Uji koneksi Dan Perintah CMD

Mata Kuliah: Jaringan Komputer

Materi Praktikum ke: 3

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NIM: 2411102441250

Tanggal Praktikum: 4-3-2025

BAB I

PENDAHULUAN

1.1 Latar Belakang

Apa itu LAN?

Jaringan Komputer LAN atau Local Area Network merupakan jaringan komputer yang terdiri dari beberapa komputer yang saling terhubung dalam suatu area yang relatif kecil seperti gedung, kampus, atau kantor. LAN memungkinkan komputer-komputer tersebut untuk berkomunikasi dan berbagi sumber daya secara efisien. Jaringan ini biasanya digunakan oleh perusahaan atau institusi yang membutuhkan akses ke data dan informasi secara cepat dan mudah.

Ada beberapa jenis LAN, seperti Token Ring, Ethernet, FDDI, dan ARCNET. Namun, yang paling umum dan sering digunakan adalah jaringan Ethernet. Jaringan ini menggunakan kabel UTP (Unshielded Twisted Pair) atau kabel fiber optic sebagai media transmisi data antar komputer.

1.2 Tujuan

- Mahasiswa mampu melakukan simulasi komunikasi data dengan Packet Tracer dan uji koneksi antar laptop fisik.
- Mahasiswa dapat mengecek konektivitas jaringan dengan perintah CMD.

BAB II

ALAT DAN BAHAN

2.1 alat dan bahan

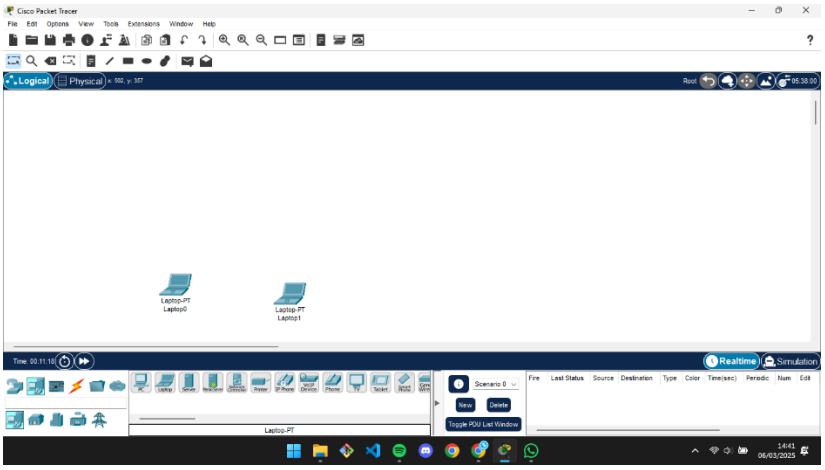
- Kabel UTP
- 2 buah laptop (yang memiliki tempat colokan Konektor)

BAB III

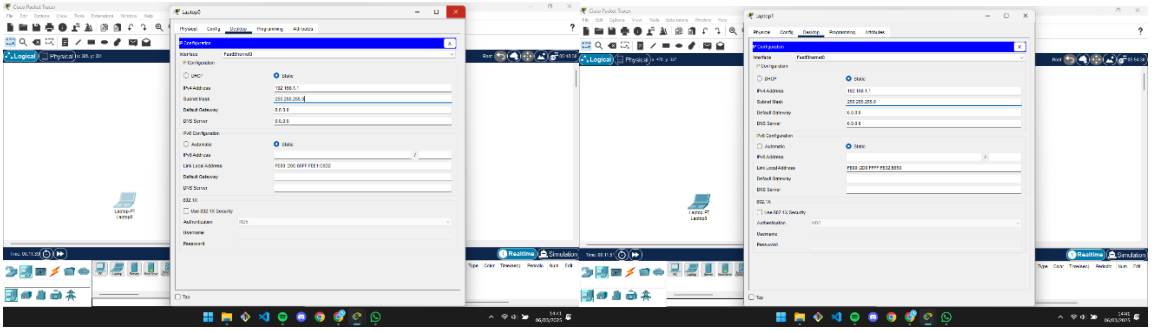
PROSEDUR KERJA

3.1 Menyambungkan UTP Antar Laptop/PC di Cisco Packet Tracer

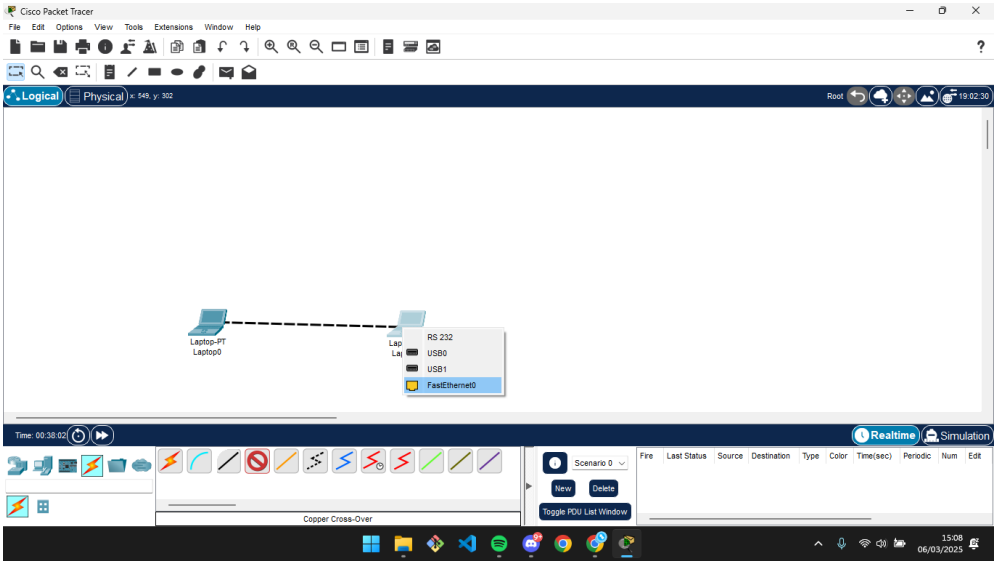
1.Masukkan laptop/pc



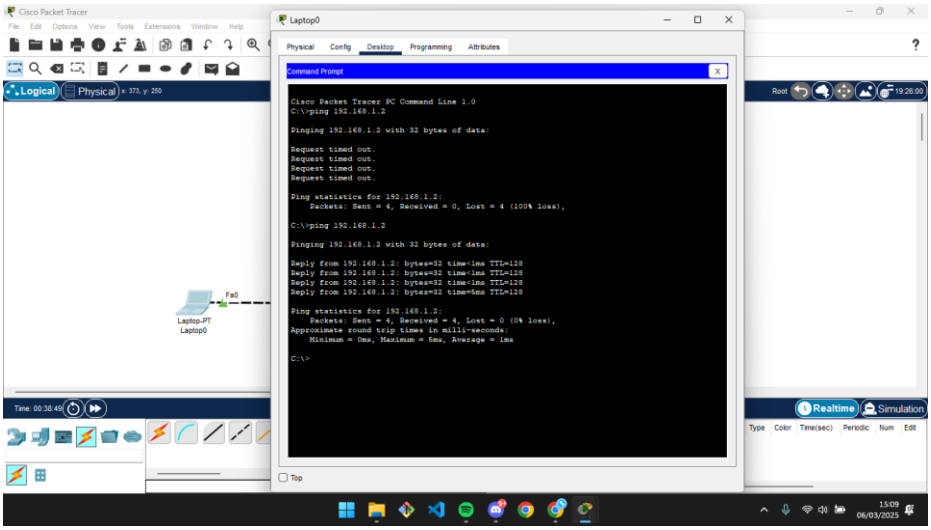
2.Masukkan IP Adrres 192.168.1.1(harus berbeda antar device) dan Subnet Mask 255.255.255.0



3.Hubungkan antar laptop/pc dengan kabel Cross



4.Buka CMD di salah satu laptop/pc,dan ketikkan ping (Alamat IP Address)

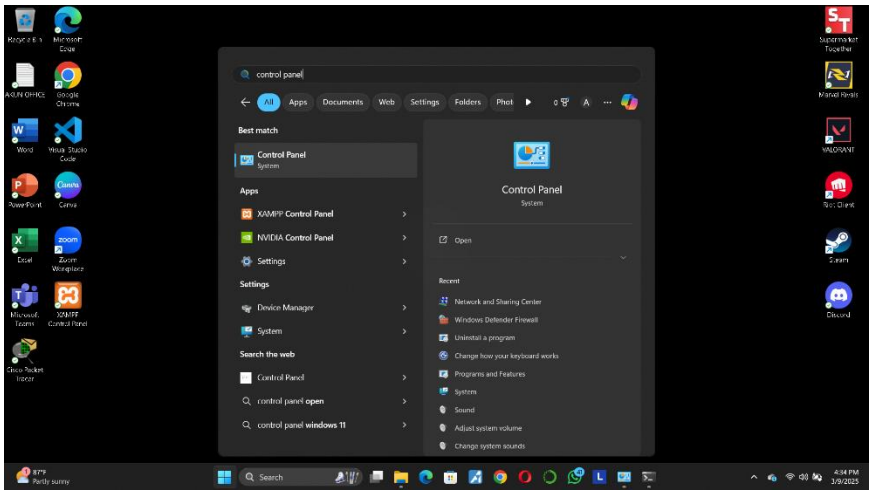


3.2 Menyambungkan LAN antar Laptop/pc fisik

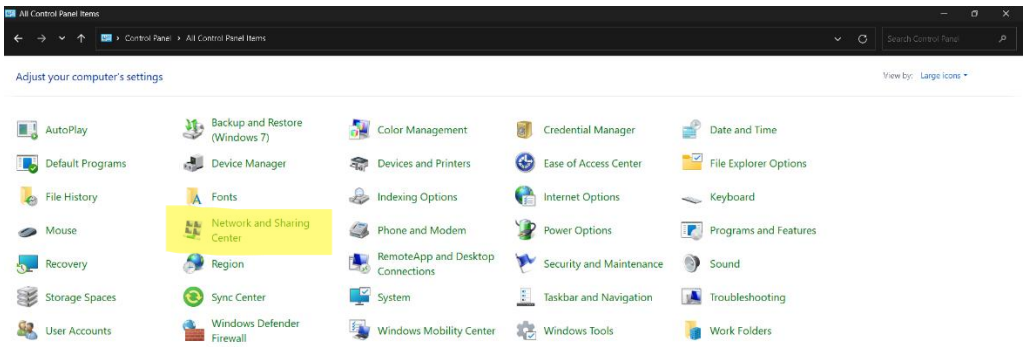
1. Hubungkan 2 Laptop dengan Kabel UTP

2. Set IP Address manual di masing-masing laptop

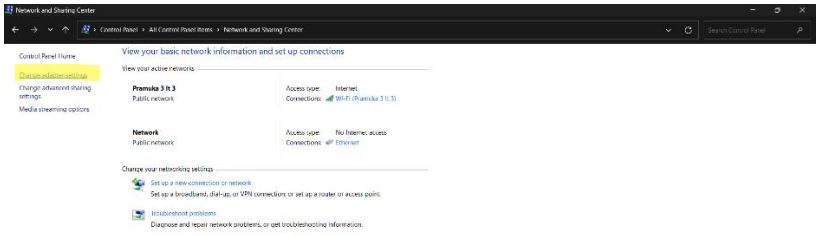
- Buka control panel



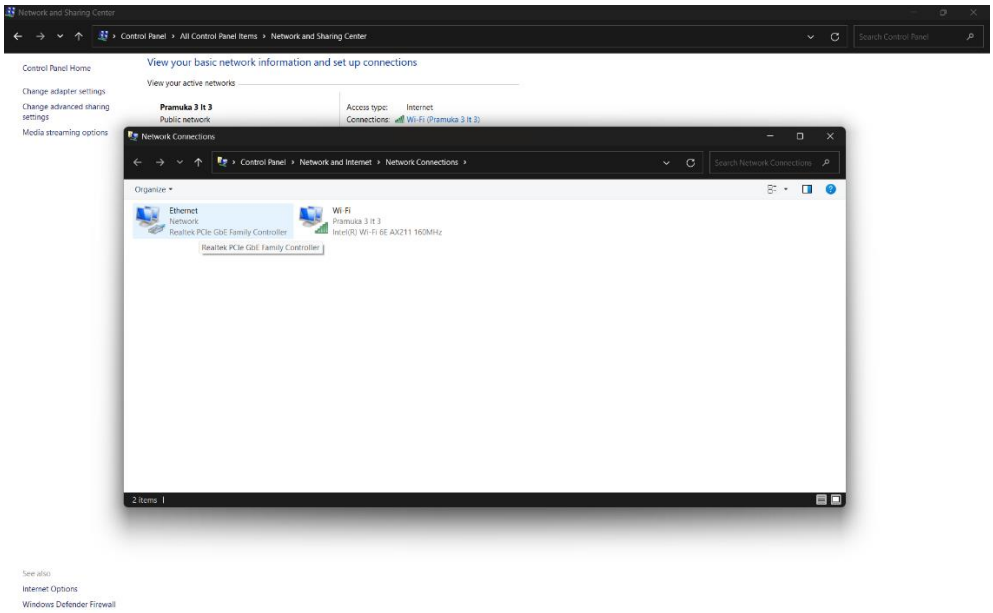
- Pilih Network and Sharing Center



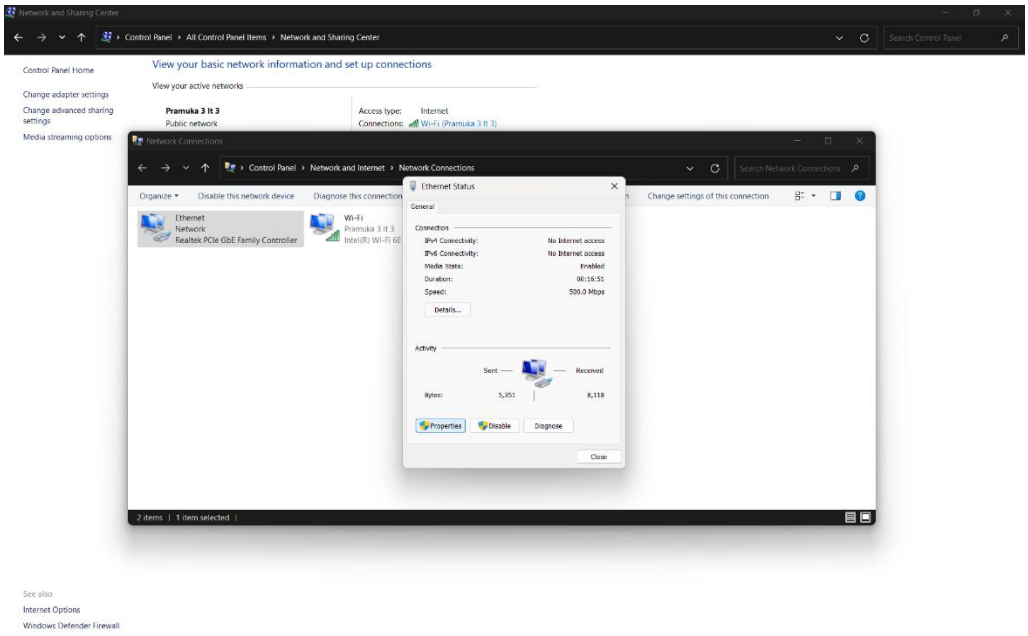
- Klik change adapter settings



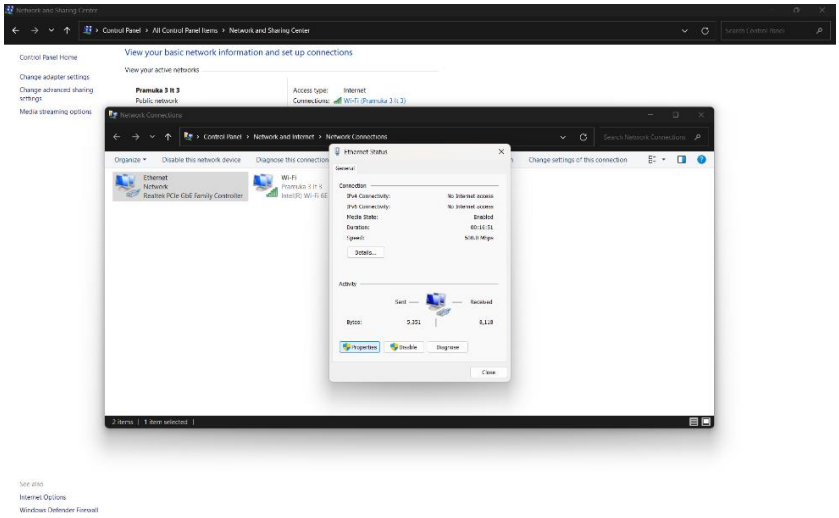
- **Klik Ethernet**



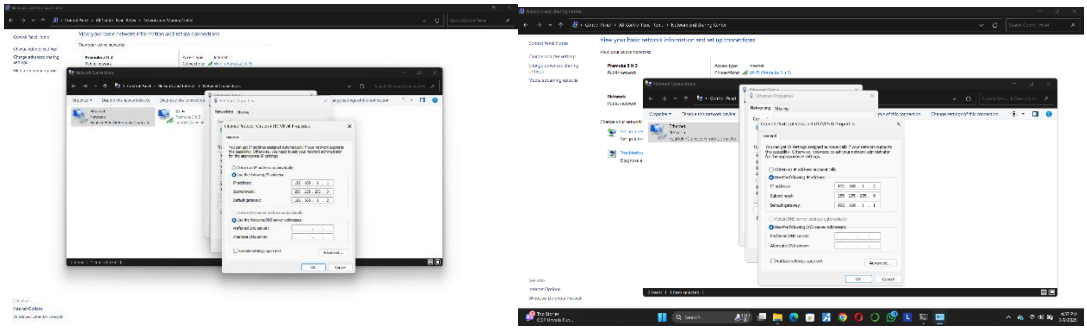
- **Klik properties**



- **Klik 2x Internet Protocol Version 4(TCP/IPv4)**



- Set IP address



Laptop 1:

- IP Address:192.168.1.1
- Subnetmask:255.255.255.0
- Defeult gateway:192.168.1.2(IP PC2)

Laptop 2:

- IP Address:192.168.1.2
- Subnetmask:255.255.255.0
- Default gateway:192.168.1.1(IP PC1)

2.1 Uji koneksi dengan perintah 'ping' di CMD:

- Laptop 1 :ping 192.168.1.2 dan Laptop 2:ping 192.168.1.1

```
C:\Users\ASUS>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:
Reply from 192.168.1.2: bytes=32 time=5ms TTL=128
Reply from 192.168.1.2: bytes=32 time=5ms TTL=128
Reply from 192.168.1.2: bytes=32 time=6ms TTL=128
Reply from 192.168.1.2: bytes=32 time=6ms TTL=128

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
```

```
C:\WINDOWS\system32\cmd.

Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time=5ms TTL=128
Reply from 192.168.1.1: bytes=32 time=4ms TTL=128
Reply from 192.168.1.1: bytes=32 time=5ms TTL=128
Reply from 192.168.1.1: bytes=32 time=4ms TTL=128

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 4ms, Maximum = 5ms, Average = 4ms
```

Perintah CMD untuk Mengecek Jaringan

1. Cek IP Address komputer:

-Windows: ipconfig

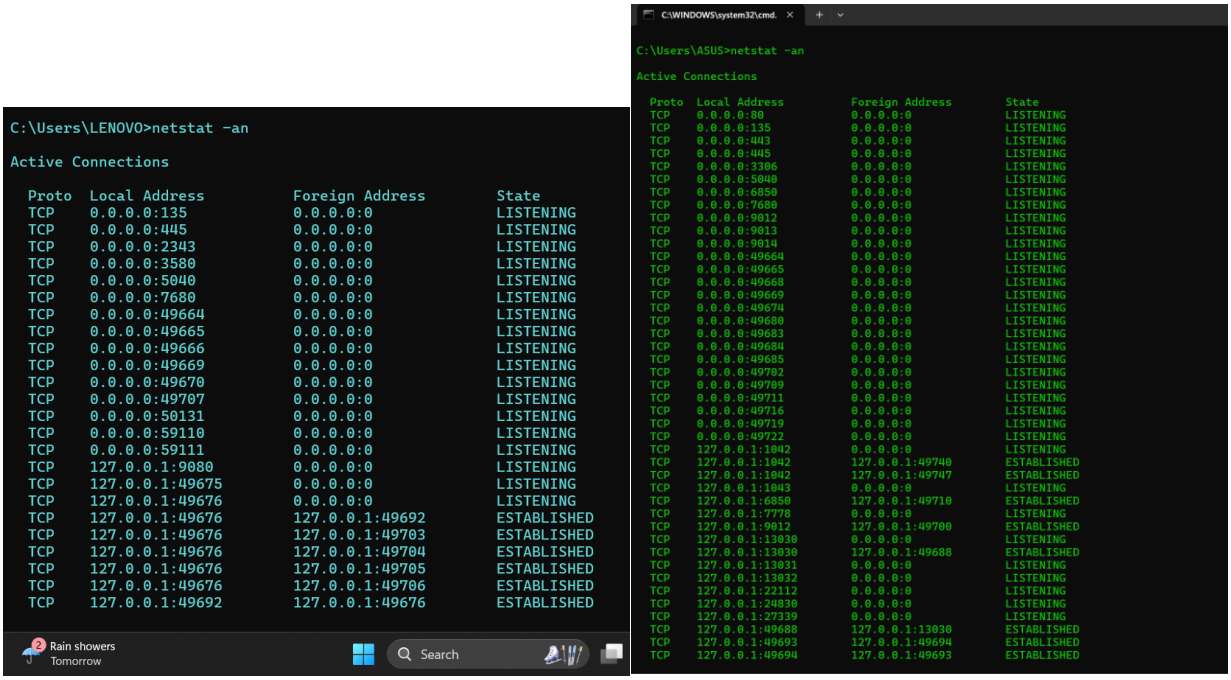
-Linux/Mac: ifconfig

```
C:\WINDOWS\system32\cmd.
Microsoft Windows [Version 10.0.26100.3323]
(c) Microsoft Corporation. All rights reserved.

C:\Users\ASUS>color a

C:\Users\ASUS>ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::9d20:d061:c944:4b3e%14
   IPv4 Address. . . . . . . . . . . : 192.168.1.1
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 192.168.1.2

Wireless LAN adapter Local Area Connection* 8:

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

Wireless LAN adapter Local Area Connection* 10:

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

Wireless LAN adapter Wi-Fi:

   Connection-specific DNS Suffix  . :
   IPv6 Address. . . . . . . . . . . : 2404:8000:1032:91:c833:7bc1:bcb3:36d5
   Temporary IPv6 Address. . . . . . : 2404:8000:1032:91:306e:8c4c:34fa:7d9a
   Link-local IPv6 Address . . . . . : fe80::afbf:7d52:6185:cf62%9
   IPv4 Address. . . . . . . . . . . : 192.168.18.136
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : fe80::1%9
                                       192.168.18.1
```

```
C:\Users\LENOVO>ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::cfc0:3ef3:6058:21a5%16
   IPv4 Address. . . . . . . . . . . : 192.168.1.2
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 192.168.1.1

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  . :

Wireless LAN adapter Wi-Fi:

   Connection-specific DNS Suffix  . :
   IPv6 Address. . . . . . . . . . . : 2404:8000:1032:91:1573:90:747c:3499
   Temporary IPv6 Address. . . . . . : 2404:8000:1032:91:ac81:7875:34cf:b4c1
   Link-local IPv6 Address . . . . . : fe80::3411:7ae3:dcea:97dc%8
   IPv4 Address. . . . . . . . . . . : 192.168.18.160
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : fe80::1%8
                                       192.168.18.1
```

2. Lihat daftar koneksi jaringan aktif:

- netstat -an

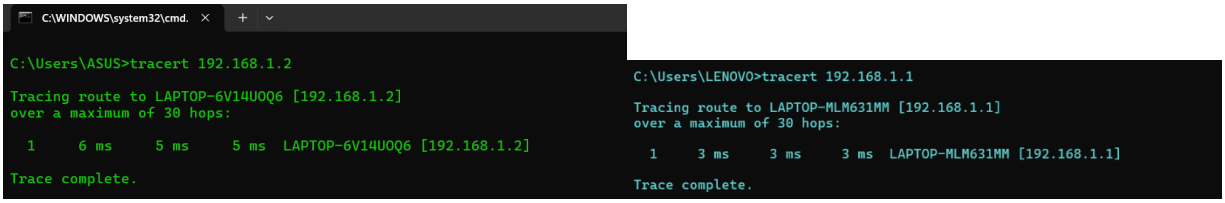


```
C:\Users\LENOVO>netstat -an

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    0.0.0.0:135            0.0.0.0:0              LISTENING
  TCP    0.0.0.0:445            0.0.0.0:0              LISTENING
  TCP    0.0.0.0:2343           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:3580           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:5040           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:7680           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49664          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49665          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49666          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49669          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49670          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49707          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:50131          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:59110          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:59111          0.0.0.0:0              LISTENING
  TCP    127.0.0.1:9080         0.0.0.0:0              LISTENING
  TCP    127.0.0.1:49675        0.0.0.0:0              LISTENING
  TCP    127.0.0.1:49676        0.0.0.0:0              LISTENING
  TCP    127.0.0.1:49676        127.0.0.1:49692        ESTABLISHED
  TCP    127.0.0.1:49676        127.0.0.1:49703        ESTABLISHED
  TCP    127.0.0.1:49676        127.0.0.1:49704        ESTABLISHED
  TCP    127.0.0.1:49676        127.0.0.1:49705        ESTABLISHED
  TCP    127.0.0.1:49676        127.0.0.1:49706        ESTABLISHED
  TCP    127.0.0.1:49692        127.0.0.1:49676        ESTABLISHED
```

```
C:\Users\ASUS>netstat -an

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    0.0.0.0:80             0.0.0.0:0              LISTENING
  TCP    0.0.0.0:135            0.0.0.0:0              LISTENING
  TCP    0.0.0.0:443            0.0.0.0:0              LISTENING
  TCP    0.0.0.0:445            0.0.0.0:0              LISTENING
  TCP    0.0.0.0:3306           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:5040           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:6850           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:7680           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:9012           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:9013           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:9014           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49664          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49665          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49668          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49669          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49674          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49680          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49683          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49684          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49685          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49702          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49709          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49711          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49716          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49719          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49722          0.0.0.0:0              LISTENING
  TCP    127.0.0.1:1042         0.0.0.0:0              LISTENING
  TCP    127.0.0.1:1042         127.0.0.1:49740        ESTABLISHED
  TCP    127.0.0.1:1042         127.0.0.1:49747        ESTABLISHED
  TCP    127.0.0.1:1043         0.0.0.0:0              LISTENING
  TCP    127.0.0.1:6850         127.0.0.1:49710        ESTABLISHED
  TCP    127.0.0.1:7778         0.0.0.0:0              LISTENING
  TCP    127.0.0.1:9012         127.0.0.1:49700        ESTABLISHED
  TCP    127.0.0.1:13030        0.0.0.0:0              LISTENING
  TCP    127.0.0.1:13030        127.0.0.1:49688        ESTABLISHED
  TCP    127.0.0.1:13031        0.0.0.0:0              LISTENING
  TCP    127.0.0.1:13032        0.0.0.0:0              LISTENING
  TCP    127.0.0.1:22112        0.0.0.0:0              LISTENING
  TCP    127.0.0.1:24830        0.0.0.0:0              LISTENING
  TCP    127.0.0.1:27339        0.0.0.0:0              LISTENING
  TCP    127.0.0.1:49688        127.0.0.1:13030        ESTABLISHED
  TCP    127.0.0.1:49693        127.0.0.1:49694        ESTABLISHED
  TCP    127.0.0.1:49694        127.0.0.1:49693        ESTABLISHED
```

3. Cek jalur komunikasi paket data:

    - tracert [domain/IP tujuan]

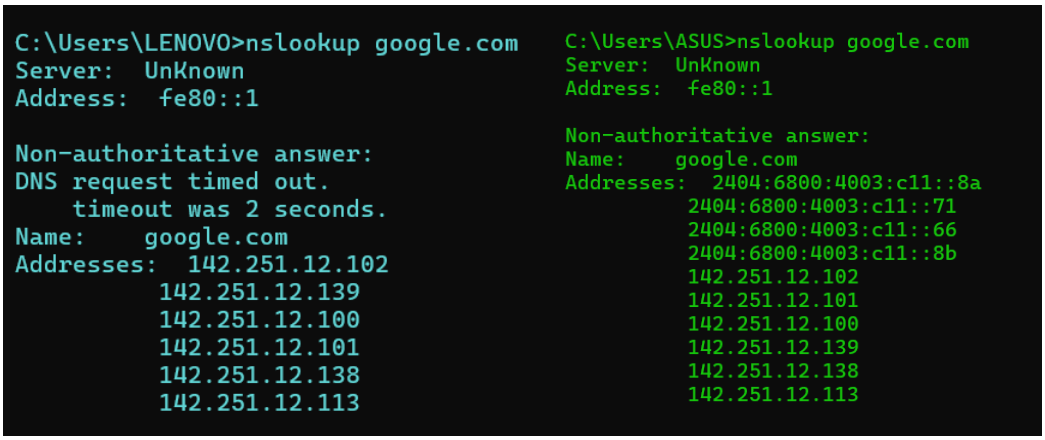


```
C:\Users\ASUS>tracert 192.168.1.2

Tracing route to LAPTOP-6V14UOQ6 [192.168.1.2]
over a maximum of 30 hops:

  1     6 ms     5 ms     5 ms  LAPTOP-6V14UOQ6 [192.168.1.2]

Trace complete.
```

```
C:\Users\LENOVO>tracert 192.168.1.1

Tracing route to LAPTOP-MLM631MM [192.168.1.1]
over a maximum of 30 hops:

  1     3 ms     3 ms     3 ms  LAPTOP-MLM631MM [192.168.1.1]

Trace complete.
```

4. Cek alamat IP suatu domain:

    - nslookup google.com

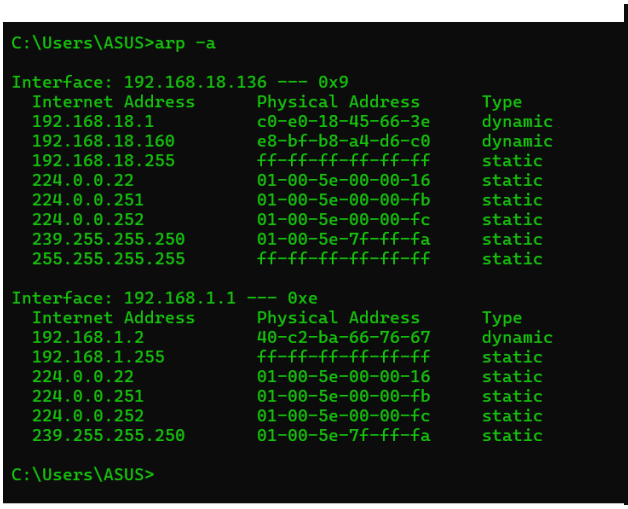


```
C:\Users\LENOVO>nslookup google.com
Server:  UnKnown
Address:  fe80::1

Non-authoritative answer:
DNS request timed out.
    timeout was 2 seconds.
Name:    google.com
Addresses:  142.251.12.102
          142.251.12.139
          142.251.12.100
          142.251.12.101
          142.251.12.138
          142.251.12.113
```

```
C:\Users\ASUS>nslookup google.com
Server:  UnKnown
Address:  fe80::1

Non-authoritative answer:
Name:    google.com
Addresses:  2404:6800:4003:c11::8a
          2404:6800:4003:c11::71
          2404:6800:4003:c11::66
          2404:6800:4003:c11::8b
          142.251.12.102
          142.251.12.101
          142.251.12.100
          142.251.12.139
          142.251.12.138
          142.251.12.113
```

5. Melihat informasi ARP (Address Resolution Protocol):

- arp -a



```
C:\Users\ASUS>arp -a

Interface: 192.168.18.136 --- 0x9
  Internet Address      Physical Address      Type
  192.168.18.1          c0-e0-18-45-66-3e     dynamic
  192.168.18.160        e8-bf-b8-a4-d6-c0     dynamic
  192.168.18.255        ff-ff-ff-ff-ff-ff     static
  224.0.0.22            01-00-5e-00-00-16     static
  224.0.0.251           01-00-5e-00-00-fb     static
  224.0.0.252           01-00-5e-00-00-fc     static
  239.255.255.250       01-00-5e-7f-ff-fa     static
  255.255.255.255       ff-ff-ff-ff-ff-ff     static

Interface: 192.168.1.1 --- 0xe
  Internet Address      Physical Address      Type
  192.168.1.2           40-c2-ba-66-76-67     dynamic
  192.168.1.255         ff-ff-ff-ff-ff-ff     static
  224.0.0.22            01-00-5e-00-00-16     static
  224.0.0.251           01-00-5e-00-00-fb     static
  224.0.0.252           01-00-5e-00-00-fc     static
  239.255.255.250       01-00-5e-7f-ff-fa     static

C:\Users\ASUS>
```

```
C:\Users\LENOVO>arp -a

Interface: 192.168.18.160 --- 0x8
  Internet Address      Physical Address      Type
  192.168.18.1          c0-e0-18-45-66-3e     dynamic
  192.168.18.136        16-2d-03-a2-c5-16     dynamic
  192.168.18.158        e0-0a-f6-9b-cd-13     dynamic
  192.168.18.255        ff-ff-ff-ff-ff-ff     static
  224.0.0.22            01-00-5e-00-00-16     static
  224.0.0.251           01-00-5e-00-00-fb     static
  224.0.0.252           01-00-5e-00-00-fc     static
  239.255.255.250       01-00-5e-7f-ff-fa     static
  255.255.255.255       ff-ff-ff-ff-ff-ff     static

Interface: 192.168.1.2 --- 0x10
  Internet Address      Physical Address      Type
  192.168.1.1           cc-28-aa-bb-b0-cb     dynamic
  192.168.1.255         ff-ff-ff-ff-ff-ff     static
  224.0.0.22            01-00-5e-00-00-16     static
  224.0.0.251           01-00-5e-00-00-fb     static
  224.0.0.252           01-00-5e-00-00-fc     static
  239.255.255.250       01-00-5e-7f-ff-fa     static

C:\Users\LENOVO>
```

BAB IV

HASIL DAN PEMBAHASAN

Setelah melakukan Uji Koneksi dan perintah cmd antar laptop dan menggunakan cisco packet tracer, Koneksi antara laptop yang telah dibuat berhasil terhubung dengan baik. Pengujian menggunakan Perintah CMD menunjukkan bahwa semua koneksi terhubung dengan baik, tanpa adanya kendala saat Uji koneksi antar laptop.

BAB V

KESIMPULAN

Praktikum Uji koneksi dan Perintah CMD ini berhasil dilakukan dengan baik. Proses pemberian IP Address yang benar sangat penting untuk memastikan internet dapat berfungsi dengan baik pada laptop/PC. Dengan memahami langkah-langkah diatas, kita dapat menguji koneksi antar laptop dengan baik dan tanpa kendala.

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