import random

class WumpusWorld:

def \_\_init\_\_(self, size=4, num\_pits=3):

self.size = size

self.agent\_location = (0, 0)

self.wumpus\_location = self.generate\_random\_location()

self.pit\_locations = [self.generate\_random\_location() for \_ in range(num\_pits)]

self.gold\_location = self.generate\_random\_location()

self.has\_gold = False

self.has\_arrow = True

self.is\_alive = True

def generate\_random\_location(self):

x = random.randint(0, self.size - 1)

y = random.randint(0, self.size - 1)

return (x, y)

def move(self, direction):

if direction == "left" and self.agent\_location[0] > 0:

self.agent\_location = (self.agent\_location[0] - 1, self.agent\_location[1])

elif direction == "right" and self.agent\_location[0] < self.size - 1:

self.agent\_location = (self.agent\_location[0] + 1, self.agent\_location[1])

elif direction == "up" and self.agent\_location[1] < self.size - 1:

self.agent\_location = (self.agent\_location[0], self.agent\_location[1] + 1)

elif direction == "down" and self.agent\_location[1] > 0:

self.agent\_location = (self.agent\_location[0], self.agent\_location[1] - 1)

self.check\_environment()

def check\_environment(self):

if self.agent\_location == self.wumpus\_location:

self.is\_alive = False

print("You were eaten by the wumpus!")

elif self.agent\_location in self.pit\_locations:

self.is\_alive = False

print("You fell into a pit!")

elif self.agent\_location == self.gold\_location:

self.has\_gold = True

print("You found the gold!")

def shoot(self):

if self.has\_arrow:

self.has\_arrow = False

if self.agent\_location == self.wumpus\_location:

print("You shot and killed the wumpus!")

else:

print("You missed the wumpus!")

def display(self):

for y in range(self.size - 1, -1, -1):

for x in range(self.size):

if (x, y) == self.agent\_location:

print("A", end="\t")

elif (x, y) == self.gold\_location:

print("G", end="\t")

elif (x, y) == self.wumpus\_location:

print("W", end="\t")

elif (x, y) in self.pit\_locations:

print("P", end="\t")

else:

print("-", end="\t")

print()

# Example usage:

if \_\_name\_\_ == "\_\_main\_\_":

game = WumpusWorld()

while game.is\_alive and not game.has\_gold:

game.display()

action = input("Enter your action (left, right, up, down, shoot): ")

if action in ["left", "right", "up", "down"]:

game.move(action)

elif action == "shoot":

game.shoot()

if game.has\_gold:

print("You won the game!")

else:

print("Game over!")