VIGNAN'S NIRULA
INSTITUTE OF TECHNOLOGY & SCIENCE FOR WOMEN
(Approved by AICTE, New Delhi & Affiliated to JNTU Kakinada)
Vignan Avenue, Peda Palakaluru, Guntur - 522009

Department of Information Technology

Innovative Teaching Practice

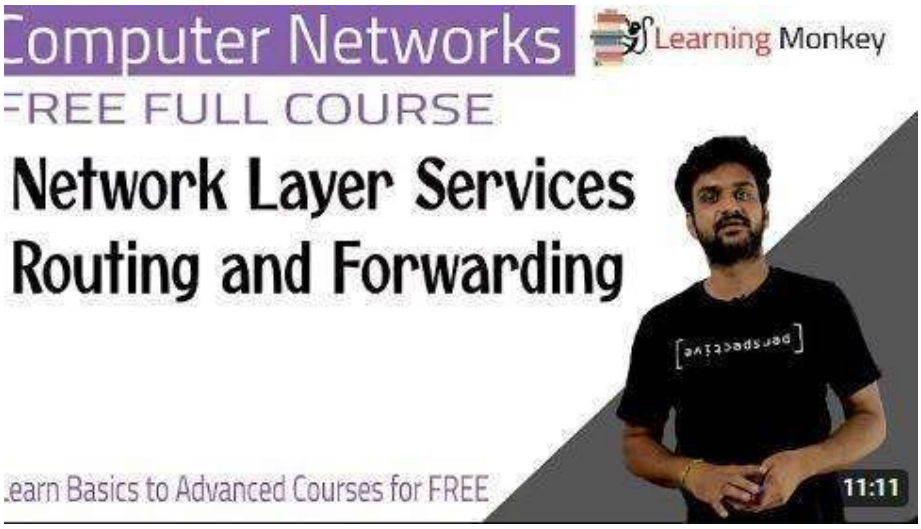
Faculty Name : Mrs.T.Naga Navya
Course Name : Advanced Computer Networks
Class : III B.Tech I Semester
Academic Year : 2022-2023
Title of the Topic : Network Layer Services
Activity Name : Flipped Classroom

Objective of the Activity:

Understand the fundamental role of the network layer in the OSI model and how it facilitates data transmission between devices across different networks.

Pre-Class Preparation:

Video Lecture Links:



www.youtube.com/@LearningMonkey

In-Class Problem-Solving: Group Discussion

Objective: The objective of the topic "Network Layer Services" is to understand the key functions of the network layer, including routing, addressing, packet switching, error handling, and traffic control, which ensure efficient and reliable data transmission between different networks.

Group Division:

Group A: Routing and Path Determination
Group B: IP Addressing and Subnetting
Group C: Packet Forwarding and Switching
Group D: Error Handling and Fragmentation
Group E: Network Layer Protocols
Group F: Quality of Service and Traffic Management

Screenshots of the Practice

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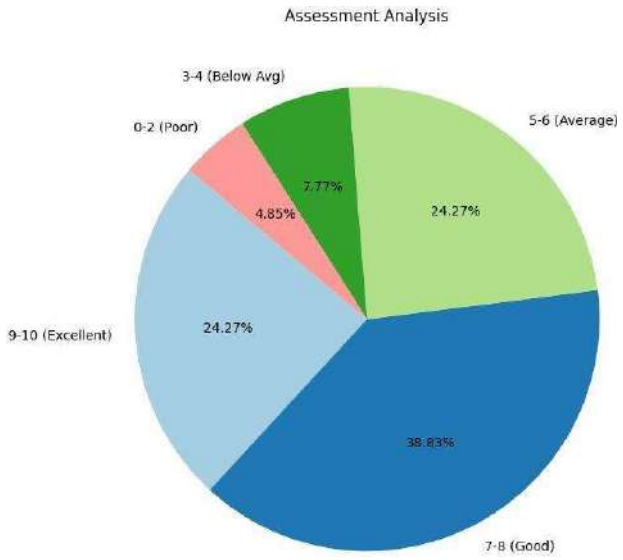
Assessment Analysis

Marks Range	Number of Students	Percentage
9-10 (Excellent)	25	24.27%
7-8 (Good)	40	38.83%
5-6 (Average)	25	24.27%
3-4 (Below Avg)	8	7.77%
0-2 (Poor)	5	4.85%
Total	103	100%



Conclusion:

The discussion on **Network Layer Services** enhanced students' understanding of key concepts like routing, IP addressing, and packet forwarding, while fostering collaborative learning and practical application.

Signature of the Faculty **Head of the Department**

Assessment on Network Layer Services

Course Name : Advanced Computer Networks
Academic Year : 2022-23
Marks : 10 Marks
Time : 10 Minutes
Roll Number :

1. **What is the primary function of the network layer in the OSI model?**
a) Data encryption
b) End-to-end communication
c) Routing and forwarding packets
d) Error detection and correction

2. **Which protocol is used for logical addressing in the network layer?**
a) ARP
b) IP
c) TCP
d) HTTP

3. **What is the role of routers in the network layer?**
a) Establish a connection between devices
b) Provide error correction

c) Forward packets to the correct destination
d) Encrypt data for secure transmission

4. Which of the following is responsible for translating IP addresses to physical MAC addresses?
a) IP protocol
b) ARP
c) DNS
d) ICMP

5. Which version of IP is primarily used today on most networks?
a) IPv1
b) IPv4
c) IPv5
d) IPv6

6. What is the primary advantage of using subnetting in an IP address scheme?
a) Better encryption
b) Efficient use of IP address space
c) Faster data transmission
d) More complex routing algorithms

7. Which of the following protocols operates at the network layer and is used to send error messages?
a) HTTP
b) ICMP
c) SMTP
d) FTP

8. What is packet fragmentation and reassembly in the network layer?
a) The process of compressing data
b) The splitting of large packets into smaller ones for transmission
c) The encryption of data before transmission
d) The translation of physical addresses to logical addresses

9. Which of the following services is provided by the network layer for routing packets?
a) Addressing
b) Flow control
c) Data link control
d) Packet sequencing

10. What does a routing table contain?
a) IP addresses of all devices in a network
b) Information on how to route packets to different destinations
c) List of physical addresses of network devices
d) Data encryption keys

1. What is the primary function of the network layer in the OSI model?

c) Routing and forwarding packets

2. Which protocol is used for logical addressing in the network layer?

b) IP

3. What is the role of routers in the network layer?

c) Forward packets to the correct destination

4. Which of the following is responsible for translating IP addresses to physical MAC addresses?

b) ARP

5. Which version of IP is primarily used today on most networks?

b) IPv4

6. What is the primary advantage of using subnetting in an IP address scheme?

b) Efficient use of IP address space

7. Which of the following protocols operates at the network layer and is used to send error messages?

b) ICMP

8. What is packet fragmentation and reassembly in the network layer?

b) The splitting of large packets into smaller ones for transmission

9. Which of the following services is provided by the network layer for routing packets?

a) Addressing

10. What does a routing table contain?

b) Information on how to route packets to different destinations