



School of Computer Science and Information Technology

Programme: BCA

September - 2024

Computer Networks [23BCA3C02]

Activity – 1

Report on Bits and Bites of Computer Networking

Semester: III Semester

Course and Section: BCA Data Analytics- D

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Date of submission: **23-09-2024**

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Signature of the Faculty



JAIN
DEEMED-TO-BE UNIVERSITY

SCHOOL OF
COMPUTER
SCIENCE AND IT

CERTIFICATE

This is to certify that BHARATH K has satisfactorily completed activity prescribed by JAIN (Deemed to be University) for the **Third Semester Degree Course** in the year 2024-2025.

Assignment topic: Online Certification Course for Activity-1.

| Sl. No. | CRITERIA | MARKS | MARKS OBTAINED |
|---------|-------------------------------------------|-------|----------------|
| 1. | On-time Submission | 10 | |
| 2. | Learning Outcomes | 15 | |
| 3. | Report with course details and assessment | 15 | |
| 4. | Viva | 10 | |
| | Total | 50 | |
| | Convert | 15 | |

| MARKS | |
|-------|----------|
| MAX | OBTAINED |
| 15 | |

Signature of the Student: _____

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Course Details

| S. No. | Heading | Value |
|--------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Course title | The Bits and Bytes of Computer Networking |
| 2. | Course duration | 25 hrs approximately |
| 3. | Course start date | 07-08-2024 |
| 4. | Course end date | 17-08-2024 |
| 5. | Names of author | Google Top Instructors |
| 6. | Skills gained | 1. Network Troubleshooting 2. IP Subnetting 3. Device Configuration 4. Routing Protocols 5. DNS/DHCP Management |
| 7. | Unique learning outcomes | 1. TCP/IP Mastery 2. OSI Model Understanding 3. Subnetting Proficiency 4. Routing Concepts 5. Network Security Basics |

Certificate



Course Contents:

| Module | Topics Covered | Content Types | Duration | Learning Objectives |
|-------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------|----------------------------------------|--------------------------------------------------------------------------------------------|
| Module 1: Networking Basics | TCP/IP, OSI, cables, hubs, switches, routers, servers, clients | 15 videos, 9 readings, 6 quizzes, 2 discussions, 1 plugin | 43m videos, 81m readings, 132m quizzes | Understand networking fundamentals, identify devices, explain network layers |
| Module 2: Network Layer | IP addressing, subnetting, encapsulation, routing protocols, Internet basics | 18 videos, 3 readings, 4 quizzes, 1 discussion | 62m videos, 30m readings, 91m quizzes | Describe IP addressing, understand subnetting, explain routing protocols |
| Module 3: Transport and Application Layers | TCP ports, sockets, connection-oriented/connectionless protocols, TCP data integrity | 11 videos, 2 readings, 4 quizzes, 1 plugin | 41m videos, 20m readings, 204m quizzes | Explain TCP ports, identify protocol differences, ensure data integrity |
| Module 4: Networking Services | DNS, DHCP, NAT, VPNs, proxies | 14 videos, 2 readings, 7 quizzes, 2 discussions | 61m videos, 20m readings, 164m quizzes | Describe DNS/DHCP, explain NAT/VPNs, configure network services |
| Module 5: Connecting to the Internet | Internet history, WANs, wireless/cellular networking, fiber connections | 15 videos, 8 readings, 6 quizzes, 1 discussion | 45m videos, 80m readings, 132m quizzes | Define WAN components, outline wireless/cellular networking, explain Internet connectivity |

| Module | Topics Covered | Content Types | Duration | Learning Objectives |
|-----------------------------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------------------------|
| Module 6: Troubleshooting and Future of Networking | Troubleshooting tools, IPv6, cloud computing, network security | 18 videos, 5 readings, 5 quizzes, 2 discussions | 54m videos, 50m readings, 104m quizzes | Detect/fix network issues, understand IPv6, explain cloud computing/security |

Course Overview

As a student who has just completed the Networking course, part of the IT Support Professional Certificate, I have gained a thorough understanding of networking concepts and practices that are essential in today's tech-driven world. Networking plays a critical role in enabling connectivity, data transfer, and communication between systems and devices, and this course has equipped me with the knowledge and skills needed to support IT infrastructure efficiently.

Objectives of the Course

The Networking course was designed with several key objectives in mind:

1. **Establish a Strong Foundation:** The course provided a comprehensive introduction to core networking principles, including terminology, models like TCP/IP and OSI, and basic networking concepts. This foundational knowledge has helped me understand the complex layers of communication that occur in networks.
2. **Enhance Technical Skills:** The hands-on components, such as configuring routers, switches, and understanding network cables, allowed me to familiarize myself with real-world networking devices. Through labs and video demonstrations, I've learned how these devices work together within a network and how to configure them properly.
3. **Develop Problem-Solving Abilities:** Troubleshooting was a major focus throughout the course. Learning to diagnose network issues, using tools like ping, traceroute, and nslookup, gave me practical skills that are essential for resolving real-world IT problems. I now feel confident in my ability to solve common network issues across different operating systems.
4. **Prepare for Industry Standards:** The course also emphasized industry-standard networking practices, protocols like DHCP, DNS, and NAT, as well as emerging trends like IPv6. Understanding these concepts has not only enhanced my technical knowledge but also prepared me for the certifications and standards expected in the IT job market.
5. **Explore Future Trends:** Finally, the course provided insight into emerging technologies in the networking field, such as cloud networking, SD-WAN, and the rise of virtual private networks (VPNs). By staying informed about these trends, I'm now better prepared for the evolving landscape of IT and the future demands of networking professionals.

Target Audience

This course was particularly useful for individuals like me who are either beginning their IT careers or looking to deepen their understanding of networking. I came into the course with basic knowledge of computers but gained a deep technical understanding of networking, making it an ideal fit for students at various levels of technical expertise.

Course Format

The course was divided into six well-structured modules, each designed to blend theoretical learning with practical application:

- **Video Lectures:** Each module had video content explaining the topics in an engaging and easy-to-follow format.
- **Readings:** Supplementary readings added depth to the lessons, allowing me to explore more technical details of certain concepts.
- **Quizzes:** Regular quizzes at the end of each module reinforced the learning, helping me gauge my understanding.
- **Discussion Prompts:** These offered opportunities to engage with fellow students and gain insights from their experiences, fostering collaborative learning.

Learning Outcomes

By the end of the course, I have accomplished several key learning outcomes:

- I can now confidently explain the principles of the **TCP/IP** and **OSI** models and how they relate to modern networking.
- I understand the various **networking devices**, their functions, and how they are integrated into network setups.
- I have learned how to perform **IP addressing** and **subnetting calculations**, which are crucial for designing efficient networks.
- I can explain the significance of **DNS** and **DHCP** in managing network traffic and assigning IP addresses dynamically.

Importance of Networking Knowledge

In today's digital environment, where nearly every business relies on networked systems, networking knowledge is an indispensable skill for IT professionals. This course has not only given me the technical expertise needed to secure and maintain robust networks, but it has also provided a strong foundation for pursuing further specializations like **cybersecurity**, **network architecture**, or **cloud computing**.

In summary, the Networking course has been an essential step in my journey towards becoming a proficient IT professional, and I feel well-prepared to apply this knowledge in real-world scenarios. It has given me the confidence and skills needed to troubleshoot, maintain, and design networks, positioning me for success in the IT industry.

Module Breakdown

Module 1: Networking Basics

Content Overview

This module serves as the foundational introduction to networking concepts. It covers the essential principles and models that underlie modern computer networks, providing students with the knowledge needed to understand how networks operate.

- **TCP/IP and OSI Models:**
 - An overview of the two primary networking models: TCP/IP, which is used for internet communication, and OSI, which serves as a theoretical framework for understanding network interactions.
- **Networking Devices:**
 - **Cables:** Types of networking cables (e.g., Ethernet, fiber optic) and their functions in data transmission.
 - **Hubs and Switches:** Differences between these devices and their roles in connecting devices within a network.
 - **Routers:** Understanding how routers facilitate communication between different networks and manage data traffic.
- **Layers of the Network Model:**
 - An exploration of the different layers in networking (physical, data link, network, transport, application) and how they interact to create a functioning network.

Learning Outcomes

By the end of this module, students will be able to:

- Describe the TCP/IP and OSI models and their significance in networking.
- Identify and explain the functions of various networking devices, including cables, hubs, switches, and routers.
- Understand the role of different layers in the network model and how they collaborate to enable data transmission and communication.

Assessment

To assess comprehension and mastery of the content, this module includes:

- **15 Videos:** Engaging video lectures that cover key concepts and practical examples.
- **9 Readings:** Supplementary materials that provide additional insights and deeper understanding of the topics discussed.

- **6 Quizzes:** Short assessments designed to test knowledge and reinforce learning.
- **2 Discussion Prompts:** Opportunities for students to engage in discussions, share insights, and collaborate with peers, enhancing the learning experience through interaction.

Module 2: The Network Layer

Content Overview

This module delves into the intricacies of the network layer, a critical component of the OSI model that is responsible for data routing and addressing. Students will gain a thorough understanding of how data packets are routed through networks and how IP addressing and subnetting play vital roles in network communication.

- **IP Addressing:**
 - An exploration of IPv4 addressing schemes, including address classes, public vs. private addresses, and special addresses (e.g., loopback and broadcast addresses).
- **Subnetting:**
 - Detailed instruction on subnetting techniques, including calculating subnet masks, CIDR (Classless Inter-Domain Routing), and the significance of subnets in network management and efficiency.
- **Encapsulation:**
 - Understanding how data is encapsulated at the network layer, including the process of adding headers to data packets as they move through the networking stack.
- **Routing Protocols:**
 - An overview of various routing protocols (e.g., RIP, OSPF, BGP) and their roles in facilitating communication between different networks.

Learning Outcomes

By the end of this module, students will be able to:

- Describe and explain various IP addressing schemes and their significance in networking.
- Perform subnetting calculations, including determining subnet masks and the number of hosts per subnet.
- Understand and articulate basic routing concepts and the functionality of common routing protocols.

Assessment

To evaluate understanding and retention of the module's content, students will engage in:

- **18 Videos:** Informative video lectures that break down complex concepts into understandable segments.
- **3 Readings:** Supplementary materials that reinforce the topics covered and provide additional context.
- **4 Quizzes:** Assessments to test comprehension of the material and ensure mastery of the concepts.
- **1 Discussion Prompt:** An opportunity for students to discuss their insights and collaborate on topics related to IP addressing and routing.

Module 3: Transport and Application Layers

Content Overview

This module focuses on the transport and application layers of the OSI model, crucial for ensuring reliable data transmission and application communication. Students will learn about TCP and UDP protocols, their functionalities, and how they manage data integrity and connection types.

- **TCP Ports:**
 - An introduction to the concept of TCP ports, including well-known ports and ephemeral ports, and their role in facilitating communication between applications.
- **Connection-Oriented vs. Connectionless Protocols:**
 - A comparative analysis of TCP (Transmission Control Protocol) and UDP (User Datagram Protocol), highlighting their differences, advantages, and use cases in networking.
- **Data Integrity Methods:**
 - Examination of techniques used by TCP to ensure data integrity, including error detection, acknowledgment mechanisms, and the three-way handshake process.
- **TCP Header:**
 - Detailed breakdown of the components of a TCP header, including source and destination ports, sequence and acknowledgment numbers, and control flags.

Learning Outcomes

By the end of this module, students will be able to:

- Understand and describe the functionality of TCP ports and their importance in network communication.
- Differentiate between connection-oriented and connectionless protocols, recognizing their use cases and implications for data transmission.

- Identify the components of a TCP header and explain how TCP control flags operate to manage data transmission and integrity.

Assessment

To assess mastery of the material covered, students will engage in:

- **11 Videos:** Engaging video lectures that clarify key concepts and provide practical examples.
- **2 Readings:** Supplementary materials that deepen understanding of the transport and application layers.
- **4 Quizzes:** Assessments designed to evaluate comprehension and reinforce learning.
- **1 Plugin:** A practical tool to apply knowledge related to TCP and UDP packets, enhancing hands-on learning.

Module 4: Networking Services

Content Overview

This module provides an essential overview of key networking services that facilitate communication and management within networks. Students will explore how these services operate and their significance in maintaining network efficiency and security.

- **Domain Name System (DNS):**
 - Examination of how DNS translates human-readable domain names into IP addresses, enabling users to access websites and services easily.
- **Dynamic Host Configuration Protocol (DHCP):**
 - Overview of DHCP and its role in automatically assigning IP addresses to devices within a network, simplifying network administration.
- **Network Address Translation (NAT):**
 - Understanding how NAT helps conserve IP addresses and enhance security by translating private IP addresses into public ones for internet access.
- **Virtual Private Networks (VPNs):**
 - Exploration of how VPNs create secure connections over the internet, allowing users to access private networks remotely while maintaining data privacy.
- **Proxy Services:**
 - Insight into how proxy servers act as intermediaries between users and the internet, providing anonymity and filtering content.

Learning Outcomes

By the end of this module, students will be able to:

- Explain the functioning of DNS and DHCP and their critical roles in network management.
- Describe how NAT enhances network security and efficiency.
- Understand the purposes and functionalities of VPNs and proxy services.

Assessment

To evaluate understanding and application of the module's content, students will engage in:

- **14 Videos:** Informative video lectures that clarify the workings of networking services and their implications.
- **2 Readings:** Supplementary materials that provide additional insights into DNS, DHCP, NAT, VPNs, and proxies.
- **7 Quizzes:** Assessments to test comprehension and reinforce knowledge of the concepts discussed.
- **2 Discussion Prompts:** Opportunities for students to engage in dialogue about networking services, sharing insights and experiences.

Module 5: Connecting to the Internet

Content Overview

Module 5 dives into the historical development of the Internet and the various technologies that have shaped modern-day connectivity. Students will explore both wired and wireless methods of accessing the Internet, as well as the basic components of Wide Area Networks (WANs).

- **History of the Internet:**
 - A look into the evolution of the Internet, how it began, and how it has grown into a critical global infrastructure.
- **Connection Methods:**
 - **Wired connections:** Examination of technologies such as dial-up, Digital Subscriber Lines (DSL), cable broadband, and fiber connections, all of which provide wired access to the Internet.
 - **Wireless connections:** Introduction to wireless networking technologies, including Wi-Fi and cellular networks, and how they allow devices to connect without physical cables.
- **Wide Area Networks (WANs):**

- Understanding the basics of WAN technologies, including T-Carrier systems, point-to-point connections, and the role of WANs in enabling communication across vast geographical areas.

Learning Outcomes

Upon completion of this module, students will:

- Gain an understanding of the historical progression of the Internet and the technologies that have made it accessible.
- Be able to describe different Internet connection methods, both wired and wireless, and explain their underlying technologies.
- Understand the key components of WANs and how they enable long-distance communication.

Assessment

The module's content is assessed through a combination of multimedia learning and interactive tools:

- **15 Videos:** A series of video lectures exploring various connection methods and WAN technologies.
- **8 Readings:** Supplementary reading materials that deepen understanding of broadband protocols, WAN protocols, and wireless networking technologies.
- **6 Quizzes:** Short quizzes designed to test comprehension of key topics such as wired and wireless connections, WANs, and networking limitations.
- **1 Discussion Prompt:** An opportunity for students to discuss their daily experiences with Internet connectivity and share insights on how different connection methods impact their online activities.

Module 6: Troubleshooting and the Future of Networking

Content Overview

This module focuses on practical troubleshooting techniques essential for diagnosing and resolving common networking issues across various operating systems. Additionally, it explores emerging trends in networking, preparing students for the future landscape of technology.

- **Practical Troubleshooting Techniques:**
 - Hands-on approaches to identifying and fixing connectivity problems using tools and commands available in Microsoft Windows, macOS, and Linux. Topics may include ping tests, traceroute, DNS resolution, and port testing.
- **Emerging Networking Trends:**

- An exploration of future developments in networking, including advancements in cloud computing, the rise of Internet of Things (IoT) devices, the shift toward IPv6, and the impact of software-defined networking (SDN) on network management.
- **The Role of the Cloud:**
 - Understanding how cloud services are shaping networking strategies and the implications of “Everything as a Service” (XaaS) models on traditional networking paradigms.

Learning Outcomes

By the end of this module, students will be able to:

- Diagnose and resolve common network connectivity issues using various troubleshooting tools and techniques.
- Understand emerging trends in networking and their potential impact on technology and network management.
- Recognize the importance of cloud computing and SDN in the future of networking.

Assessment

To evaluate the skills and knowledge acquired, students will participate in:

- **18 Videos:** Informative video lectures that provide both practical troubleshooting techniques and insights into future networking trends.
- **5 Readings:** Supplementary materials that delve deeper into troubleshooting tools, the future of networking, and cloud computing.
- **5 Quizzes:** Assessments aimed at testing knowledge and understanding of the troubleshooting processes and emerging technologies.
- **2 Discussion Prompts:** Opportunities for students to engage in discussions about their troubleshooting experiences and predictions for the future of networking.

Detailed Description of Course

Module 1: Networking Basics

In this module, I was introduced to the fundamental concepts that form the backbone of networking. The primary focus was on understanding the TCP/IP and OSI models, which are essential frameworks for how data is transmitted across a network. Through various readings, videos, and quizzes, I gained a clear understanding of how different layers of the network stack interact to allow devices to communicate efficiently.

We also covered the key networking devices such as hubs, switches, routers, and cables. I learned about their respective roles in establishing network connections and ensuring that data packets are properly routed and delivered. The hands-on exercises and discussion prompts helped me visualize how data flows across these devices in a real network setup.

By the end of this module, I developed a solid foundation in how data is organized and transferred within a network. I now understand how the physical and data link layers function to move data from one device to another, which is critical in both local area networks (LANs) and wide area networks (WANs). This module laid the groundwork for more advanced topics in networking by breaking down these fundamental concepts in a clear and approachable way.

Module 2: The Network Layer

In Module 2, the focus shifted to the network layer, where I delved deeper into how data packets are addressed and routed across networks. This module covered key concepts such as IP addressing, subnetting, and the processes of encapsulation and routing. Understanding IP addressing was particularly valuable, as it provided me with the skills to assign addresses and manage them in various network configurations.

Subnetting was another crucial topic covered in this module. I learned how to divide large networks into smaller, more manageable subnetworks, a skill that is essential for optimizing network performance and resource allocation. Through quizzes and interactive activities, I practiced calculating subnets and creating subnet masks, which solidified my understanding of this critical aspect of network management.

We also explored routing protocols and routing tables, learning how routers direct traffic across networks and between different subnets. This module gave me practical knowledge about how data moves between networks, and I can now confidently explain the basics of routing and how routing decisions are made to ensure efficient data transfer.

In conclusion, the first two modules of this course have provided me with a solid grounding in the foundational principles of networking, from understanding the basic components and models to mastering IP addressing and routing techniques. This knowledge has set the stage for deeper learning in the subsequent modules.

Module 3: Transport and Application Layers

In this module, I focused on the transport and application layers of the networking model, which are critical for ensuring reliable data transmission between devices. The key topics included TCP (Transmission Control Protocol), connection-oriented vs. connectionless protocols, and methods for ensuring data integrity.

One of the most important lessons I learned was the difference between connection-oriented protocols like TCP and connectionless protocols like UDP (User Datagram Protocol). TCP ensures reliable data transmission by establishing a connection, using control flags, and following the three-way handshake process. In contrast, UDP is faster but does not guarantee data integrity, making it suitable for scenarios like streaming where speed is prioritized over reliability.

I also explored how TCP ports and sockets work to ensure communication between applications and how TCP headers control the flow of data. The breakdown of the TCP segment, including control flags and sequence numbers, provided insight into how the protocol manages the transport of data.

This module also introduced me to firewalls and how they filter network traffic based on predefined security rules. Through hands-on activities and quizzes, I gained practical experience understanding the role of both the transport and application layers in network communication, as well as how protocols ensure that data is transmitted reliably and securely.

Module 4: Networking Services

Module 4 covered networking services, with a particular focus on DNS (Domain Name System), DHCP (Dynamic Host Configuration Protocol), and NAT (Network Address Translation). These are essential for the smooth functioning and management of modern networks.

One of the most valuable skills I gained was an understanding of how DNS works to resolve domain names into IP addresses, allowing devices to locate and communicate with each other over the Internet. We explored how DNS queries work, the steps involved in name resolution, and how UDP (User Datagram Protocol) facilitates this process.

I also learned about DHCP, which automates the assignment of IP addresses to devices on a network. This service simplifies network administration by dynamically assigning addresses, rather than relying on manual configuration. Understanding how DHCP operates made it clear how crucial it is in managing larger networks.

The module also introduced me to NAT, which allows multiple devices on a local network to share a single public IP address when accessing the Internet. This not only conserves IP addresses but also adds a layer of security by hiding internal network structures. We also covered VPNs (Virtual Private Networks) and proxies, learning how these services enhance security and allow users to access networks securely from remote locations.

Through this module, I acquired a deeper understanding of how these core services function together to support and manage large networks, ensuring both accessibility and security. The

quizzes and discussions further reinforced the real-world applications of these concepts, preparing me to handle them in practical settings.

In conclusion, Modules 3 and 4 expanded my knowledge of the transport and application layers as well as the vital services that keep networks running efficiently. The skills I developed in these areas are crucial for managing, securing, and troubleshooting networks in any IT environment.

Module 5: Connecting to the Internet

In Module 5, the focus shifted to the evolution and current methods of connecting to the Internet, covering both wired and wireless technologies. The module began by exploring the history of the Internet and how connectivity has evolved from early dial-up methods to modern high-speed options like fiber-optic connections.

I learned about different broadband technologies such as DSL (Digital Subscriber Line), cable broadband, and fiber connections, each offering various speeds and benefits depending on the infrastructure. The module also covered the key concepts of WAN (Wide Area Network) technologies, which enable long-distance communication between different networks.

Wireless networking was another critical topic, especially with the increasing reliance on Wi-Fi for home and business networks. I explored the different wireless standards and configurations, including Wi-Fi 6, which offers improved speeds and reliability over earlier versions. Additionally, cellular networks were discussed, including how mobile devices connect to the Internet using technologies like 4G and 5G.

A significant part of this module involved learning about security measures for wireless networks, such as encryption and secure wireless channels. These ensure that data transmitted over Wi-Fi networks is protected from unauthorized access. Through quizzes and reading materials, I gained a comprehensive understanding of how both wired and wireless connections work and the role of WANs in connecting global networks.

Module 6: Troubleshooting and the Future of Networking

Module 6 was more practical in nature, focusing on troubleshooting network issues and looking at the future of networking technologies. The primary objective was to equip me with the skills to diagnose and resolve common connectivity problems using tools available in major operating systems such as Windows, macOS, and Linux.

One of the most valuable takeaways from this module was learning how to use command-line tools like ping and traceroute to test network connectivity and troubleshoot issues. For instance, using ping allows for the quick testing of a connection to a specific IP address, while traceroute provides insights into the path that data packets take, identifying any delays or failures along the way.

I also delved into more advanced tools like nslookup for troubleshooting DNS issues and examining the behavior of public DNS servers. The module provided insights into IPv6, the next generation of Internet Protocol, which is designed to replace IPv4 as the number of available

IPv4 addresses becomes exhausted. I learned about the differences between IPv4 and IPv6, as well as the advantages of IPv6 in terms of address space and routing efficiency.

The module concluded with a discussion on the future of networking, emphasizing cloud technologies such as SaaS (Software as a Service) and the concept of "everything as a service." This forward-looking perspective helped me understand emerging trends like cloud computing, virtualization, and how networks are evolving to meet the growing demands for data, speed, and security.

Overall, Modules 5 and 6 were crucial in rounding out my networking education. I not only learned how to connect to the Internet using various technologies but also gained the skills to troubleshoot real-world networking issues. Additionally, the exploration of upcoming trends in networking gave me a strong foundation for understanding the future direction of this field and the impact of new technologies.

Conclusion

Completing the Networking course has been a significant milestone in my education and professional development. This course has equipped me with a strong foundation in essential networking concepts, which are critical in today's technology-driven world. Throughout the modules, I have learned about various networking principles, from the basics of the TCP/IP and OSI models to practical skills for troubleshooting network issues.

One of the key takeaways from this course has been the hands-on experience with different networking tools and techniques. I now understand how to diagnose and resolve connectivity problems using methods applicable to various operating systems, including Microsoft Windows, macOS, and Linux. This practical knowledge will enable me to handle real-world scenarios effectively, making me a valuable asset in any IT environment.

The course also provided an in-depth look at both wired and wireless connection methods. I learned about different types of broadband, including DSL, cable, and fiber connections, as well as wireless technologies such as Wi-Fi and cellular networks. Understanding how these connection methods work helps me appreciate the complexity and diversity of modern networking.

In addition to connection methods, I gained insights into crucial networking services like Domain Name System (DNS) and Dynamic Host Configuration Protocol (DHCP). Knowing how these services function is essential for managing and supporting IT infrastructure. They play a vital role in ensuring seamless communication and efficient network management, and I now feel confident in my ability to work with these technologies.

Furthermore, the course emphasized emerging trends in networking, such as cloud computing and software-defined networking (SDN). Learning about these topics has expanded my perspective on the future of technology. As businesses increasingly move towards cloud solutions and adopt new networking paradigms, having knowledge in these areas will be essential for my career. I am excited about the possibilities that lie ahead and how I can contribute to the ongoing evolution of networking.

Overall, this comprehensive training has not only enhanced my technical skills but also boosted my confidence in tackling challenges in the field of information technology. I feel prepared to pursue various roles, whether as a network administrator, IT support specialist, or systems analyst. The knowledge and skills I have gained through this course will serve as a strong foundation for my future career.

As I submit this document for evaluation, I reflect on the hard work and dedication I have put into this course. I am eager to apply what I have learned in real-world situations and continue growing in the field of networking. This course has truly prepared me for the challenges and opportunities that await, and I look forward to starting my professional journey in information technology.

Reference

Course:

<https://www.coursera.org/learn/computer-networking>

Certificate:

<https://www.coursera.org/account/accomplishments/records/7CCSO9DD4ZA2>