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WUMPUS WORLD

Code:

```
def learnagent(world,i,j):
            '''Function for an agent to know what poisitin contains which
environment objects'''
            if (world[i][j]==9):

                  agi,agj=i,j
                  print("\nNow the agent is at "+str(agi)+","+str(agj))
                  print("You came across a stench")
                  return agi,agj
            elif (world[i][j]==8):
                  agi,agj=i,j
                  print("\nNow the agent is at "+str(agi)+","+str(agj))
                  print("You came across a glitter")
                  return agi,agj
            elif (world[i][j]==7):
                  agi,agj=i,j
                  print("\nNow the agent is at "+str(agi)+","+str(agj))
                  print("You came across a pit")
                  return -5,-5
            elif (world[i][j]==6):
                  agi,agj=i,j
                  print("\nNow the agent is at "+str(agi)+","+str(agj))
                  print("You found gold")
                  return -4,-4
            elif (world[i][j]==5):
                  agi,agj=i,j
                  print("\nNow the agent is at "+str(agi)+","+str(agj))
                  print("You feel breeze")
                  return agi,agj
            elif (world[i][j]==-1):
                  agi,agj=i,j
                  print("\nNow the agent is at "+str(agi)+","+str(agj))
                  print("You met wumpus")
                  return -5,-5
            else:  #if world environment was empty
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                agi,agj=i,j
                print("\nNow the agent is at "+str(agi)+","+str(agj))
                return agi,agj


def checkinp(agi,agj):
    '''Function for checking input going in forward direction to get gold'''
    if(agi==0 and agj==0):
        print("\nyou can go at     "+str(agi+1)+"      "+str(agj))
    #can move upward
        print("you can go at       "+str(agi)+" "+str(agj+1))
    #can move right
        agvi=int(input("\nEnter input for row => "))
        agvj=int(input("Enter input for column => "))
        if(agvi==agi+1 and agvj==agj or agvi==agi and agvj==agj+1):
            return agvi,agvj
        else:
            return -5
    elif(agi==3 and agj==0):
        print("\nyou can go at     "+str(agi-1)+"      "+str(agj))
    #can go left
        print("you can go at       "+str(agi)+" "+str(agj+1))
    #can go right
        agvi=int(input("\nEnter input for row => "))
        agvj=int(input("Enter input for column => "))
        if(agvi==agi-1 and agvj==agj or agvi==agi and agvj==agj+1):
            return agvi,agvj
        else:
            return -5
    elif(agi==3 and agj==3):
        print("\nyou can go at     "+str(agi-1)+"      "+str(agj))
    #can go down
        print("you can go at       "+str(agi)+" "+str(agj-1))
    #can go left
        agvi=int(input("\nEnter input for row => "))
        agvj=int(input("Enter input for column => "))
        if(agvi==agi-1 and agvj==agj or agvi==agi and agvj==agj-1):
            return agvi,agvj
        else:
            return -5
    elif(agi==0 and agj==3):
```

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            print("\nyou can go at     "+str(agi+1)+"      "+str(agj))
      #can go upward
            print("you can go at       "+str(agi)+" "+str(agj-1))
      #can go left
            agvi=int(input("\nEnter input for row => "))
            agvj=int(input("Enter input for column => "))
            if(agvi==agi+1 and agvj==agj or agvi==agi and agvj==agj-1):
                  return agvi,agvj
            else:
                  return -5,-5
      elif(agi==1 and agj==0 or agi==2 and agj==0 or agi==3 and agj==0):
            print("\nyou can go at     "+str(agi+1)+"      "+str(agj))
      #can go upward
            print("you can go at       "+str(agi)+" "+str(agj+1))
      #can move right
            agvi=int(input("\nEnter input for row => "))
            agvj=int(input("Enter input for column => "))
            if(agvi==agi+1 and agvj==agj or agvi==agi and agvj==agj+1):
                  return agvi,agvj
            else:
                  return -5,-5
      elif(agi==0 and agj==3 or agi==1 and agj==3 or agi==2 and agj==3 or agi==3
and agj==3):
            print("you can go at       "+str(agi+1)+"      "+str(agj))
      #can go upward
            print("you can go at       "+str(agi)+" "+str(agj-1))
      #can go left
            agvi=int(input("Enter input for row => "))
            agvj=int(input("Enter input for column => "))
            if(agvi==agi+1 and agvj==agj or agvi==agi and agvj==agj-1):
                  return agvi,agvj
            else:
                  return -5,-5
      elif(agi==3 and agj==1 or agi==3 and agj==2 or agi==3 and agj==3):
            print("\nyou can go at     "+str(agi)+" "+str(agj+1))       #can go
right
            print("you can go at       "+str(agi)+" "+str(agj-1))       #can go
left
            print("you can go at       "+str(agi-1)+"      "+str(agj))
      #can move downward
            agvi=int(input("\nEnter input for row => "))
            agvj=int(input("Enter input for column => "))
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            if(agvi==agi and agvj==agj+1 or agvi==agi and agvj==agj-1 or
agvi==agi-1 and agvj==agj):
                  return agvi,agvj
            else:
                  return -5,-5
      else:
            print("\nyou can go at     "+str(agi)+" "+str(agj+1))       #can go
right
            print("you can go at       "+str(agi)+" "+str(agj-1))       #can go
left
            print("you can go at       "+str(agi+1)+"      "+str(agj))
      #can move upward
            agvi=int(input("\nEnter input for row => "))
            agvj=int(input("Enter input for column => "))
            if(agvi==agi and agvj==agj+1 or agvi==agi and agvj==agj-1 or
agvi==agi+1 and agvj==agj):
                  return agvi,agvj
            else:
                  return -5,-5


def checkinpreverse(agi,agj):
      '''Function for checking input going in reverse direction to get back to
original position'''
      if(agi==0 and agj==3):
            print("you can go at       "+str(agi)+" "+str(agj-1))       #can go
left
            agvi=int(input("\nEnter input for row => "))
            agvj=int(input("Enter input for column => "))
            if(agvi==agi and agvj==agj-1):
                  return agvi,agvj
            else:
                  return -5,-5
      elif(agi==0 and agj==2 or agi==0 and agj==1):
            print("you can go at       "+str(agi)+" "+str(agj+1))       #can go
right
            print("you can go at       "+str(agi)+" "+str(agj-1))       #can go
left
            agvi=int(input("\nEnter input for row => "))
            agvj=int(input("Enter input for column => "))
            if(agvi==agi and agvj==agj-1 or agvi==agi and agvj==agj+1 ):
                  return agvi,agvj
            else:
```

```
                return -5,-5
        elif(agi==1 and agj==0 or agi==2 and agj==0):
                print("\nyou can go at     "+str(agi-1)+"      "+str(agj))
        #can go downward
                print("you can go at       "+str(agi)+" "+str(agj+1))       #can move
right
                agvi=int(input("\nEnter input for row => "))
                agvj=int(input("Enter input for column => "))
                if(agvi==agi-1 and agvj==agj or agvi==agi and agvj==agj+1):
                        return agvi,agvj
                else:
                        return -5,-5
        elif(agi==1 and agj==3 or agi==2 and agj==3):
                print("you can go at       "+str(agi-1)+"      "+str(agj))
        #can go downward
                print("you can go at       "+str(agi)+" "+str(agj-1))       #can go
left
                agvi=int(input("Enter input for row => "))
                agvj=int(input("Enter input for column => "))
                if(agvi==agi-1 and agvj==agj or agvi==agi and agvj==agj-1):
                        return agvi,agvj
                else:
                        return -5,-5
        else:
                print("\nyou can go at     "+str(agi-1)+"      "+str(agj))
        #can go downward
                print("you can go at       "+str(agi)+" "+str(agj-1))       #can go
left
                print("you can go at       "+str(agi)+" "+str(agj+1))       #can go
right
                agvi=int(input("\nEnter input for row => "))
                agvj=int(input("Enter input for column => "))
                if(agvi==agi-1 and agvj==agj or agvi==agi and agvj==agj-1 or agvi==agi
and agvj==agj+1):
                        return agvi,agvj
                else:
                        return -5,-5


world=[       [0,5,7,5],
              [9,0,8,0],
              [-1,6,7,8],
              [9,0,8,7]     ]                   #declaration of a world
```

```
agi,agj=0,0                                        #initial agent position
print("\n\n\ninitially agent is at "+str(agi)+","+str(agj))
print("\nyou can go at     "+str(agi+1)+"      "+str(agj))
print("you can go at       "+str(agi)+"  "+str(agj+1))


agvi=int(input("Enter input for row => "))
agvj=int(input("Enter input for column => "))         #taking row and column values
if(agvi==1 and agvj==0 or agvi==0 and agvj==1):
       agi,agj=learnagent(world,agvi,agvj)            #if input valid calling learn
agent function
else:
       print("Not valid")


while(agi>=0):
       agvi,agvj=checkinp(agi,agj)
       if(agvi!=-5 and agvj!=-5):
              agi,agj=learnagent(world,agvi,agvj)
       else:
              print("\nNot valid")


if(agi==-5):
       print("\nGame over Sorry try next time!!!")
else:
       print("\nYou have unlocked next level move back to your initial position")
       #acquired gold


       agi,agj=2,1
       #implementation of reverse logic


       while(agi>=0):
              agvi,agvj=checkinpreverse(agi,agj)
              if(agvi==0 and agvj==0):
                     agi,agj=-4,-4
              elif(agvi!=-5 and agvj!=-5):
                     agi,agj=learnagent(world,agvi,agvj)
              else:
                     print("\nNot valid")


       if(agi==-5):
```

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            print("\nYou were really close but unfortunately you failed!!! Try
next time")
      else:
            print("\nHurray You won!!!!! Three cheers.")
```

Output:

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== RESTART: C:/Users/Shivam/AppData/Local/Programs/Python/Python38-32/Wumpus.py =
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 => 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 => 0
Enter input for column => 0

Not valid

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

Now the agent is at 1,2
You came across a glitter

you can go at       1      3
you can go at       1      1
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       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 => 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

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

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