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BE COMPS.

Experiment 3.

○ **Aim :-** Write a program to Implement Wumpus World Problem

○ **Theory :-**

The Wumpus world is a cave consisting of rooms connected by passage ways, lurking somewhere in the caves consist a terrible wumpus, a beast that eats anyone who enters the room. The wumpus can be shot by an agent, but the agent has only one arrow. Some room contains bottomless pit. That will trap anyone who wander into these rooms, The only mitigating feature of this bleak environment is the possibility of finding a heap of gold. Although the wumpus world is rather tame by modern computer game standards.

○ **PEAS description :-**

— **Performance Measure :** +1000 for climbing out of the cave with gold -1000 for falling in pit or being eaten by wumpus. -1 for each action taken -10 for using arrows. The game ends either when the agent dies or when agent climbs out of cave.

— **Environment :-** A 4×4 grid of rooms. The agent always starts in the square labelled [1,i] facing to the right. The locations of the gold & the wumpus are chosen randomly, with a uniform distribution, from the squares other than the start squares. In addition, each square other than the start can be a pit with probability 0.2.

{{{ stench }}}		Breeze	Pit
(ghost)	Breeze [gold] {stench}	Pit	Breeze
{{{ stench }}}		Breeze	
Start	Breeze	Pit	Breeze

- Actuators :- The agent can move forward, turn left (90°), right (90°). If dies if it enters the wumpus room or by entering the square with pits. If the agent tries to move forward onto a wall it bumps & does not move.

Action Grab→ Pick gold if same square as agent
Action Shoot → The arrow straight in line where the agent is facing
     Agent has only 1 arrow
Action Climb → Used to climb out of the cave.

- Sensors :-
     Agent has 5 sensors
  - If agent is in the adjacent square of wumpus it will percieve stench
  - If agent is in the adjacent square of pits it will percieve breeze
  - If agent is in the square of gold, the agent will percieve glitter
  - If agent walks into a wall, it will percieve bump.
  - When wumpus dies it emits a scream that can be percieved throughout cave.

     Percept will be given as 5 symbols
  eg:- Consider only stench an breeze ; the agent program will get
         [Stench , Breeze, None, None, None]

- Conclusion:-
     Thus we have understood & successfully implemented wumpus world problem while meeting all criterias.