ASSIGNMENT 2 FRONT SHEET

Qualification	TEC Level 5 HND Diploma in Computing		
Unit number and title	Unit 2: Networking		
Submission date		Date Received 1st submission	
Re-submission Date		Date Received 2nd submission	
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Class	IT0501	Assessor name	Nguyen Hong hanh

Student declaration

I certify that the assignment submission is entirely my own work and I fully understand the consequences of plagiarism. I understand that making a false declaration is a form of malpractice.

	Student's signature	hai

Grading grid

P5	P6	P7	P8	M3	M4	D2

☐ **Summative Feedback:**   ☐ **Resubmission Feedback:**

Grade:	Assessor Signature:	Date:

Internal Verifier's Comments:

Signature & Date:

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A. Introduction

Nguyen Networking Limited is embarking on a pivotal networking endeavor tailored for a local educational institution. This institution boasts a dynamic community, comprising 200 students, 15 teachers, and 12 staff members, all housed within a multi-floor facility. In addition to its human resources, the institution features specialized assets such as student lab computers and printers, strategically positioned throughout the premises.

The overarching goal of this project is to optimize connectivity and collaboration within the institution, with a keen focus on three key objectives: ensuring seamless connectivity, implementing robust security measures, and facilitating streamlined access to resources across all levels of the organization. Nguyen Networking Limited is committed to leveraging its expertise and state-of-the-art solutions to construct a network infrastructure that not only meets but exceeds these objectives.

Through a combination of meticulous planning, efficient deployment strategies, and unwavering ongoing support, we are poised to revolutionize the institution's technological landscape. Our aim is to create an environment that fosters innovation, facilitates seamless collaboration, and empowers educational excellence. With Nguyen Networking Limited at the helm, the institution's stakeholders will be equipped to navigate and thrive in today's rapidly evolving digital landscape.

B. Content

P5. Design a networked system to meet a given specification.

1. The difference between logical and physical design

Physical Design	Logical Design
The physical design is highly detailed.	Logical design is a high-level design and doesn't provide any detail.
Physical design is more graphical than textual; however, it can comprise both.	Logical design can be textual, graphic, or both.
A physical design focuses on specific solutions explaining how they are assembled or configured	A logical design focuses on satisfying the design factors, including risks, requirements, constraints, and assumptions.

2. The USER Requirement for the design

User requirements for the design:

✓ Building: 3 floors, all computers and printers are on the ground floor apart from the IT labs – one lab located on the first floor and another located on the second floor.

✓ People: 200 students, 15 teachers, 12 marketing and administration staff, 5 higher managers including the head of academics and the program manager, and 3 computer network administrators.

✓ Resources: 50 student lab computers, 35 staff computers, 3 printers.
  - When implementing, ensure stability, clear hierarchy, simplicity, and affordability.

3. Logical design of the network based on user requirement
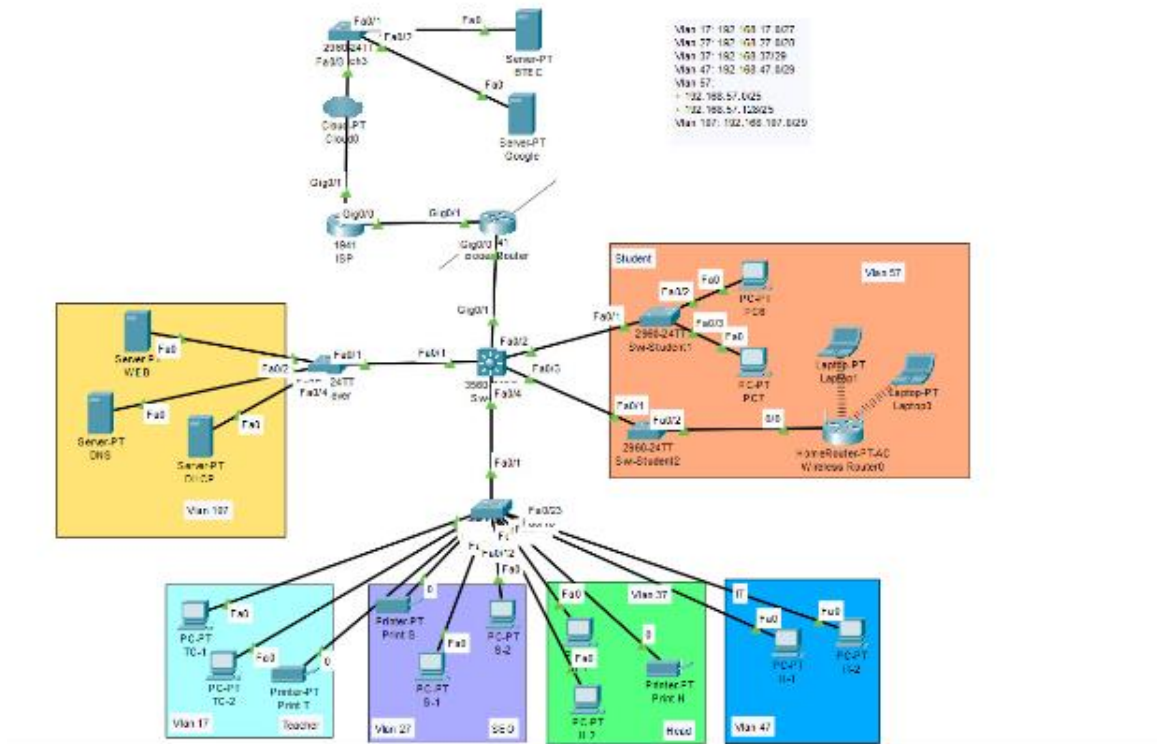
Figure 1:Logical design

4. Physical design of the network based on user requirement
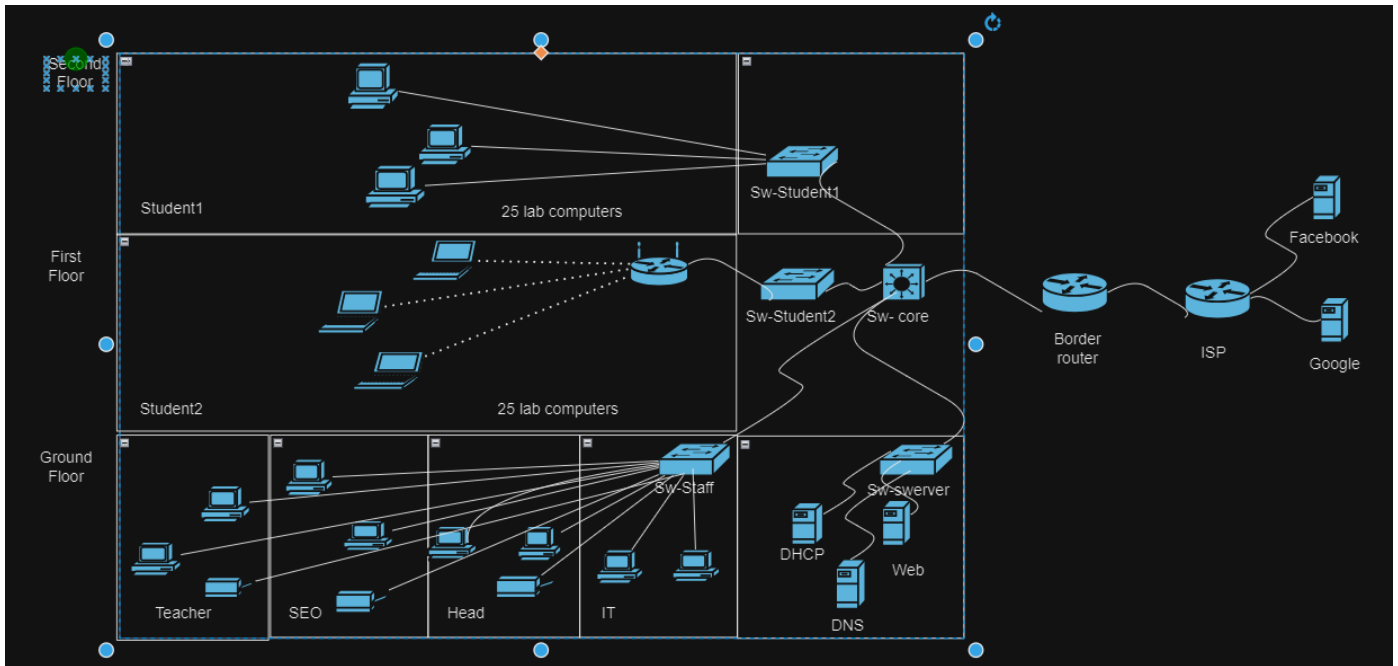
Figure 2:Physical design

5. Addressing table for the network you design

Type of user	Vlan	Network Address	Subnets Mask	Default Gateway	DHCP	DNS
Teacher	17	192.168.17.0	255.255.255.224	192.168.17.1	192.168.107.2	192.168.107.3
SEO	27	192.168.27.0	255.255.255.240	192.168.27.1	192.168.107.2	192.168.107.3
Head	37	192.168.37.0	255.255.255.248	192.168.37.1	192.168.107.2	192.168.107.3
IT	47	192.168.47.0	255.255.255.248	192.168.47.1	192.168.107.2	192.168.107.3
Student	57	192.168.57.0	255.255.255.0	192.168.57.1	192.168.107.2	192.168.107.3
server	107	192.168.107.0	255.255.255.248	192.168.107.1	192.168.107.2	192.168.107.3

Explain the subnetmask division:

Split Subnet Mask brings some benefits as follows:

Easier network management: Dividing the network into smaller subnets makes it easier to manage devices on the network.

Enhance network security: Split subnet mask helps isolate subnets from each other, helping to increase network security.

Optimal performance network: Split network mask helps minimize minimum broadcast, helping to optimize network performance.

P6. Design a maintenance schedule to support the networked system.

1. Network maintenance definition.

Network maintenance is essentially what you need to do to keep your network up and running smoothly. This definition encompasses some duties such as installing and configuring hardware and software, troubleshooting network problems, monitoring and improving network performance and planning for network growth.

2. Task for the maintenance plan.

➢ **Troubleshooting Problems**: Proactively identify and resolve network issues, distinguishing between internal and external causes. Utilize network monitoring tools for early detection.

➢ **Performing Data and Configuration Backups**: Regularly back up critical data and network configurations, ensuring backups are accessible, verified, and up to date.

➢ **Device Inventory Management**: Maintain an accurate inventory of all network devices, tracking their status, updates, and lifecycle for efficient maintenance and replacement.

➢ **Malware/Ransomware Protection**: Implement robust security measures to protect against evolving threats, including regular updates, scans, and configuration adjustments.

➢ **Power Checks**: Test and maintain UPS systems to ensure uninterrupted power supply, scaling capacity with network growth.

➢ **Network Documentation**: Document all network components, maintenance activities, and relevant details to facilitate troubleshooting and knowledge transfer.

➢ **Hardware Checks**: Regularly inspect and maintain network hardware for damage, dust, and connectivity issues to prevent failures.

➢ **Compliance Checks**: Ensure network operations comply with legal and industry regulations, implementing necessary policies and security standards.

➢ **Preemptive Repairs**: Conduct scheduled maintenance to address potential issues before they disrupt network operations.

- **Configurations and Upgrades**: Regularly update software and devices to address security vulnerabilities and accommodate organizational changes.
- **Future Network Growth Planning**: Plan for network scalability and expansion based on past performance, recurring issues, and anticipated needs.

3. Maintenance schedule

	Daily	Weekly	Monthly	Yearly
System Checks: Check for any physical damage or signs of wear on networking equipment.	x			
Software Updates		x		
Cable and Physical Infrastructure Inspection			x	
Data Backup	x			
User Account Management.		x		
Monitoring Network Performance:			x	
Server access reviewed		x		
Firewall Rules reviewed		x		
Hardware physically cleaned and errors checked			x	
System Performance Optimization			x	
Security Checks		x		
System Error Checking and Handling			x	
Security Audits				x
Check and Replace Old Hardware				x
Scaling and Future Planning				x

P7. Implement a networked system based on a prepared design.

Figure 3:Cisco Package Tracer Instructor to design an emulator for my network.

Here are the specific steps to configure each part of the network:

❖ **Sw Core:**
➢ **Security Configuration:**
- **Set passwords for console and enable mode.**

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname SW-core
SW-core(config)#line console 0
SW-core(config-line)#password 123
SW-core(config-line)#login
SW-core(config-line)#end
SW-core#en
SW-core#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
SW-core(config)#Enable secret admin
SW-core(config)#exit
```

Figure 4:Set passwords for console and enable mode.

➢ **VTP Configuration:**
- **Set the domain, mode, and VTP password.**

- **Name the Vlans:**

```
SW-core#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
SW-core(config)#line vty 0 4
SW-core(config-line)#password cisscol23
SW-core(config-line)#login
SW-core(config-line)#end
SW-core#en
SW-core#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
SW-core(config)#vtp domain btec.vn
Changing VTP domain name from NULL to btec.vn
SW-core(config)#vtp mode server
Device mode already VTP SERVER.
SW-core(config)#vtp password btecl23
Setting device VLAN database password to btecl23
```

Figure 5: Set the domain, mode, and VTP password.

➢ **Trunking Configuration:**

```
SW-core#en
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname SW-Staff
SW-Staff(config)#vtp domain btec.vn
Changing VTP domain name from NULL to btec.vn
SW-Staff(config)#vtp mode client
Setting device to VTP CLIENT mode.
SW-Staff(config)#vtp pass btecl23
Setting device VLAN database password to btecl23
SW-Staff(config)#int f0/1
SW-Staff(config-if)#sw mode trunk
SW-Staff(config-if)#int range f0/2-10
SW-Staff(config-if-range)#sw mode acc
SW-Staff(config-if-range)#sw acc vlan 17
SW-Staff(config-if-range)#int range f0/11-15
SW-Staff(config-if-range)#sw mode acc
SW-Staff(config-if-range)#sw acc vlan 27
SW-Staff(config-if-range)#int range f0/16-21
SW-Staff(config-if-range)#sw mode acc
SW-Staff(config-if-range)#sw acc vlan 37
SW-Staff(config-if-range)#int range f0/22-24
SW-Staff(config-if-range)#sw mode acc
SW-Staff(config-if-range)#sw acc vlan 47
```

Figure 6:Name the Vlans

- **Configure trunk ports on interfaces f0/1-4.**

Figure 6:Configure trunk ports on interfaces f0/1-4

```
SW-core(config)#int range f0/1-4
SW-core(config-if-range)#sw trunk enc dot1Q
SW-core(config-if-range)#sw mode trunk
```

❖ **Sw Server**

❖ **Sw-Staff:**

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname SW-Staff
SW-Staff(config)#vtp domain btec.vn
Changin  Switch>en
SW-Staf  Switch#conf t
Setting  Enter configuration commands, one per line.  End with CNTL/Z.
SW-Staf  Switch(config)#hostname SW-student1
Setting  SW-student1(config)#vtp domain btec.vn
SW-Staf  Domain name already set to btec.vn.
SW-Staf  SW-student1(config)#vtp mode client
SW-Staf  Setting device to VTP CLIENT mode.
SW-Staf  SW-student1(config)#vtp pass btec123
SW-Staf  Setting device VLAN database password to btec123
SW-Staf  SW-student1(config)#int f0/1
SW-Staf  SW-student1(config-if)#sw mode trunk
SW-Staf  SW-student1(config-if)#int range f0/2-10
SW-Staf  SW-student1(config-if-range)#sw mode acc
SW-Staf  SW-student1(config-if-range)#sw acc vlan 57
SW-Staf  SW-student1(config-if-range)#
SW-Staf
SW-Staff(config-if-range)#sw mode acc
SW-Staff(          Figure 8:Sw-Student
SW-Staff(
```

Figure 7:Sw-Staff

❖ **Sw-Student:**

❖ **IP address for each VLAN**

```
SW-core(config-vlan)#int vlan 17
SW-core(config-if)#ip add 192.168.17.1 255.255.255.224
SW-core(config-if)#no shutdown
SW-core(config-if)#int vlan 27
SW-core(config-if)#ip add 192.168.27.1 255.255.255.240
SW-core(config-if)#no shutdown
SW-core(config-if)#int vlan 37
SW-core(config-if)#ip add 192.168.37.1 255.255.255.248
SW-core(config-if)#no shutdown
SW-core(config-if)#int vlan 47
SW-core(config-if)#ip add 192.168.47.1 255.255.255.248
SW-core(config-if)#no shutdown
SW-core(config-if)#int vlan 57
SW-core(config-if)#ip add 192.168.57.1 255.255.255.0
SW-core(config-if)#no shutdown
SW-core(config-if)#int vlan 107
SW-core(config-if)#ip add 192.168.107.1 255.255.255.248
SW-core(config-if)#no shutdown
SW-core(config-if)#exit
```

Figure 9:IP address for each VLAN

❖ **relay Configuration:**

```
SW-core>en
SW-core#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
SW-core(config)#int vlan 17
SW-core(config-if)#ip helper-address 192.168.107.2
SW-core(config-if)#int vlan 27
SW-core(config-if)#ip helper-address 192.168.107.2
SW-core(config-if)#int vlan 37
SW-core(config-if)#ip helper-address 192.168.107.2
SW-core(config-if)#int vlan 47
SW-core(config-if)#ip helper-address 192.168.107.2
SW-core(config-if)#int vlan 57
SW-core(config-if)#ip helper-address 192.168.107.2
SW-core(config-if)#
SW-core(config-if)#
```

Figure 10:relay Configuration

❖ **Assign VLANs to ports**

```
SW-core>en
SW-core#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
SW-core(config)#
SW-core(config)#access-list 110 deny ip 192.168.17.0 0.0.0.255 192.168.27.0 0.0.0.31
SW-core(config)#access-list 110 deny ip 192.168.17.0 0.0.0.255 192.168.37.0 0.0.0.15
SW-core(config)#access-list 110 deny ip 192.168.17.0 0.0.0.255 192.168.47.0 0.0.0.7
SW-core(config)#
SW-core(config)#ex
```

Figure 11:Assign VLANs to ports

❖ **Routing Configuration**

```
SW-core#en
SW-core#conf
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line.  End with CNTL/Z.
SW-core(config)#int g0/1
SW-core(config-if)#no shu
SW-core(config-if)#no switchport
SW-core(config-if)#ip add 1.1.1.1 255.255.255.252
SW-core(config-if)#ex
SW-core(config)#ip route 0.0.0.0 0.0.0.0 1.1.1.2
SW-core(config)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up
```

Figure 12:Routing Configuration

❖ **Border Router Configuration**

```
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int g0/0
Router(config-if)#no shu

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up

Router(config-if)#ip add 1.1.1.2 255.255.255.252
Router(config-if)#ex
Router(config)#ip routr 0.0.0.0 0.0.0.0 1.1.1.1
                        ^
% Invalid input detected at '^' marker.

Router(config)#ip route 0.0.0.0 0.0.0.0 1.1.1.1
Router(config)#
Router(config)#int g0/1
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up
ip add 2.2.2.2 255.255.255.252
Router(config-if)#ex
Router(config)#ip route 0.0.0.0 0.0.0.0 2.2.2.1
Router(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up
%IP-4-DUPADDR: Duplicate address 2.2.2.2 on GigabitEthernet0/1, sourced by 0002.4A80.B304

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

Figure 13:Border Router Configuration

❖ **ISP Router Configuration:**

```
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int g0/0
Router(config-if)#no shu

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up

Router(config-if)#ip add 1.1.1.2 255.255.255.252
Router(config-if)#ex
Router(config)#ip routr 0.0.0.0 0.0.0.0 1.1.1.1
                      ^
% Invalid input detected at '^' marker.

Router(config)#ip route 0.0.0.0 0.0.0.0 1.1.1.1
Router(config)#
Router(config)#int g0/1
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up
ip add 2.2.2.2 255.255.255.252
Router(config-if)#ex
Router(config)#ip route 0.0.0.0 0.0.0.0 2.2.2.1
Router(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up
%IP-4-DUPADDR: Duplicate address 2.2.2.2 on GigabitEthernet0/1, sourced by 0002.4A80.B304

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

Figure 14:ISP Router Configuration

❖ **Internet Router Configuration**

```
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int g0/0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up
ip add 3.3.3.2 255.255.255.252
Router(config-if)#ex
Router(config)#ip route 0.0.0.0 0.0.0.0 3.3.3.1
Router(config)#
```

Figure 15:Internet Router Configuration

❖ **Servers DHCP configuration**

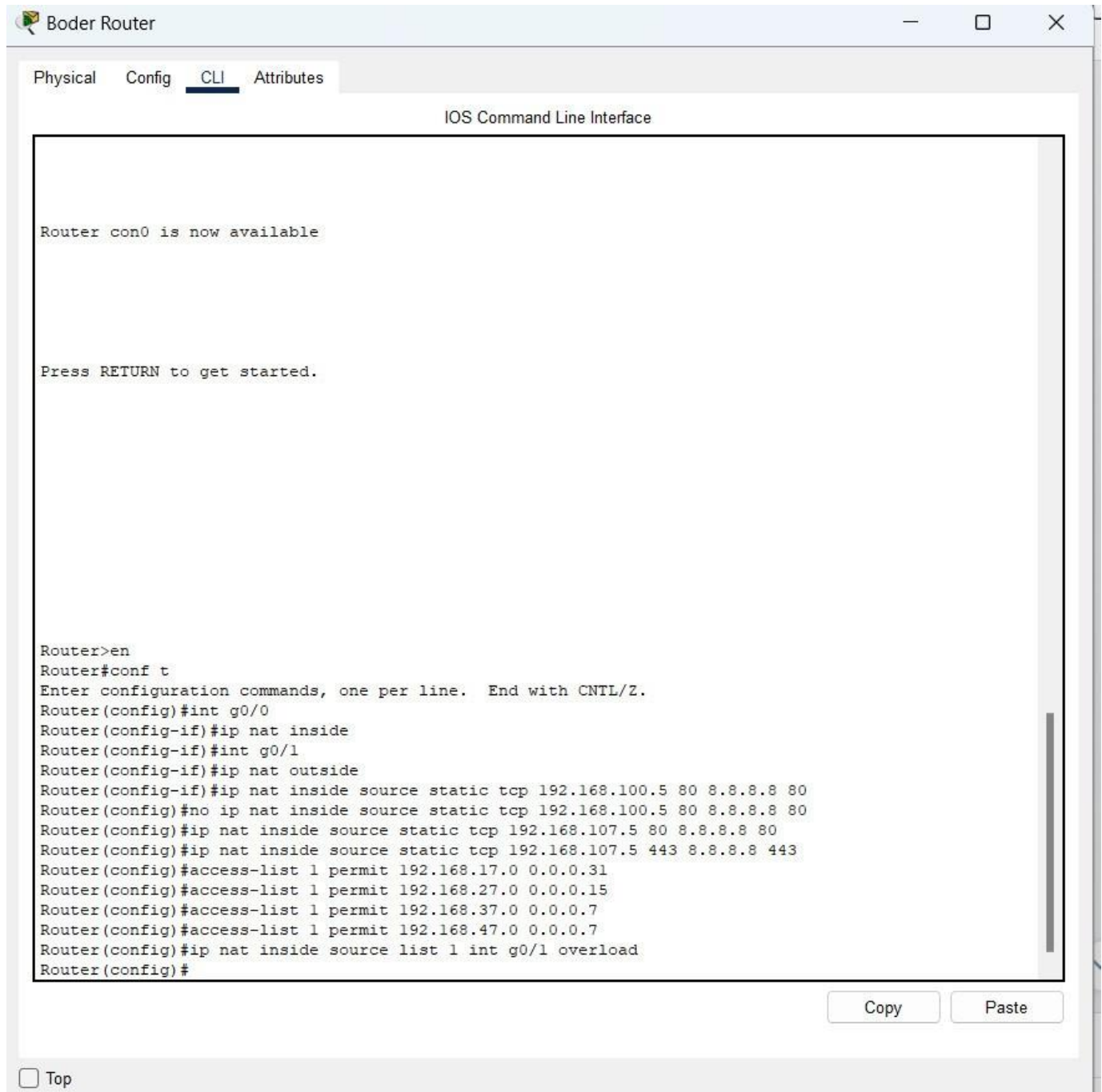*Figure 16:Servers DHCP configuration*

❖ **Boder router configuration:**

Figure 17:Boder router configuration

P8. Document and analyze test results against expected results

- **Set passwords for console and enable mode**

Switch>en

Switch#conf t

Enter configuration commands, one per line. End with CNTL/Z.

Switch(config)#hostname SW-core

SW-core(config)#line console 0

SW-core(config-line)#password 123

SW-core(config-line)#login

Switch>en

Switch#conf t

Switch(config)#Enable secret admin

Switch(config)#exit

- **Set the domain, mode, and VTP password.**

    Switch>en

    Switch#conf t

    Enter configuration commands, one per line. End with CNTL/Z.

    SW-core(config)#line vty 0 4

    SW-core(config-line)#password cissco123

    SW-core(config-line)#login

    SW-core(config-line)#^Z

    SW-core#

    %SYS-5-CONFIG_I: Configured from console by console

    conf t

    Enter configuration commands, one per line. End with CNTL/Z.

    SW-core(config)#vtp domain btec.vn

    Changing VTP domain name from NULL to btec.vn

    SW-core(config)#vtp mode server

    Device mode already VTP SERVER.

    SW-core(config)#vtp password btec123

- **Configure trunk ports on interfaces f0/1-4.**

    Setting device VLAN database password to btec123

    SW-core(config)#int range f0/1-4

    SW-core(config-if-range)#sw trunk enc dot1Q

    SW-core(config-if-range)#sw mode trunk

    SW-core(config-if-range)#end

- **Name the Vlans**

SW-core#en

SW-core#conf t

Enter configuration commands, one per line. End with CNTL/Z.

SW-core(config)#ip routing

SW-core(config)#vlan 17

SW-core(config-vlan)#name teacher

SW-core(config-vlan)#vlan 27

SW-core(config-vlan)#name SEO

SW-core(config-vlan)#vlan 37

SW-core(config-vlan)#name Head

SW-core(config-vlan)#vlan 47

SW-core(config-vlan)#name IT

SW-core(config-vlan)#vlan 57

SW-core(config-vlan)#name student

SW-core(config-vlan)#vlan 107

SW-core(config-vlan)#name server

SW-core(config-vlan)#int vlan 17

- **IP address for each vlan**

```
SW-core(config-vlan)#int vlan 17
SW-core(config-if)#ip add 192.168.17.1 255.255.255.224
SW-core(config-if)#no shutdown
SW-core(config-if)#int vlan 27
SW-core(config-if)#ip add 192.168.27.1 255.255.255.240
SW-core(config-if)#no shutdown
SW-core(config-if)#int vlan 37
SW-core(config-if)#ip add 192.168.37.1 255.255.255.248
SW-core(config-if)#no shutdown
SW-core(config-if)#int vlan 47
SW-core(config-if)#ip add 192.168.47.1 255.255.255.248
SW-core(config-if)#no shutdown
```

SW-core(config-if)#int vlan 57
SW-core(config-if)#ip add 192.168.57.1 255.255.255.0
SW-core(config-if)#no shutdown
SW-core(config-if)#int vlan 107
SW-core(config-if)#ip add 192.168.107.1 255.255.255.248
SW-core(config-if)#no shutdown
SW-core(config-if)#exit

- **relay Configuration:**

    SW-core(config)#int vlan 17
    SW-core(config-if)#ip helper-address 192.168.107.2
    SW-core(config-if)#int vlan 27
    SW-core(config-if)#ip helper-address 192.168.107.2
    SW-core(config-if)#int vlan 37
    SW-core(config-if)#ip helper-address 192.168.107.2
    SW-core(config-if)#int vlan 47
    SW-core(config-if)#ip helper-address 192.168.107.2
    SW-core(config-if)#int vlan 57
    SW-core(config-if)#ip helper-address 192.168.107.2

- **Assign VLANs to ports**
    SW-core(config)#access-list 110 deny ip 192.168.17.0.0.0.0.255 192.168.27.0.0.0.0.31
    SW-core(config)#access-list 110 deny ip 192.168.17.0.0.0.0.255 192.168.37.0.0.0.0.15
    SW-core(config)#access-list 110 deny ip 192.168.17.0.0.0.0.255 192.168.47.0.0.0.0.7

- **Routing Configuration**
    SW-core(config-if)#int g0/1
    SW-core(config-if)#ip address 1.1.1.1 255.255.255.252
    SW-core(config-if)#no shutdown

- **Configuration on Sw-staff**
    Switch(config)#hostname SW-Staff
    SW-Staff(config)#vtp domain btec.vn
    Changing VTP domain name from NULL to btec.vn
    SW-Staff(config)#vtp mode client
    Setting device to VTP CLIENT mode.
    SW-Staff(config)#vtp pass btec123
    Setting device VLAN database password to btec123
    SW-Staff(config)#int f0/1

```
SW-Staff(config-if)#sw mode trunk
SW-Staff(config-if)#int range f0/2-10
SW-Staff(config-if-range)#sw mode acc
SW-Staff(config-if-range)#sw acc vlan 17
SW-Staff(config-if-range)#int range f0/11-15
SW-Staff(config-if-range)#sw mode acc
SW-Staff(config-if-range)#sw acc vlan 27
SW-Staff(config-if-range)#int range f0/16-21
SW-Staff(config-if-range)#sw mode acc
SW-Staff(config-if-range)#sw acc vlan 37
SW-Staff(config-if-range)#int range f0/22-24
SW-Staff(config-if-range)#sw mode acc
SW-Staff(config-if-range)#sw acc vlan 47
```

- **Configuration above Sw-server**

Switch>en

Switch#conf t

Enter configuration commands, one per line. End with CNTL/Z.

Switch(config)#hostname SW-server

SW-server(config)#vtp domain btec.vn

Domain name already set to btec.vn.

SW-server(config)#vtp mode client

Setting device to VTP CLIENT mode.

SW-server(config)#vtp pass btec123

Setting device VLAN database password to btec123

SW-server(config)#int f0/1

SW-server(config-if)#sw mode trunk

SW-server(config-if)#int range f0/2-4

SW-server(config-if-range)#sw mode acc

SW-server(config-if-range)#sw acc vlan 107

- **Configuration on Sw-student**

    Sw- student 1
    Switch>en
    Switch#conf t
    Enter configuration commands, one per line. End with CNTL/Z.
    Switch(config)#hostname SW-student1
    SW-student1(config)#vtp domain btec.vn
    Domain name already set to btec.vn.
    SW-student1(config)#vtp mode client
    Setting device to VTP CLIENT mode.
    SW-student1(config)#vtp pass btec123
    Setting device VLAN database password to btec123
    SW-student1(config)#int f0/1
    SW-student1(config-if)#sw mode trunk
    SW-student1(config-if)#int range f0/2-10
    SW-student1(config-if-range)#sw mode acc
    SW-student1(config-if-range)#sw acc vlan 57

- **Border Router Configuration:**

    Router(config)#ip route 192.168.0.0 255.255.0.0 10.10.12.1

    Router(config)#ip route 0.0.0.0 0.0.0.0 1.1.1.2

    Router(config)#int g0/0

    Router(config)#ip add 1.1.1.2 255.255.255.252

    Router(config)#no sh

- **ISP Router Configuration:**
    Router(config)#int g0/0
    Router(config-if)#no shut
    Router(config-if)#ip add 2.2.2.1 255.255.255.252
    Router(config-if)#ex
    Router(config)# ip route 0.0.0.0 0.0.0.0 2.2.2.2

Router(config)#int g0/1

Router(config-if)#no shut

Router(config-if)#ex

Router(config)# ip route 0.0.0.0 0.0.0.0 3.3.3.2

2. Testting.

1. Testing.

- **Check password**

```
SW-core#show vtp as
SW-core#show vtp as
SW-core#show vtp pas
VTP Password: btec123
```

Figure 18:Check password

- **Check configure VTP and check status.**

```
SW-core#show vtp status
VTP Version capable          : 1 to 2
VTP version running          : 1
VTP Domain Name              : btec.vn
VTP Pruning Mode             : Disabled
VTP Traps Generation         : Disabled
Device ID                    : 0005.5EC3.C500
Configuration last modified by 0.0.0.0 at 3-1-93 00:00:00
Local updater ID is 192.168.17.1 on interface Vl17 (lowest numbered VLAN interface found)

Feature VLAN :
-------------
VTP Operating Mode                : Server
Maximum VLANs supported locally   : 1005
Number of existing VLANs          : 11
Configuration Revision            : 36
MD5 digest                        : 0xF5 0x18 0x3E 0x88 0x4A 0x19 0xC5 0xBC
                                    0xA3 0x3B 0xC6 0x33 0x96 0x45 0x46 0x9E
```

Figure 19:Check configure VTP and check status

- **Check Vlan:**

```
17    teacher                        active
27    SEO                            active
37    Head                           active
47    IT                             active
```

Figure 20:Check Vlan

- **Check Trunking**

```
SW-core>en
SW-core#show int trunk
Port        Mode            Encapsulation   Status          Native vlan
Fa0/1       on              802.1q          trunking        1
Fa0/2       on              802.1q          trunking        1
Fa0/3       on              802.1q          trunking        1
Fa0/4       on              802.1q          trunking        1

Port        Vlans allowed on trunk
Fa0/1       1-1005
Fa0/2       1-1005
Fa0/3       1-1005
Fa0/4       1-1005

Port        Vlans allowed and active in management domain
Fa0/1       1,17,27,37,47,57,107
Fa0/2       1,17,27,37,47,57,107
Fa0/3       1,17,27,37,47,57,107
Fa0/4       1,17,27,37,47,57,107

Port        Vlans in spanning tree forwarding state and not pruned
Fa0/1       1,17,27,37,47,57,107
Fa0/2       1,17,27,37,47,57,107
Fa0/3       1,17,27,37,47,57,107
Fa0/4       1,17,27,37,47,57,107
```

Figure 21:Check Trunking

- **Check configure VTP and check status of Sw- server:**

```
Sw-server#show vtp status
VTP Version capable            : 1 to 2
VTP version running            : 1
VTP Domain Name                : btec.vn
VTP Pruning Mode               : Disabled
VTP Traps Generation           : Disabled
Device ID                      : 0001.64CC.3600
Configuration last modified by 0.0.0.0 at 3-1-93 00:00:00

Feature VLAN :
--------------
VTP Operating Mode             : Client
Maximum VLANs supported locally : 255
Number of existing VLANs       : 11
Configuration Revision         : 48
MD5 digest                     : 0x15 0x63 0x4A 0xDF 0x8F 0x09 0x1E 0xD3
                                 0x1F 0x72 0x9A 0xDB 0x1F 0x40 0xBE 0x22
```

Figure 22:Check configure VTP and check status of Sw- server

- **Check configure VTP and check status of Sw- staff:**

```
SW-Staff>en
SW-Staff#show vtp status
VTP Version capable             : 1 to 2
VTP version running             : 1
VTP Domain Name                 : btec.vn
VTP Pruning Mode                : Disabled
VTP Traps Generation            : Disabled
Device ID                       : 000A.F38E.0400
Configuration last modified by 0.0.0.0 at 3-1-93 00:00:00

Feature VLAN :
--------------
VTP Operating Mode              : Client
Maximum VLANs supported locally : 255
Number of existing VLANs        : 11
Configuration Revision          : 48
MD5 digest                      : 0x15 0x63 0x4A 0xDF 0x8F 0x09 0x1E 0xD3
                                  0x1F 0x72 0x9A 0xDB 0x1F 0x40 0xBE 0x22
```

Figure 23:Check configure VTP and check status of Sw- staff

- **Check configure VTP and check status of Sw- student:**

```
SW-student1#show vtp status
VTP Version capable             : 1 to 2
VTP version running             : 1
VTP Domain Name                 : btec.vn
VTP Pruning Mode                : Disabled
VTP Traps Generation            : Disabled
Device ID                       : 0001.6421.5300
Configuration last modified by 0.0.0.0 at 3-1-93 00:00:00

Feature VLAN :
--------------
VTP Operating Mode              : Client
Maximum VLANs supported locally : 255
Number of existing VLANs        : 11
Configuration Revision          : 48
MD5 digest                      : 0x15 0x63 0x4A 0xDF 0x8F 0x09 0x1E 0xD3
                                  0x1F 0x72 0x9A 0xDB 0x1F 0x40 0xBE 0x22
```

Figure 24:Check configure VTP and check status of Sw- student

- **Check services DHCP:**

Figure 25:Check services DHCP

- **TC-1 computer is dynamically assigned IP by DHCP**:
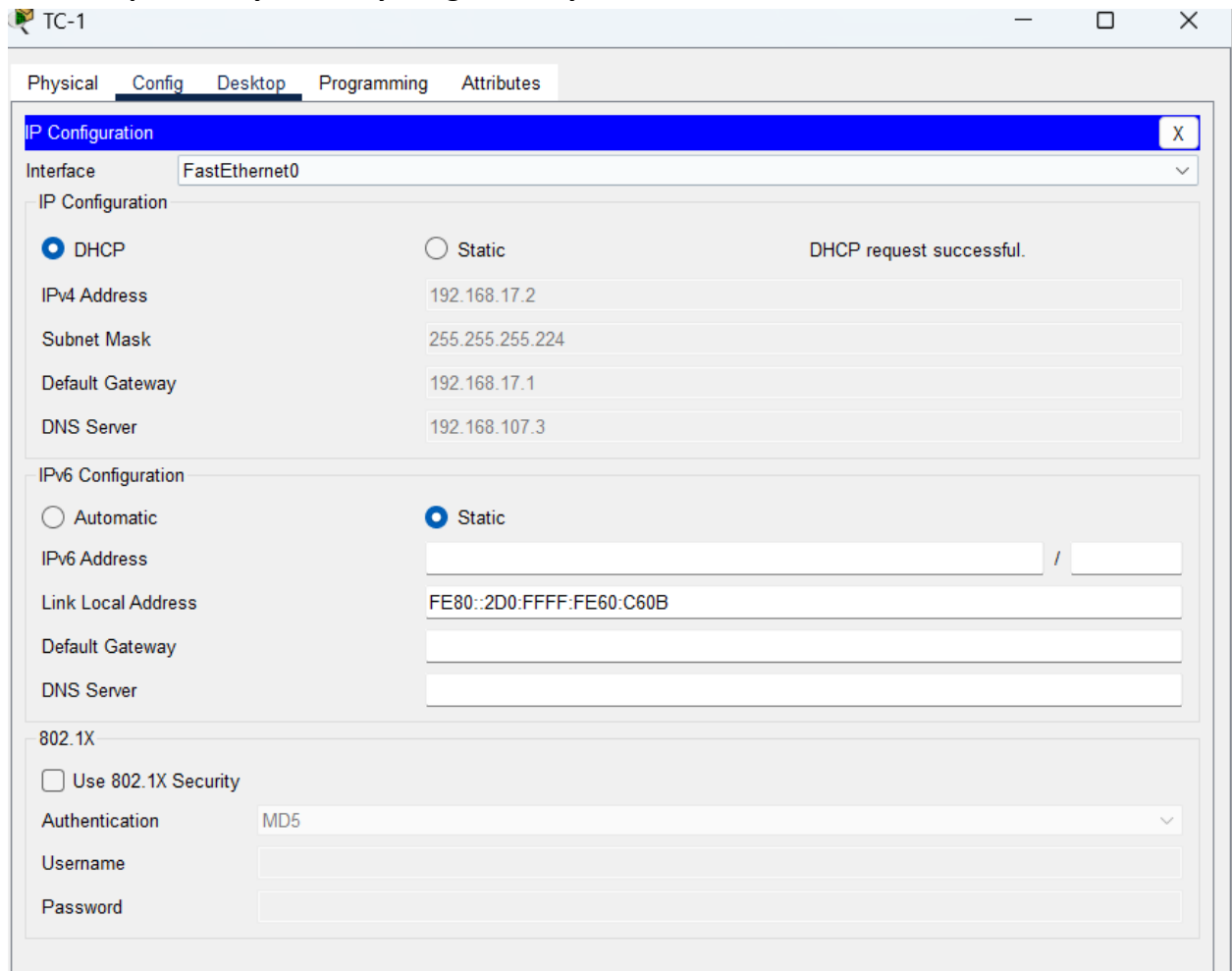
Figure 26:TC-1 computer is dynamically assigned IP by DHCP

- **Ping Realtime:**

Figure 27:Ping Realtime

- **Check ping after configuring an access control list**:
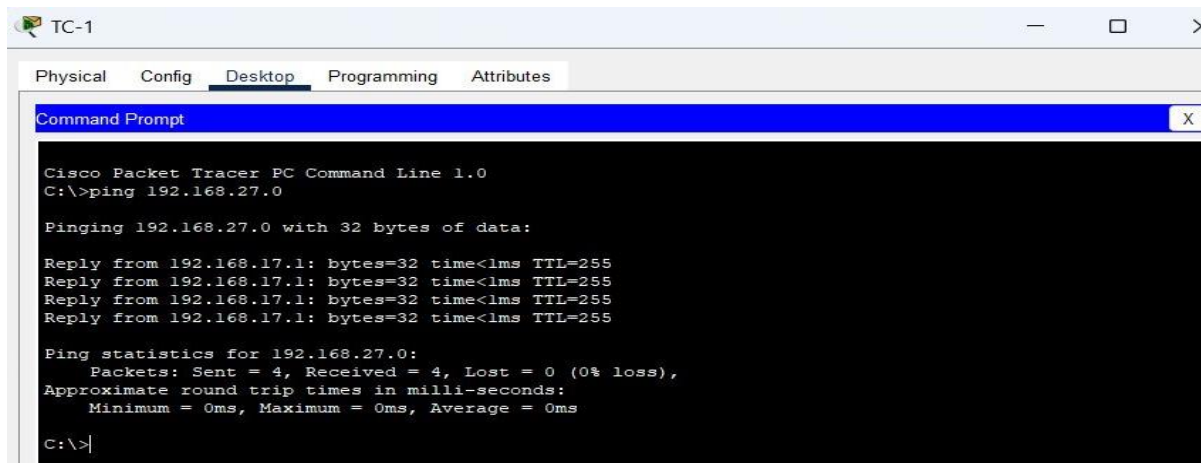
Figure 28:Check ping after configuring an access control list

- **Check cmputers with different VLANs can ping each other:**

Figure 31:Check computers with different VLANs can ping each other

- **Check ping from outside to inside after configuring NAT**:

Figure 29:Check ping from outside to inside after configuring NAT

Check DNS web serve:
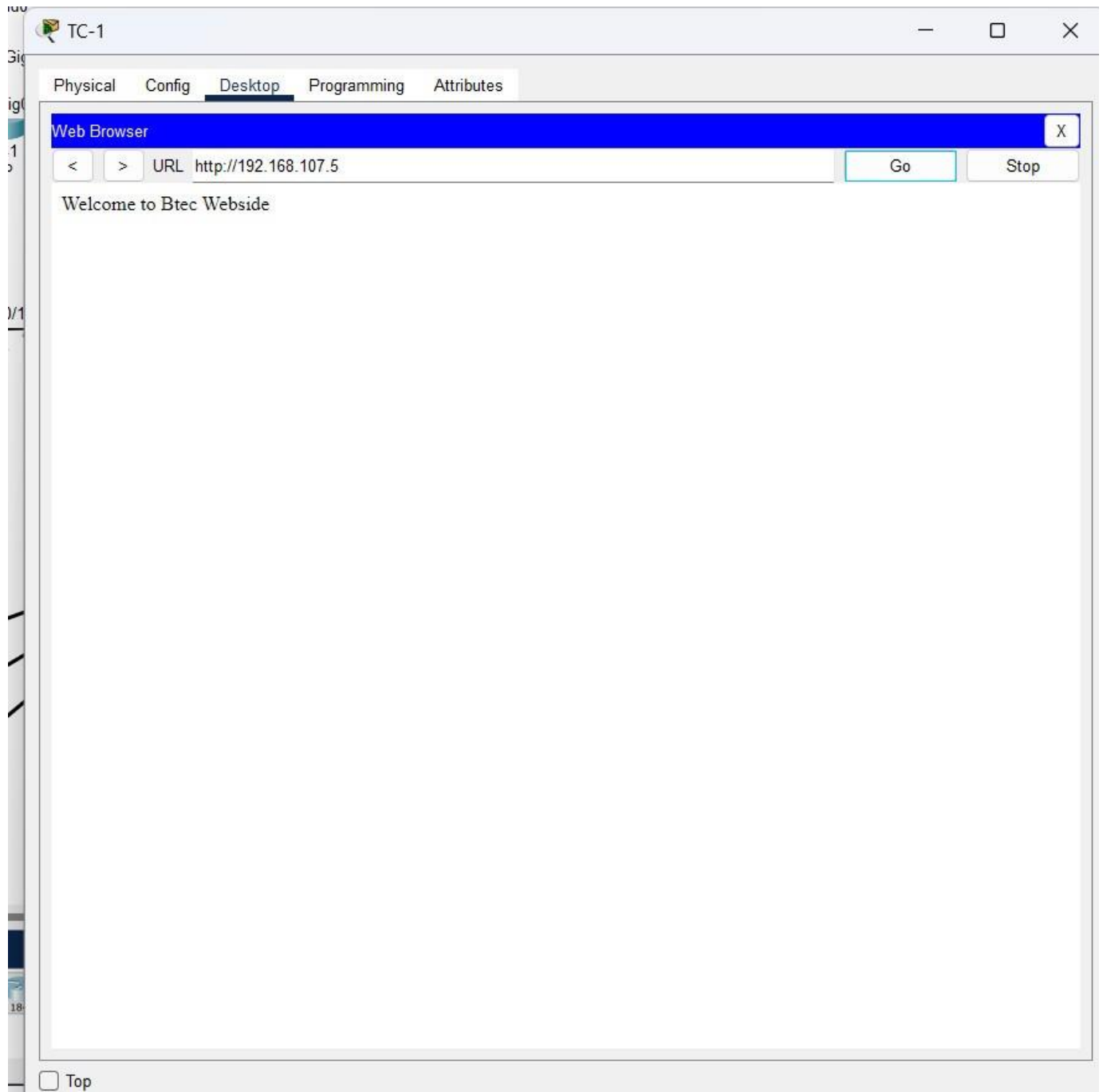
C. Conclusion

In conclusion, I have presented the required contents of the task are: Provide a logical and physical design of the networked system with clear explanation and addressing table; Evaluate the design to meet the requirements; Implement a networked system based on a prepared design; Document and analyze test results against expected results in this report.

D. Reference

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