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 : Mrs.P.Sandhya Krishna, Mrs.Y.Vijaya Lakshmi
Course Name : Artificial Intelligence
Class : III B.Tech I Semester
Academic Year : 2022-2023
Title of the Topic : Search Complexities
Activity Name : Think-Pair-Share

Objective of the Activity:

The objective of the Think-Pair-Share activity on the topic of search complexities is to engage students in active learning by encouraging them to think critically, collaborate with a peer, and then share their insights with the class.

Activity Procedure:

1. **Preparation**:

   - The instructor introduces the concept of search complexities, focusing on how both time and space complexities measure the efficiency of search algorithms.
   - The instructor will explain key concepts like big-O notation, time complexity, space complexity, and how the size of the search space, branching factor, and depth influence algorithm performance.
   - Students work individually to review and solidify their understanding of these concepts and prepare to calculate the time and space complexities of a given search algorithm

2. **Phase 1 – Think (5-7 minutes)**:

   - Students work individually to calculate the time and space complexities for a given search algorithm, such as BFS, DFS, or A*. They will analyze the search algorithm, taking into consideration the size of the search space, the branching factor, and the depth of the search tree.
   - Students calculate the time complexity, which depends on the number of nodes explored, and the space complexity, which is influenced by the data structures used to store the search state.

3. **Phase 2 – Pair (10-15 minutes)**:

   - Once students have completed their individual calculations, they pair up with a classmate to compare their findings. In this phase, students discuss their individual calculations for time and space complexity
   - They collaborate to refine their understanding of the algorithm's complexity and discuss possible optimizations.

- This discussion encourages deeper learning and problem-solving by allowing students to exchange insights and check their work with a peer.

4. **Phase 3 – Share (10-12 minutes)**:

   - Each pair presents their findings to the class, sharing the results of their time and space complexity analysis for the selected search algorithm.
   - The instructor facilitates the sharing process and encourages critical thinking by prompting the class to consider possible improvements or alternative strategies.

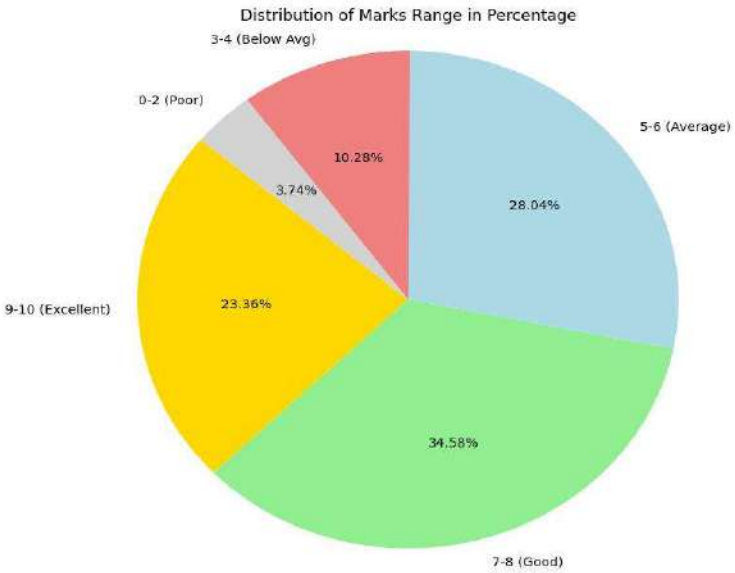
5. **Wrap-Up (5 minutes)**:

   - The instructor also addresses any remaining questions or uncertainties that students may have, providing additional explanations or clarifications as needed..

Screenshots of the Practice

Assessment Analysis

	Number of Students	Percentage
9-10 (Excellent)	25	23.36%
7-8 (Good)	37	34.58%
5-6 (Average)	30	28.04%
3-4 (Below Avg)	11	10.28%
0-2 (Poor)	4	3.74%
Total	107	100%



Conclusion of Think-Pair-Share Activity

This activity helps the students to appreciate the complexity of search problems in AI and recognize how different algorithms and strategies aim to balance the pursuit of optimality with the need for efficiency.

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