Planning Document

Activity - Team Assisted Individualization (TAI) **Course Faculty: Dr Suresh Kumar K**
Course: Operating Systems **Class: IV Sem IT**

Teaching Unit/Point: Unit 3 – Broad Topic – Paging
Sub. Topic – Page Replacement Algorithms

Learning Objective: ***At the end of the activity, the students will analyze page replacement algorithms and identify the best replacement algorithm.***

Need for a collaborative activity for Page Replacement Algorithm

- ✓ This topic comprises three algorithms: First Come First Serve, Optimal Replacement, and Least Recently Used Algorithm.
- ✓ Each algorithm has its unique process to replace the pages. Each algorithm results differently depending on the pages' length and no. of frames used to replace the pages.
- ✓ Due to time constraints, the faculty can teach the topic with a simple example with a specific no. of pages with 3 or 4 pages.
- ✓ Though the process seems to be easy, it requires a lot of practice.
- ✓ It is one of the essential concepts that the student should learn.
- ✓ To make the student familiar with the topic, it is necessary to practice with different lengths of the pages and different no. of frames.
- ✓ Through active learning, students can practice various problems.

To Create Teams

I have a class strength of 32, So I planned to divide the class into eight groups of 4 members.
I will categorize (Active, Passive learners) with background information like knowledge level, interest and preference before forming groups.

The group formation will be flexible and fair allocation (skill level) based on the students' willingness. There will be a two-phase group formation. In the first phase, I will form the groups based on the students' background, which is not visible. In the second phase, the students can build their peers.

The first phase of grouping

I will divide the students into two groups based on the category.

The second phase of grouping

I will ask each group to form pairs of their wish and select the other pair from the second group.

An example process of grouping

The total class students – {a,b,c,d,e,f,g,h,j,k,t,y}

In phase 1 the students are grouped by faculty based on skill level
For example – In group A – {a,f,g,h,j,k}
In group B – {b,c,d,e,t,y}

In phase 2 there are two step process
1.The students should find their pair within the group. (Ex pairs in Group A {a,g}, {f,j},{h.k}
pairs in Group B {b,e},{c,y},{d.t})
2. Each pair should select a pair from the second group to form a new set of groups.
(Ex. {a,g,c,y},{f,j,d,t} and {h.k,b,e})

Now each group will have four students with balanced skill levels.

Activity Time (60 Minutes)

- I plan to conduct a Diagnostic test (MCQ using Google Quiz) on the topic to test each student's knowledge level. Totally 10 Questions each question 1 minute. **(10 Min.)**
  Sample Test Question
  https://docs.google.com/forms/d/1A0GtDBDmq8abJwVICPFX2NPmQs84uJ3CExQrDM4vOrQ/edit
- I will provide learning material to each group to discuss the given topic with their example. **(each algorithm 5 minutes and the total time allotted is 15 Min. for three algorithms)**
- I will provide sample problems to each team to solve collaboratively. **(each algorithm is 5 minutes, and the total time allotted is 15 Min for three algorithms.)**
- Discussion / Clarification among peers – (**5 Min.**)
- I will review the answers to the question and ask each group to do the evaluation. **(10 Min.)**
- Collecting feedback from each individual/group (**5 Min**.)

Through this activity, the slow learners can get familiarized with the topic through peer learning.

Evaluation of individual and group performance

- ✓ To identify and analyze the student's understanding, I will conduct a test for each student through Moodle, and the test will be conducted for 20 marks (4 questions, each carries five marks).
- ✓ The question will be framed to test problem-solving and analytical skills.
- ✓ The team score will be calculated by taking the average marks of individuals.
- ✓ The top team will be appreciated and rewarded in the next class.

Follow up individual students' performance

- ✓ The diagnostic and post-activity test results will be analyzed, and the poor performers will be given more attention.