Innovative Teaching Practice: PPT / Video Link

Faculty Name	Ch. Prabhavathi
Course Name	Operating Systems
Academic Year	2022-23
Class	II/I SEM
Topic	Deadlock Avoidance, Deadlock Prevention

Objective of the Activity:

The integration of PPT and video-based resources significantly enriched the learning experience.Simplify complex concepts using visually appealing and structured PowerPoint presentations.To enhance learner engagement by integrating multimedia elements like images, diagrams, and animations.To support diverse learning styles (visual, auditory, self-paced) through the combination of static slides and dynamic video content

Pre-Class Preparation:

Students were able to visualize and understand the problem of Deadlock, improving both Deadlock Avoidance, Deadlock Prevention.

- **PowerPoint Presentations**: Delivered structured theoretical content with diagrams, flowcharts, and step-by-step model explanations.
- **Video Links**: Curated and shared high-quality tutorial videos to Deadlock Avoidance, Deadlock Prevention

In-Class Activity:

Part 1: Watch & Understand (10–15 mins)

Instructions:

- Students watch a short, faculty-recommended video on **deadlock avoidance & prevention** (with PPT open alongside).
- Focus points:
  - Differences between avoidance & prevention
  - Real-time examples
  - Banker's Algorithm walkthrough

Optional: Instructor can pause at key points and explain live or initiate short discussions.

Part 2: Apply & Solve (20–25 mins)

Task: Solve a set of resource allocation scenarios using deadlock avoidance and prevention techniques.

Sample Activity Steps:

1. Identify if a deadlock is possible based on given allocation.
2. Apply **Banker's Algorithm** to determine system safety.
3. Suggest **modifications** using prevention strategies (e.g., breaking one of the necessary conditions).

Example Problem:

- 3 processes, 3 types of resources
- Max demand and current allocation given
- Available resources listed
- Questions:
    - Is the system in a safe state?
    - What happens if process P1 requests more?
    - How can this be prevented?

Part 3: Group Reflection & Share (10–15 mins)

- Each group presents their findings/solutions briefly.
- Discuss:
    - Which strategy felt easier: avoidance or prevention?
    - Real-life systems where such approaches are used (e.g., database locks, memory management).

Time Allotted for Activity:

- Pre-class preparation:**50Minutes**
- In-Class **Activity**:**50 Minutes**

Images / Screenshot of the practice

PPT / Video Link Class Room Activity	Screenshot of the practice
Activity on PPT / Video Link	

Benefits of practice:

1. **Visual Understanding of Complex Concepts** PPTs break down abstract ideas (e.g., resource allocation graphs, Banker's Algorithm) into diagrams and flowcharts, making them easier to grasp.
2. **Step-by-Step Demonstration** Video tutorials allow students to follow detailed explanations of algorithms and prevention techniques at their own pace.
3. **Better Retention** Combining text, visuals, and audio improves memory retention and reinforces understanding of concepts like safety sequence, necessary conditions, etc.
4. **Self-Paced Learning** Students can pause, rewind, and rewatch video content as needed, helping them master complex topics without pressure.

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Signature of Faculty Member

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