

Міністерство освіти і науки України  
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Звіт

з лабораторної роботи № 9 з дисципліни  
«Основи комп'ютерних систем і мереж»

Варіант 23

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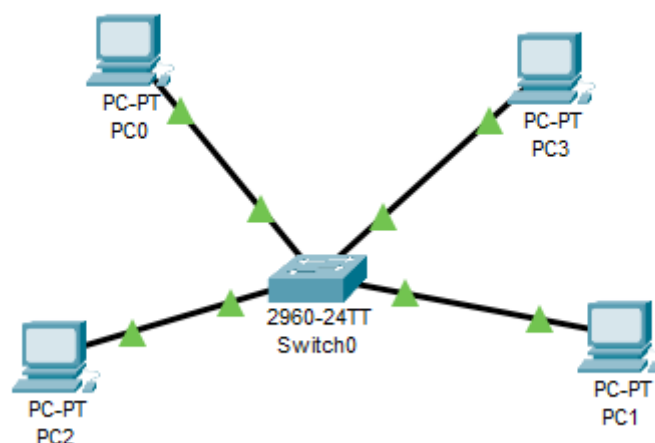
### **Лабораторна робота**

**4**

Мета :навчитися будувати віртуальні локальні мережі,застосувати отримані знання при виконанні практичних завдань.

## Exercise 4.1

### Setting up the web



Naming VLANS

```
Switch(config)#vlan 2
Switch(config-vlan)#name sklad
```

```
Switch(config-vlan)#vlan 3
Switch(config-vlan)#name buh
```

### Setting up VLAN 2 and VLAN 3

```
Switch(config)#int fa0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 2
Switch(config-if)#exit
Switch(config)#int fa0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 2
Switch(config-if)#end
Switch#
```

```

Switch(config)#int fa0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 3
Switch(config-if)#int fa0/4
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 3
Switch(config-if)#end

```

```

Switch#show vlan

```

VLAN	Name	Status	Ports
1	default	active	Fa0/5, Fa0/6, Fa0/7, Fa0/8, Fa0/9, Fa0/10, Fa0/11, Fa0/12, Fa0/13, Fa0/14, Fa0/15, Fa0/16, Fa0/17, Fa0/18, Fa0/19, Fa0/20, Fa0/21, Fa0/22, Fa0/23, Fa0/24, Gig0/1, Gig0/2
2	sklad	active	Fa0/1, Fa0/2
3	buh	active	Fa0/3, Fa0/4
1002	fddi-default	active	

Setting up ipc( for all pcs )

10.1.10.1
255.0.0.0

PC ( 10.1.10.1 ) pings (10.1.10.3) and receives responses, so they belong to the same web.

PC ( 10.1.10.1 ) cant ping ( 10.1.10.2 ) and receives no responses, so they do not belong to the same web.

```

C:\>ping 10.1.10.3

Pinging 10.1.10.3 with 32 bytes of data:

Reply from 10.1.10.3: bytes=32 time=20ms TTL=128
Reply from 10.1.10.3: bytes=32 time=3ms TTL=128
Reply from 10.1.10.3: bytes=32 time<1ms TTL=128
Reply from 10.1.10.3: bytes=32 time<1ms TTL=128

Ping statistics for 10.1.10.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 20ms, Average = 5ms

C:\>ping 10.1.10.2

Pinging 10.1.10.2 with 32 bytes of data:

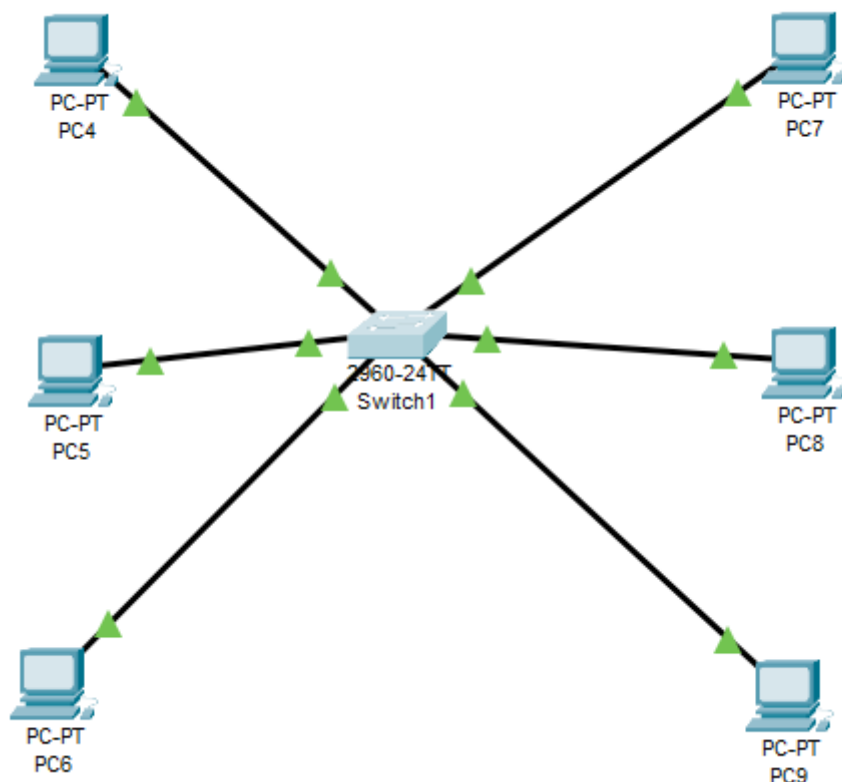
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.1.10.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

```

## Exercise 4.2

### Setting up the web



## Setting up VLANS

```
Switch(config)#vlan 2
Switch(config-vlan)#name subnet_5
Switch(config-vlan)#int range fa0/1-3
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan2
Switch(config-if-range)#exit
Switch(config)#vlan 3
Switch(config-vlan)#name subnet_6
Switch(config-vlan)#int range fa0/4-6
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 3
Switch(config-if-range)#exit

Switch#show vlan
```

VLAN	Name	Status	Ports
1	default	active	Fa0/7, Fa0/8, Fa0/9, Fa0/10, Fa0/11, Fa0/12, Fa0/13, Fa0/14, Fa0/15, Fa0/16, Fa0/17, Fa0/18, Fa0/19, Fa0/20, Fa0/21, Fa0/22, Fa0/23, Fa0/24, Gig0/1, Gig0/2
2	subnet_5	active	Fa0/1, Fa0/2, Fa0/3
3	subnet_6	active	Fa0/4, Fa0/5, Fa0/6

Ping PC (10.1.10.1) to PCs( 10.1.10.2 and 10.1.10.3 ) and receive responses

Ping PC ( 10.1.10.1) to PCs( 10.1.10.4, 10.1.10.5) and receive NO responses

```
C:\>ping 10.1.10.2

Pinging 10.1.10.2 with 32 bytes of data:

Reply from 10.1.10.2: bytes=32 time<1ms TTL=128
Reply from 10.1.10.2: bytes=32 time<1ms TTL=128
Reply from 10.1.10.2: bytes=32 time<1ms TTL=128
Reply from 10.1.10.2: bytes=32 time=1ms TTL=128

Ping statistics for 10.1.10.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 10.1.10.3

Pinging 10.1.10.3 with 32 bytes of data:

Reply from 10.1.10.3: bytes=32 time=1ms TTL=128
Reply from 10.1.10.3: bytes=32 time=1ms TTL=128
Reply from 10.1.10.3: bytes=32 time<1ms TTL=128
Reply from 10.1.10.3: bytes=32 time<1ms TTL=128

Ping statistics for 10.1.10.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

```
C:\>ping 10.1.10.4

Pinging 10.1.10.4 with 32 bytes of data:

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

Ping statistics for 10.1.10.4:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 10.1.10.5

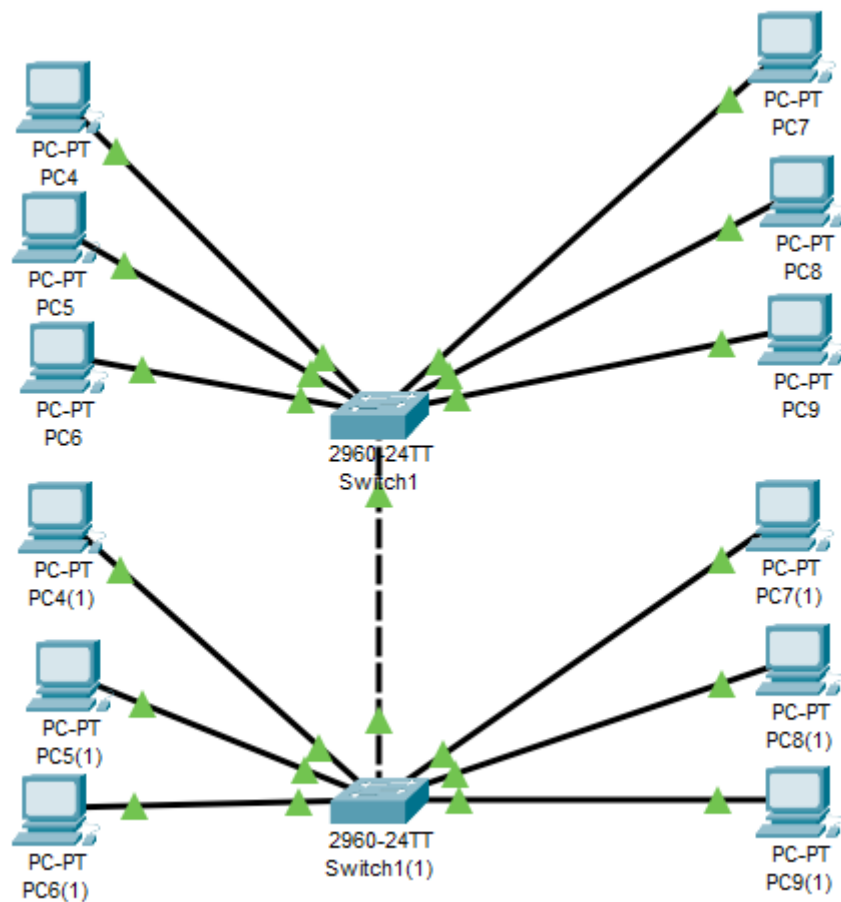
Pinging 10.1.10.5 with 32 bytes of data:

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

Ping statistics for 10.1.10.5:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

## Exercise 4.3

### Setting up the web



## Setting up Gig0/1 on switch 1

```
Switch(config)#int gig0/1
Switch(config-if)#switchport mode trunc
^
% Invalid input detected at '^' marker.

Switch(config-if)#switchport mode trunk

Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1,
changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1,
changed state to up

Switch(config-if)#switchport mode trunk
Switch(config-if)#switchport allowed vlan 2, 3
^
% Invalid input detected at '^' marker.

Switch(config-if)#switchport trunk allowed vlan 2, 3
^
% Invalid input detected at '^' marker.

Switch(config-if)#switchport trunk allowed vlan 2,3
Switch(config-if)#exit
```

---

## Setting up Gig0/2 on switch 1 (1)

```
Switch>en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#int gi0/2
Switch(config-if)#switchport mode trunk
Switch(config-if)#switchport trunk allow vlan 2,3
Switch(config-if)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console
```

Ping PC (10.1.10.1) to PC( 10.1.10.2 ) and receive responses

Ping PC ( 10.1.10.1) to PC(10.1.10.5) and receive NO responses

```
C:\>ping 10.1.10.2

Pinging 10.1.10.2 with 32 bytes of data:

Reply from 10.1.10.2: bytes=32 time=1ms TTL=128
Reply from 10.1.10.2: bytes=32 time<1ms TTL=128
Reply from 10.1.10.2: bytes=32 time<1ms TTL=128
Reply from 10.1.10.2: bytes=32 time<1ms TTL=128

Ping statistics for 10.1.10.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 10.1.10.5

Pinging 10.1.10.5 with 32 bytes of data:

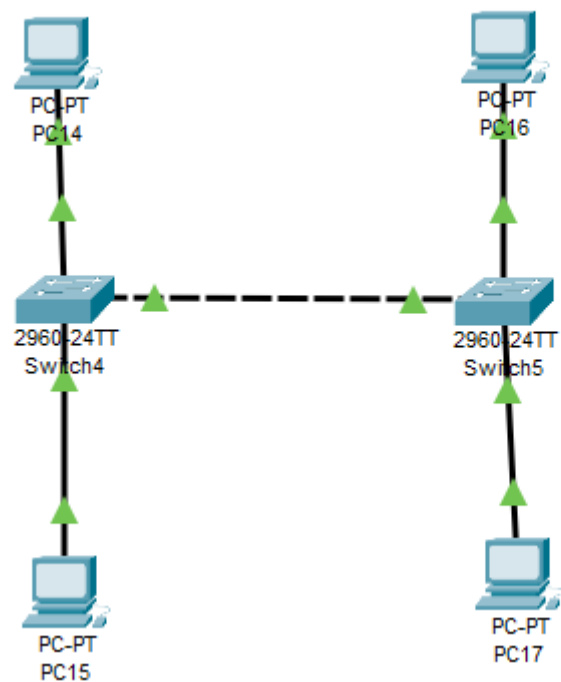
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.1.10.5:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

## Exercise 4.4

### Setting up the web





## Setting up VLANS

### SWITCH 4:

```
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 2
Switch(config-vlan)#int fa0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 2
Switch(config-if)#exit
Switch(config)#vlan 3
Switch(config-vlan)#int fa0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 3
Switch(config-if)#exit
```

```
Switch#show vlan
```

VLAN Name	Status	Ports
1 default	active	Fa0/3, Fa0/4, Fa0/5, Fa0/6 Fa0/7, Fa0/8, Fa0/9, Fa0/10 Fa0/11, Fa0/12, Fa0/13, Fa0/14 Fa0/15, Fa0/16, Fa0/17, Fa0/18 Fa0/19, Fa0/20, Fa0/21, Fa0/22 Fa0/23, Fa0/24, Gig0/1, Gig0/2
2 VLAN0002	active	Fa0/2
3 VLAN0003	active	Fa0/1
1002 fddi-default	active	
1003 token-ring-default	active	

## SWITCH 5:

```
Switch>en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 2
Switch(config-vlan)#int fa0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 2
Switch(config-if)#exit
^
% Invalid input detected at '^' marker.

Switch(config-if)#exit
Switch(config)#vlan 3
Switch(config-vlan)#int fa0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 3
Switch(config-if)#exit
Switch(config)#exit
```

```

Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#show vlan

VLAN Name                Status    Ports
-----
1    default                active    Fa0/3, Fa0/4, Fa0/5,
Fa0/6                                Fa0/7, Fa0/8, Fa0/9,
Fa0/10                               Fa0/11, Fa0/12,
Fa0/13, Fa0/14                       Fa0/15, Fa0/16,
Fa0/17, Fa0/18                       Fa0/19, Fa0/20,
Fa0/21, Fa0/22                       Fa0/23, Fa0/24,
Gig0/1, Gig0/2
2    VLAN0002                active    Fa0/2
3    VLAN0003                active    Fa0/1
1002 fddi-default          active

```

Setting up connection between commutators

Setting fa0/3 as trunc port on switch 4

```

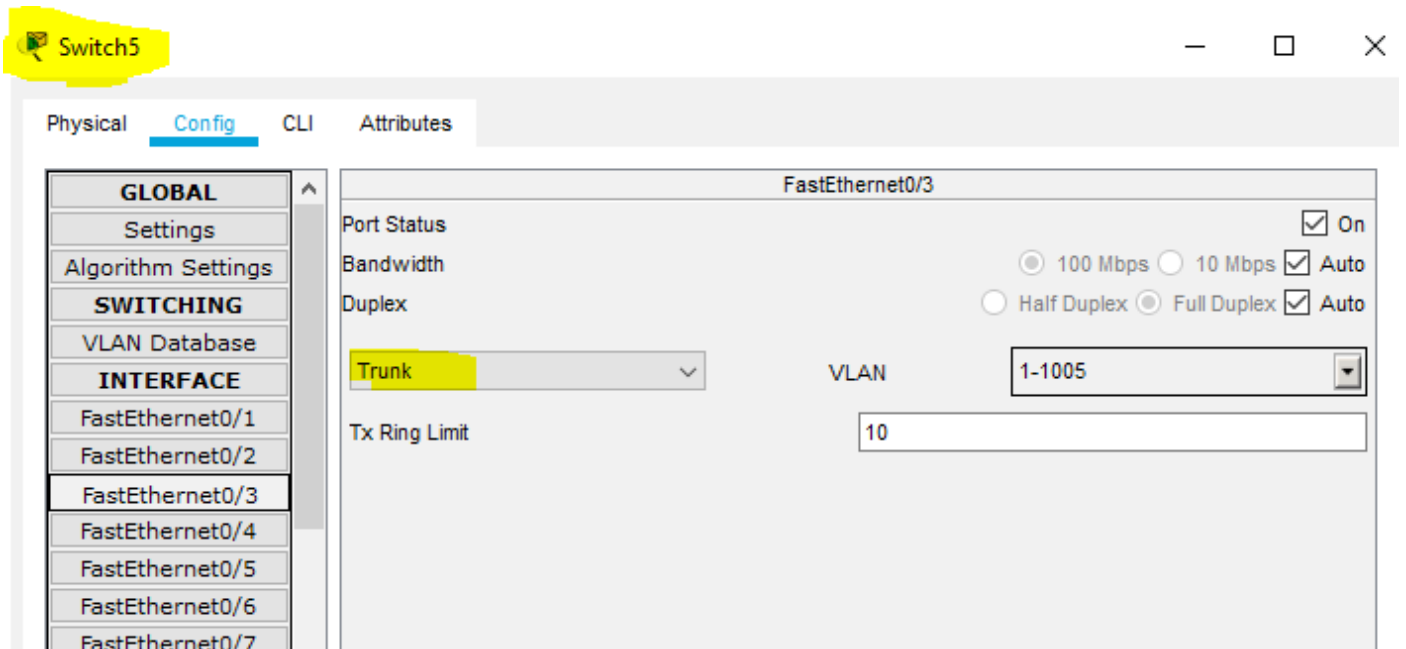
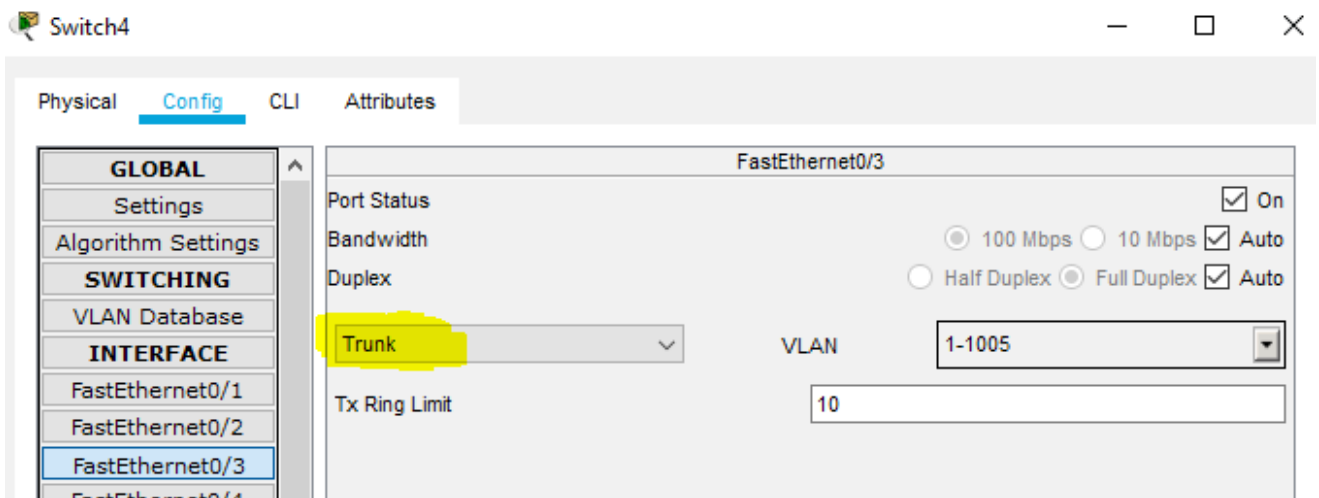
Switch>en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#int fa0/3
Switch(config-if)#switchport mode trunk

Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3,
changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3,
changed state to up

Switch(config-if)#no sh
Switch(config-if)#exit

```



Since, PC 14( 10.1.10.1) and PC 16( 10.1.10.3) are in the same VLAN they must ping each other

Since, PC 14(10.1.10.1) and PC 17(10.1.10.4) are not in the same VLAN they must receive no responses

```
Packet Tracer PC Command Line 1.0
C:\>ping 10.1.10.3

Pinging 10.1.10.3 with 32 bytes of data:

Reply from 10.1.10.3: bytes=32 time<1ms TTL=128
Reply from 10.1.10.3: bytes=32 time<1ms TTL=128
Reply from 10.1.10.3: bytes=32 time<1ms TTL=128
Reply from 10.1.10.3: bytes=32 time<1ms TTL=128

Ping statistics for 10.1.10.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.1.10.4

Pinging 10.1.10.4 with 32 bytes of data:

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

Ping statistics for 10.1.10.4:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

## Висновок:

Під час лабораторної роботи навчилися будувати віртуальні локальні мережі, застосувати отримані знання при виконанні практичних завдань. Оскільки мережі налаштовані, VLAN працює та комп'ютери з різних комутаторів пінгуються один до одного і отримують відповідь, то робота виконана правильно.