1.1. Activity-based Learning / Game-based learning:

Our department's curriculum emphasizes Activity-Based Learning (ABL) through engaging methods such as role-playing activities, game-based learning (Puzzles/crosswords), and the KPRIDE Python programming framework.

1.1.1. Role-play: Role-play-based innovative teaching involves students actively engaging in real-world scenarios, allowing them to apply theoretical knowledge through demonstration. This method enhances critical thinking, problem-solving, and communication skills while fostering deeper learning.

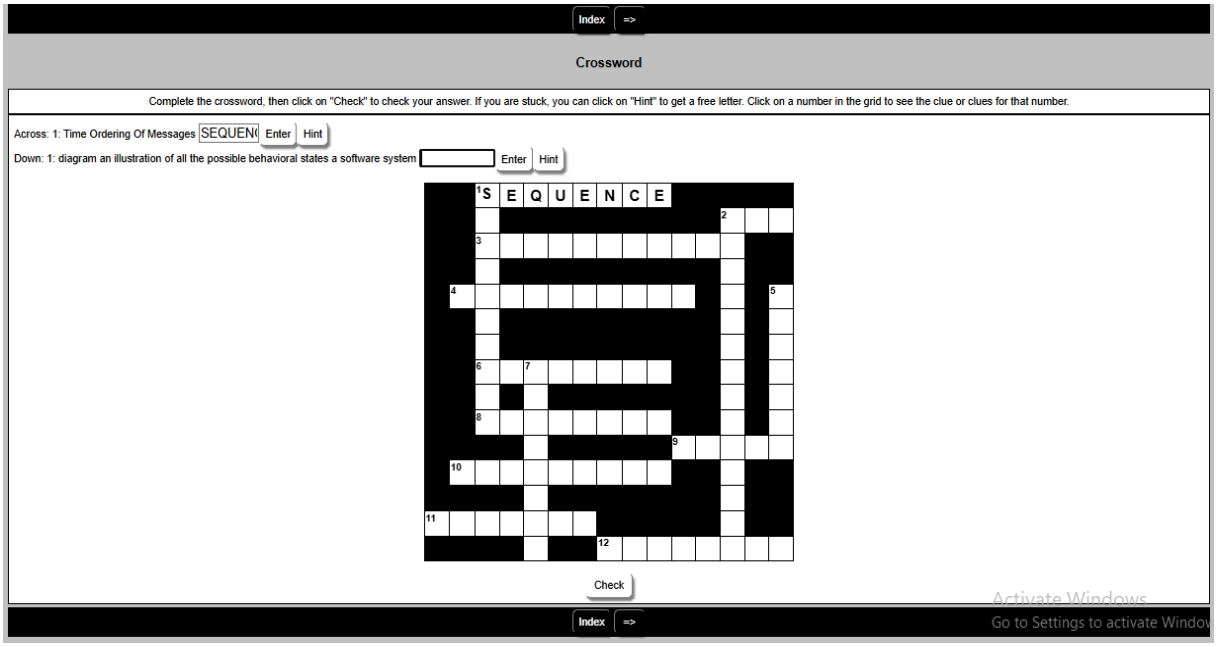
Figure .1 Roleplay Activity

The above Figure 1. illustrates role play activity that demonstrates the Merge Sort algorithm from the course Data Structures. Students represent elements in an unsorted array, standing in random order to visualize the starting point. Led by A. Pranav, they divide into smaller subgroups, mimicking the recursive split in Merge Sort. Each student represents a single sorted element, forming the base case. They then pair up, compare values, and merge sequentially until all elements are sorted in ascending order.

1.1.2. Game-based learning

This approach leverages games to enhance the learning experience, with puzzle-solving being a key component of game-based learning. For the course Object-Oriented Analysis and Design (OOAD), students are tasked with using the 'Hot Potatoes' tool to create interactive crossword puzzles. The

course instructor will enter course-related words and clues then web-based crossword exercises are generated through JCross. Students will solve the puzzles using hints which reinforce the OOAD concepts as they identify and apply the correct terms.



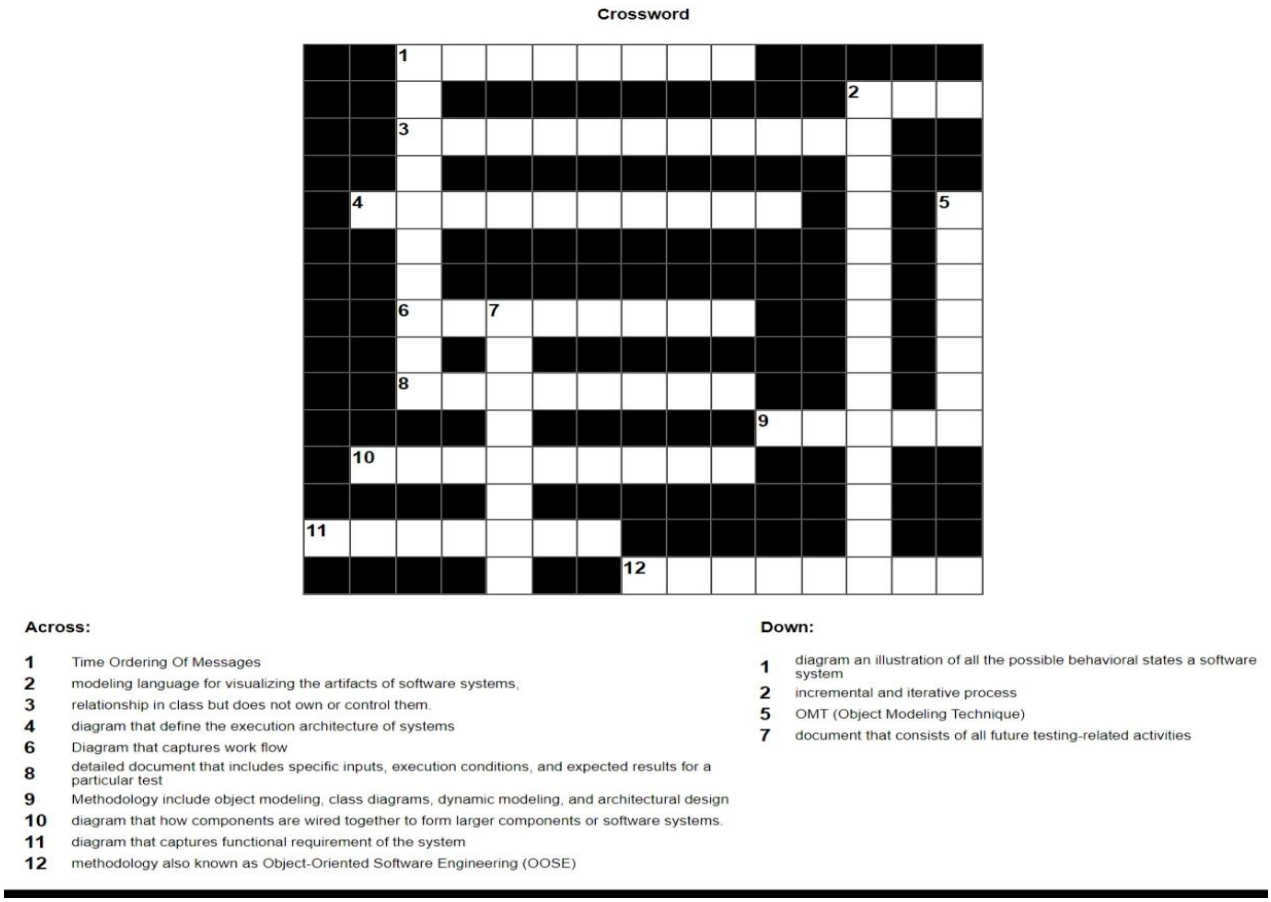


Figure 2. Puzzle Activity for the course Object-Oriented Analysis and Design

1.1.3. KPRIDE

KPRIDE Python programming pedagogy is one of the active learning platforms through hands-on activities. This framework encourages the students to actively participate through predicting, running, investigating, debugging, and extending. This will encourage the learners to do rather than listen by actively engaging with the code. Students engage in a Python keyword identification task, reinforcing their conceptual clarity. Figure 3 depicts a Python learning activity where students identify programming concepts in a code snippet. The interface is interactive, showing progress with visual elements such as checkmarks and concept-related icons. Through this interactive learning method, students improve their problem-solving skills in real-world coding challenges (e.g., Hacker rank) and enhance their ability to qualify for certifications, and technical competitions.

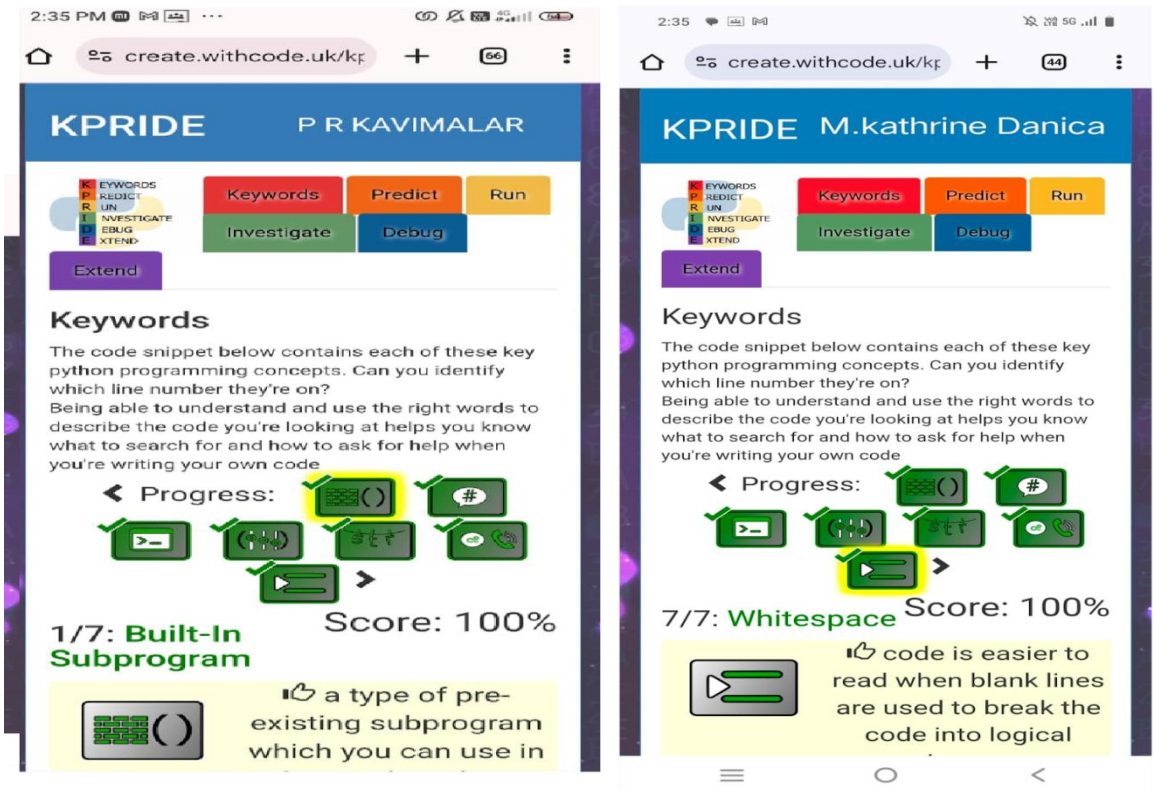


Figure 3. ABL through KPRIDE

2022-23

Sl. No	Course Code	Course Title	Faculty Name	Innovative Teaching Methodology	Topic
1.	GE2125	Problem Solving and Python Programming	Mrs.M.Jayanthi	*Activity Based Learning*-Role Play	Merge Sort
2.	CS3401	Algorithms – Lab integrated	Mr.K.Suresh, AP	*Activity Based Learning*-Role Play	Simplex method
3.	CS8691	Artificial Intelligence	Dr.N.Kalpana	*Activity Based Learning*-Role Play	Water Jug problem, 8

					Queen problem Puzzle
4.	CS8603	Distributed Systems	Dr.N.Kalpana	*Activity-Based Learning* -Interactive Quiz	Flynn's classification, Algorithm

2023-2024

Sl. No	Course Code	Course Title	Faculty Name	Innovative Teaching Methodology	Topic
1.	CS2414	Design Analysis of Algorithm	Mr.K.Suresh, AP	*Activity Based Learning* - Role play	N-Queen problem
2.	IT2C25	Introduction to Operating Systems	Mrs.L.HemaLatha, AP	*Game-based learning*	Deadlock
3.	IT2C25	Introduction to Operating Systems	Dr.Y.Arockia Raj, AP	*Game-based learning*	Deadlock