

COMPUTER NETWORK PRACTICUM PRACTICUM 5



Written by :

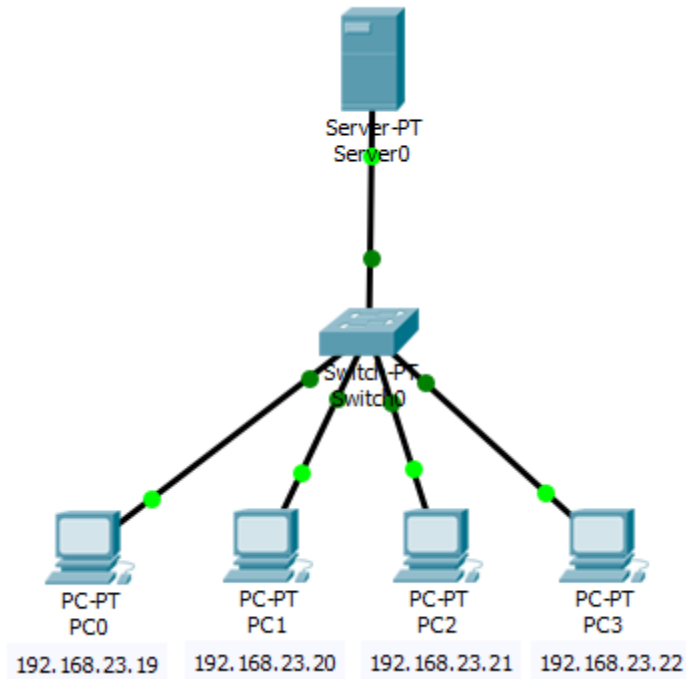
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**INFORMATION TECHNOLOGY
FACULTY OF COMMUNICATION AND INFORMATICS
MUHAMMADIYAH UNIVERSITY OF SURAKARTA
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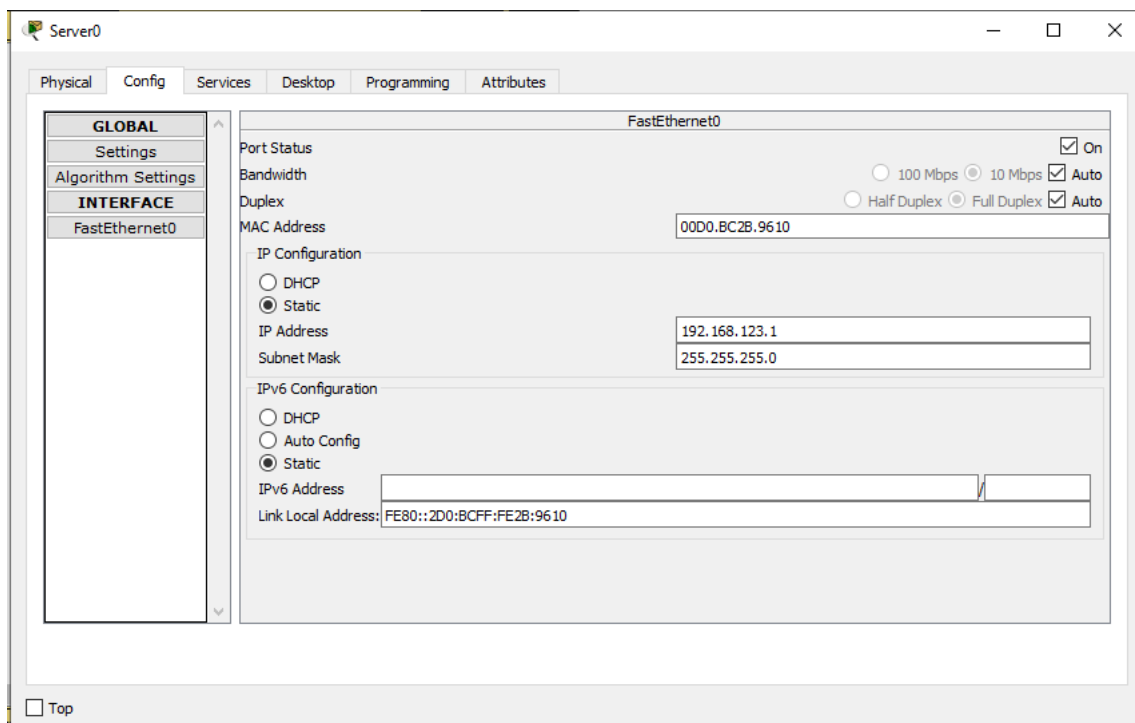
PRACTICUM ACTIVITIES

1. PRACTICUM 1. MAKE DHCP SERVER

- Designing 5 workstations, 1 switch, and 1 server on Packet Tracer



- Configure the server's IP address to 192.168.123.1 with the subnet mask 255.255.255.0.



c. Configure DHCP on the server

Server0

Physical Config Services Desktop Programming Attributes

SERVICES

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management

DHCP

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: serverPool

Default Gateway: 0.0.0.0

DNS Server: 0.0.0.0

Start IP Address: 192 168 123 19

Subnet Mask: 255 255 255 0

Maximum Number of Users: 5

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Add Save Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	0.0.0.0	0.0.0.0	192.168.123...	255.255.255.0	5	0.0.0.0	0.0.0.0

☐ Top

d. Configure IP on PC

IP address on a PC is a dynamic IP obtained from the server, the list of IPs can be seen through the table below.

PC	IP
PC1	192.168.123.19
PC2	192.168.123.20
PC3	192.168.123.21
PC4	192.168.123.22

PC0

Physical Config Desktop Programming Attributes

IP Configuration X

IP Configuration

☒ DHCP ☐ Static

IP Address 192.168.123.19

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

PC1

Physical Config Desktop Programming Attributes

IP Configuration X

IP Configuration

☒ DHCP ☐ Static

IP Address 192.168.123.20

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

PC2

Physical Config Desktop Programming Attributes

IP Configuration X

IP Configuration

☒ DHCP ☐ Static

IP Address 192.168.123.21

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

PC3

Physical Config Desktop Programming Attributes

IP Configuration X

IP Configuration

☒ DHCP ☐ Static

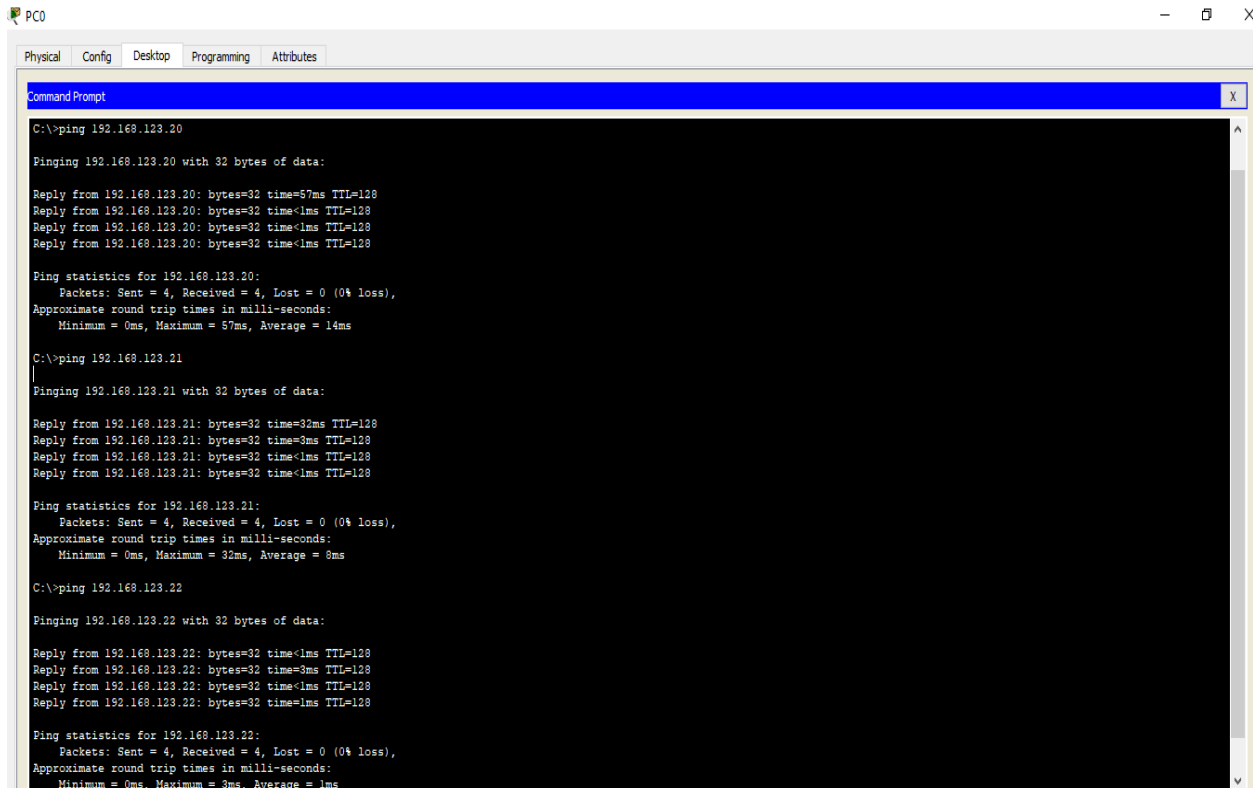
IP Address 192.168.123.22

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

- e. Test the connection of the PC connected to the DHCP server.



The screenshot shows the Command Prompt window on PC0. The user has executed three ping commands. The first command is 'ping 192.168.123.20', which shows four successful replies with times ranging from 0ms to 57ms. The second command is 'ping 192.168.123.21', showing four successful replies with times ranging from 0ms to 32ms. The third command is 'ping 192.168.123.22', showing four successful replies with times ranging from 0ms to 3ms. All pings show 0% loss.

```
C:\>ping 192.168.123.20

Pinging 192.168.123.20 with 32 bytes of data:

Reply from 192.168.123.20: bytes=32 time=57ms TTL=128
Reply from 192.168.123.20: bytes=32 time<1ms TTL=128
Reply from 192.168.123.20: bytes=32 time<1ms TTL=128
Reply from 192.168.123.20: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.123.20:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 57ms, Average = 14ms

C:\>ping 192.168.123.21

Pinging 192.168.123.21 with 32 bytes of data:

Reply from 192.168.123.21: bytes=32 time=32ms TTL=128
Reply from 192.168.123.21: bytes=32 time=3ms TTL=128
Reply from 192.168.123.21: bytes=32 time<1ms TTL=128
Reply from 192.168.123.21: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.123.21:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 32ms, Average = 8ms

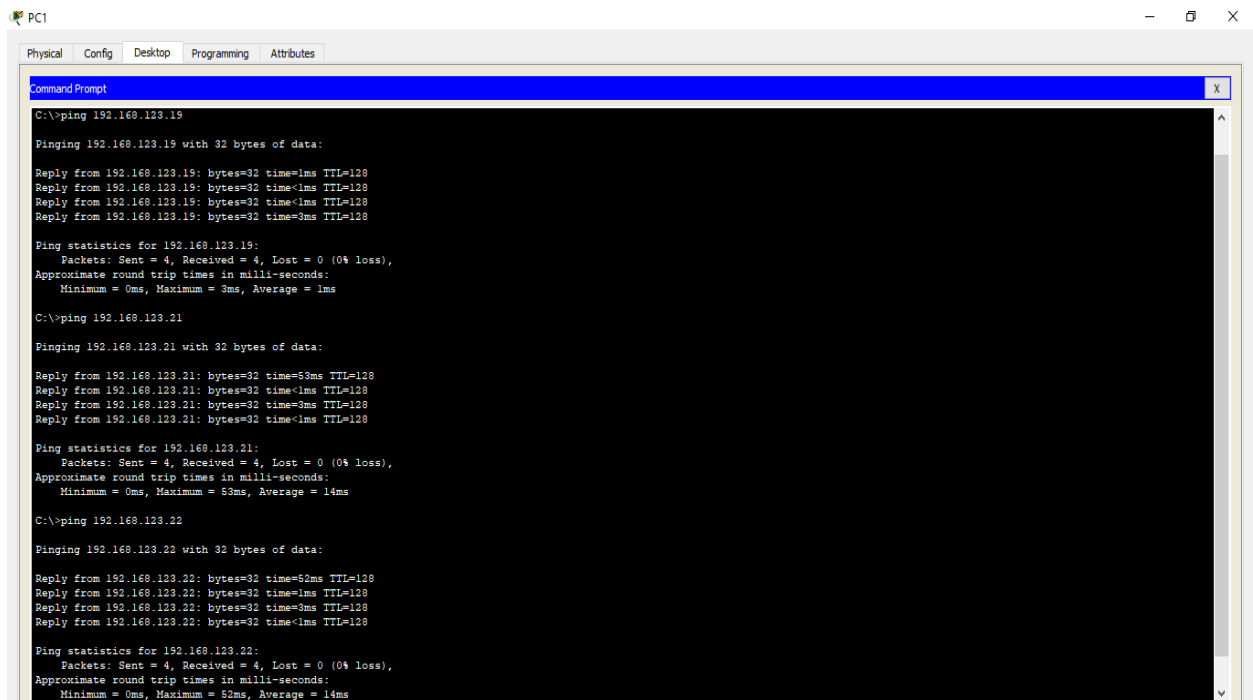
C:\>ping 192.168.123.22

Pinging 192.168.123.22 with 32 bytes of data:

Reply from 192.168.123.22: bytes=32 time<1ms TTL=128
Reply from 192.168.123.22: bytes=32 time=3ms TTL=128
Reply from 192.168.123.22: bytes=32 time<1ms TTL=128
Reply from 192.168.123.22: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.123.22:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 3ms, Average = 1ms
```

Picture 1.1. Pinging from PC0 to another PC



The screenshot shows the Command Prompt window on PC1. The user has executed three ping commands. The first command is 'ping 192.168.123.19', which shows four successful replies with times ranging from 0ms to 3ms. The second command is 'ping 192.168.123.21', showing four successful replies with times ranging from 0ms to 53ms. The third command is 'ping 192.168.123.22', showing four successful replies with times ranging from 0ms to 62ms. All pings show 0% loss.

```
C:\>ping 192.168.123.19

Pinging 192.168.123.19 with 32 bytes of data:

Reply from 192.168.123.19: bytes=32 time<1ms TTL=128
Reply from 192.168.123.19: bytes=32 time<1ms TTL=128
Reply from 192.168.123.19: bytes=32 time<1ms TTL=128
Reply from 192.168.123.19: bytes=32 time=3ms TTL=128

Ping statistics for 192.168.123.19:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 3ms, Average = 1ms

C:\>ping 192.168.123.21

Pinging 192.168.123.21 with 32 bytes of data:

Reply from 192.168.123.21: bytes=32 time=53ms TTL=128
Reply from 192.168.123.21: bytes=32 time<1ms TTL=128
Reply from 192.168.123.21: bytes=32 time=3ms TTL=128
Reply from 192.168.123.21: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.123.21:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 53ms, Average = 14ms

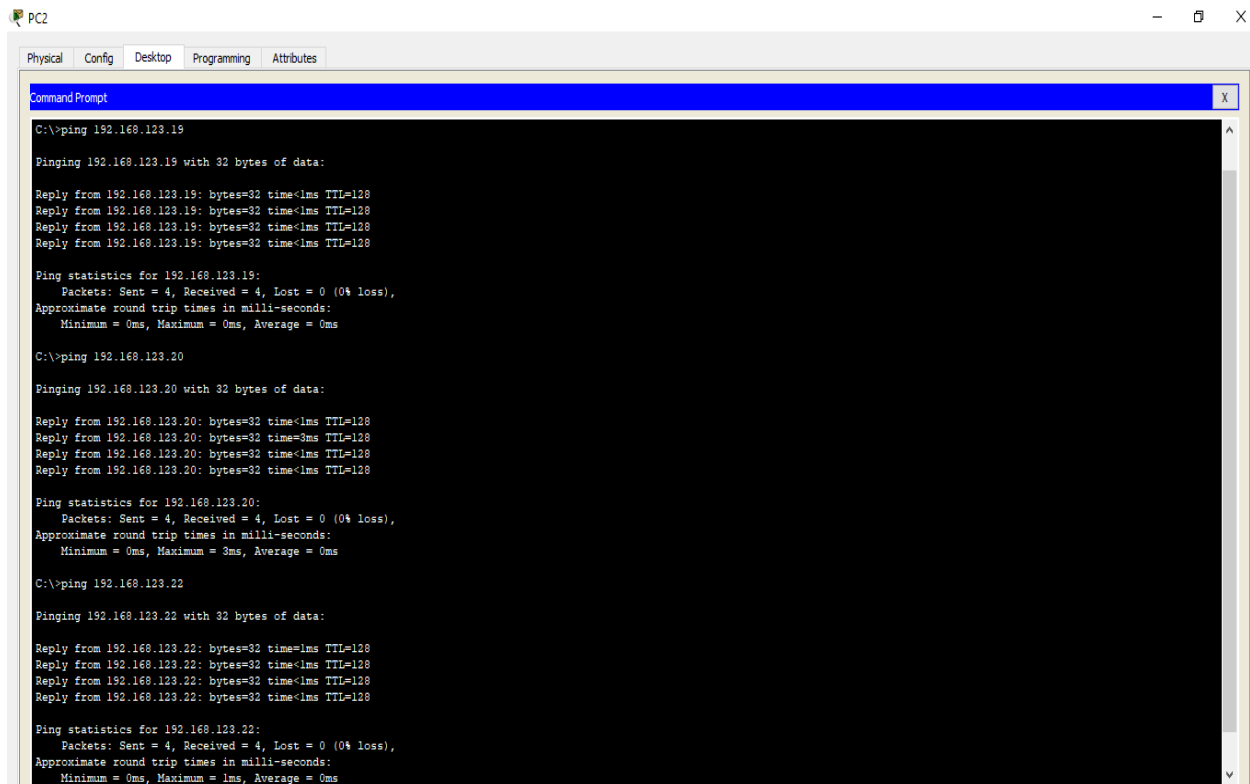
C:\>ping 192.168.123.22

Pinging 192.168.123.22 with 32 bytes of data:

Reply from 192.168.123.22: bytes=32 time=62ms TTL=128
Reply from 192.168.123.22: bytes=32 time<1ms TTL=128
Reply from 192.168.123.22: bytes=32 time=3ms TTL=128
Reply from 192.168.123.22: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.123.22:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 62ms, Average = 14ms
```

Picture 1.2. Pinging from PC1 to another PC



PC2

Physical Config Desktop Programming Attributes

Command Prompt

```
C:\>ping 192.168.123.19

Pinging 192.168.123.19 with 32 bytes of data:

Reply from 192.168.123.19: bytes=32 time<1ms TTL=128
Reply from 192.168.123.19: bytes=32 time<1ms TTL=128
Reply from 192.168.123.19: bytes=32 time<1ms TTL=128
Reply from 192.168.123.19: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.123.19:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.123.20

Pinging 192.168.123.20 with 32 bytes of data:

Reply from 192.168.123.20: bytes=32 time<1ms TTL=128
Reply from 192.168.123.20: bytes=32 time=3ms TTL=128
Reply from 192.168.123.20: bytes=32 time<1ms TTL=128
Reply from 192.168.123.20: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.123.20:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 3ms, Average = 0ms

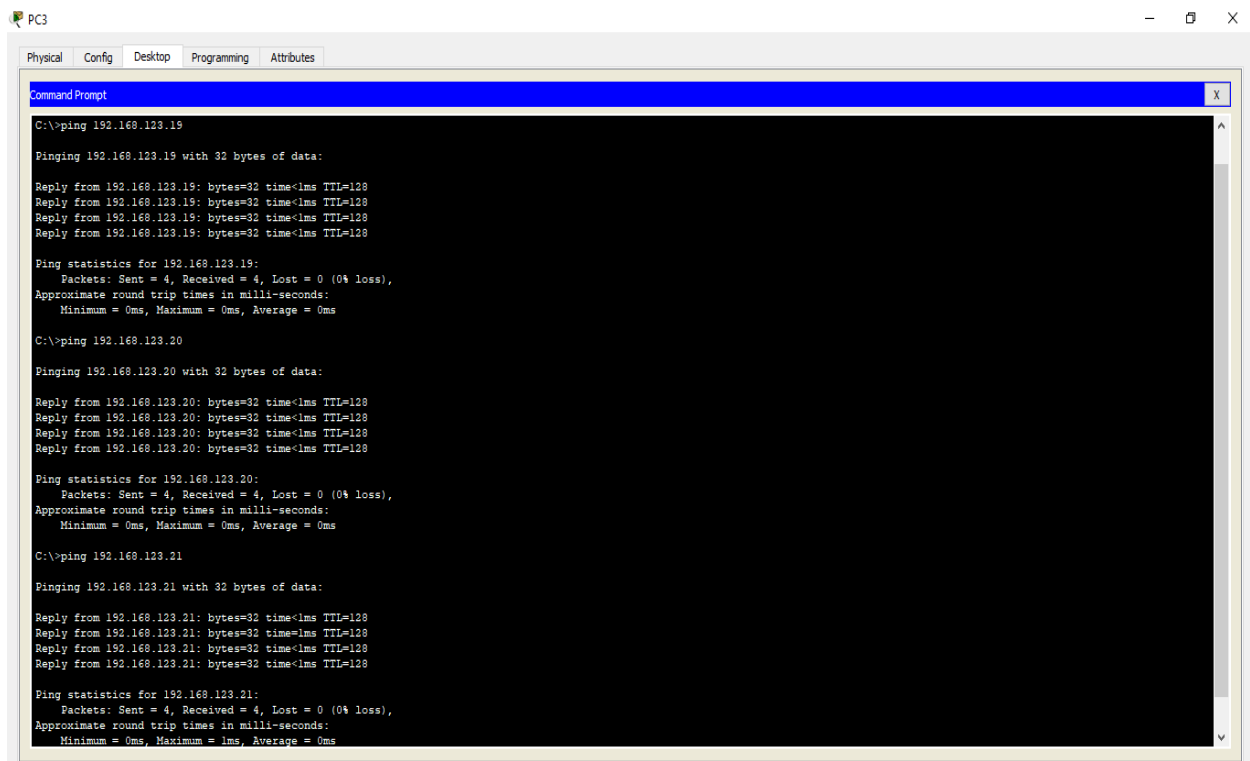
C:\>ping 192.168.123.22

Pinging 192.168.123.22 with 32 bytes of data:

Reply from 192.168.123.22: bytes=32 time<1ms TTL=128
Reply from 192.168.123.22: bytes=32 time<1ms TTL=128
Reply from 192.168.123.22: bytes=32 time<1ms TTL=128
Reply from 192.168.123.22: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.123.22:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

Picture 1.3. Pinging from PC2 to another PC



PC3

Physical Config Desktop Programming Attributes

Command Prompt

```
C:\>ping 192.168.123.19

Pinging 192.168.123.19 with 32 bytes of data:

Reply from 192.168.123.19: bytes=32 time<1ms TTL=128
Reply from 192.168.123.19: bytes=32 time<1ms TTL=128
Reply from 192.168.123.19: bytes=32 time<1ms TTL=128
Reply from 192.168.123.19: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.123.19:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.123.20

Pinging 192.168.123.20 with 32 bytes of data:

Reply from 192.168.123.20: bytes=32 time<1ms TTL=128
Reply from 192.168.123.20: bytes=32 time<1ms TTL=128
Reply from 192.168.123.20: bytes=32 time<1ms TTL=128
Reply from 192.168.123.20: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.123.20:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.123.21

Pinging 192.168.123.21 with 32 bytes of data:

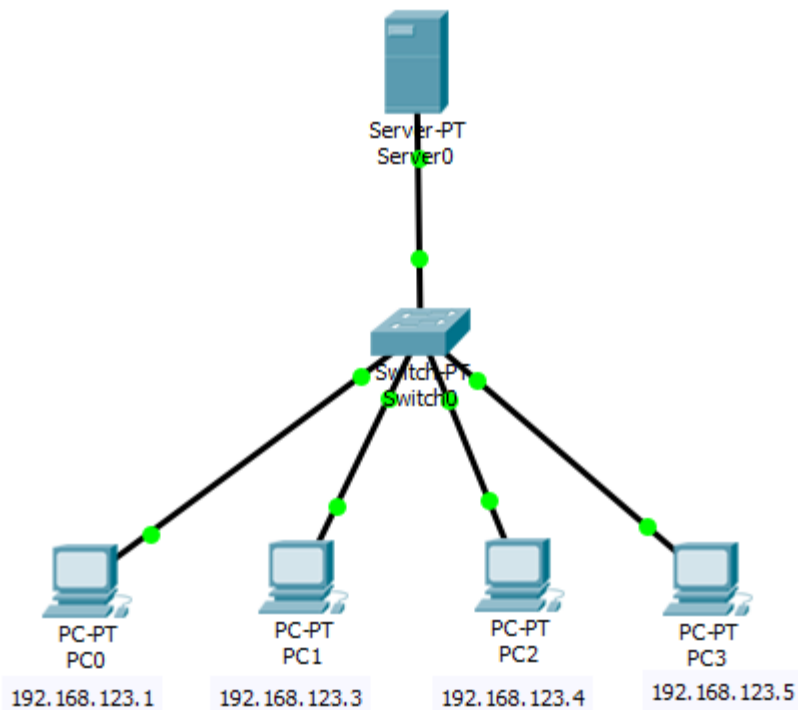
Reply from 192.168.123.21: bytes=32 time<1ms TTL=128
Reply from 192.168.123.21: bytes=32 time<1ms TTL=128
Reply from 192.168.123.21: bytes=32 time<1ms TTL=128
Reply from 192.168.123.21: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.123.21:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

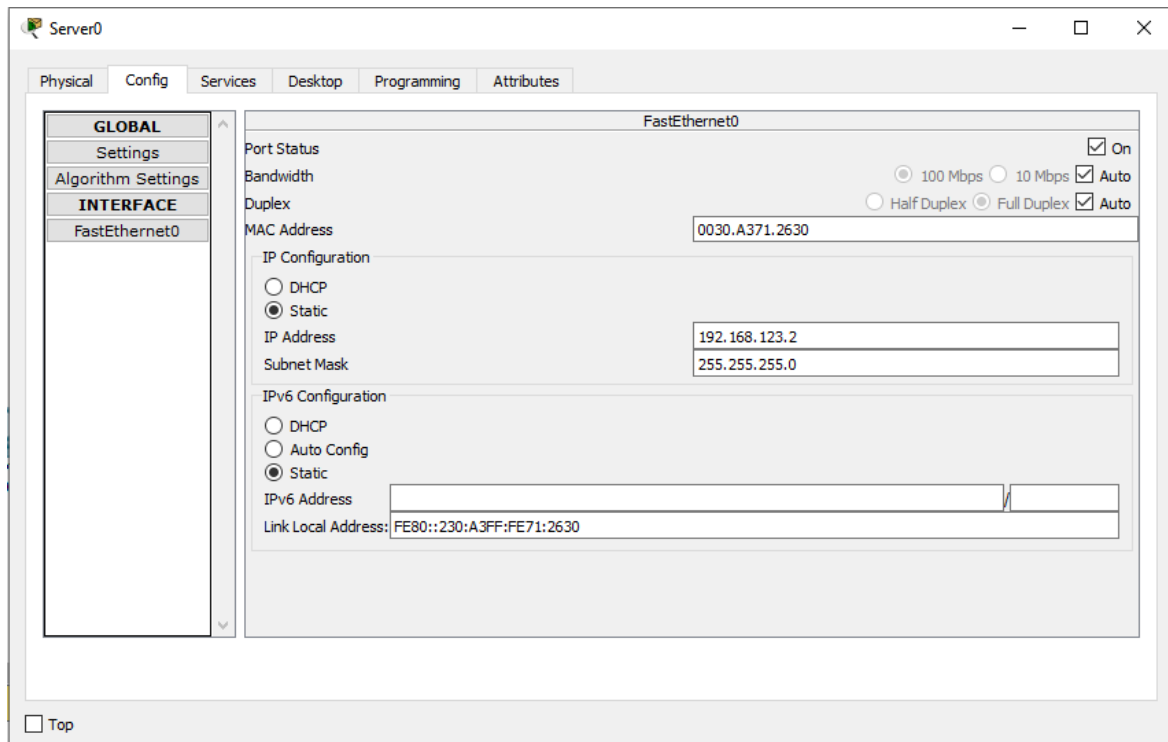
Picture 1.4. Pinging from PC3 to another PC.

2. PRACTICUM 2. MAKE A WEB SERVER

a. Topology design



b. Configuring Fast-Ethernet on server0.



c. Configure the IP address of each PC in DHCP mode

PC0

Physical Config Desktop Programming Attributes

IP Configuration X

IP Configuration

☒ DHCP ☐ Static

IP Address 192.168.123.1

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

PC1

Physical Config Desktop Programming Attributes

IP Configuration X

IP Configuration

☒ DHCP ☐ Static

IP Address 192.168.123.3

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

PC2

Physical Config Desktop Programming Attributes

IP Configuration X

IP Configuration

☒ DHCP ☐ Static

IP Address 192.168.123.4

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

PC3

Physical Config Desktop Programming Attributes

IP Configuration X

IP Configuration

☒ DHCP ☐ Static

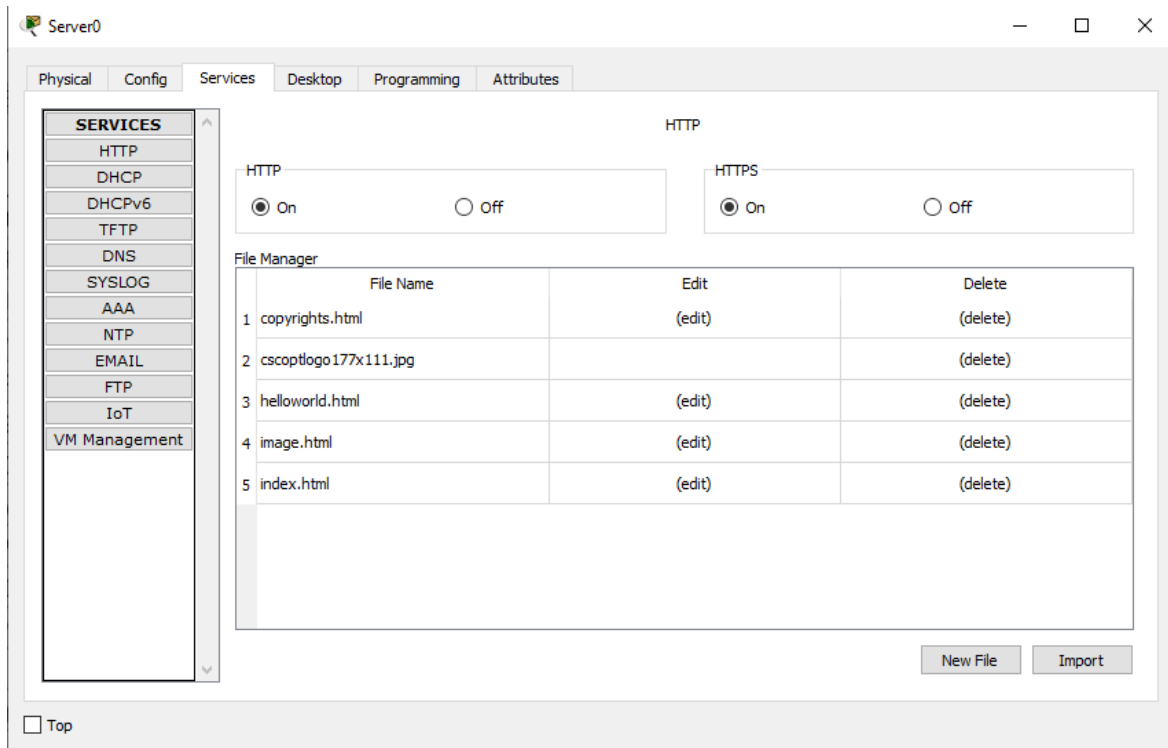
IP Address 192.168.123.5

Subnet Mask 255.255.255.0

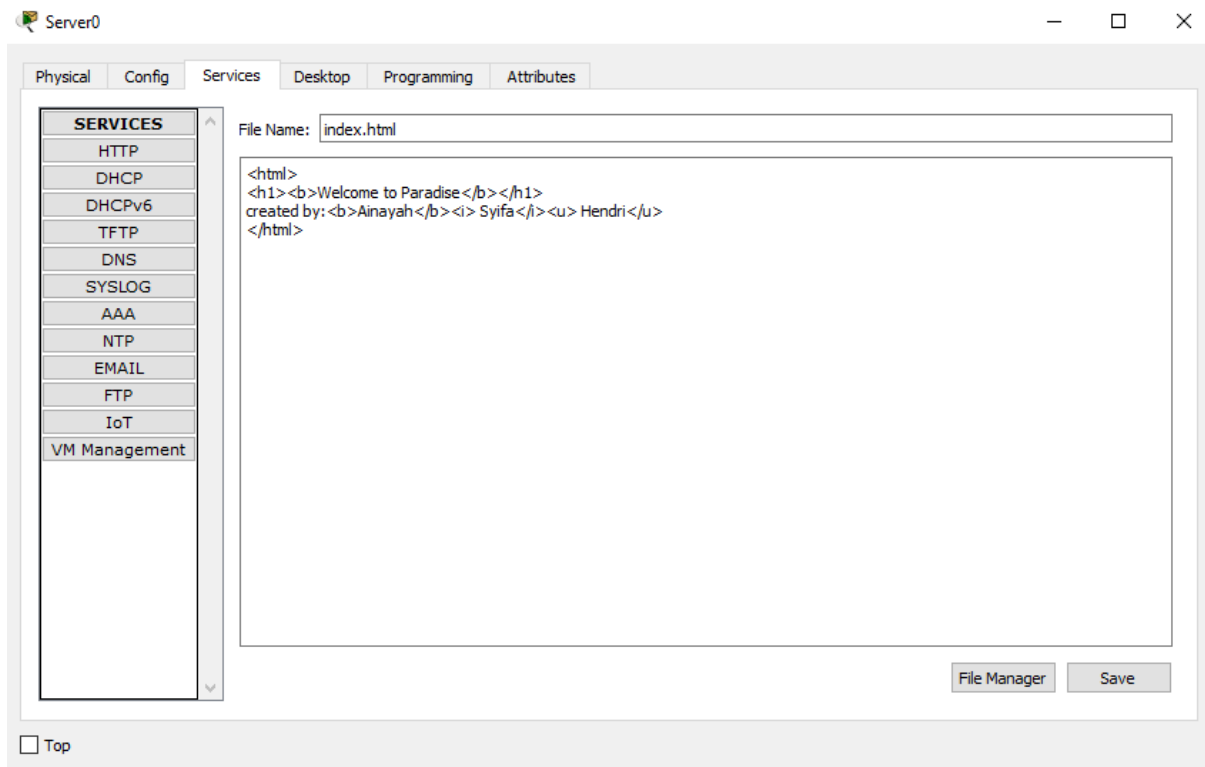
Default Gateway 0.0.0.0

DNS Server 0.0.0.0

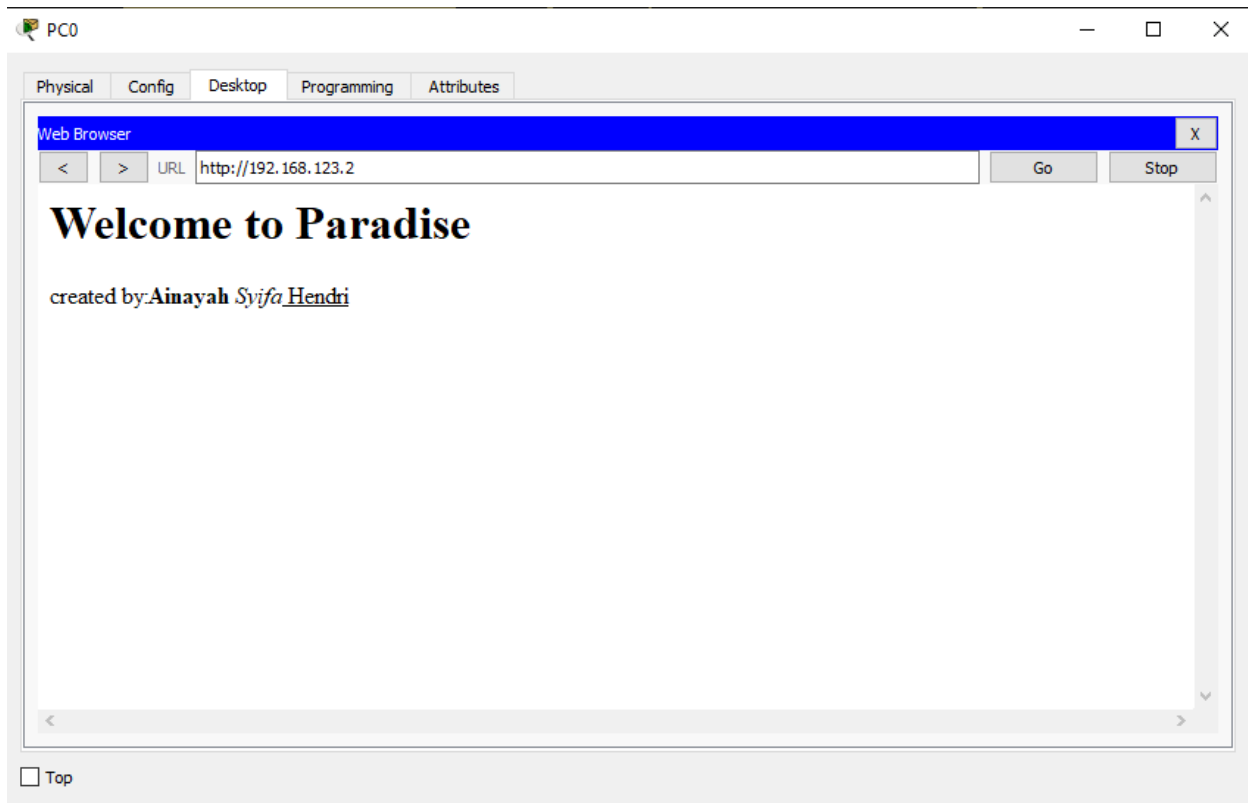
d. Activating HTTP service.



e. Edit the contents of the index.html tag.

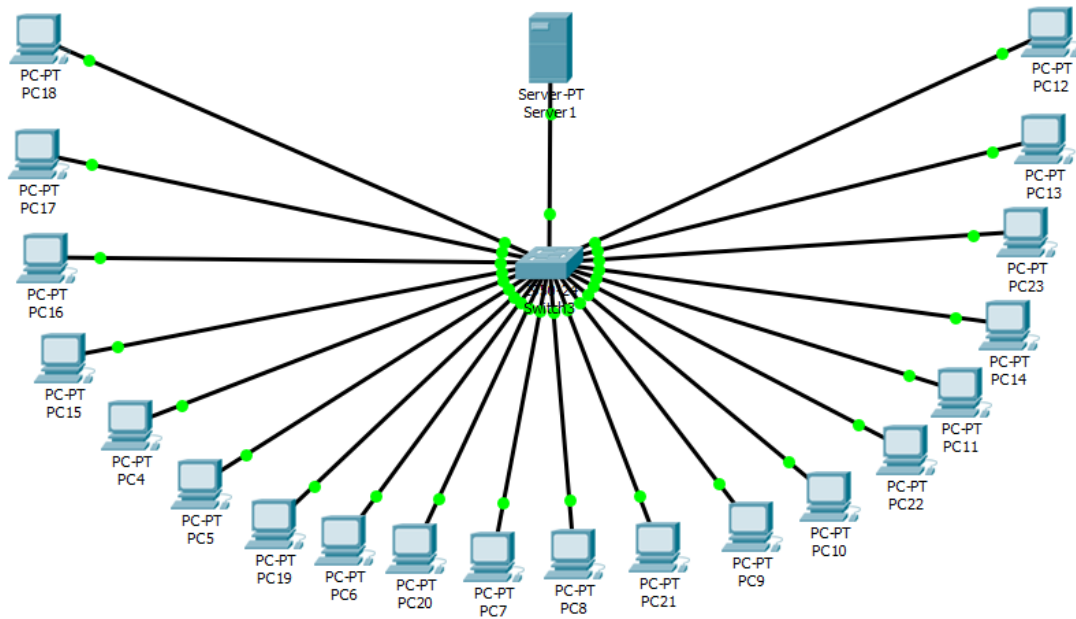


f. Browsing HTTP



TASK

a. Topology design



b. IP address configuration

Server1

Physical Config Services Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

FastEthernet0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 000C.CF94.6138

IP Configuration

☐ DHCP

☒ Static

IP Address 192.168.123.1

Subnet Mask 255.255.255.0

IPv6 Configuration

☐ DHCP

☐ Auto Config

☒ Static

IPv6 Address

Link Local Address: FE80::20C:CFFF:FE94:6138

☐ Top

c. Set DHCP service in ON mode

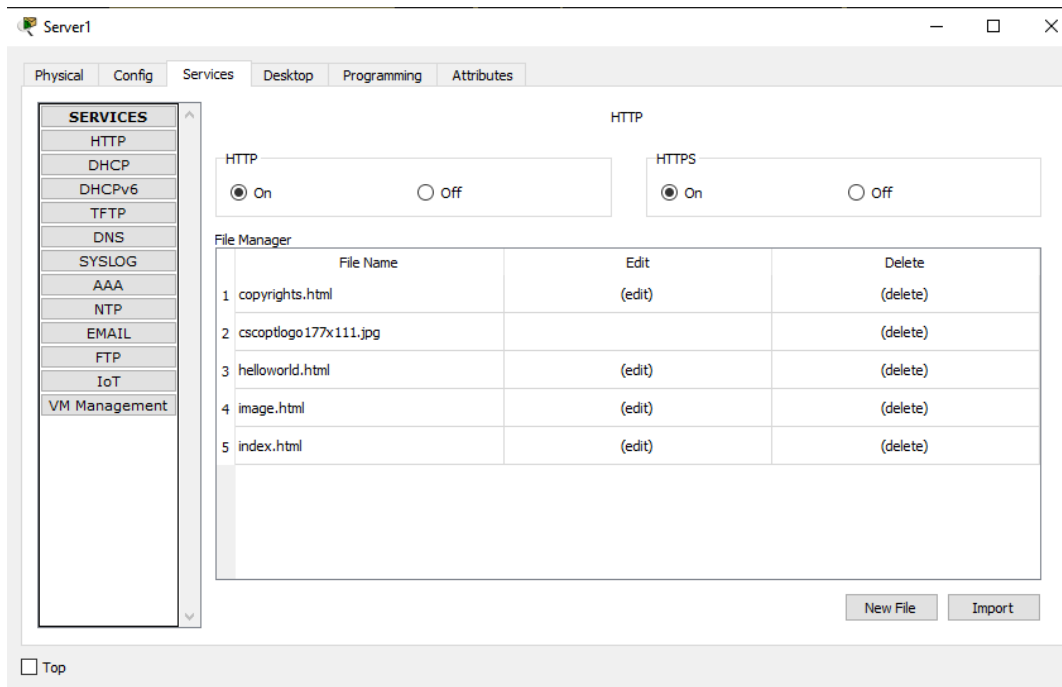
The screenshot shows the 'Server1' configuration window with the 'Services' tab selected. On the left, a list of services includes HTTP, DHCP, DHCPv6, TFTP, DNS, SYSLOG, AAA, NTP, EMAIL, FTP, IoT, and VM Management. The 'DHCP' service is selected. The main configuration area for DHCP is shown, with the 'Interface' set to 'FastEthernet0' and the 'Service' set to 'On'. The 'Pool Name' is 'serverPool'. The 'Default Gateway' is '0.0.0.0'. The 'DNS Server' is '0.0.0.0'. The 'Start IP Address' is '192.168.123.0' and the 'Subnet Mask' is '255.255.255.0'. The 'Maximum Number of Users' is '21'. The 'TFTP Server' is '0.0.0.0' and the 'WLC Address' is '0.0.0.0'. Below the configuration fields are 'Add', 'Save', and 'Remove' buttons. A table at the bottom shows the configuration for the 'serverPool'.

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	0.0.0.0	0.0.0.0	192.168.123.0	255.255.255.0	21	0.0.0.0	0.0.0.0

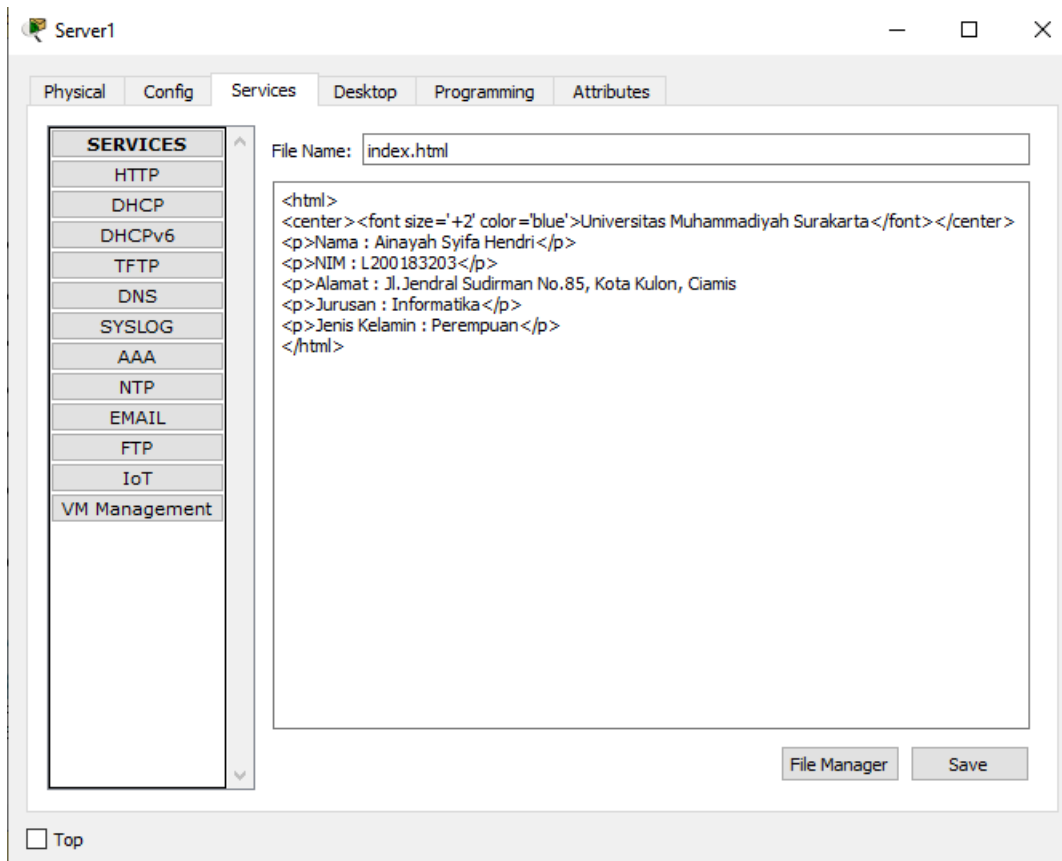
d. Configure the IP address on each PC in DHCP mode on all PCs.

The screenshot shows the 'PC4' configuration window with the 'Desktop' tab selected. The 'IP Configuration' window is open, showing the 'IP Configuration' section. The 'DHCP' radio button is selected, and the 'Static' radio button is unselected. The 'DHCP request successful.' message is displayed. The 'IP Address' is '192.168.123.2', the 'Subnet Mask' is '255.255.255.0', the 'Default Gateway' is '0.0.0.0', and the 'DNS Server' is '0.0.0.0'. The 'IPv6 Configuration' section shows the 'Static' radio button selected, and the 'Auto Config' radio button is unselected. The 'IPv6 Address' is 'FE80::202:4AFF:FE89:A582', the 'Link Local Address' is 'FE80::202:4AFF:FE89:A582', the 'IPv6 Gateway' is '0.0.0.0', and the 'IPv6 DNS Server' is '0.0.0.0'.

e. Set HTTP service in ON mode



f. Edit the contents of the index.html tag



g. Browsing http

