Experiment #	<TO BE FILLED BY STUDENT>	**Student ID**	<TO BE FILLED BY STUDENT>
Date	<TO BE FILLED BY STUDENT>	**Student Name**	[@KLWKS_BOT] THANOS

Lab 3: Configuration of basic switch setup using Huawei/Cisco network switch.

Date of the Session:_____/___/_____ **Session Time:____to_____**

Learning outcome:

- Identify and understand the physical components of a Huawei network switch, such as ports, LEDs, and console interfaces.
- Understand the concept of user authentication and password management.
- Develop the ability to navigate the switch's CLI, including using basic commands to view system information and switch status.
- Understand the essential settings, such as hostname, IP address, and gateway to make the switch accessible on the network
- Develop an understanding of best practices for switch configuration and management to ensure a stable and secure network.

Pre-Lab Task

1. Review the documentation and manuals for the specific Huawei or Cisco switch model you will be working with. Familiarize yourself with its features, capabilities, and command-line interface (CLI).

- Read manufacturer manuals to understand the switch's **features**, **capabilities**, and **CLI commands**.
- Focus on **hardware specs**, **software features**, and **network topology** support.

2. Describe the basic components and ports found on a Huawei network switch, and explain their functions.

- **Power Supply Ports:** Main and redundant power supplies.
- **Ethernet Ports:** Fast Ethernet, Gigabit, and SFP ports (for fiber).
- **PoE Ports:** Power over Ethernet for devices like phones or cameras.
- **Stacking Ports:** For connecting multiple switches.
- **Management Ports:** For out-of-band management.

3. Give some common network switch configurations that need to be considered before setting up a switch, such as VLANs, port security, and spanning tree protocol?

- **VLANs:** Segment network traffic into isolated groups.
- **Port Security:** Limit devices per port; prevent unauthorized access.
- **Spanning Tree Protocol (STP):** Prevent network loops, ensure a loop-free topology.
- **Link Aggregation (LACP):** Combine multiple ports for higher throughput.
- **Quality of Service (QoS):** Prioritize important traffic (e.g., VoIP).
- **Access Control Lists (ACLs):** Control traffic based on IP/port rules.

4. To connect a Huawei network switch to other networking devices, such as routers, servers, and computers?

1. **Identify available ports** on the switch (Ethernet or fiber).
2. **Use Ethernet cables** to connect the switch to devices (router, server, computer).
3. **Power on** the switch and devices.
4. **Configure the switch** (optional, for advanced settings like VLANs).
5. **Test connectivity** by pinging devices to ensure proper communication.

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In Lab Task:

Basic switch setup using Huawei network switch

Writing space for the Problem :(For Student's use only)

Device Configuration details

Device Type	Device Name(Label)	IP Address	Subnet Mask
Class-A (Switch)	VLAN 1	10.0.0.1	255.0.0.0
Class-B (Switch)	VLAN 1	10.0.0.2	255.0.0.0
Student-1	NIC	10.0.0.3	255.0.0.0
Student-2	NIC	10.0.0.4	255.0.0.0

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Switch Configuration Commands:

Class-A Switch

```
Switch>en
Switch#config t
Switch(config)#hostname Class-A
Class-A(config)#line console 0
Class-A(config-line)#password KLU123
Class-A(config-line)#login
Class-A(config-line)#exit
Class-A(config)#line vty 0 15
Class-A(config-line)#password KLU123
Class-A(config-line)#login
Class-A(config-line)#exit
Class-A(config)#enable secret KLEF12
Class-A(config)#service password-encryption
Class-A(config)#banner motd &Welcome to KLU&
Class-A(config)#interface vlan 1
Class-A(config-if)#ip address 10.0.0.1 255.0.0.0
Class-A(config-if)#no shutdown
Class-A(config-if)#exit
Class-A(config)#exit
Class-A#copy running-config startup-config
```

Class-B Switch

```
Switch>en
Switch#config t
Switch(config)#hostname Class-B
Class-B(config)#line console 0
Class-B(config-line)#password KLU123
Class-B(config-line)#login
Class-B(config-line)#exit
Class-B(config)#line vty 0 15
Class-B(config-line)#password KLU123
Class-B(config-line)#login
Class-B(config-line)#exit
Class-B(config)#enable secret KLEF12
Class-B(config)#service password-encryption
Class-B(config)#banner motd &Welcome to CSE&
Class-B(config)#interface vlan 1
Class-B(config-if)#ip address 10.0.0.2 255.0.0.0
Class-B(config-if)#no shutdown
Class-B(config-if)#exit
Class-B(config)#exit
Class-B#copy running-config startup-config
```

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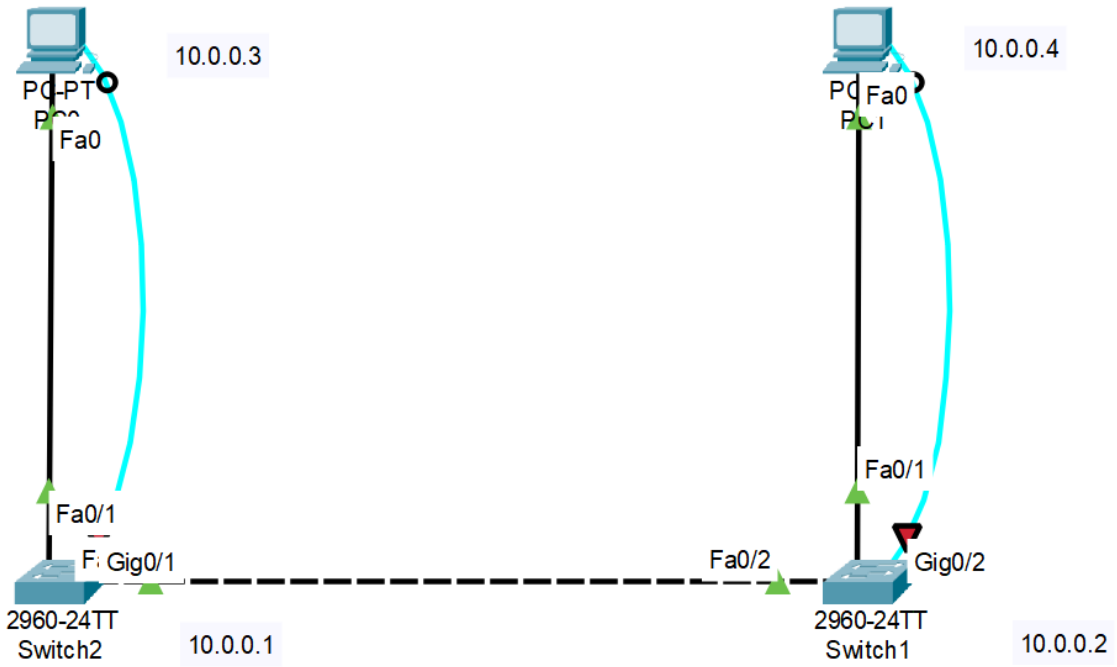
Diagram

THANOS



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VIVA-VOCE Questions (In-Lab):

1. What is the purpose of a network switch, and how does it differ from other networking devices?

MAC addresses. Unlike hubs, it doesn't broadcast to all devices. Unlike routers, it operates within a single network.

2. Describe the steps involved in the initial setup of a Huawei network switch.

1. Power on the switch.
2. Connect to the console port with a console cable.
3. Use a terminal program (e.g., PuTTY) to access the CLI.
4. Enter `system-view` to configure.
5. Set the hostname, IP address, and other settings.
6. Save the configuration with `save`.

3. How do you connect to a Huawei switch for configuration purposes?

SSH/Telnet if an IP address is configured.

4. What is the default login username and password for a Huawei switch?

Default login for Huawei switch: Username: `admin`, Password: Usually blank.

5. Explain the process of assigning an IP address to a Huawei switch.

1. Enter `system-view`.
2. Type `interface vlan 1`.
3. Assign IP with `ip address <IP> <subnet>`.
4. Activate interface with `undo shutdown`.
5. Save with `save`.

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Post Lab Task:

1. What is the purpose of a network switch, and why is it an essential component in a computer network?

- **Connects devices** in a local network (LAN).
- **Forwards data** between devices using MAC addresses.
- **Reduces collisions** and improves network efficiency.
- **Supports full-duplex** communication, allowing bidirectional data flow.
- **Improves network scalability** by adding more devices without reducing performance.

2. Describe the basic setup process for a Huawei network switch, including the necessary connections and initial configurations.

- **Hardware Connections:**
  - Power up the switch and connect devices using Ethernet cables.
  - Optionally, connect the switch to a router for internet access.
- **Console Access:**
  - Use a console cable and terminal software (e.g., PuTTY) to access the CLI.
- **Initial Configuration:**
  - Set the hostname, configure IP address for management, and set up VLANs (if needed).
  - Secure with an administrative password.
- **Save Configuration:**
  - Use `save` command to keep changes after reboot.

3. What are the different types of interfaces available on a Huawei switch, and how can they be used to connect devices in a network?

- **Ethernet Ports (10/100/1000 Mbps):** For local device connectivity.
- **Gigabit Ethernet Ports:** Faster connections for higher-performance devices.
- **SFP Ports:** Fiber-optic connections for long-distance setups.
- **Stacking Ports:** Allows multiple switches to act as one unit.
- **Uplink Ports:** Connect to routers or other networks.
- **Management Ports:** For remote configuration and network management.

Evaluator Remark (if Any):	**Marks Secured _____out of 50**
	Signature of the Evaluator with Date