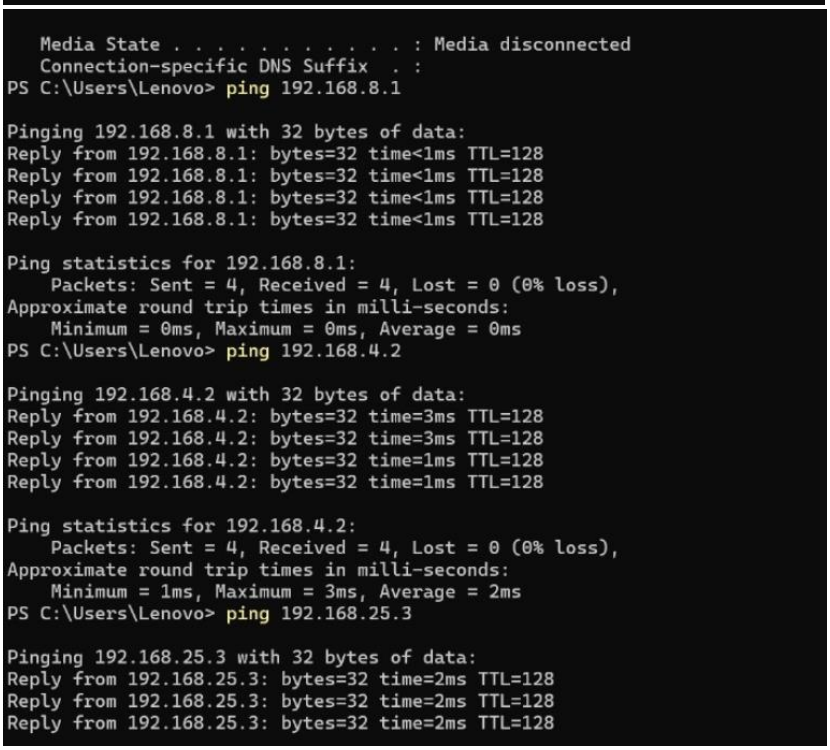
```
   Media State . . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
PS C:\Users\Lenovo> ping 192.168.0.1

Pinging 192.168.0.1 with 32 bytes of data:
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
PS C:\Users\Lenovo> ping 192.168.0.2

Pinging 192.168.0.2 with 32 bytes of data:
Reply from 192.168.0.2: bytes=32 time=3ms TTL=128
Reply from 192.168.0.2: bytes=32 time=3ms TTL=128
Reply from 192.168.0.2: bytes=32 time=1ms TTL=128
Reply from 192.168.0.2: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 3ms, Average = 2ms
PS C:\Users\Lenovo> ping 192.168.0.3

Pinging 192.168.0.3 with 32 bytes of data:
Reply from 192.168.0.3: bytes=32 time=2ms TTL=128
Reply from 192.168.0.3: bytes=32 time<1ms TTL=128
Reply from 192.168.0.3: bytes=32 time<1ms TTL=128
Reply from 192.168.0.3: bytes=32 time<1ms TTL=128
```

```
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
PS C:\Users\Lenovo> ping 192.168.0.2

Pinging 192.168.0.2 with 32 bytes of data:
Reply from 192.168.0.2: bytes=32 time=3ms TTL=128
Reply from 192.168.0.2: bytes=32 time=3ms TTL=128
Reply from 192.168.0.2: bytes=32 time=1ms TTL=128
Reply from 192.168.0.2: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 3ms, Average = 2ms
PS C:\Users\Lenovo> ping 192.168.0.3

Pinging 192.168.0.3 with 32 bytes of data:
Reply from 192.168.0.3: bytes=32 time=2ms TTL=128
Reply from 192.168.0.3: bytes=32 time<1ms TTL=128
Reply from 192.168.0.3: bytes=32 time<1ms TTL=128
Reply from 192.168.0.3: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 2ms, Average = 0ms
PS C:\Users\Lenovo>
```

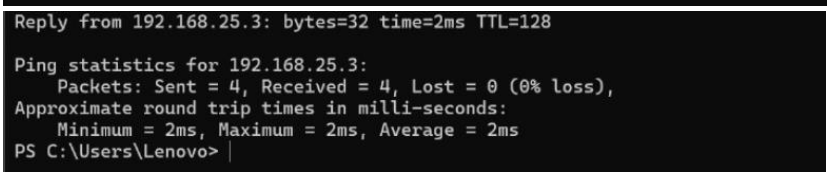
B. Screenshot percobaan 2



```
Ping statistics for 192.168.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 2ms, Average = 0ms
PS C:\Users\Lenovo> ipconfig

Windows IP Configuration


Wireless LAN adapter Local Area Connection* 11:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 12:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Ethernet adapter Ethernet 4:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::7bd3:e116:4d27:e230%31
   IPv4 Address. . . . . . . . . . . : 192.168.8.1
   Subnet Mask . . . . . . . . . . . : 255.255.0.0
   Default Gateway . . . . . . . . . :

Wireless LAN adapter WiFi 2:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
PS C:\Users\Lenovo>
```

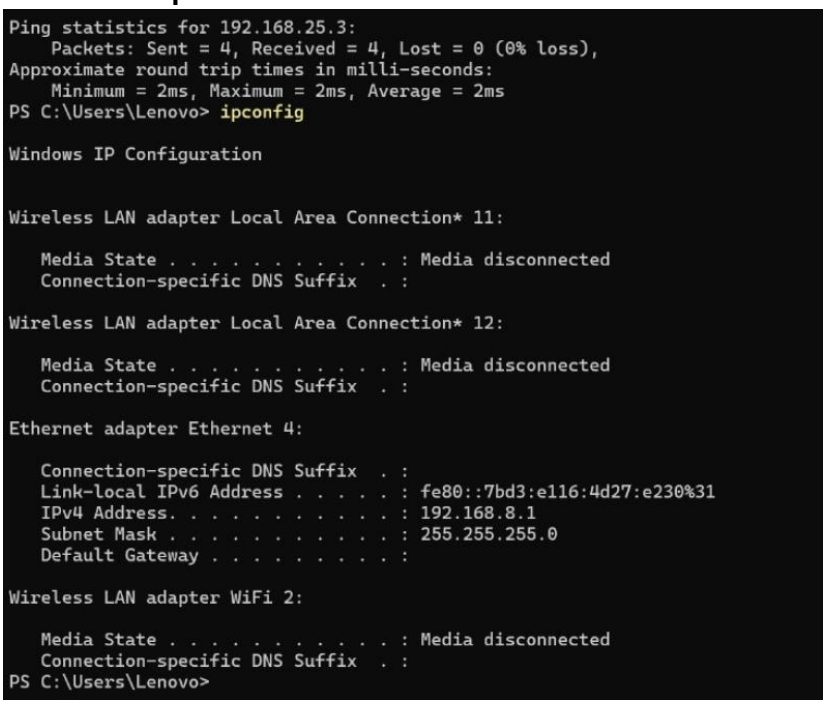


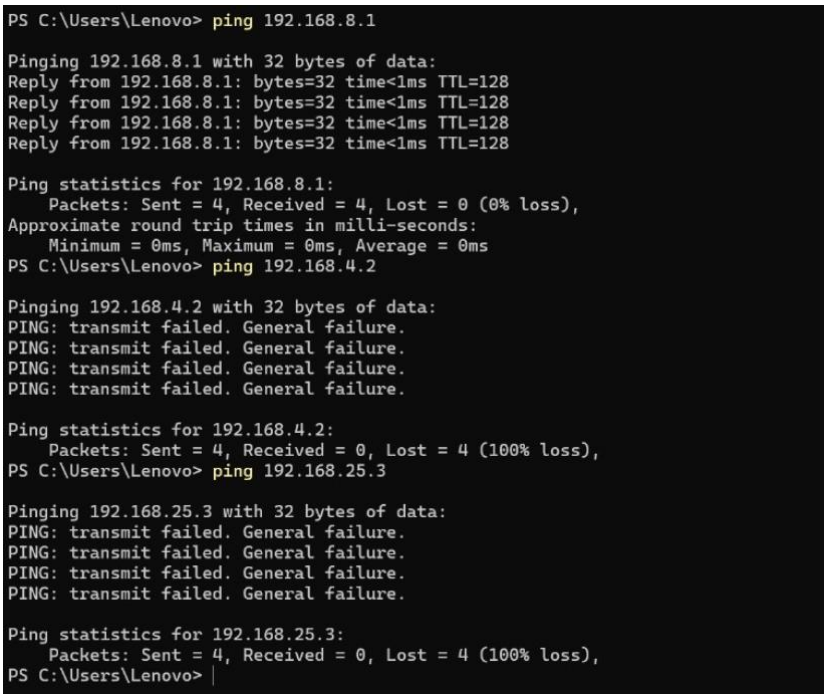
```
   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
PS C:\Users\Lenovo> ping 192.168.8.1

Pinging 192.168.8.1 with 32 bytes of data:
Reply from 192.168.8.1: bytes=32 time<1ms TTL=128
Reply from 192.168.8.1: bytes=32 time<1ms TTL=128
Reply from 192.168.8.1: bytes=32 time<1ms TTL=128
Reply from 192.168.8.1: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.8.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
PS C:\Users\Lenovo> ping 192.168.4.2

Pinging 192.168.4.2 with 32 bytes of data:
Reply from 192.168.4.2: bytes=32 time=3ms TTL=128
Reply from 192.168.4.2: bytes=32 time=3ms TTL=128
Reply from 192.168.4.2: bytes=32 time=1ms TTL=128
Reply from 192.168.4.2: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.4.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 3ms, Average = 2ms
PS C:\Users\Lenovo> ping 192.168.25.3

Pinging 192.168.25.3 with 32 bytes of data:
Reply from 192.168.25.3: bytes=32 time=2ms TTL=128
Reply from 192.168.25.3: bytes=32 time=2ms TTL=128
Reply from 192.168.25.3: bytes=32 time=2ms TTL=128
```



```
Reply from 192.168.25.3: bytes=32 time=2ms TTL=128

Ping statistics for 192.168.25.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 2ms, Average = 2ms
PS C:\Users\Lenovo>
```

C. Screenshot percobaan 3





D. Analisa/Kesimpulan

Berikut adalah Analisa dan kesimpulan percobaan pada konfigurasi IP.

- **Percobaan 1**

  Pada percobaan pertama, ketiga komputer (PC1, PC2, dan PC3) berada dalam subnet yang sama, yaitu dengan rentang alamat IP 192.168.0.1 hingga 192.168.0.3 dan subnet mask 255.255.255.0 (/24). Karena semua komputer

menggunakan subnet yang sama, mereka dapat berkomunikasi satu sama lain menggunakan protokol ping tanpa masalah.
Hasil**:** Ping antar komputer berhasil karena mereka berada dalam satu network.

- **Percobaan 2**
  Pada percobaan kedua, IP address ketiga komputer diubah, tetapi subnet mask yang digunakan adalah 255.255.0.0 (/16). Dalam subnet ini, meskipun IP address komputer berbeda (192.168.8.1, 192.168.4.2, dan 192.168.25.3), mereka masih berada dalam jaringan yang sama (192.168.0.0/16), karena rentang alamat IP yang ditutupi oleh subnet mask ini lebih luas. Sehingga, komputer masih bisa berkomunikasi satu sama lain, meskipun IP addressnya terlihat berbeda.

  Hasil: Ping antar komputer berhasil, karena mereka masih berada dalam network yang sama (192.168.x.x).

- **Percobaan 3**
  Pada percobaan ketiga, subnet mask diubah kembali menjadi 255.255.255.0 (/24), namun alamat IP komputer tetap berbeda (192.168.8.1, 192.168.4.2, dan 192.168.25.3). Dengan subnet mask /24, masing-masing komputer sekarang berada di network yang berbeda:
  - PC1 di network 192.168.8.0/24,
  - PC2 di network 192.168.4.0/24,
  - PC3 di network 192.168.25.0/24.

  Karena komputer-komputer ini berada di network yang berbeda, mereka tidak dapat berkomunikasi langsung melalui protokol ping tanpa routing di antara subnet mereka.

  Hasil: Ping antar komputer gagal karena komputer berada di network yang berbeda.

- **Kesimpulan:**

  1. **Percobaan 1** memperlihatkan bahwa selama komputer berada dalam subnet yang sama (192.168.0.x/24), mereka bisa saling berkomunikasi.
  2. **Percobaan 2** menunjukkan bahwa dengan subnet mask yang lebih longgar (255.255.0.0 atau /16), komputer dengan IP address yang berbeda tetap dapat berkomunikasi, karena mereka berada dalam satu network yang lebih luas (192.168.x.x).
  3. **Percobaan 3** mengilustrasikan bahwa jika subnet mask diperketat (255.255.255.0 atau /24) dan IP address komputer berbeda, maka komputer tidak dapat saling ping karena mereka dianggap berada di network yang berbeda.

- **Analisis:**

  Perubahan subnet mask/prefiks mempengaruhi seberapa banyak alamat IP yang termasuk dalam satu jaringan. Semakin besar subnet (contohnya /16), semakin banyak komputer yang bisa berkomunikasi dalam satu network meskipun alamat IP mereka berbeda jauh. Namun, jika subnet lebih kecil (misalnya /24), komputer

dengan alamat IP yang berbeda akan dianggap berada di network yang berbeda, sehingga memerlukan routing untuk berkomunikasi.

Ini menggambarkan pentingnya subnet mask dalam membatasi atau memperluas cakupan komunikasi antar perangkat dalam suatu jaringan.