

COMPSFI 101: Introduction to Networking Essentials

Lab 1: Understanding Basic Network Components

Due Date: 09/05/2024 @ 11:59pm

Objective:

- Introduce students to the basic components of a computer network.
- Understand the roles and functions of key network devices and media.
- Gain hands-on experience with identifying and describing networking hardware.

Lab Instructions:

Part 1: Identifying Network Components

1. Network Devices:

- Identify and describe the following network devices. For each device, include its function within a network and an example of where it might be used:

- Router
- Switch
- Modem
- Firewall
- Access Point

2. Networking Media:

- Identify and describe the following types of networking media. Include the advantages and disadvantages of each:

- Ethernet Cable (Cat5e/Cat6)
- Fiber Optic Cable
- Wireless (Wi-Fi)

3. Network Topologies:

- Define the following network topologies and provide a simple diagram of each:

- Star Topology
- Bus Topology
- Mesh Topology

Part 2: Hands-On Component

1. Setting Up a Simple Network:

- Using the provided network components (router, switch, Ethernet cables, and a computer), set up a basic local area network (LAN).

- Connect the computer to the switch using an Ethernet cable, and then connect the switch to the router. Verify the network connection on the computer by checking for an active network status.

2. Document Your Setup:

- Draw a simple diagram of your network setup, labeling each component and connection.
- Take a screenshot or photo of the computer's network status screen showing that the connection is active.

Part 3: Reflection

1. Reflect on the Importance of Each Component:

- Write a short paragraph (4-5 sentences) discussing the role each network component (router, switch, cables) played in establishing the network. Explain why each component is essential for a functioning network.

Part 4: Submission

1. Compile Your Work:

- Combine your answers from Part 1, your diagram and screenshots from Part 2, and your reflection from Part 3 into a single document.
- Ensure that your document is well-organized and clearly labeled.

2. Submit Your Document:

- Submit the completed document through Brightspace by the due date.

Grading Criteria:

- **Correctness:** Accurate descriptions and diagrams of network components, media, and topologies.
- **Completion:** All parts of the lab are completed and submitted as instructed.
- **Clarity:** Work is neatly organized, clearly labeled, and easy to understand.
- **Reflection:** The reflection demonstrates an understanding of the role of each network component.