UNIT-1

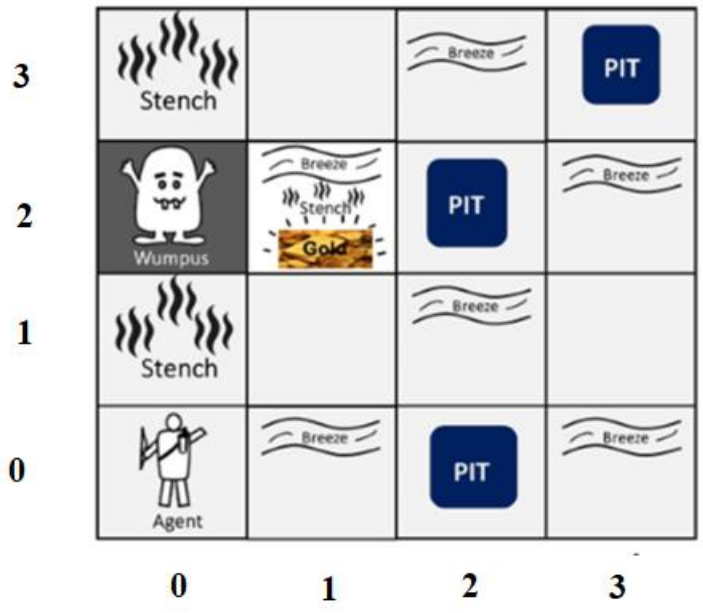
AIM: To Implement WUMPUS World using Python.

Description :

The Wumpus world is a simple world example to illustrate the worth of a knowledge-based agent and to represent knowledge representation. It was inspired by a video game **Hunt the Wumpus** by Gregory Yob in 1973.

The Wumpus world is a cave which has 4/4 rooms connected with passageways. So there are total 16 rooms which are connected with each other. We have a knowledge-based agent who will go forward in this world. The cave has a room with a beast which is called Wumpus, who eats anyone who enters the room. In the Wumpus world, there are some Pits rooms which are bottomless, and if agent falls in Pits, then he will be stuck there forever. The exciting thing with this cave is that in one room there is a possibility of finding a heap of gold. So the agent goal is to find the gold and climb out the cave without fallen into Pits or eaten by Wumpus. The agent will get a reward if he comes out with gold, and he will get a penalty (fails) if eaten by Wumpus or falls in the pit.

Following is a sample diagram for representing the Wumpus world. It is showing some rooms with Pits, one room with Wumpus and one agent at (0, 0) square location of the world.



There are also some components which can help the agent to navigate the cave. These components are given as follows:

a. The rooms adjacent to the Wumpus room are smelly, so that it would have some stench.
b. The room adjacent to PITs has a breeze, so if the agent reaches near to PIT, then he will perceive the breeze.
c. There will be glitter in the room if and only if the room has gold.
d. The Wumpus can be killed by the agent if the agent is facing to it, and Wumpus will emit a horrible scream which can be heard anywhere in the cave. (optional)

Environment:

- A 4*4 grid of rooms.
- The agent initially in room square [0, 0], facing toward the right.
- Location of Wumpus and gold are chosen randomly except the first square [0,0].
- Each square of the cave can be a pit with probability 0.2 except the first square.
- Agent can Move
    - Left turn,
    - Right turn
    - Move forward
    - Grab

  Note: Diagonal movement is not allowed.

Scenario Considered:

0	5	7	5
9	0	5	0
-1	6	7	5
9	0	5	7

9 = Stench

7 = Pit

6 = Gold

5 = Breeze

-1 = Wumpus

Result: Example Scenario-1

```
initially agent is at 0,0

you can go at   1       0
you can go at   0       1
Enter input for row => 1
Enter input for column => 2
Not valid

you can go at   1       0
you can go at   0       1

Enter input for row => 0
Enter input for column => 1

Now the agent is at 0,1
You feel breeze

you can go at   0       2
you can go at   0       0
you can go at   1       1

Enter input for row => 0
Enter input for column => 0

Now the agent is at 0,0

you can go at   1       0
you can go at   0       1
```

```
Enter input for row => 1
Enter input for column => 0

Now the agent is at 1,0
You came across a stench

you can go at   2       0
you can go at   1       1

Enter input for row => 1
Enter input for column => 1

Now the agent is at 1,1

you can go at   1       2
you can go at   1       0
you can go at   2       1

Enter input for row => 2
Enter input for column => 1

Now the agent is at 2,1
You found gold

You have unlocked next level move back to your initial position


you can go at   1       1
you can go at   2       0
you can go at   2       2

Enter input for row => 1
Enter input for column => 1

Now the agent is at 1,1

you can go at   0       1
you can go at   1       0
you can go at   1       2

Enter input for row => 1
Enter input for column => 0

Now the agent is at 1,0
You came across a stench

you can go at   0       0
you can go at   1       1

Enter input for row => 0
Enter input for column => 0

Hurray You won!!!!! Three cheers.
```