

**The Superior University**

***Department of Software Engineering***

***Faculty of Computer Science & Information Technology***

***The Superior University, Lahore***

***Course: Programming For Artificial Intelligence***

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***LAB TASK 4***



This defines the waterJugDFS function to solve the water jug problem using DFS. It takes the capacities of the two jugs and the target amount as inputs.

stack: Stores states to explore, starting with both jugs empty.

visited: Tracks visited states to avoid repetition.

parent: Keeps track of the path to each state.



This loop processes states from the stack. It pops the last state and marks it as visited.

If the goal is reached, this block reconstructs and prints the path from the start state to the goal state using the parent dictionary.



This defines the possible actions (rules) for the water jug problem, such as filling, emptying, or pouring water between the jugs.



This loop applies the rules to generate new states. If a state hasn’t been visited, it’s added to the stack and its parent is recorded.If no solution is found, this prints a message and returns False.



This sets the jug capacities and target amount, then calls the waterJugDFS function to solve the problem.

