ReportIndividual/Group

Assessment

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Submission date- 29th 2023 Group Formation Sheet

Group No:_____(Please leave blank)

Proposed Group Leaders Name: N.W. Senuka Laktharu

Group Leaders Mobile Number: _____

Group Leaders Email: _____

	Name of the Student	Registration Number	Signature
1	N.W. Senuka Laktharu		
2	H.P. Chanidu Samanpriya		
3	J.D.Dison Nadula Dulran		
4	Heshan Buddhika		
5	K.K. Ishara Kumara Perera		
6	Kaveesha Lakshan		
7	Lasiru Thathsara		
8	H.R.M. Sadakalum Nandasena		
9	H.L nadun isuru udara		
10	W.H.P.Nimeshana		
11	K.Shanith Malindu Perera		
12	Suraja Nethmira		
13	K.G.Tharindu Sadaruwan		
14	K.A. Vishva Sanchitha		
15	Yasith Nirmal		
16	W.H Buddhi Sandaruwan Wickrama		
17	D.Y.A.Dissanayaka		
18	Sasith Sunera		
19	H.K.Ayeshani Dinojika		
20	R.A.D.Gaguli Chathurangi Wijesingha		
21	G.Gayani Upendra Swarnamali		
22	H.K.Gihanya Kulavindi		
23	W.A.Imashi Uththara		
24	G.Maheesha Nethminee Perera		
25	H.A.Sandunee Hansika		
26	E.A. Wandanee Nawodya		

27	W.A.Imashi Uththara		
28	Kavija Sithmini Hapuarachchi		
29	M.A.Maleesha Deshani		
30	Nethmi Dulasha		
31	Nethmi Wasana		
32	Oshini Sathsarani		
33	R.Piyumi Nimasha Ranasingha		
34	Shashini Nawodani		
35	W.P. Sithumi Nissarani Perera		
36	D. M Tenuri Pimasha Dissanayaka		
37	Tharushi Rashmini		
38	B.H.T.Maduwanthi Peiris		
39	E.D Wathsala Gayani		

Dedication

I dedicate this with great respect to the teacher of Human Resource Management who gave instructions to our team to carry out this assignment, to the students and parents of our team whohelped us in every way to complete this from start to finish, and to everyone including those whowork at Siyochem Institute.

Contents

COMPUTER NET-WORKING

A computer network is a set of computers sharing resources located on or provided by network nodes. Computers use common **communication protocols over digital interconnections** to communicate with each other. These interconnections are made up of telecommunication network technologies **based on physically wired, optical, and wireless radio-frequency methods** that may be arranged in a variety of network topologies.

The nodes of a **computer network can include personal computers, servers, networking hardware, or other specialized or general-purpose hosts**. They are identified by network addresses and may have hostnames. Hostnames serve as memorable labels for the nodes and are rarely changed after initial assignment. Network addresses serve for locating and identifying the nodes by communication protocols such as the **Internet Protocol**.

Computer networks support many applications and services, such as access to the **World Wide Web**, digital video and audio, shared use of application and storage servers, printers and fax machines, and use of email and instant messaging applications.

Why we use Networking

Computer networking is used for a wide range of purposes, as it provides numerous benefits and enables various applications. Some of the key reasons why we use computer networking include:

1. Communication: Networking allows people and organizations to communicate with each other effectively. It facilitates email, instant messaging, video conferencing, and Voice over IP (VoIP) services, enabling real-time and asynchronous communication across the globe.

2. Resource Sharing: Networking enables the sharing of resources such as files, printers, and databases. This promotes collaboration and improves productivity within organizations and among individuals.

3. Internet Access: Networking provides access to the internet, a vast repository of information, services, and entertainment. It allows users to browse websites, access online resources, and communicate with others worldwide.

4. Cloud Computing: Cloud computing relies heavily on computer networking to provide on-demand access to shared computing resources, applications, and services over the internet. Users can access computing power and storage without the need for physical infrastructure.

5. Data Sharing and Storage: Networking enables data sharing and storage across different devices and servers. This facilitates data backup, retrieval, and synchronization, ensuring data availability and reliability.

6. Collaboration and Teamwork: Networking supports collaborative work environments by enabling teams to work together on projects and share resources seamlessly. This is particularly important in today's globally distributed workforce.

7. Remote Access and Mobility: Networking allows remote access to resources, enabling users to work from anywhere with an internet connection. This flexibility enhances productivity and work-life balance.

8. E-commerce and Online Services: Networking is essential for the functioning of e-commerce platforms and online services, allowing businesses to offer products and services to a global audience.

9. Entertainment and Media Streaming: Networking enables the streaming of video, audio, and other media content. Services like Netflix, YouTube, and music streaming platforms heavily rely on computer networking.

10. Research and Education: Networking supports research and education by providing access to academic resources, online libraries, and collaborative platforms.

11. Security and Surveillance: Networking is used for implementing security systems and surveillance, allowing organizations and individuals to monitor and protect their assets.

12. Industrial Control and Automation: In industrial settings, networking facilitates automation and control systems, optimizing processes and improving efficiency.

How to create a network

Networking is a simple connection between two networked devices.

But nowadays, due to the addition of a large number of such simple connections, this networking has changed into a very advanced and complex systems.

Simple, you can make a network connection with your friend using your mobile phone,

> Turn on your mobile hotspot.
> Connect your friend's phone to your mobile phone.
> Congratulations! Now, you and your friend have a very advanced network connection.

- This is just a simple connection. How is this connection advanced**?**

Look back your friend's connection. He is sure to be connected to the internet using his cellular connection.
It means, He connected with millions of various devices (network cables, routers, servers, and data centers), and you

What is the Internet?

The internet is a global network of interconnected computer networks that allows users to access and share information and resources worldwide. It is a vast collection of websites, services, and digital content.

The internet is made up of various physical and virtual components, including network cables, routers, servers, and data centers. Data is transmitted in the form of packets over these networks, using standard protocols like TCP/IP.

When a user requests information (e.g., opens a webpage), the request is sent from their device to a server hosting the content. The server processes the request and sends the data back to the user's device, allowing them to access the desired information.

This process repeats billions of times every day, connecting users to a vast array of websites, online services, and resources available on the internet. The internet has transformed how we communicate, learn, work, and entertain ourselves in the digital age.

Is networking equals internet connection?

No, Internet is made with a various networked Accessories. But network can made up with two devices.

How can I create a connection without connecting to internet connection methods?

Simple, turn on your Bluetooth and connect your device with your earbuds or a Bluetooth speaker.

- ✓ Now you have a **Local Area Network and (LAN)** with your Speaker or earbuds

What is a Local Area Network and Types of network connections

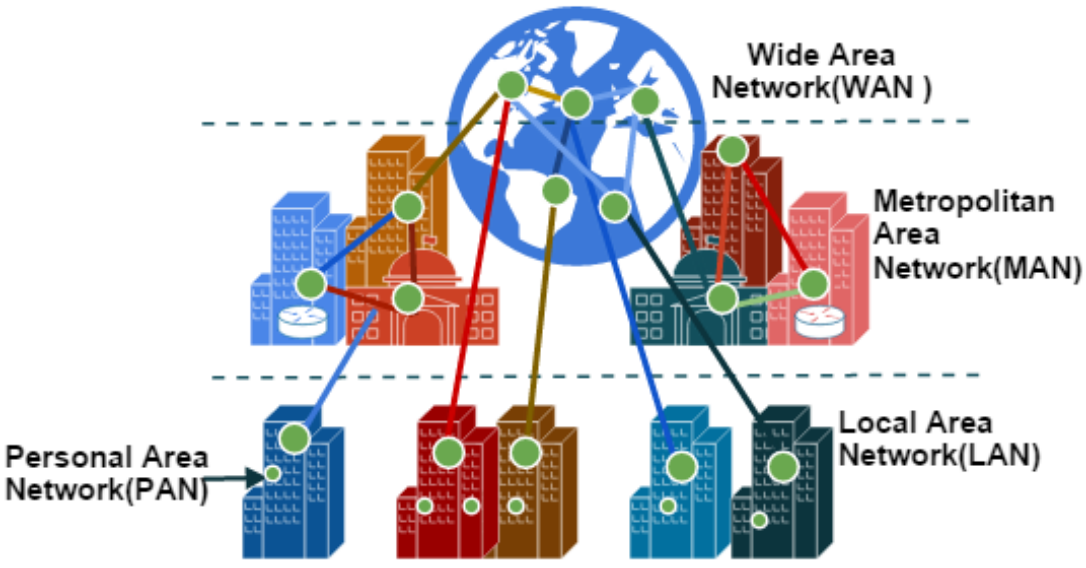
There are several types of network connections, each serving different geographical areas and purposes. Here are the main types:

Local Area Network (LAN): A LAN is a network that connects devices within a **limited geographical area**, such as a home, office, or campus. It enables communication and resource sharing among devices in close proximity.

Wide Area Network (WAN): A WAN is a network that spans **over a large geographical area**, often connecting multiple cities or even countries. **The internet is** an example of a global **WAN that interconnects** networks **worldwide.**

Personal Area Network (PAN): A PAN is a network that connects devices in an individual's personal space, typically within a range of a few meters. Examples include Bluetooth **connections between devices like smartphones, laptops, and smartwatches.**

Metropolitan Area Network (MAN): A MAN is a network that covers a **larger geographical area than a LAN** but smaller than a WAN. It usually spans a city or metropolitan area, providing connectivity to multiple buildings or campuses.



What is the World Wide Web

The World Wide Web (WWW), commonly known as the web, is a vast and interconnected system of online content and resources accessible through the internet.

It was created by British computer scientist Sir Tim Berners-Lee in 1989. The web allows users to access a diverse range of information, such as websites, web pages, multimedia content, and online services, using hyperlinks to navigate between them. It is based on the use of Hypertext Transfer Protocol (HTTP) and Hypertext Markup Language (HTML) to structure and display content.

The World Wide Web revolutionized how we access and share information, enabling global connectivity and transforming the way we communicate, learn, conduct business, and access entertainment in the digital age.

Physical Communicating Methods

Physically Wired Networking:

Physically wired networking involves using physical cables and connectors to transmit data between network devices. This method has been prevalent for many years and offers a reliable and secure way to transfer data. The most common types of physically wired networking include:

a. **Ethernet:** Ethernet is one of the most widely used wired networking technologies. It uses twisted-pair copper cables to transmit data between devices at various speeds, such as 10 Mbps, 100 Mbps, 1 Gbps, and even 10 Gbps.

b. **Coaxial Cable:** Coaxial cables are used in older networking technologies like the Ethernet **10BASE2** (Thinnet) and **10BASE5** (Thicknet). However, they are less commonly used in modern networking setups.

c. **Fiber Optics:** Fiber optic cables use light pulses to transmit data over long distances at high speeds. They provide greater bandwidth, immunity to electromagnetic interference, and enhanced security compared to traditional copper cables.

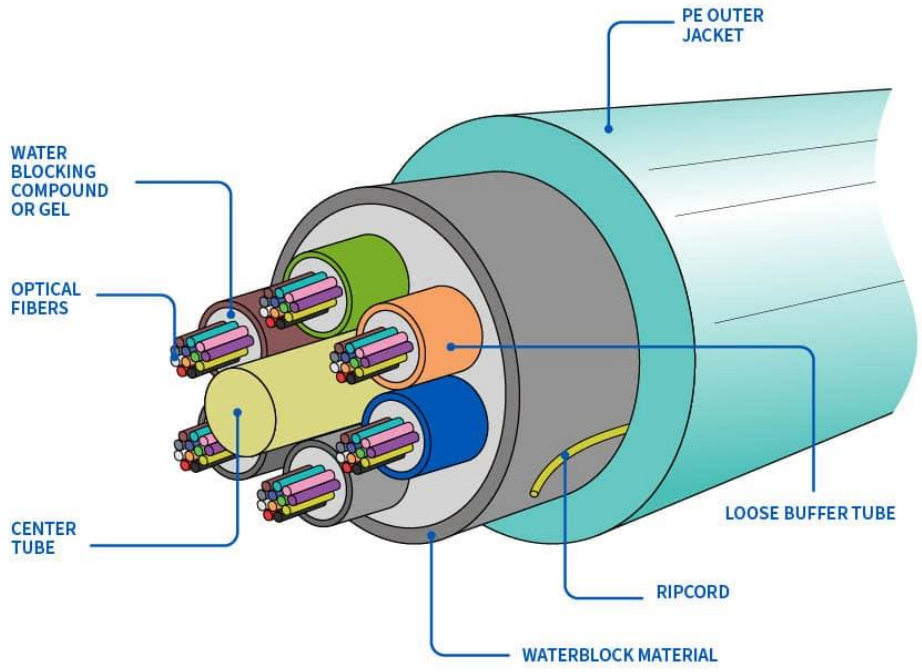
Optical Networking:

Optical networking refers to the use of fiber optic cables for transmitting data. Unlike traditional copper cables, which use electrical signals, optical networking uses light signals to send information. Fiber optics offer several advantages, including:

a. High Speeds: Fiber optic cables can support extremely high data transfer rates, making them ideal for high-bandwidth applications and long-distance connections.

b. Low Latency: Light signals travel very quickly through fiber optic cables, resulting in lower latency and faster response times compared to copper cables.

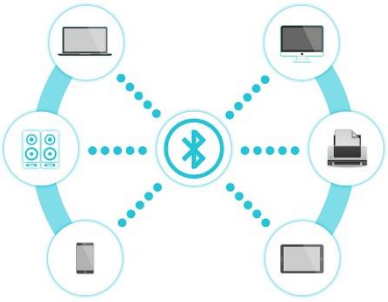
c. Immunity to Interference: Fiber optics are immune to electromagnetic interference, making them more reliable in environments with high electromagnetic interference (EMI).



Wireless Radio-Frequency Networking:

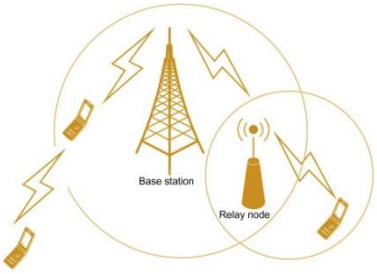
Wireless radio-frequency (RF) networking involves the use of electromagnetic waves to transmit data without the need for physical cables. This method allows for flexible and convenient network connections, but it may be more susceptible to interference and security risks. Common wireless networking methods include:

a. **Wi-Fi (Wireless Fidelity):** Wi-Fi is a popular wireless networking technology that allows devices to connect to a local network or the internet without using cables. It uses radio waves to transmit data between devices and requires Wi-Fi-enabled routers and network adapters.

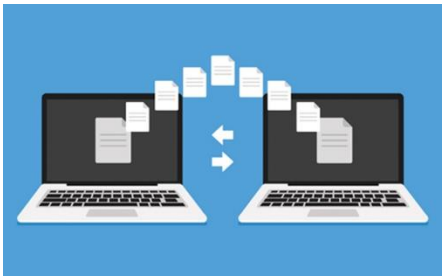


b. **Bluetooth:** Bluetooth is a short-range wireless technology commonly used for connecting peripherals such as keyboards, mice, speakers, and smartphones to a computer or other devices.

c. **Cellular Networks:** Cellular networks use RF signals to provide wireless internet connectivity to mobile devices. They are widely used for mobile communications and data transfer.



Create a Network between two computers and share their files



Step 1: Set up the physical connection
To create a network between two computers, you'll need an Ethernet cable or a Wi-Fi router. If you're using a cable, connect one end of the cable to the Ethernet port of the first computer and the other end to the Ethernet port of the second computer. If you're using a Wi-Fi router, make sure both computers are connected to the same Wi-Fi network.

Step 2: Check network settings
Before proceeding further, ensure that both computers are on the same network. If you're using a Wi-Fi router, both computers should be connected to the same network name (SSID). On most computers, you can check the network name by clicking on the network icon in the taskbar (Windows) or the menu bar (macOS).

Step 3: Find the shared folder
Next, you need to identify a folder on each computer that you want to share. Let's call it the "shared folder." For simplicity, create a new folder on each computer's desktop and name it "Shared Folder."

Step 4: Enable file sharing (Windows)
On the computer running Windows, follow these steps:

1. Right-click on the "Shared Folder" on the desktop and select "Properties."
2. In the Properties window, click on the "Sharing" tab.
3. Click the "Advanced Sharing" button.
4. Check the box that says "Share this folder."
5. You can leave the default share name or give it a new name (e.g., "MySharedFiles").
6. Click "Apply" and then "OK" to close the windows.

Step 5: Access the shared folder

Now that you have set up file sharing on both computers, you can access the shared folder from each computer.

On the computer running Windows:

1. Open File Explorer (the folder icon on the taskbar).
2. In the address bar at the top, type: `\\<IP address of the other computer>`

(Replace `<IP address of the other computer>` with the actual IP address of the second computer. You can find the IP address on the second computer by typing "ipconfig" in the Command Prompt and looking for the IPv4 address.)

3. Press Enter, and you should see the shared folder. You can now copy files to and from this folder.

That's it! You have successfully set up a basic network between two computers and shared files between them.

Remember that this is just a local network, and the computers should be physically close to each other or connected through the same Wi-Fi network. For more extensive networks or remote file sharing, additional configurations might be needed.

Ending and Summary (Networking and Life)

With the network successfully set up between the two computers, our story takes an exciting turn. Alice and Bob, the two friends who created this network, quickly realized the power and potential of their newfound connection.

As days passed, Alice and Bob became inseparable collaborators, working on various projects and sharing ideas effortlessly. They established a routine of spending late nights together, each in their own room, connected through the network. They could simultaneously work on their assignments, exchange files, and provide instant feedback to each other.

But it wasn't just about productivity; they also had loads of fun with their network. They discovered that they could play multiplayer games, transforming their small LAN into a gaming hub. The sound of their laughter echoed through their homes as they competed and cooperated in virtual worlds.

Their network also paved the way for countless movie nights. They synchronized their laptops to watch movies simultaneously, making their living rooms feel like a private cinema. No more annoying spoilers, as they could pause the movie with a simple shout across the network if one of them needed a bathroom break.

As time went on, Alice and Bob realized that their network could be much more than just a local connection. With a little research, they found a way to securely extend their network over the internet. This breakthrough meant that even when they were apart, they could continue collaborating, playing games, and enjoying movie nights as if they were still side by side.

Their network became a symbol of their friendship, bridging the physical distance and allowing them to stay close no matter where life took them. They even gave their network a name, calling it "FriendNet."

Word of their incredible network spread among their friends and family, and soon,

other small networks sprouted up, connecting their social circles in ways they had never imagined. FriendNet evolved into a decentralized network of interconnected friendships, fostering creativity, joy, and shared experiences across the globe.

Their network also caught the attention of technology enthusiasts, who were inspired by the simplicity and beauty of its design. Alice and Bob found themselves in the spotlight, sharing their story and empowering others to create their networks and strengthen bonds with their loved ones.

As FriendNet continued to grow, it became a symbol of unity and understanding in a world often dominated by barriers and divisions. People from different cultures, backgrounds, and perspectives found common ground through their shared connections on FriendNet.

And so, the tale of Alice and Bob's humble network grew into an epic saga of friendship, innovation, and positive change. Their little project had transcended the realm of technology and had become a catalyst for a more connected, empathetic, and harmonious world.

In the end, their creative approach to networking had not only connected their two computers but had connected hearts and minds all around the world. And so, the adventure of FriendNet continued,

reminding everyone that even the smallest acts of connection can create a ripple effect that touches lives far beyond what one could ever imagine.