**Roll No: 5117060**

**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

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):

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 => "))

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):

print("\nYou were really close but unfortunately you failed!!! Try next time")

else:

print("\nHurray You won!!!!! Three cheers.")

**Output:**

== 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

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.

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