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| A picture containing drawing, stop, room  Description automatically generated | Artificial Intelligence  Practical #5 | | |
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| **Subject/Course:** | **Artificial Intelligence** | | |
| **Topic** |  | | |
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| **1. Write a program to solve water jug problem.** | | | |
| **Code in Prolog:**  jug(0,0):-write("\nFill 3g jug."),jug(0,3).  jug(0,3):-write("\nPour water from 3g jug to 4g jug ."),jug(3,0).  jug(3,0):-write("\nFill 3g jug."),jug(3,3).  jug(3,3):-write("\nPour water from 3g jug to 4g jug until 4g is full."),jug(4,2).  jug(4,2):-write("\nEmpty 4g jug."),jug(0,2).  jug(0,2):-write("\nPour water from 3g jug to 4g jug."),jug(2,0).  jug(2,0):-write("\nGoal State.").    jug(X,Y):-X>4,not(Y>3),write("\n4g jug overflowed."),not(jug(2,0)).  jug(X,Y):-notX>4,(Y>3),write("\n3g jug overflowed."),not(jug(2,0)).  jug(X,Y):-X>4,(Y>3),write("\nBoth jug overflowed."),not(jug(2,0)).    jug(0,0):-write("\nFill 4g jug."),jug(4,0).  jug(4,0):-write("\nPour water from 4g jug to 3g jug ."),jug(1,3).  jug(1,3):-write("\nEmpty 4g jug."),jug(0,3).  jug(0,3):-write("\nPour water from 3g jug to 4g jug until 3g is full."),jug(3,0).  jug(3,0):-write("\nFill 3g jug."),jug(3,3).  jug(3,3):-write("\nPour water from 3g jug to 4g jug until 4g is full."),jug(4,2).  jug(4,2):-write("\nEmpty 4g jug."),jug(0,2).  jug(0,2):-write("\nPour water from 3g jug to 4g until 3g id Empty jug."),jug(2,0).  jug(2,0):-write("\nGoal State.").  **Output:** | | | |
| **2. Design the simulation of tic – tac – toe game using min-max algorithm.** | | | |
| **Code in Prolog:**  solve(Node,Solution):-depthfirst([],Node,Solution).  depthfirst(Path,Node,[Node|Path]):- goal(Node).  depthfirst(Path,Node,Sol):-  s(Node,Nodel),  \+member(Nodel,Path),  depthfirst([Node|Path],Nodel,Sol).  s(a,b).  s(a,c).  s(b,d).  s(b,e).  s(c,f).  s(d,h).  s(e,i).  s(e,j).  goal(j).  goal(f).  **Output in Prolog:** | | | |
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