



### Department of Information Technology

Academic Year – 2024-25	Class: Second Year
Semester – I	Date : 12/08/2024
CO : 1,2	PO: 1,2,3,4,9,10,12      PSO: 1,3

#### Innovative Teaching Methods

**Title of Innovation method/activity: Collaborative Problem Solving**

1. **Name of Faculty:** Mrs. Bhawana A. Ahire

2. **Subject:** Data Structures and Algorithms

3. **Objective of Method:**

- Collecting data.
- Breeding fresh ideas and taking inputs from every student.
- Perception of common people on a particular topic.
- Identify a solution to a specific problem or issue.

4. **Topic Covered through Collaborative problem Solving:**

1. Analysis of algorithm
2. Time complexity
3. Single and multidimensional array and address calculation
4. Linear and binary search algorithms
5. Bubble, insertion, Quick and Merge Sort
6. Analyze Insertion sort, Quick Sort, binary search
7. Analyze binary search for Best, Worst and Average case

5. **Description of method with Benefits (8 – 10 lines) :**

In this method problem statements related to the subject are given to the group students. The group Members discuss and understand given problem statement. Everyone tries to solve the problem and verifies solution among them. Finally teacher will make assessment of solutions provided by the students.

The method Impact:

This activity encourages self-learning, creativity, critical thinking and also emphasizes communication, team work, analysis skills among students.

**Roles and Responsibilities:**

- **Teacher**
  - Develop a Clear Goal for problem solving.
  - Allot a problem statement to every group
  - Choose a Method to Assign Students to Groups
  - Prepare assessment methodology.

- **Student**
  - Go through the entire identified topic.
  - Understand and analyze problem statement through collaboration.
  - Actively participate in group and contribute in order to provide solution.
  - Share the expertise at a time of problem solving.
- **Group**
  - Develop the guidelines to establish group.(i.e. Decide the roll of all participants)
  - Every group should gain the expertise on particular problem statement.
  - Develop the guidelines with which every group member can share the topic they learn.

#### 6. Assessment Tools & Rubrics:

- **Understanding**
  - Concept understanding, confidence would be checked through Problem Solving.
- **Problem solving ability**
  - Good knowledge, Good presence of mind should be checked.
- **Team work**
  - How the audience is engaged.

#### Rubrics for Assessment of Collaborative Problem Solving:

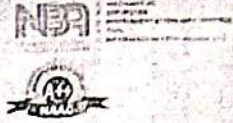
Sr. No	Name of Method	Evaluation Criteria	Max. Score	Excellent (100%)	Satisfactory (60%)	Poor (20%)
01	Collaborative Problem Solving	Understanding	10	<ul style="list-style-type: none"> <li>• Clear problem understanding</li> </ul>	<ul style="list-style-type: none"> <li>• Adequate problem understanding</li> <li>• Problem solving ability</li> <li>• <del>Correctness of solution</del></li> </ul>	<ul style="list-style-type: none"> <li>• Inadequate understanding</li> <li>• <del>Problem solving ability</del></li> <li>• <del>Correctness of solution</del></li> </ul>
		Problem solving ability	10	<ul style="list-style-type: none"> <li>• Complete solution</li> <li>• Use of appropriate methodology</li> </ul>	<ul style="list-style-type: none"> <li>• Partial solution</li> <li>• <del>Use of partially appropriate methodology</del></li> </ul>	<ul style="list-style-type: none"> <li>• Wrong solution</li> <li>• Use of wrong methodology</li> </ul>
		Team work	5	<ul style="list-style-type: none"> <li>• Team work skill</li> <li>• Active Participation</li> <li>• On time completion</li> </ul>	<ul style="list-style-type: none"> <li>• Team work skill</li> <li>• <del>Active Participation</del></li> <li>• <del>On time completion</del></li> </ul>	<ul style="list-style-type: none"> <li>• Team work skill</li> <li>• <del>Active Participation</del></li> <li>• <del>On time completion</del></li> </ul>



## 7. Evaluation Sheet



MARATHA VIDYA PRASARAK SAMAJ'S  
Karmaveer Adv. Baburao Ganpatrao Thakare  
College of Engineering, Nashik



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Department of Information Technology

Subject: Data Structures and Algorithms (2024-25)

Innovative teaching method: Collaborative Problem Solving

Assessment sheet

Date: 12/08/2024

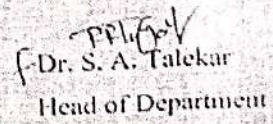
Sr. No.	Name of the student	Understanding 10	Problem solving ability 10	Team work 5	Total
1	Omkar K Thube	9	8	4	21
2	Shubham N. Wagh	8	10	3	21
3	Sahil B. Nerkar	10	9	4	23
4	Mohit Sachin Pawar	7	10	5	22
5	Prem Gajanan Vinkar	9	10	4	23
6	Vedant Nilesh Shimpi	9	9	5	23
7	Bhramraj R. Patil	10	9	5	24
8	Shantanu S. Wadghule	8	10	5	23
9	Yash Sanjay Shewale	9	9	4	21
10	RUSHIKESH Datta Vaidya	9	9	5	23
11	Samadhan Jayram Shinde	8	10	5	23
12	Kundan Baban Pawar	8	10	4	22
13	Prathmesh Gopal Patil	7	8	4	19
14	Rahul Vijay Nalawade	9	10	5	24
15	Hemant Prabhakar Pande	10	9	5	24
16	Archit Pradip Patil	10	9	4	23
17	Chetana Yogesh Shirode	9	8	4	21
18	Harri Digambar Patil	10	9	5	24



Sr. No.	Name of the student	Understanding 10	Problem solving ability 10	Team work 5	Total
19	Prihar Ramesh More	9	8	4	21
20	Piyush Vijay Kulkar	9	8	3	20
21	Niketa Babesh More	9	10	4	23
22	Diyu Sachin Walekar	8	10	4	22
23	Neelam Waghchare	10	9	5	24
24	Shravani Sonawane	10	9	4	23
25	Karuna Nikale	10	9	4	23
26	Sachin Waje	8	7	5	20
27	Harkita Sharma	9	7	5	21
28	Sree Kende	8	7	5	20
29	Kamal Thete	8	8	3	19
30	Riya Ponde	9	10	4	23
31	Om Waghkule	10	9	4	23
32	Prathmesh Walekar	10	9	5	24
33	Sarthak Somavanshi	9	8	4	21



Mrs. B. A. Ahire  
Subject Teacher



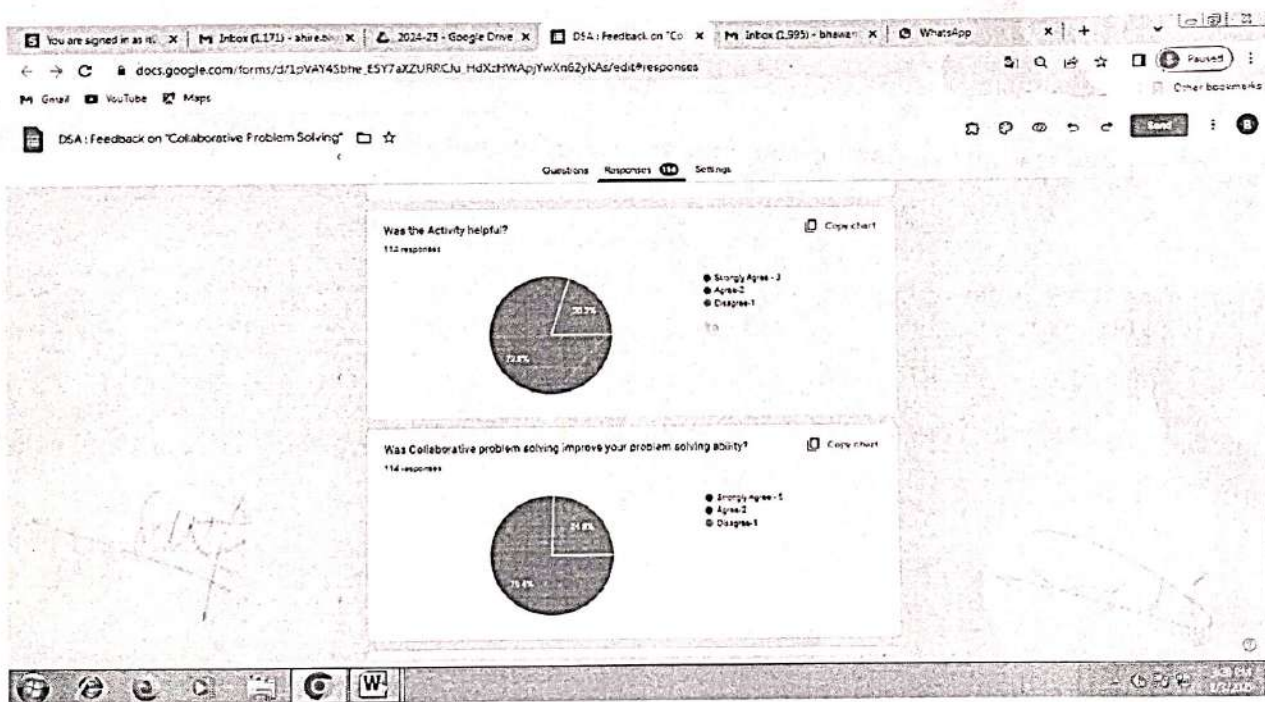
Dr. S. A. Talekar  
Head of Department

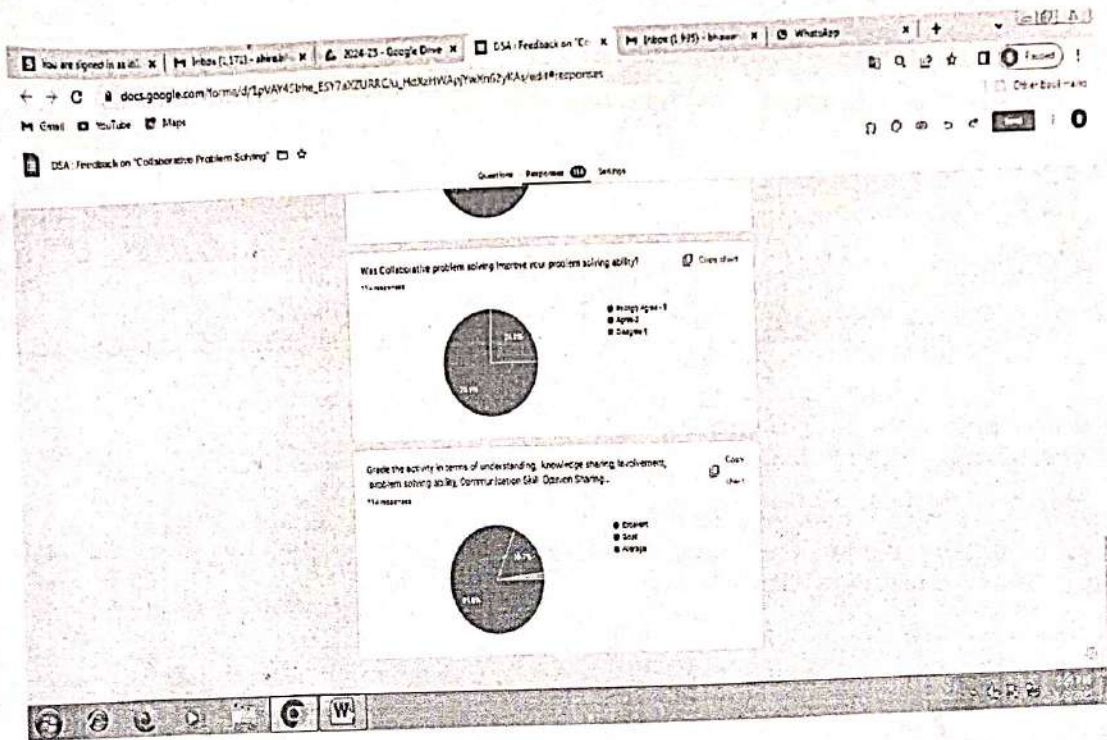


SN	Result Analysis	
1	Total Student Present Student	33
2	Number of Student Scoring above 60%	33
3	Percentage of student Scoring above 60%	100

### 8. Impact Analysis

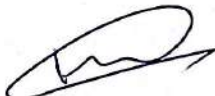
SN	3- Strongly agree	2- Agree	1- Disagree
Was the Collaborative Problem Solving activity helpful?	82%	18%	NIL
Was Collaborative problem solving improving your problem solving ability?	77%	23%	NIL
Grade the activity in terms of understanding, knowledge sharing, Involvement, problem solving ability, Communication Skill, Opinion Sharing...	80.3%	19.7%	NIL






9. For review and critique contact: e-mail address of faculty and HOD

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[hod.it@kbtcoe.org](mailto:hod.it@kbtcoe.org)

  
 Mrs. B. A. Ahire  
 Subject In charge

  
 Dr. S. A. Talekar  
 HoD