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DEPARTMENT OF INFORMATION TECHNOLOGY

Collaborative Learning

Academic Year 2021-2022 Even Semester

Degree, Semester & Branch: IV Semester ,B.TECH-IT
Course Code & Title: JCS1403 Design and Analysis of Algorithms
Name of the Faculty member (s): Ms.S.Satheasree, AP/IT

Innovative Practice Description

- **Unit / Topic:** Unit V / Backtracking Techniques

- **Course Outcome:** CO5

- **Topic Learning Outcome:** TLO11

- **Activity Chosen:** Flipped Classroom

- **Justification:**

      Backtracking is one of the important topics, repeatedly asked in university questions. This activity makes the students to get a sound knowledge in this concept. Students can prepare individually about a topic by watching the lecture video and share their ideas with their classmates that enhance their knowledge and oral communication skills.

- **Time Allotted for the Activity:** 30 Minutes

- **Details of the Implementation:**
  - Learning materials such as video and documents about backtracking algorithms were sent to the student's mail and Canvas, one week before conducting this activity.
  - Instruct the students to watch the video individually at their home and take the notes according to their understanding level.
  - On the day of the activity, small teams were formed by their own interest.
  - Each student in a group discusses among the peer members in the concept of backtracking algorithms based on their self-learning and write the points for Presentation within 10 minutes.

- Once they prepared the content for presentation with their peer members, each group present about the different problems solved using backtracking algorithms for maximum of 5 minutes.

O – PO / PSO mapping:

CO	PO1	PO2	PO3	PO4	PO10	PSO1	PSO2	PSO3
CO1	3	1	1	1	2	2	2	1

(1 – Low   2 – Moderate   3 – High)

- PO / PSO mapped:

Innovative practice	PO1	PO2	PO3	PO4
	3	1	1	1
	Backtracking technique is used for analysis of algorithm.	Backtracking technique is used in analysis of engineering problems	To identify solution for complex problems using backtracking technique	To identify solution for complex problems using backtracking algorithm.

Justification for correlation	PO10	PSO1	PSO2	PSO3
	2	2	2	1
	To present solution for complex problem solution with backtracking algorithm.	Able to use these algorithm design techniques in Information Technology	Able to use these algorithms in analyzing and developing of data IT Solutions	Algorithm design techniques are helpful in solving real world problems in industry and Research.

- Images / Screenshot of the practice:

Figure 1: Screenshots of Flipped Classroom activity

- **Reflective Critique:**
    - *Feedback of practice from students and other stakeholders:*
        - The students were actively participated.
        - Students were able to explored their knowledge on the backtracking algorithms to solve n-queens, subset sum and Hamiltonian circuit problems.
        - This activity makes all the students to gain well knowledge on how to apply backtracking techniques on different problems.

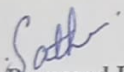   - *Benefit of the practice:*
        - Students were actively participated in this activity.
        - From this activity, the students can get more clarity in the particular topic by discussing and sharing their views with the other students in the class.
        - Learning at home automatically becomes student-centric rather than teacher-centric.

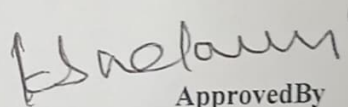   - *Challenges faced in implementation:*
        - Due to time constraints, only few group of students were made to share the concepts by a random call.
        - Some team members are hesitated and lack to share the concepts that they learnt and discussed.

References:

- https://www.ritrjpm.ac.in/images/computer-science/41_IT6801_FlippedClassroom.pdf
- https://www.ritrjpm.ac.in/images/computer-science/CS8603-FlippedClassroom.pdf

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