VIGNAN'S NIRULA
INSTITUTE OF TECHNOLOGY & SCIENCE FOR WOMEN
(Approved by AICTE, New Delhi & Affiliated to JNTU Kakinada)
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Department of Information Technology

Innovative Teaching Practices

Faculty Name : Mr.M.Mallikarjuna Rao, Mr.R.Veera Babu
Course Name : Mobile Computing
Class : IV B. Tech I Semester
Academic Year : 2021-2022
Title of the Topic : IP and Mobile IP Network Layers
Activity Name : Collaborative Learning

Objective:

To create a supportive learning environment where students work together to solve problems, share knowledge, and learn from one another. This fosters critical thinking, teamwork, and the development of social skills. The goal is for students to take ownership of their learning while benefiting from peer interaction, especially when learning about IP and Mobile IP network layers.

Steps to Implement Collaborative Learning for "Syntax-Directed Translation"

1. Assign Problems:

·Divide the class into small groups, each focusing on a specific aspect of IP and Mobile IP network layers.

·Provide each group with a problem that requires them to explore different concepts related to IP addressing, routing, Mobile IP operations, and how mobile devices maintain seamless connectivity as they move between networks.

2. Problems for Students related to Syntax-Directed Translation:

1. IP Addressing and Routing:

- **Problem:**
  Consider a network setup with several subnets. Define how IP addresses are assigned within the network and describe the process of routing packets between these subnets.

- **Task:**
  Create a simple routing table for the network, and explain how routing protocols (e.g., RIP, OSPF) function within this IP network.
- **Question:**
  How does the use of private and public IP addresses impact routing between different subnets or networks?

2. Subnetting in IP Networks:

- **Problem:**
  Given a network with the IP address 192.168.0.0/24, create several subnets and assign appropriate subnet masks for each subnet.
- **Task:**
  Design and explain the process of subnetting, including how to calculate the number of hosts in each subnet.
- **Question:**
  Why is subnetting necessary in IP networks, and how does it improve the efficiency of address allocation?

3.Mobile IP Basics:

- **Problem:**
  Explain the basic concept of Mobile IP and how it enables mobile devices to maintain connectivity while moving across different networks.
- **Task:**
  Design a flowchart or diagram showing the process of a mobile device registering with a home agent and receiving updates through a foreign agent.
- **Question:**
  What role does the home agent and foreign agent play in Mobile IP, and how does this system support continuous communication?

4. Mobile IP Handover Process:

- **Problem:**
  In Mobile IP, describe how a mobile device maintains ongoing sessions during a handover from one network to another (e.g., from Wi-Fi to cellular).

- **Task:**
  Simulate the handover process and show how data packets are rerouted to ensure uninterrupted service.
- **Question:**
  How does Mobile IP handle security during handover to prevent session hijacking or unauthorized access?

1. **Collaborative Activity**:

- Each group works on their assigned problem, collaborating to design IP addressing schemes, explain routing processes, model Mobile IP handovers, or optimize Mobile IP operations.
- Groups should present examples or network diagrams to demonstrate their understanding of how IP and Mobile IP work in real-world networking scenarios.

2. Discussion and Presentations:

- After working through the problems, each group presents their findings, explanations, and examples to the class.
- Encourage active discussions where students can ask questions about each other's solutions, compare different approaches to solving problems in IP and Mobile IP network layers, and enhance their understanding of how these protocols function in different scenarios.

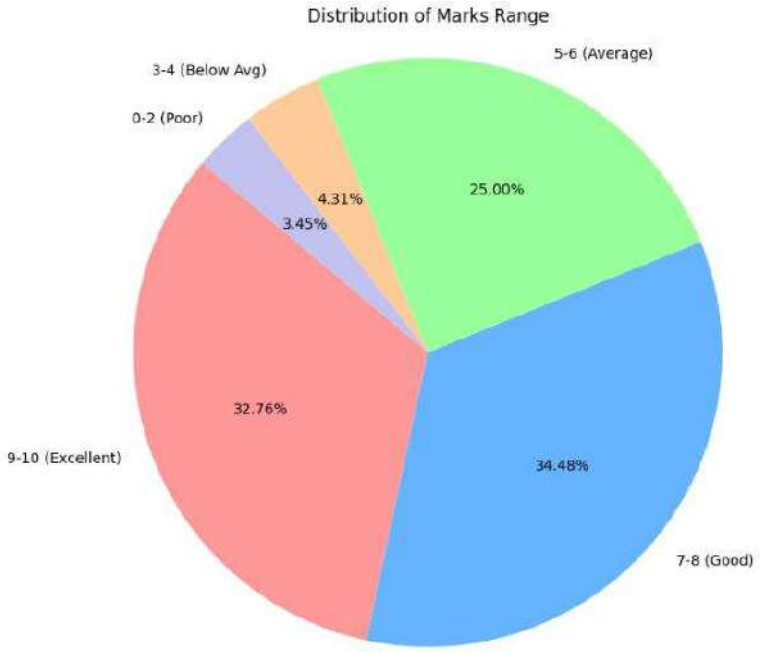
5. Feedback and Reflection:

- Provide constructive feedback on the approaches used by each group, especially in terms of how they tackled the challenges of IP addressing, routing, and Mobile IP operations.
- Reflect on how IP and Mobile IP networks are foundational to the modern Internet, and discuss how the protocols ensure reliable, efficient, and secure communication in diverse real-world applications.

Screenshot of the Practice:

Assessment Summary

Marks Range	Number of Students	Percentage
9-10 (Excellent)	38	32.76%
7-8 (Good)	40	34.48%
5-6 (Average)	29	25.00%
3-4 (Below Avg)	5	4.31%
0-2 (Poor)	4	3.45%
Total	**116**	**100%**



Conclusion:

Collaborative learning on IP and Mobile IP Networks Layersby integrating theoretical knowledge with practical applications, collaborative learning on IP and Mobile IP networks fosters a comprehensive understanding, preparing learners for real-world challenges in network engineering and management.

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