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Department of Computer Science and Engineering
Academic Year 2022 – 2023 (Odd Semester)
Degree, Semester & Branch: V Semester B.E. CSE
Course Code & Title: CS8501 Theory of Computation
Name of the Faculty member (s): Mrs.S.Manjula
Innovative Practice Description

Unit / Topic: Unit II / Problems in minimization of FA
Course Outcome: CO 2

Topic Learning Outcome: TLO 6

Activity Chosen: Video Lecture and Learning by Doing

Justification:

- Learning by Doing is an educational approach to problem-based learning. Minimization of Finite Automata is important because larger automata cost more. Furthermore, different authors approach the issue of reducing the number of states in different ways. As a result, this topic is critical, and many people will make mistakes in solving it. To address the issue, a video lecture was created and posted on the department's YouTube channel 10 days before the actual lecture, and the students were instructed to watch the video (https://youtu.be/IqoGcGk2m5o). It helps students in making concepts more interesting and motivating them to learn more about a specific topic.
- **Time Allotted for the Activity:** 50 minutes

Details of the Implementation:

- The students were informed about the event, and a video lecture was posted 10 days in advance so that they could contribute enough time to learning the subject.
- Instructor explained the important of Learning by Doing to the students and informed the students about it is an educational approach to problem-based learning.
- A student was chosen at random to solve the problem on the board using any of the teaching aids.
- P.Sivakumar of this class solved the problem of minimising the given DFA using the Table filling algorithm for this event.
- First, he explained how DFA has been simplified by eliminating unreachable and dead states. Then, on the white board, the construction of an equivalence table for the given DFA was explained.
- Finally, the instructor consolidated the information that was discussed in this activity.
- This assisted the students to learn self and answering questions about the topic with ease.

CO – PO / PSO mapping:

CO	PO1	PO2	PO3	PO4	PO9	PO10	PSO1
CO 1	2	2	2	1	1	1	1

(1 – Low 2 – Moderate 3 – High)

PO / PSO mapped:

Innovative practice	PO1	PO2	PO3	PO4	PO9	PO10	PSO1
	2	2	2	1	1	1	1
Justification for correlation	To apply basic Knowledge on Finite automata in mathematical modeling.	To analyze complex engineering problems using automata models	To design Finite Automata (FA)	To design the appropriate Minimized DFA for the given DFA	To work as an individual	To Communicate effectively on complex engineering activities	To design the FA, students will be able to develop various software components

- **Images / Screenshot of the practice:**

- **Reflective Critique:**
  - ❖ *Feedback of practice from students and other stakeholders:*
    - o Students expressed that the activity helped to identify the understanding level of the concept.
    - o Most of the students felt that this event helped them to get practice in solving the minimization problem.
    - o Students informed the instructor that the activity motivates them to learn individually and clarify the doubts and share ideas to their classmates.

  - ❖ *Benefit of the practice:* (E.g.: Outcome attainment would have increased due to innovative practice over conventional practice)

    - This activity helped the student to analyze their performance of problem solving with others and it also induces the student to do problem daily.

    - Students spent their time in self-learning.

    - This activity encouraged the students to share their knowledge with others.

    - From this activity, the students can get more clarity in the particular topic.

  - *Challenges faced in implementation:*

    - With the exception of a few students, the majority of the students actively participated. They are not involved in sharing their level of understanding or raising doubts.

    - Effectively motivate students who are not participating in the activity by addressing the benefits of self-learning.

  References:
  1. https://www.ritrjpm.ac.in/images/computer-science/35.CS8501_Learningbydoing.pdf
  2. https://flearningstudio.com/pros-and-cons-of-animated-educational-videos/
  3. https://uwaterloo.ca/centre-for-teaching-excellence/teaching-resources/teaching
  4. tips/developing-assignments/cross-discipline-skills/teaching-problem-solving-skills
  5. https://k12.thoughtfullearning.com/blogpost/teaching-innovation-and-problem-solving

Signature of Faculty Member   **HOD**