

jlr dmip4o

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## 1 Assignment 2: Reinforcement Learning

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Please submit a PDF containing all outputs to gradescope by March 26th at 11:59 PM.

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In this assignment you will learn how to train a simple environment using Q-learning as taught in class.

First you will use a popular python package called gymnasium to create a simple Grid World environment.

After you have a working environment you will implement Q-Learning and use it to solve your implementation of grid world.

Finally, you will show that you have implemented everything correctly by showing that you can use your Q-Learning algorithm to train an environment already included in the gymnasium package.

## 2 Part 1: Implementing a Gymnasium Environment

We will start by implementing a simple gymnasium environment. You can find documentation for the whole package here <https://gymnasium.farama.org/index.html#>.

First let's install the necessary packages

```
[259]: # Install the necessary packages
!pip install gymnasium pyvirtualdisplay > /dev/null 2>&1
!pip install pygame
```

Requirement already satisfied: pygame in /usr/local/lib/python3.10/dist-packages (2.5.2)

Next we'll import the packages you'll need

```
[260]: import gymnasium as gym
from gymnasium import spaces
```

```
import numpy as np
import pygame
import random
```

First we will initialize our new class. This class will need to take in 3 arguments. The width and height of the grid as well as the description for our grid world environment.

Your environment must be able to handle any given width and height as well as any given description. The description will come in the form of a string that specify the block order from left to right. There are three possible types of blocks.

1. “I” specifies that a block should be ice
2. “H” specifies that a block should be a hole
3. “G” specifies that a block should be the goal.

For example an environment with width 3, height 3 and a description “IIHHIIIG” looks like this

Every gymnasium class must define an observation and an action space of type “space.” You can find a description of spaces here <https://gymnasium.farama.org/api/spaces/>. In addition to the space you will probably want to include other information in the init function such as the location of the agent and the description of the grid. These are style choices please represent these however you would like.

```
[261]: class FrozenLake(gym.Env):
        def __init__(self, grid_width, grid_height, grid_description):

            self.width = grid_width
            self.height = grid_height

            self.grid_description = grid_description
            self.number_of_holes = sum(1 for char in grid_description if char == 'H')
            self.num_holes_after = 0
            grid_map = {'A': 1, 'I': 0, 'G': 3, 'H': 2}
            self.state = np.array([grid_map[char] for char in grid_description]).
            ↪ reshape(grid_height, grid_width)
            ice_positions = np.argwhere(self.state == 0)
            self.agent_position = tuple((0,0))
            self.state[self.agent_position] = 1
            self.observation_space = spaces.Box(low=0, high=3, shape=(grid_height,
            ↪ grid_width), dtype=np.uint8)
            self.action_space = spaces.Discrete(4)
```

The next method you will define for your class is the `__get_obs` method. This should return the observation for your environment. Think of how we defined an observation in class and return that here.

```
[262]: class FrozenLake(FrozenLake):
        def _get_obs(self):
            return self.state
```

Next, please define a reset function. This should return your environment to its original state. We have returned the correct output for you. All you need to do is reset any necessary variables.

```
[263]: class FrozenLake(FrozenLake):
        def reset(self, seed=None, options=None):
            super().reset(seed=seed)
            self.cumulative_reward = 0
            grid_map = {'A': 1, 'I': 0, 'G': 3, 'H': 2}
            self.state = np.array([grid_map[char] for char in self.grid_description]).
            ↪reshape(self.height, self.width)
            self.agent_position = tuple((0,0))
            self.state[self.agent_position] = 1

            observation = self._get_obs()
            info = None

            return observation, info

        #####
        # Define the environment parameters
        grid_width = 3
        grid_height = 3
        grid_description = "IIHHIIIG"

        # Create an instance of the FrozenLake environment
        frozen_lake_env = FrozenLake(grid_width, grid_height, grid_description)

        # Call the reset method to reset the environment
        observation, info = frozen_lake_env.reset()

        # Now observation contains the initial observation of the environment
        # and info contains any additional information you might need
        print("Initial observation:\n", type(observation))
        print("Info:", info)
```

```
Initial observation:
<class 'numpy.ndarray'>
Info: None
```

Now write the method that will return the reward for a given observation.

Hint: In addition to thinking about rewards in the grid you will need to account for rewards when the agent “escapes” the grid.

```
[264]: class FrozenLake(FrozenLake):
    def compute_reward(self, observation):
        self.num_holes_after = np.count_nonzero(self.state == 2)
        if self.num_holes_after < self.number_of_holes and any(1 in row for row in
↪observation):
            return -1
        elif not any(3 in row for row in observation) and any(1 in row for row in
↪observation):
            return 10
        elif not any(1 in row for row in observation):
            return -10
        elif any(3 in row for row in observation) and any(2 in row for row in
↪observation) and any(0 in row for row in observation):
            return -0.2
```

Given an action you will want to modify the current state of your environment to account for the action. Additionally, given the observation and reward determine if the episode is over or not.

Hint: you will need to determine if the agent is out of the grid(either out of bounds or in a hole) or at the goal.

```
[265]: class FrozenLake(FrozenLake):
    def step(self, action):
        old_state = np.copy(self.state)

        current_position = np.argwhere(self.state == 1)[0]

        movements = {
            0: (-1,0),
            1: (1,0),
            2: (0,1),
            3: (0,-1)
        }
        movement = movements[action]

        new_position = tuple(current_position + movement)

        if 0 <= new_position[0] < self.height and 0 <= new_position[1] < self.
↪width:

            if self.state[new_position[0], new_position[1]] == 3:
                if self.num_holes_after < self.number_of_holes:
                    self.state[current_position[0], current_position[1]] = 2
                else:
```

```

        self.state[current_position[0], current_position[1]] = 0
        self.state[new_position[0], new_position[1]] = 1
        reward = self.compute_reward(self.state)
        terminated = True

    elif self.state[new_position[0], new_position[1]] == 2:
        self.num_holes_after = np.count_nonzero(self.state == 2)
        if self.num_holes_after < self.number_of_holes:
            self.state[current_position[0], current_position[1]] = 2
        else:
            self.state[current_position[0], current_position[1]] = 0
            self.state[new_position[0], new_position[1]] = 1
            reward = self.compute_reward(self.state)
            terminated = True

    else: #if newposition = I

        self.num_holes_after = np.count_nonzero(self.state == 2)
        if self.num_holes_after < self.number_of_holes:
            self.state[current_position[0], current_position[1]] = 2
        else:
            self.state[current_position[0], current_position[1]] = 0
            self.state[new_position[0], new_position[1]] = 1
            reward = self.compute_reward(self.state)
            terminated = False

    else:
        reward = self.compute_reward(self.state)
        self.state[current_position[0], current_position[1]] = 0
        terminated = True

    observation = self._get_obs()
    #TODO: Set terminated to true if the episode is completed and false
    ↪ otherwise
    return observation, old_state, reward, terminated, False, None

#####
# Define the environment parameters
grid_width = 3
grid_height = 3
grid_description = "IIHHIIIIG"

# Create an instance of the FrozenLake environment
frozen_lake_env = FrozenLake(grid_width, grid_height, grid_description)
frozen_lake_env._get_obs()

```

```
[265]: array([[1, 0, 2],
            [2, 0, 0],
            [0, 0, 3]])
```

Use pygame to render your environment (<https://www.pygame.org/docs/>). You will need to obtain the current observation as well as the description of the grid to do this. If you want to render it the same way we did you should be able to complete this function using only the `pygame.draw.rect` and `pygame.draw.circle` functions. You're welcome to make something that looks better, but it's not required.

```
[266]: class FrozenLake(FrozenLake):
    def _render_frame(self, screen, window_width, window_height):
        block_size = 50 # Size of each grid block
        agent_color = (255, 0, 0) # Color of the agent
        ice_color = (173, 216, 230) # Color of ice blocks
        hole_color = (0, 0, 0) # Color of holes
        goal_color = (0, 255, 0) # Color of the goal

        screen.fill((255, 255, 255)) # Fill the screen with white color

        # Draw each block of the grid
        for y in range(self.height):
            for x in range(self.width):
                if self.state[y][x] == 0:
                    color = ice_color
                elif self.state[y][x] == 2:
                    color = hole_color
                elif self.state[y][x] == 3:
                    color = goal_color
                else:
                    continue
                pygame.draw.rect(screen, color, (x * block_size, y * block_size,
↪block_size, block_size))

        # Draw the agent
        agent_x, agent_y = np.where(self.state == 1)
        if agent_x.size > 0 and agent_y.size > 0:
            agent_x, agent_y = agent_x[0], agent_y[0]
            if 0 <= agent_x < self.height and 0 <= agent_y < self.width:
                pygame.draw.circle(screen, agent_color, (agent_y * block_size +
↪block_size // 2, agent_x * block_size + block_size // 2), block_size // 3)

        pygame.display.flip() # Update the display

    def render(self, screen, window_width, window_height):
        return self._render_frame(screen, window_width, window_height)
```

If you have implemented everything correctly, the following code should render your environment and move the agent randomly. Make sure to include these images in your saved PDF.

```
[267]: import cv2
from IPython.display import clear_output
from google.colab.patches import cv2_imshow
import time

lake = FrozenLake(3, 3, "IIHHIIIG")
window_width = 400
window_height = 400
pygame.init()
screen = pygame.display.set_mode((window_width, window_height))

for i in range(0, 1):
    observation, info = lake.reset()
    terminated = False
    while not terminated:
        action = lake.action_space.sample()
        print(action)
        observation, old_state, reward, terminated, truncated, info = lake.
        ↪step(action)
        print(reward)
        print(terminated)
        if terminated:
            break
    lake.render(screen, window_width, window_height)

    view = pygame.surfarray.array3d(screen)
    view = view.transpose([1, 0, 2])
    img_bgr = cv2.cvtColor(view, cv2.COLOR_RGB2BGR)
    cv2_imshow(img_bgr)
    time.sleep(.5)
```

```
1
-1
True
```

### 3 Part 2: Implement Q-Learning

We will implement a simple algorithm that should be able to solve any gymnasium environment with discrete observation and action spaces.

In the init function we will pass in the environment as well as the percentage of time the policy should explore versus exploit. We will also pass in gamma and alpha as defined in the bellman equation you learned in class. obs\_space\_n and action\_space\_n should represent the dimensions of the observation and action spaces.

We have defined everything for you except the Q-Table. Please design this however you want.

```
[268]: import random

class QLearning():
    def __init__(self, env, exploration, gamma, alpha, obs_space_n,
        ↪ action_space_n):
        self.env = env
        self.exploration = exploration
        self.gamma = gamma
        self.alpha = alpha
        self.obs_space_n = obs_space_n
        self.action_space_n = action_space_n

        #TODO: Define your q table such that you can easily access the q value for
        ↪ (s,a)
        self.q_table = np.zeros((obs_space_n, action_space_n))

    *****

obs_space_n = 3
action_space_n = 4

# Create an instance of QLearning
q_learning = QLearning(env=None, exploration=None, gamma=None, alpha=None,
    ↪ obs_space_n=obs_space_n, action_space_n=action_space_n)
```

Define a method that should sample an action from the policy. Remember to balance the amount of exploring you do versus the amount of exploiting.

```
[269]: #observation is the position of the agent, states in the q table are
        ↪ coordinates on the grid, as the agent moves on the grid map the position of
        ↪ the agen twith the coordinate, preprocessing in both funcs sample and update
        ↪ mapping (preprocessing)

class QLearning(QLearning):
    def sample_action(self, observation):
        for i in range(len(observation)):
            for j in range(len(observation[i])):
                if (observation[i][j]) == 1:
                    coordinateX = i
                    coordinateY = j
                    break

        oneD_location = (coordinateX * 3) + coordinateY
        epsilon = self.exploration # Exploration rate
        if random.uniform(0, 1) < epsilon:
            # Explore: select a random action with probability epsilon
            return random.randint(0, self.action_space_n - 1)
```



```

    else:
        return np.argmax(self.q_table[oneD_location])
# *****
# lake = FrozenLake(5, 5, "IIIIHIIHHHIIIGIIIIHIIIIH")
# q_learning = QLearning(lake, .3, .99, .9, lake.width * lake.height, lake.
    ↪ action_space.n)
# a = [[1, 0, 2],
#       [2, 0, 0],
#       [0, 0, 3]]

# obs, info = lake.reset()
# print(obs)

# new_observation, old_state, reward, terminated, _ , _ = lake.step(2)
# print(new_observation, reward, terminated)
# q_learning.update_table(old_state, 2, reward, new_observation, terminated)
# print(q_learning.q_table)

```

Define a method that updates your q-table.

```

[270]: class QLearning(QLearning):
    def update_table(self, observation, action, reward, new_observation,
    ↪ terminated):
        coordinateX = 0
        coordinateY = 0
        coordinateX1 = 0
        coordinateY1 = 0

        for i in range(len(observation)):
            for j in range(len(observation[i])):
                if observation[i][j] == 1:
                    coordinateX = i
                    coordinateY = j
                    break
        oneD_location = (coordinateX * 3) + coordinateY

        for i in range(len(new_observation)):
            for j in range(len(new_observation[i])):
                if new_observation[i][j] == 1:
                    coordinateX1 = i
                    coordinateY1 = j
                    break
        oneD_location1 = (coordinateX1 * 3) + coordinateY1

        if terminated == False:

```

```

        new_q_value = (1 - self.alpha) * self.q_table[oneD_location][action] +
↪self.alpha * (reward + self.gamma * np.max(self.q_table[oneD_location1]))
    else:
        new_q_value = (1 - self.alpha) * self.q_table[oneD_location][action] +
↪self.alpha * reward

    self.q_table[oneD_location][action] = new_q_value
*****
# lake = FrozenLake(3, 3, "IIHHIIIG")
# q_learning = QLearning(lake, .3, .99, .9, lake.width * lake.height, lake.
↪action_space.n)
# a = [[0, 0, 2],
#       [2, 1, 0],
#       [0, 0, 3]]
# b = [[0, 0, 2],
#       [2, 0, 1],
#       [0, 0, 3]]
# q_learning.update_table(a, 2, -0.1, b, False)

```

Use the two classes defined below to train your policy so that it solves the environment.

```

[271]: lake = FrozenLake(5, 5, "IIHIIHHHHIIIGIIIIHHIIH")
q_learning = QLearning(lake, .4, .99, .9, lake.width * lake.height, lake.
↪action_space.n)

# TODO: Train your policy using QLearning
num_episodes = 4000
for episode in range(num_episodes):
    observation, info = lake.reset()
    terminated = False

    while not terminated:
        action = q_learning.sample_action(observation)

        new_observation, old_state, reward, terminated, _ , _ = lake.step(action)

        q_learning.update_table(old_state, action, reward, new_observation,
↪terminated)

        observation = new_observation

    print("Q-table after episode", episode)
    print(q_learning.q_table)

```

Streaming output truncated to the last 5000 lines.

```

[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]

```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3808

```

[[-0.2      -1.      7.7660839  -0.2      ]
 [-0.2      8.06701352  6.34571942  6.76709524]
 [-0.2      -1.      -1.      7.44979735]
 [ 0.      0.      0.      0.      ]
 [ 6.95418607  8.20700332 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.12325597  8.34313445 -0.2      ]
 [ 8.47667652  7.55503406  7.47069448  8.11149325]
 [-1.      7.41907761  7.95577537  7.68766745]
 [-0.07367777  7.32879402  8.04286516  7.51346167]
 [ 8.70854678  7.35845257  7.43114481  7.79919727]
 [ 7.52269034  6.63797188  6.9003399  7.61092273]
 [ 8.08886973 -0.19999934  6.46431835 -0.19993019]
 [ 7.82723394 -0.2      6.73854788  7.55055525]
 [ 7.98424032 -0.2      6.2177663  6.62702869]
 [ 7.14131971 -0.2      -0.9999999  6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

Q-table after episode 3809

```

[[-0.2      -1.      7.78431744 -0.2      ]
 [-0.2      7.92635409  6.34571942  6.76709524]
 [-0.2      -1.      -1.      7.44979735]
 [ 0.      0.      0.      0.      ]
 [ 7.64130084  8.19341911 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.12325597  8.34313445 -0.2      ]
 [ 7.96800408  7.99850581  7.47069448  8.11149325]
 [-1.      7.41907761  7.95577537  7.68766745]
 [-0.07367777  7.32879402  8.04286516  7.51346167]
 [ 8.19707613  7.52991069  7.43114481  7.79919727]
 [ 7.52269034  6.63797188  6.9003399  7.61092273]
 [ 8.08886973 -0.19999934  6.46431835 -0.19993019]
 [ 8.36203858 -0.2      6.73854788  7.55055525]
 [ 7.98424032 -0.2      6.2177663  6.62702869]

```

```

[ 7.14131971 -0.2      -0.9999999  6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3810

```

[[-0.2      -1.          7.66081323 -0.2      ]
 [-0.2      7.91163361  7.09234138  6.76709524]
 [-0.2      -1.          -1.          7.62736123]
 [ 0.          0.          0.          0.          ]
 [ 7.63458799 7.86668239 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          8.12325597  7.84012342 -0.2      ]
 [ 7.62601442 7.99850581  7.47069448  8.06488212]
 [-1.          7.41907761  7.95577537  7.68766745]
 [-0.07367777 7.32879402  8.04286516  7.51346167]
 [ 8.19707613 7.52991069  7.43114481  7.79919727]
 [ 7.52269034 6.63797188  6.9003399  7.61092273]
 [ 8.08886973 -0.19999934  6.46431835 -0.19993019]
 [ 8.36203858 -0.2      6.73854788  7.55055525]
 [ 7.98424032 -0.2      6.2177663  6.62702869]
 [ 7.14131971 -0.2      -0.9999999  6.4624257 ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3811

```

[[-0.2      -1.          7.63280024 -0.2      ]
 [-0.2      7.91163361  7.32521299  7.29980359]
 [-0.2      -1.          -1.          7.63200167]
 [ 0.          0.          0.          0.          ]
 [ 7.63458799 7.86668239 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          8.12325597  7.84012342 -0.2      ]
 [ 7.62601442 7.99850581  7.47069448  8.06488212]
 [-1.          7.41907761  7.95577537  7.68766745]
 [-0.07367777 7.32879402  8.04286516  7.51346167]
 [ 8.19707613 7.52991069  7.43114481  7.79919727]

```

```

[ 7.52269034  6.63797188  6.9003399  7.61092273]
[ 8.08886973 -0.19999934  6.46431835 -0.19993019]
[ 8.36203858 -0.2          6.73854788  7.55055525]
[ 7.98424032 -0.2          6.2177663  6.62702869]
[ 7.14131971 -0.2          -0.9999999  6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3812

```

[[-0.2        -1.          7.63254557 -0.2          ]
 [-0.2         7.62037737  7.32521299  7.29980359]
 [-0.2        -1.          -1.          7.63200167]
 [ 0.          0.          0.          0.          ]
 [ 7.63458799  7.7259165  -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          8.12325597  7.73068102 -0.2          ]
 [ 7.52569953  7.53195086  7.47069448  7.86430928]
 [-1.          7.41907761  7.95577537  7.68766745]
 [ 7.05045329  7.76006233  7.92788135  7.51346167]
 [ 7.69949747  7.52991069  7.43114481  7.66035354]
 [ 7.52269034  6.63797188  6.9003399  7.61092273]
 [ 7.69262925 -0.19999934  6.46431835 -0.19993019]
 [ 8.36203858 -0.2          6.73854788  7.55055525]
 [ 7.98424032 -0.2          6.2177663  6.62702869]
 [ 7.14131971 -0.2          -0.9999999  6.4624257 ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3813

```

[[-0.2        -1.          7.3730108  -0.2          ]
 [-0.2         7.46582934  7.32521299  7.29980359]
 [-0.2        -1.          -1.          7.63200167]
 [ 0.          0.          0.          0.          ]
 [ 7.63458799  7.7259165  -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          8.12325597  7.73068102 -0.2          ]

```

```

[ 7.52569953  7.53195086  7.47069448  7.86430928]
[-1.          7.41907761  7.95577537  7.68766745]
[ 7.05045329  7.76006233  7.92788135  7.51346167]
[ 7.69949747  7.52991069  7.43114481  7.66035354]
[ 7.52269034  6.63797188  6.9003399   7.61092273]
[ 7.69262925 -0.19999934  6.46431835 -0.19993019]
[ 8.36203858 -0.2         6.73854788  7.55055525]
[ 7.98424032 -0.2         6.2177663   6.62702869]
[ 7.14131971 -0.2        -0.9999999   6.4624257  ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3814

```

[[-0.2        -1.          7.20935502 -0.2         ]
 [-0.2        7.45037453  7.32521299  7.29980359]
 [-0.2        -1.          -1.          7.63200167]
 [ 0.          0.          0.          0.          ]
 [ 7.63458799  7.59969122 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          7.48459777  7.73068102 -0.2         ]
 [ 7.52569953  7.53195086  7.47069448  7.49246199]
 [-1.          7.41907761  7.95577537  7.68766745]
 [ 7.41308212  7.4501389   7.39267904  0.57134617]
 [ 7.57917827  7.52991069  7.43114481  7.50025089]
 [ 7.52269034  6.63797188  6.9003399   7.61092273]
 [ 7.28375728 -0.19999934  6.46431835 -0.19993019]
 [ 8.36203858 -0.2         6.73854788  7.55055525]
 [ 7.98424032 -0.2         6.2177663   6.62702869]
 [ 7.14131971 -0.2        -0.9999999   6.4624257  ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3815

```

[[-0.2        -1.          7.20935502 -0.2         ]
 [-0.2        7.45037453  7.32521299  7.29980359]
 [-0.2        -1.          -1.          7.63200167]

```

```

[ 0.      0.      0.      0.      ]
[ 7.63458799 7.59969122 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      7.48459777 7.73068102 -0.2      ]
[ 7.52569953 7.53195086 7.47069448 7.49246199]
[-1.      7.41907761 7.95577537 7.68766745]
[ 7.41308212 7.4501389 7.39267904 0.57134617]
[ 7.57917827 7.52991069 7.43114481 7.50025089]
[ 7.52269034 6.63797188 6.9003399 7.61092273]
[ 7.28375728 -0.19999934 6.46431835 -0.19993019]
[ 8.36203858 -0.2      6.73854788 7.55055525]
[ 7.98424032 -0.2      6.2177663 6.62702869]
[ 7.14131971 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3816

```

[[-0.2      -1.      7.17921921 -0.2      ]
[-0.2      7.32807041 7.32521299 7.29980359]
[-0.2      -1.      -1.      7.63200167]
[ 0.      0.      0.      0.      ]
[ 7.14786152 7.29093734 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      7.48459777 7.73068102 -0.2      ]
[ 7.06879512 7.32624293 7.47069448 7.49246199]
[-1.      7.41907761 7.95577537 7.68766745]
[ 7.41308212 7.4501389 7.39267904 0.57134617]
[ 7.28331611 7.52991069 7.43114481 7.50025089]
[ 7.52269034 6.63797188 6.9003399 7.61092273]
[ 7.28375728 -0.19999934 6.46431835 -0.19993019]
[ 8.36203858 -0.2      6.73854788 7.55055525]
[ 7.98424032 -0.2      6.2177663 6.62702869]
[ 7.14131971 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3817

```
[[-0.2      -1.      7.17921921 -0.2      ]
 [-0.2      7.32807041 7.32521299 7.29980359]
 [-0.2      -1.      -1.      7.63200167]
 [ 0.      0.      0.      0.      ]
 [ 7.14786152 7.29093734 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.48459777 7.73068102 -0.2      ]
 [ 7.06879512 7.32624293 7.47069448 7.49246199]
 [-1.      7.41907761 7.95577537 7.68766745]
 [ 7.41308212 7.4501389 7.39267904 0.57134617]
 [ 7.28331611 7.52991069 7.43114481 7.50025089]
 [ 7.52269034 6.63797188 6.9003399 7.61092273]
 [ 7.28375728 -0.19999934 6.46431835 -0.19993019]
 [ 8.36203858 -0.2      6.73854788 7.55055525]
 [ 7.98424032 -0.2      6.2177663 6.62702869]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]
```

Q-table after episode 3818

```
[[-0.2      -1.      7.17921921 -0.2      ]
 [-0.2      7.32807041 7.32521299 7.29980359]
 [-0.2      -1.      -1.      7.63200167]
 [ 0.      0.      0.      0.      ]
 [ 7.14786152 7.29093734 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.48459777 7.73068102 -0.2      ]
 [ 7.06879512 7.32624293 7.47069448 7.49246199]
 [-1.      7.41907761 7.95577537 7.68766745]
 [ 7.41308212 7.4501389 7.39267904 0.57134617]
 [ 7.28331611 7.52991069 7.43114481 7.50025089]
 [ 7.52269034 6.63797188 6.9003399 7.61092273]
 [ 7.28375728 -0.19999934 6.46431835 -0.19993019]
 [ 8.36203858 -0.2      6.73854788 7.55055525]
 [ 7.98424032 -0.2      6.2177663 6.62702869]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]
```



```
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
```

Q-table after episode 3819

```
[[-0.2      -1.      7.17921921 -0.2      ]
[-0.2      7.32807041 7.32521299 7.29980359]
[-0.2      -1.      -1.      7.63200167]
[ 0.      0.      0.      0.      ]
[ 7.14786152 7.29093734 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      7.48459777 7.73068102 -0.2      ]
[ 7.06879512 7.32624293 7.47069448 7.49246199]
[-1.      7.41907761 7.95577537 7.68766745]
[ 7.41308212 7.4501389 7.39267904 0.57134617]
[ 7.28331611 7.52991069 7.43114481 7.50025089]
[ 7.52269034 6.63797188 6.9003399 7.61092273]
[ 7.28375728 -0.19999934 6.46431835 -0.19993019]
[ 8.36203858 -0.2      6.73854788 7.55055525]
[ 7.98424032 -0.2      6.2177663 6.62702869]
[ 7.14131971 -0.2      -0.99999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
```

Q-table after episode 3820

```
[[-0.2      -1.      7.06723266 -0.2      ]
[-0.2      7.04903221 7.32521299 7.29980359]
[-0.2      -1.      -1.      7.63200167]
[ 0.      0.      0.      0.      ]
[ 7.14786152 7.22487736 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      7.48459777 7.73068102 -0.2      ]
[ 7.06879512 7.32624293 7.6556653 7.49246199]
[-1.      7.41907761 7.25365129 7.68766745]
[-0.15869179 7.4501389 7.39267904 0.57134617]
[ 7.28331611 7.52991069 7.43114481 7.50025089]
[ 7.52269034 6.63797188 6.9003399 7.61092273]
[ 7.28375728 -0.19999934 6.46431835 -0.19993019]
[ 8.36203858 -0.2      6.73854788 7.55055525]
[ 7.98424032 -0.2      6.2177663 6.62702869]
[ 7.14131971 -0.2      -0.99999999 6.4624257 ]
[ 0.      0.      0.      0.      ]]
```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3821

```

[[-0.2      -1.      6.8060365  -0.2      ]
 [-0.2      6.96226895  6.91201189  6.8346382 ]
 [-0.2      -1.      -1.      7.03756477]
 [ 0.      0.      0.      0.      ]
 [ 7.14786152  7.36368552 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.48459777  7.23750724 -0.2      ]
 [ 7.08792331  7.32624293  7.43527823  7.45728299]
 [-1.      7.41907761  7.25365129  7.26455038]
 [-0.15869179  7.4501389  7.39267904  0.57134617]
 [ 7.28331611  7.52991069  7.43114481  7.50025089]
 [ 7.52269034  6.63797188  6.9003399  7.61092273]
 [ 7.28375728 -0.19999934  6.46431835 -0.19993019]
 [ 8.36203858 -0.2      6.73854788  7.55055525]
 [ 7.98424032 -0.2      6.2177663  6.62702869]
 [ 7.14131971 -0.2      -0.9999999  6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

Q-table after episode 3822

```

[[-0.2      -1.      6.70398529 -0.2      ]
 [-0.2      7.07727069  6.91201189  6.8346382 ]
 [-0.2      -1.      -1.      7.03756477]
 [ 0.      0.      0.      0.      ]
 [ 7.14786152  7.20080769 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.48459777  7.23750724 -0.2      ]
 [ 7.08792331  7.26177472  7.43527823  7.45728299]
 [-1.      7.41907761  7.25365129  7.26455038]
 [-0.15869179  7.4501389  7.39267904  0.57134617]
 [ 7.28331611  8.02356744  7.43114481  7.50025089]
 [ 7.52269034  6.63797188  6.9003399  7.61092273]
 [ 7.28375728 -0.19999934  6.46431835 -0.19993019]

```

[ 8.36203858	-0.2	6.73854788	7.55055525]
[ 7.98424032	-0.2	6.2177663	6.62702869]
[ 7.14131971	-0.2	-0.9999999	6.4624257 ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]]

Q-table after episode 3823

[[-0.2	-1.	6.79624672	-0.2	]
[-0.2	7.07727069	6.91201189	6.55891965]	
[-0.2	-1.	-1.	7.03756477]	
[ 0.	0.	0.	0. ]	
[ 7.14786152	7.20080769	-1.	-1. ]	
[ 0.	0.	0.	0. ]	
[-1.	7.48459777	7.23750724	-0.2 ]	
[ 7.08792331	7.26177472	7.43527823	7.45728299]	
[-1.	7.41907761	7.25365129	7.26455038]	
[-0.15869179	7.4501389	7.39267904	0.57134617]	
[ 7.28331611	8.02356744	7.43114481	7.50025089]	
[ 7.52269034	6.63797188	6.9003399	7.61092273]	
[ 7.28375728	-0.19999934	6.46431835	-0.19993019]	
[ 8.36203858	-0.2	6.73854788	7.55055525]	
[ 7.98424032	-0.2	6.2177663	6.62702869]	
[ 7.14131971	-0.2	-0.9999999	6.4624257 ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]]	

Q-table after episode 3824

[[-0.2	-1.	6.79624672	-0.2	]
[-0.2	7.07727069	6.91201189	6.55891965]	
[-0.2	-1.	-1.	7.03756477]	
[ 0.	0.	0.	0. ]	
[ 7.14786152	7.20080769	-1.	-1. ]	
[ 0.	0.	0.	0. ]	
[-1.	7.48459777	7.23750724	-0.2 ]	
[ 7.08792331	7.26177472	7.43527823	7.45728299]	
[-1.	7.41907761	7.25365129	7.26455038]	

```

[-0.15869179  7.4501389  7.39267904  0.57134617]
[ 7.28331611  8.02356744  7.43114481  7.50025089]
[ 7.52269034  6.63797188  6.9003399  7.61092273]
[ 7.28375728 -0.19999934  6.46431835 -0.19993019]
[ 8.36203858 -0.2 6.73854788 7.55055525]
[ 7.98424032 -0.2 6.2177663 6.62702869]
[ 7.14131971 -0.2 -0.9999999 6.4624257 ]
[ 0. 0. 0. 0. ]
[ 0. 0. 0. 0. ]
[ 0. 0. 0. 0. ]
[ 0. 0. 0. 0. ]
[ 0. 0. 0. 0. ]
[ 0. 0. 0. 0. ]
[ 0. 0. 0. 0. ]
[ 0. 0. 0. 0. ]
[ 0. 0. 0. 0. ]
[ 0. 0. 0. 0. ]
[ 0. 0. 0. 0. ]

```

Q-table after episode 3825

```

[[-0.2 -1. 6.79624672 -0.2 ]
[-0.2 7.07727069 6.91201189 6.55891965]
[-0.2 -1. -1. 7.03756477]
[ 0. 0. 0. 0. ]
[ 7.14786152 7.20080769 -1. -1. ]
[ 0. 0. 0. 0. ]
[-1. 7.48459777 7.23750724 -0.2 ]
[ 7.08792331 7.26177472 7.43527823 7.45728299]
[-1. 7.41907761 7.25365129 7.26455038]
[-0.15869179 7.4501389 7.39267904 0.57134617]
[ 7.28331611 8.02356744 7.43114481 7.50025089]
[ 7.52269034 6.63797188 6.9003399 7.61092273]
[ 7.28375728 -0.19999934 6.46431835 -0.19993019]
[ 8.36203858 -0.2 6.73854788 7.55055525]
[ 7.98424032 -0.2 6.2177663 6.62702869]
[ 7.14131971 -0.2 -0.9999999 6.4624257 ]
[ 0. 0. 0. 0. ]
[ 0. 0. 0. 0. ]
[ 0. 0. 0. 0. ]
[ 0. 0. 0. 0. ]
[ 0. 0. 0. 0. ]
[ 0. 0. 0. 0. ]
[ 0. 0. 0. 0. ]
[ 0. 0. 0. 0. ]
[ 0. 0. 0. 0. ]
[ 0. 0. 0. 0. ]

```

Q-table after episode 3826

```

[[-0.2 -1. 6.80547286 -0.2 ]
[-0.2 6.94364672 6.91201189 6.55891965]
[-0.2 -1. -1. 7.03756477]
[ 0. 0. 0. 0. ]
[ 7.14786152 7.20080769 -1. -1. ]

```

```

[ 0.      0.      0.      0.      ]
[-1.      7.48459777 7.23750724 -0.2      ]
[ 7.08792331 7.26177472 7.43527823 7.45728299]
[-1.      7.41907761 7.25365129 7.26455038]
[-0.15869179 7.4501389 7.39267904 0.57134617]
[ 7.28331611 8.02356744 7.43114481 7.50025089]
[ 7.52269034 6.63797188 6.9003399 7.61092273]
[ 7.28375728 -0.19999934 6.46431835 -0.19993019]
[ 8.36203858 -0.2      6.73854788 7.55055525]
[ 7.98424032 -0.2      6.2177663 6.62702869]
[ 7.14131971 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3827

```

[[-0.2      -1.      6.68733652 -0.2      ]
[-0.2      6.93028433 6.91201189 6.55891965]
[-0.2      -1.      -1.      7.03756477]
[ 0.      0.      0.      0.      ]
[ 7.14786152 7.18451991 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      7.48459777 7.23750724 -0.2      ]
[ 6.93019957 7.26177472 7.43527823 7.45728299]
[-1.      7.41907761 7.25365129 7.26455038]
[-0.15869179 7.4501389 7.39267904 0.57134617]
[ 7.28331611 8.02356744 7.43114481 7.50025089]
[ 7.52269034 6.63797188 6.9003399 7.61092273]
[ 7.28375728 -0.19999934 6.46431835 -0.19993019]
[ 8.36203858 -0.2      6.73854788 7.55055525]
[ 7.98424032 -0.2      6.2177663 6.62702869]
[ 7.14131971 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3828

```

[[-0.2      -1.      6.66361699 -0.2      ]

```

```

[-0.2      6.93028433  6.91201189  6.4131747 ]
[-0.2      -1.         -1.         7.03756477]
[ 0.         0.         0.         0.         ]
[ 7.14786152 7.18451991 -1.         -1.         ]
[ 0.         0.         0.         0.         ]
[-1.         7.48459777  7.23750724 -0.2         ]
[ 6.93019957 7.26177472  7.43527823  7.45728299]
[-1.         7.41907761  7.25365129  7.26455038]
[-0.15869179 7.4501389   7.39267904  0.57134617]
[ 7.28331611 8.02356744  7.43114481  7.50025089]
[ 7.52269034 6.63797188  6.9003399   7.61092273]
[ 7.28375728 -0.19999934  6.46431835 -0.19993019]
[ 8.36203858 -0.2         6.73854788  7.55055525]
[ 7.98424032 -0.2         6.2177663   6.62702869]
[ 7.14131971 -0.2         -0.9999999   6.4624257 ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]]

```

Q-table after episode 3829

```

[[-0.2      -1.         6.66124503 -0.2         ]
[-0.2      6.91443567  6.91201189  6.4131747 ]
[-0.2      -1.         -1.         7.03756477]
[ 0.         0.         0.         0.         ]
[ 7.14786152 7.18289113 -1.         -1.         ]
[ 0.         0.         0.         0.         ]
[-1.         7.48459777  7.23750724 -0.2         ]
[ 6.93019957 7.26177472  7.17392597  7.45728299]
[-1.         7.41907761  7.25365129  7.26455038]
[-0.15869179 7.4501389   7.39267904  0.57134617]
[ 7.28331611 8.02356744  7.43114481  7.50025089]
[ 7.52269034 6.63797188  6.9003399   7.61092273]
[ 7.28375728 -0.19999934  6.46431835 -0.19993019]
[ 8.36203858 -0.2         6.73854788  7.55055525]
[ 7.98424032 -0.2         6.2177663   6.62702869]
[ 7.14131971 -0.2         -0.9999999   6.4624257 ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]

```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
Q-table after episode 3830
[[-0.2      -1.      6.66124503 -0.2      ]
 [-0.2      6.91443567 6.91201189 6.4131747 ]
 [-0.2      -1.      -1.      7.03756477]
 [ 0.      0.      0.      0.      ]
 [ 7.14786152 7.18289113 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.48459777 7.23750724 -0.2      ]
 [ 6.93019957 7.26177472 7.17392597 7.45728299]
 [-1.      7.41907761 7.25365129 7.26455038]
 [-0.15869179 7.4501389 7.39267904 0.57134617]
 [ 7.28331611 8.02356744 7.43114481 7.50025089]
 [ 7.52269034 6.63797188 6.9003399 7.61092273]
 [ 7.28375728 -0.19999934 6.46431835 -0.19993019]
 [ 8.36203858 -0.2      6.73854788 7.55055525]
 [ 7.98424032 -0.2      6.2177663 6.62702869]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

```

Q-table after episode 3831
[[-0.2      -1.      6.66124503 -0.2      ]
 [-0.2      6.91443567 6.91201189 6.4131747 ]
 [-0.2      -1.      -1.      7.03756477]
 [ 0.      0.      0.      0.      ]
 [ 7.14786152 7.18289113 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.48459777 7.23750724 -0.2      ]
 [ 6.93019957 7.26177472 7.17392597 7.45728299]
 [-1.      7.41907761 7.25365129 7.26455038]
 [-0.15869179 7.4501389 7.39267904 0.57134617]
 [ 7.28331611 8.02356744 7.43114481 7.50025089]
 [ 7.52269034 6.63797188 6.9003399 7.61092273]
 [ 7.28375728 -0.19999934 6.46431835 -0.19993019]
 [ 8.36203858 -0.2      6.73854788 7.55055525]
 [ 7.98424032 -0.2      6.2177663 6.62702869]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]

```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3832

```

[[-0.2      -1.      6.66124503 -0.2      ]
 [-0.2      6.91443567 6.91201189 6.4131747 ]
 [-0.2      -1.      -1.      7.03756477]
 [ 0.      0.      0.      0.      ]
 [ 7.14786152 7.18289113 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.48459777 7.23750724 -0.2      ]
 [ 6.93019957 7.26177472 7.17392597 7.45728299]
 [-1.      7.41907761 7.25365129 7.26455038]
 [-0.15869179 7.4501389 7.39267904 0.57134617]
 [ 7.28331611 8.02356744 7.43114481 7.50025089]
 [ 7.52269034 6.63797188 6.9003399 7.61092273]
 [ 7.28375728 -0.19999934 6.46431835 -0.19993019]
 [ 8.36203858 -0.2      6.73854788 7.55055525]
 [ 7.98424032 -0.2      6.2177663 6.62702869]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

Q-table after episode 3833

```

[[-0.2      -1.      6.66124503 -0.2      ]
 [-0.2      6.91443567 6.91201189 6.4131747 ]
 [-0.2      -1.      -1.      7.03756477]
 [ 0.      0.      0.      0.      ]
 [ 7.14786152 7.18289113 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.48459777 7.23750724 -0.2      ]
 [ 6.93019957 7.26177472 7.17392597 7.45728299]
 [-1.      7.41907761 7.25365129 7.26455038]
 [-0.15869179 7.4501389 7.39267904 0.57134617]
 [ 7.28331611 8.02356744 7.43114481 7.50025089]
 [ 7.52269034 6.63797188 6.9003399 7.61092273]
 [ 7.28375728 -0.19999934 6.46431835 -0.19993019]
 [ 8.36203858 -0.2      6.73854788 7.55055525]
 [ 7.98424032 -0.2      6.2177663 6.62702869]

```



```

[ 7.14131971 -0.2      -0.9999999  6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3834

```

[[-0.2      -1.          6.64688669 -0.2      ]
 [-0.2      6.91139957  6.91201189  6.4131747 ]
 [-0.2      -1.          -1.          7.03756477]
 [ 0.          0.          0.          0.          ]
 [ 7.14786152 7.18272826 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          7.48459777  7.23750724 -0.2      ]
 [ 6.93019957 7.69517606  7.17392597  7.45728299]
 [-1.          7.41907761  7.25365129  7.26455038]
 [-0.15869179 7.4501389   7.39267904  0.57134617]
 [ 7.28331611 8.07293312  7.43114481  7.50025089]
 [ 7.52269034 6.63797188  6.9003399   7.61092273]
 [ 7.28375728 -0.19999934 6.46431835 -0.19993019]
 [ 8.36203858 -0.2      6.73854788  7.55055525]
 [ 7.98424032 -0.2      6.2177663   6.62702869]
 [ 7.14131971 -0.2      -0.9999999  6.4624257 ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3835

```

[[-0.2      -1.          6.64329126 -0.2      ]
 [-0.2      6.91139957  6.7816714   6.38048998]
 [-0.2      -1.          -1.          6.68181349]
 [ 0.          0.          0.          0.          ]
 [ 7.14786152 7.18272826 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          7.48459777  7.23750724 -0.2      ]
 [ 6.93019957 7.69517606  7.17392597  7.45728299]
 [-1.          7.41907761  7.25365129  7.26455038]
 [-0.15869179 7.4501389   7.39267904  0.57134617]
 [ 7.28331611 8.07293312  7.43114481  7.50025089]

```

```

[ 7.52269034  6.63797188  6.9003399  7.61092273]
[ 7.28375728 -0.19999934  6.46431835 -0.19993019]
[ 8.36203858 -0.2          6.73854788  7.55055525]
[ 7.98424032 -0.2          6.2177663  6.62702869]
[ 7.14131971 -0.2          -0.9999999  6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3836

```

[[-0.2        -1.          6.64229563 -0.2          ]
 [-0.2        6.91095083  6.7816714  6.37641505]
 [-0.2        -1.          -1.          6.68181349]
 [ 0.          0.          0.          0.          ]
 [ 7.14786152  7.3946747  -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          7.48459777  7.23750724 -0.2          ]
 [ 6.93019957  7.78250101  7.17392597  7.45728299]
 [-1.          7.41907761  7.25365129  7.26455038]
 [-0.15869179  7.4501389  7.39267904 -0.12286538]
 [ 7.28331611  7.62533187  7.43114481  7.20809885]
 [ 7.52269034  6.63797188  6.9003399  7.61092273]
 [ 7.28375728 -0.19999934  6.46431835 -0.19993019]
 [ 7.39952927 -0.2          6.73854788  7.55055525]
 [ 7.98424032 -0.2          6.2177663  6.62702869]
 [ 7.14131971 -0.2          -0.9999999  6.4624257 ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3837

```

[[-0.2        -1.          6.64229563 -0.2          ]
 [-0.2        6.91095083  6.7816714  6.37641505]
 [-0.2        -1.          -1.          6.68181349]
 [ 0.          0.          0.          0.          ]
 [ 7.14786152  7.3946747  -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          7.48459777  7.23750724 -0.2          ]

```

```

[ 6.93019957  7.78250101  7.17392597  7.45728299]
[-1.          7.41907761  7.25365129  7.26455038]
[-0.15869179  7.4501389   7.39267904 -0.12286538]
[ 7.28331611  7.62533187  7.43114481  7.20809885]
[ 7.52269034  6.63797188  6.9003399   7.61092273]
[ 7.28375728 -0.19999934  6.46431835 -0.19993019]
[ 7.39952927 -0.2        6.73854788  7.55055525]
[ 7.98424032 -0.2        6.2177663   6.62702869]
[ 7.14131971 -0.2        -0.99999999  6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3838

```

[[-0.2        -1.          6.64188675 -0.2        ]
 [-0.2        7.09975024  6.7816714   6.37641505]
 [-0.2        -1.          -1.          6.68181349]
 [ 0.          0.          0.          0.          ]
 [ 7.14786152  7.49367587 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          6.81495149  7.13039765 -0.2        ]
 [ 6.93019957  7.3924208   7.17392597  7.21222711]
 [-1.          6.97910565  7.25365129  7.26455038]
 [-0.15869179  6.96814038  7.01065288 -0.19228654]
 [ 7.19277075  7.14398837  7.26583157  6.7453882 ]
 [ 7.18266718  6.63797188  6.9003399   7.02965888]
 [ 7.12552197 -0.19999934  6.46431835 -0.19993019]
 [ 7.39952927 -0.2        7.60781291  7.06488326]
 [ 7.39975618 -0.2        6.2177663   6.62702869]
 [ 7.14131971 -0.2        -0.99999999  6.4624257 ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3839

```

[[-0.2        -1.          6.64188675 -0.2        ]
 [-0.2        7.09975024  6.7816714   6.37641505]
 [-0.2        -1.          -1.          6.68181349]

```

```

[ 0.      0.      0.      0.      ]
[ 7.14786152 7.49367587 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      6.81495149 7.13039765 -0.2      ]
[ 6.93019957 7.3924208 7.17392597 7.21222711]
[-1.      6.97910565 7.25365129 7.26455038]
[-0.15869179 6.96814038 7.01065288 -0.19228654]
[ 7.19277075 7.14398837 7.26583157 6.7453882 ]
[ 7.18266718 6.63797188 6.9003399 7.02965888]
[ 7.12552197 -0.19999934 6.46431835 -0.19993019]
[ 7.39952927 -0.2      7.60781291 7.06488326]
[ 7.39975618 -0.2      6.2177663 6.62702869]
[ 7.14131971 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3840

```

[[-0.2      -1.      6.64188675 -0.2      ]
[-0.2      7.09975024 6.7816714 6.37641505]
[-0.2      -1.      -1.      6.68181349]
[ 0.      0.      0.      0.      ]
[ 7.14786152 7.49367587 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      6.81495149 7.13039765 -0.2      ]
[ 6.93019957 7.3924208 7.17392597 7.21222711]
[-1.      6.97910565 7.25365129 7.26455038]
[-0.15869179 6.96814038 7.01065288 -0.19228654]
[ 7.19277075 7.14398837 7.26583157 6.7453882 ]
[ 7.18266718 6.63797188 6.9003399 7.02965888]
[ 7.12552197 -0.19999934 6.46431835 -0.19993019]
[ 7.39952927 -0.2      7.60781291 7.06488326]
[ 7.39975618 -0.2      6.2177663 6.62702869]
[ 7.14131971 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3841

```
[[-0.2      -1.      6.81006614 -0.2      ]
 [-0.2      7.20684023 6.7816714  6.37641505]
 [-0.2      -1.      -1.      6.68181349]
 [ 0.      0.      0.      0.      ]
 [ 7.14786152 6.9616958 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      6.81495149 7.13039765 -0.2      ]
 [ 6.88902889 7.03309801 7.01010698 7.21222711]
 [-1.      6.97910565 6.79185685 7.26455038]
 [-0.15869179 6.96814038 9.70106529 -0.19228654]
 [ 6.96537143 7.14398837 7.26583157 6.7453882 ]
 [ 7.18266718 6.63797188 6.9003399  7.02965888]
 [ 7.12552197 -0.19999934 6.46431835 -0.19993019]
 [ 7.39952927 -0.2      7.60781291 7.06488326]
 [ 7.39975618 -0.2      6.2177663  6.62702869]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]
```

Q-table after episode 3842

```
[[-0.2      -1.      6.92230126 -0.2      ]
 [-0.2      6.71381382 6.7816714  6.37641505]
 [-0.2      -1.      -1.      6.68181349]
 [ 0.      0.      0.      0.      ]
 [ 6.69108707 6.94226393 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      6.81495149 7.13039765 -0.2      ]
 [ 6.88902889 7.03309801 6.99372508 7.21222711]
 [-1.      6.97910565 6.79185685 7.26455038]
 [-0.15869179 6.96814038 9.70106529 -0.19228654]
 [ 6.96537143 7.14398837 7.26583157 6.7453882 ]
 [ 7.18266718 6.63797188 6.9003399  7.02965888]
 [ 7.12552197 -0.19999934 6.46431835 -0.19993019]
 [ 7.39952927 -0.2      7.60781291 7.06488326]
 [ 7.39975618 -0.2      6.2177663  6.62702869]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]
```

```
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
```

Q-table after episode 3843

```
[[-0.2      -1.      6.92230126 -0.2      ]
[-0.2      6.71381382 6.7816714  6.37641505]
[-0.2      -1.      -1.      6.68181349]
[ 0.      0.      0.      0.      ]
[ 6.69108707 6.94226393 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      6.81495149 7.13039765 -0.2      ]
[ 6.88902889 7.03309801 6.99372508 7.21222711]
[-1.      6.97910565 6.79185685 7.26455038]
[-0.15869179 6.96814038 9.70106529 -0.19228654]
[ 6.96537143 7.14398837 7.26583157 6.7453882 ]
[ 7.18266718 6.63797188 6.9003399  7.02965888]
[ 7.12552197 -0.19999934 6.46431835 -0.19993019]
[ 7.39952927 -0.2      7.60781291 7.06488326]
[ 7.39975618 -0.2      6.2177663  6.62702869]
[ 7.14131971 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
```

Q-table after episode 3844

```
[[-0.2      -1.      6.92230126 -0.2      ]
[-0.2      6.71381382 6.7816714  6.37641505]
[-0.2      -1.      -1.      6.68181349]
[ 0.      0.      0.      0.      ]
[ 6.69108707 6.94226393 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      6.81495149 7.13039765 -0.2      ]
[ 6.88902889 7.03309801 6.99372508 7.21222711]
[-1.      6.97910565 6.79185685 7.26455038]
[-0.15869179 6.96814038 9.70106529 -0.19228654]
[ 6.96537143 7.14398837 7.26583157 6.7453882 ]
[ 7.18266718 6.63797188 6.9003399  7.02965888]
[ 7.12552197 -0.19999934 6.46431835 -0.19993019]
[ 7.39952927 -0.2      7.60781291 7.06488326]
[ 7.39975618 -0.2      6.2177663  6.62702869]
[ 7.14131971 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]]
```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3845

```

[[-0.2      -1.      6.92230126 -0.2      ]
 [-0.2      6.71381382 6.7816714  6.37641505]
 [-0.2      -1.      -1.      6.68181349]
 [ 0.      0.      0.      0.      ]
 [ 6.69108707 6.94226393 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      6.81495149 7.13039765 -0.2      ]
 [ 6.88902889 7.03309801 6.99372508 7.21222711]
 [-1.      6.97910565 6.79185685 7.26455038]
 [-0.15869179 6.96814038 9.70106529 -0.19228654]
 [ 6.96537143 7.14398837 7.26583157 6.7453882 ]
 [ 7.18266718 6.63797188 6.9003399  7.02965888]
 [ 7.12552197 -0.19999934 6.46431835 -0.19993019]
 [ 7.39952927 -0.2      7.60781291 7.06488326]
 [ 7.39975618 -0.2      6.2177663  6.62702869]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

Q-table after episode 3846

```

[[-0.2      -1.      6.55469934 -0.2      ]
 [-0.2      6.71381382 6.7816714  6.37641505]
 [-0.2      -1.      -1.      6.68181349]
 [ 0.      0.      0.      0.      ]
 [ 6.69108707 6.94226393 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      6.81495149 7.13039765 -0.2      ]
 [ 6.88902889 7.03309801 6.99372508 7.21222711]
 [-1.      6.97910565 6.79185685 7.26455038]
 [-0.15869179 6.96814038 9.70106529 -0.19228654]
 [ 6.96537143 7.14398837 7.26583157 6.7453882 ]
 [ 7.18266718 6.63797188 6.9003399  7.02965888]
 [ 7.12552197 -0.19999934 6.46431835 -0.19993019]

```

```

[ 7.39952927 -0.2      7.60781291  7.06488326]
[ 7.39975618 -0.2      6.2177663   6.62702869]
[ 7.14131971 -0.2     -0.9999999   6.4624257 ]
[ 0.          0.        0.          0.          ]
[ 0.          0.        0.          0.          ]
[ 0.          0.        0.          0.          ]
[ 0.          0.        0.          0.          ]
[ 0.          0.        0.          0.          ]
[ 0.          0.        0.          0.          ]
[ 0.          0.        0.          0.          ]
[ 0.          0.        0.          0.          ]
[ 0.          0.        0.          0.          ]
[ 0.          0.        0.          0.          ]

```

Q-table after episode 3847

```

[[-0.2      -1.        6.51426313 -0.2      ]
 [-0.2      6.67693855  6.7816714   6.26512529]
 [-0.2      -1.        -1.         6.68181349]
 [ 0.        0.        0.          0.          ]
 [ 6.69108707 6.94032074 -1.         -1.         ]
 [ 0.        0.        0.          0.          ]
 [-1.        6.81495149  7.13039765 -0.2      ]
 [ 6.88902889 7.03309801 6.99208689  7.21222711]
 [-1.        6.97910565 6.79185685  7.26455038]
 [-0.15869179 6.96814038 9.70106529 -0.19228654]
 [ 6.96537143 7.14398837 7.26583157  6.7453882 ]
 [ 7.18266718 6.63797188 6.9003399   7.02965888]
 [ 7.12552197 -0.19999934 6.46431835 -0.19993019]
 [ 7.39952927 -0.2      7.60781291  7.06488326]
 [ 7.39975618 -0.2      6.2177663   6.62702869]
 [ 7.14131971 -0.2     -0.9999999   6.4624257 ]
 [ 0.          0.        0.          0.          ]
 [ 0.          0.        0.          0.          ]
 [ 0.          0.        0.          0.          ]
 [ 0.          0.        0.          0.          ]
 [ 0.          0.        0.          0.          ]
 [ 0.          0.        0.          0.          ]
 [ 0.          0.        0.          0.          ]
 [ 0.          0.        0.          0.          ]
 [ 0.          0.        0.          0.          ]
 [ 0.          0.        0.          0.          ]

```

Q-table after episode 3848

```

[[-0.2      -1.        6.51426313 -0.2      ]
 [-0.2      6.67693855  6.7816714   6.26512529]
 [-0.2      -1.        -1.         6.68181349]
 [ 0.        0.        0.          0.          ]
 [ 6.69108707 6.94032074 -1.         -1.         ]
 [ 0.        0.        0.          0.          ]
 [-1.        6.81495149  7.13039765 -0.2      ]
 [ 6.88902889 7.03309801 6.99208689  7.21222711]
 [-1.        6.97910565 6.79185685  7.26455038]

```





```

[ 0.      0.      0.      0.      ]
[-1.      6.81495149 6.79953009 -0.2      ]
[ 6.88902889 6.99716573 6.99208689 6.89440702]
[-1.      6.97910565 9.14283486 7.26455038]
[-0.15869179 6.96814038 9.97010653 -0.19228654]
[ 6.96537143 7.14398837 6.94633962 6.7453882 ]
[ 7.0109811 6.63797188 6.9003399 7.02965888]
[ 7.12552197 -0.19999934 6.46431835 -0.19993019]
[ 7.39952927 -0.2      7.60781291 7.06488326]
[ 7.39975618 -0.2      6.2177663 6.62702869]
[ 7.14131971 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3851

```

[[-0.2      -1.      6.51385877 -0.2      ]
[-0.2      6.67151964 6.45166296 6.25039345]
[-0.2      -1.      -1.      6.43733359]
[ 0.      0.      0.      0.      ]
[ 6.69108707 6.94012643 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      6.81495149 6.79953009 -0.2      ]
[ 6.88902889 6.99716573 6.99208689 6.89440702]
[-1.      6.97910565 9.14283486 7.26455038]
[-0.15869179 6.96814038 9.97010653 -0.19228654]
[ 6.96537143 7.14398837 6.94633962 6.7453882 ]
[ 7.0109811 6.63797188 6.9003399 7.02965888]
[ 7.12552197 -0.19999934 6.46431835 -0.19993019]
[ 7.39952927 -0.2      7.60781291 7.06488326]
[ 7.39975618 -0.2      6.2177663 6.62702869]
[ 7.14131971 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3852

```

[[-0.2      -1.      6.41570987 -0.2      ]

```

```

[-0.2      6.67073311  6.20083053  6.25039345]
[-0.2      -1.         -1.         6.40805736]
[ 0.         0.         0.         0.         ]
[ 6.43279561  6.94012643 -1.         -1.         ]
[ 0.         0.         0.         0.         ]
[-1.         6.81495149  6.79953009 -0.2         ]
[ 6.88902889  6.99716573  6.99208689  6.89440702]
[-1.         6.97910565  9.14283486  7.26455038]
[-0.15869179  6.96814038  9.97010653 -0.19228654]
[ 6.96537143  7.14398837  6.94633962  6.7453882 ]
[ 7.0109811   6.63797188  6.9003399   7.02965888]
[ 7.12552197 -0.19999934  6.46431835 -0.19993019]
[ 7.39952927 -0.2         7.60781291  7.06488326]
[ 7.39975618 -0.2         6.2177663   6.62702869]
[ 7.14131971 -0.2         -0.9999999  6.4624257 ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]]

```

Q-table after episode 3853

```

[[-0.2      -1.         6.41570987 -0.2         ]
 [-0.2      6.67073311  6.20083053  6.25039345]
 [-0.2      -1.         -1.         6.40805736]
 [ 0.         0.         0.         0.         ]
 [ 6.43279561  6.94012643 -1.         -1.         ]
 [ 0.         0.         0.         0.         ]
 [-1.         6.81495149  6.79953009 -0.2         ]
 [ 6.88902889  6.99716573  6.99208689  6.89440702]
 [-1.         6.97910565  9.14283486  7.26455038]
 [-0.15869179  6.96814038  9.97010653 -0.19228654]
 [ 6.96537143  7.14398837  6.94633962  6.7453882 ]
 [ 7.0109811   6.63797188  6.9003399   7.02965888]
 [ 7.12552197 -0.19999934  6.46431835 -0.19993019]
 [ 7.39952927 -0.2         7.60781291  7.06488326]
 [ 7.39975618 -0.2         6.2177663   6.62702869]
 [ 7.14131971 -0.2         -0.9999999  6.4624257 ]
 [ 0.         0.         0.         0.         ]
 [ 0.         0.         0.         0.         ]
 [ 0.         0.         0.         0.         ]
 [ 0.         0.         0.         0.         ]
 [ 0.         0.         0.         0.         ]
 [ 0.         0.         0.         0.         ]
 [ 0.         0.         0.         0.         ]
 [ 0.         0.         0.         0.         ]

```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
Q-table after episode 3854
[[-0.2      -1.      6.40519419 -0.2      ]
 [-0.2      6.67072596 6.20083053 6.25039345]
 [-0.2      -1.      -1.      6.40805736]
 [ 0.      0.      0.      0.      ]
 [ 6.43279561 6.74848731 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      6.81495149 6.79953009 -0.2      ]
 [ 6.88902889 6.88501021 6.99208689 6.89440702]
 [-1.      6.97910565 9.14283486 7.26455038]
 [-0.15869179 6.96814038 9.97010653 -0.19228654]
 [ 6.96537143 7.31296014 6.94633962 6.7453882 ]
 [ 7.0109811 6.63797188 6.9003399 7.02965888]
 [ 7.12552197 -0.19999934 6.46431835 -0.19999302]
 [ 7.39952927 -0.2      7.60781291 6.8753284 ]
 [ 7.39975618 -0.2      6.2177663 6.62702869]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

```

Q-table after episode 3855
[[-0.2      -1.      6.40413625 -0.2      ]
 [-0.2      6.49997479 6.20083053 6.25039345]
 [-0.2      -1.      -1.      6.40805736]
 [ 0.      0.      0.      0.      ]
 [ 6.43279561 6.74848731 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      6.81495149 6.79953009 -0.2      ]
 [ 6.88902889 6.88501021 6.99208689 6.89440702]
 [-1.      6.97910565 9.14283486 7.26455038]
 [-0.15869179 6.96814038 9.97010653 -0.19228654]
 [ 6.96537143 7.31296014 6.94633962 6.7453882 ]
 [ 7.0109811 6.63797188 6.9003399 7.02965888]
 [ 7.12552197 -0.19999934 6.46431835 -0.19999302]
 [ 7.39952927 -0.2      7.60781291 6.8753284 ]
 [ 7.39975618 -0.2      6.2177663 6.62702869]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]

```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3856

```

[[-0.2      -1.      6.25189116 -0.2      ]
 [-0.2      6.48289967 6.20083053 6.25039345]
 [-0.2      -1.      -1.      6.40805736]
 [ 0.      0.      0.      0.      ]
 [ 6.43279561 6.72479815 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      6.81495149 6.79953009 -0.2      ]
 [ 6.88902889 6.88501021 8.66547455 6.89440702]
 [-1.      6.97910565 9.6176484 7.26455038]
 [-0.15869179 6.96814038 9.99701065 -0.19228654]
 [ 6.96537143 7.31296014 6.94633962 6.7453882 ]
 [ 7.0109811 6.63797188 6.9003399 7.02965888]
 [ 7.12552197 -0.19999934 6.46431835 -0.19999302]
 [ 7.39952927 -0.2      7.60781291 6.8753284 ]
 [ 7.39975618 -0.2      6.2177663 6.62702869]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

Q-table after episode 3857

```

[[-0.2      -1.      6.22145272 -0.2      ]
 [-0.2      6.45780367 6.20083053 6.25039345]
 [-0.2      -1.      -1.      6.40805736]
 [ 0.      0.      0.      0.      ]
 [ 6.2192154 8.21341764 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      6.81495149 6.79953009 -0.2      ]
 [ 6.88902889 6.88501021 9.25587218 6.89440702]
 [-1.      6.97910565 9.68910133 7.26455038]
 [-0.15869179 6.96814038 9.99970107 -0.19228654]
 [ 6.96537143 7.31296014 6.94633962 6.7453882 ]
 [ 7.0109811 6.63797188 6.9003399 7.02965888]
 [ 7.12552197 -0.19999934 6.46431835 -0.19999302]
 [ 7.39952927 -0.2      7.60781291 6.8753284 ]
 [ 7.39975618 -0.2      6.2177663 6.62702869]

```

```

[ 7.14131971 -0.2      -0.9999999  6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3858

```

[[-0.2      -1.          6.22145272 -0.2      ]
 [-0.2      6.45780367  6.20083053  6.25039345]
 [-0.2      -1.          -1.          6.40805736]
 [ 0.          0.          0.          0.          ]
 [ 6.2192154  8.21341764 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          6.81495149  6.79953009 -0.2      ]
 [ 6.88902889  6.88501021  9.25587218  6.89440702]
 [-1.          6.97910565  9.68910133  7.26455038]
 [-0.15869179  6.96814038  9.99970107 -0.19228654]
 [ 6.96537143  7.31296014  6.94633962  6.7453882 ]
 [ 7.0109811   6.63797188  6.9003399   7.02965888]
 [ 7.12552197 -0.19999934  6.46431835 -0.19999302]
 [ 7.39952927 -0.2      7.60781291  6.8753284 ]
 [ 7.39975618 -0.2      6.2177663   6.62702869]
 [ 7.14131971 -0.2      -0.9999999  6.4624257 ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3859

```

[[-0.2      -1.          6.22145272 -0.2      ]
 [-0.2      6.45780367  6.20083053  6.25039345]
 [-0.2      -1.          -1.          6.40805736]
 [ 0.          0.          0.          0.          ]
 [ 6.2192154  8.21341764 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          6.81495149  6.79953009 -0.2      ]
 [ 6.88902889  6.88501021  9.25587218  6.89440702]
 [-1.          6.97910565  9.68910133  7.26455038]
 [-0.15869179  6.96814038  9.99970107 -0.19228654]
 [ 6.96537143  7.31296014  6.94633962  6.7453882 ]

```

```

[ 7.0109811  6.63797188  6.9003399  7.02965888]
[ 7.12552197 -0.19999934  6.46431835 -0.19999302]
[ 7.39952927 -0.2          7.60781291  6.8753284 ]
[ 7.39975618 -0.2          6.2177663  6.62702869]
[ 7.14131971 -0.2          -0.9999999  6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3860

```

[[-0.2        -1.          6.19604834 -0.2          ]
 [-0.2        7.78393548  6.20083053  6.25039345]
 [-0.2        -1.          -1.          6.40805736]
 [ 0.          0.          0.          0.          ]
 [ 6.2192154  8.21341764 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          6.81495149  6.79953009 -0.2          ]
 [ 6.88902889  6.88501021  9.25587218  6.89440702]
 [-1.          6.97910565  9.68910133  7.26455038]
 [-0.15869179  6.96814038  9.99970107 -0.19228654]
 [ 6.96537143  7.31296014  6.94633962  6.7453882 ]
 [ 7.0109811  6.63797188  6.9003399  7.02965888]
 [ 7.12552197 -0.19999934  6.46431835 -0.19999302]
 [ 7.39952927 -0.2          7.60781291  6.8753284 ]
 [ 7.39975618 -0.2          6.2177663  6.62702869]
 [ 7.14131971 -0.2          -0.9999999  6.4624257 ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3861

```

[[-0.2        -1.          6.19604834 -0.2          ]
 [-0.2        7.78393548  6.20083053  6.25039345]
 [-0.2        -1.          -1.          6.40805736]
 [ 0.          0.          0.          0.          ]
 [ 6.2192154  8.21341764 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          6.81495149  6.79953009 -0.2          ]

```

```

[ 6.88902889  6.88501021  9.25587218  6.89440702]
[-1.          6.97910565  9.68910133  7.26455038]
[-0.15869179  6.96814038  9.99970107 -0.19228654]
[ 6.96537143  7.31296014  6.94633962  6.7453882 ]
[ 7.0109811   6.63797188  6.9003399   7.02965888]
[ 7.12552197 -0.19999934  6.46431835 -0.19999302]
[ 7.39952927 -0.2          7.60781291  6.8753284 ]
[ 7.39975618 -0.2          6.2177663   6.62702869]
[ 7.14131971 -0.2          -0.9999999   6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3862

```

[[-0.2        -1.          6.19604834 -0.2          ]
 [-0.2        7.78393548  6.20083053  6.25039345]
 [-0.2        -1.          -1.          6.40805736]
 [ 0.          0.          0.          0.          ]
 [ 6.2192154   8.21341764 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          6.81495149  6.79953009 -0.2          ]
 [ 6.88902889  6.88501021  9.25587218  6.89440702]
 [-1.          6.97910565  9.68910133  7.26455038]
 [-0.15869179  6.96814038  9.99970107 -0.19228654]
 [ 6.96537143  7.31296014  6.94633962  6.7453882 ]
 [ 7.0109811   6.63797188  6.9003399   7.02965888]
 [ 7.12552197 -0.19999934  6.46431835 -0.19999302]
 [ 7.39952927 -0.2          7.60781291  6.8753284 ]
 [ 7.39975618 -0.2          6.2177663   6.62702869]
 [ 7.14131971 -0.2          -0.9999999   6.4624257 ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3863

```

[[-0.2        -1.          7.49299565 -0.2          ]
 [-0.2        7.91654866  6.20083053  7.01624573]
 [-0.2        -1.          -1.          6.40805736]

```



```

[ 0.      0.      0.      0.      ]
[ 6.2192154 8.88832388 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      7.1033941 6.79953009 -0.2      ]
[ 6.88902889 7.02434851 9.25587218 6.89440702]
[-1.      6.97910565 7.2399417 7.26455038]
[ 7.240215 6.96814038 9.68845405 -0.19228654]
[ 6.96537143 7.14596631 7.98790026 6.99173835]
[ 9.1540874 6.63797188 6.9003399 8.22102815]
[ 8.3025267 -0.19999934 6.46431835 -0.19999302]
[ 7.66960094 -0.2      7.17396405 6.85637292]
[ 7.39975618 -0.2      6.2177663 7.07568345]
[ 7.14131971 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3864

```

[[-0.2      -1.      7.62294442 -0.2      ]
[-0.2      8.53115144 6.20083053 7.01624573]
[-0.2      -1.      -1.      6.40805736]
[ 0.      0.      0.      0.      ]
[ 6.2192154 8.9558145 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      7.1033941 6.79953009 -0.2      ]
[ 6.88902889 7.02434851 6.99261821 6.89440702]
[-1.      6.97910565 9.17640673 6.97796177]
[ 7.240215 6.96814038 9.9688454 -0.19228654]
[ 6.96537143 7.14596631 7.98790026 6.99173835]
[ 9.1540874 6.63797188 6.9003399 8.22102815]
[ 8.3025267 -0.19999934 6.46431835 -0.19999302]
[ 7.66960094 -0.2      7.17396405 6.85637292]
[ 7.39975618 -0.2      6.2177663 7.07568345]
[ 7.14131971 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3865

```
[[-0.2      -1.      8.18355038 -0.2      ]
 [-0.2      8.65274586 6.20083053 7.01624573]
 [-0.2      -1.      -1.      6.40805736]
 [ 0.      0.      0.      0.      ]
 [ 6.2192154 6.97427597 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.1033941 6.79953009 -0.2      ]
 [ 6.88902889 8.47270125 6.99261821 6.89440702]
 [-1.      6.97910565 9.61988193 7.32472788]
 [ 7.240215 6.96814038 9.99688454 -0.19228654]
 [ 6.96537143 8.1086662 8.62478455 6.99173835]
 [ 8.88733711 8.34036837 6.9003399 8.36930337]
 [ 8.3025267 -0.19999934 6.46431835 -0.19999302]
 [ 8.55630545 -0.2      7.17396405 6.85637292]
 [ 8.62340922 -0.2      6.2177663 7.07568345]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]
```

Q-table after episode 3866

```
[[-0.2      -1.      8.18355038 -0.2      ]
 [-0.2      8.65274586 6.20083053 7.01624573]
 [-0.2      -1.      -1.      6.40805736]
 [ 0.      0.      0.      0.      ]
 [ 6.2192154 6.97427597 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.1033941 6.79953009 -0.2      ]
 [ 6.88902889 8.47270125 6.99261821 6.89440702]
 [-1.      6.97910565 9.61988193 7.32472788]
 [ 7.240215 6.96814038 9.99688454 -0.19228654]
 [ 6.96537143 8.1086662 8.62478455 6.99173835]
 [ 8.88733711 8.34036837 6.9003399 8.36930337]
 [ 8.3025267 -0.19999934 6.46431835 -0.19999302]
 [ 8.55630545 -0.2      7.17396405 6.85637292]
 [ 8.62340922 -0.2      6.2177663 7.07568345]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]
```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3867

```

[[-0.2      -1.      8.3479516 -0.2      ]
 [-0.2      6.89935448 6.20083053 7.01624573]
 [-0.2      -1.      -1.      6.40805736]
 [ 0.      0.      0.      0.      ]
 [ 6.2192154 8.06660441 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.1033941 6.79953009 -0.2      ]
 [ 6.88902889 8.35195316 6.99261821 6.89440702]
 [-1.      6.97910565 9.68921232 7.32472788]
 [ 7.240215 6.96814038 9.99968845 -0.19228654]
 [ 6.96537143 8.1086662 8.60109582 6.99173835]
 [ 9.28004851 8.34036837 6.9003399 8.36930337]
 [ 8.3025267 -0.19999934 6.46431835 -0.19999302]
 [ 8.55630545 -0.2      7.17396405 6.85637292]
 [ 8.62340922 -0.2      6.2177663 7.07568345]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

Q-table after episode 3868

```

[[-0.2      -1.      6.65795185 -0.2      ]
 [-0.2      7.69727998 6.20083053 6.67511124]
 [-0.2      -1.      -1.      6.40805736]
 [ 0.      0.      0.      0.      ]
 [ 6.2192154 8.06825071 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.1033941 6.79953009 -0.2      ]
 [ 6.88902889 8.31877169 6.99261821 6.89440702]
 [-1.      8.87646445 9.69864364 7.32472788]
 [ 7.240215 6.96814038 9.99968845 8.44226283]
 [ 6.96537143 8.1086662 9.0858956 6.99173835]
 [ 9.39119748 8.34036837 6.9003399 8.76743091]
 [ 8.3025267 -0.19999934 6.46431835 -0.19999302]
 [ 8.55630545 -0.2      7.17396405 6.85637292]
 [ 8.62340922 -0.2      6.2177663 7.07568345]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]

```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3869

```

[[-0.2      -1.      7.34407165 -0.2      ]
 [-0.2      7.77853938 6.20083053 6.67511124]
 [-0.2      -1.      -1.      6.40805736]
 [ 0.      0.      0.      0.      ]
 [ 6.2192154 8.03885065 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.1033941 6.79953009 -0.2      ]
 [ 6.88902889 8.74741015 6.99261821 6.89440702]
 [-1.      8.87646445 9.69864364 7.32472788]
 [ 7.240215 6.96814038 9.99968845 8.44226283]
 [ 6.96537143 8.1086662 9.09614651 6.99173835]
 [ 9.40061123 8.34036837 6.9003399 8.76743091]
 [ 8.3025267 -0.19999934 6.46431835 -0.19999302]
 [ 8.55630545 -0.2      7.17396405 6.85637292]
 [ 8.62340922 -0.2      6.2177663 7.07568345]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

Q-table after episode 3870

```

[[-0.2      -1.      7.48508575 -0.2      ]
 [-0.2      7.76046986 6.20083053 6.67511124]
 [-0.2      -1.      -1.      6.40805736]
 [ 0.      0.      0.      0.      ]
 [ 6.2192154 8.03885065 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.1033941 6.79953009 -0.2      ]
 [ 6.88902889 8.74741015 6.99261821 6.89440702]
 [-1.      8.87646445 9.69864364 7.32472788]
 [ 7.240215 6.96814038 9.99968845 8.44226283]
 [ 6.96537143 8.1086662 9.09614651 6.99173835]
 [ 9.40061123 8.34036837 6.9003399 8.76743091]
 [ 8.3025267 -0.19999934 6.46431835 -0.19999302]

```

[ 8.55630545	-0.2	7.17396405	6.85637292]
[ 8.62340922	-0.2	6.2177663	7.07568345]
[ 7.14131971	-0.2	-0.9999999	6.4624257 ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]]

Q-table after episode 3871

[[-0.2	-1.	7.48508575	-0.2	]
[-0.2	7.76046986	6.20083053	6.67511124]	
[-0.2	-1.	-1.	6.40805736]	
[ 0.	0.	0.	0. ]	
[ 6.2192154	8.03885065	-1.	-1. ]	
[ 0.	0.	0.	0. ]	
[-1.	7.1033941	6.79953009	-0.2 ]	
[ 6.88902889	8.74741015	6.99261821	6.89440702]	
[-1.	8.87646445	9.69864364	7.32472788]	
[ 7.240215	6.96814038	9.99968845	8.44226283]	
[ 6.96537143	8.1086662	9.09614651	6.99173835]	
[ 9.40061123	8.34036837	6.9003399	8.76743091]	
[ 8.3025267	-0.19999934	6.46431835	-0.19999302]	
[ 8.55630545	-0.2	7.17396405	6.85637292]	
[ 8.62340922	-0.2	6.2177663	7.07568345]	
[ 7.14131971	-0.2	-0.9999999	6.4624257 ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]]	

Q-table after episode 3872

[[-0.2	-1.	7.48308722	-0.2	]
[-0.2	7.75866291	6.14966216	6.67511124]	
[-0.2	-1.	-1.	7.37538438]	
[ 0.	0.	0.	0. ]	
[ 6.2192154	8.41782751	-1.	-1. ]	
[ 0.	0.	0.	0. ]	
[-1.	7.1033941	6.79953009	-0.2 ]	
[ 6.88902889	8.79940756	6.99261821	6.89440702]	
[-1.	8.87646445	9.69958678	7.32472788]	

[ 7.240215	7.91436533	9.99996885	8.44226283]
[ 6.96537143	8.1086662	9.10555926	6.99173835]
[ 9.40155261	8.34036837	6.9003399	8.76743091]
[ 9.55997508	-0.19999934	6.46431835	-0.19999302]
[ 8.55630545	-0.2	7.17396405	6.85637292]
[ 8.62340922	-0.2	6.2177663	7.07568345]
[ 7.14131971	-0.2	-0.9999999	6.4624257 ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]]

Q-table after episode 3873

[[-0.2	-1.	7.48127738	-0.2	]
[-0.2	8.0961506	6.14966216	6.67511124]	
[-0.2	-1.	-1.	7.37538438]	
[ 0.	0.	0.	0. ]	
[ 7.65559173	8.50205489	-1.	-1. ]	
[ 0.	0.	0.	0. ]	
[-1.	7.1033941	6.79953009	-0.2 ]	
[ 8.08423379	8.79940756	6.99261821	6.89440702]	
[-1.	8.87646445	9.69958678	7.32472788]	
[ 7.240215	7.91436533	9.99996885	8.44226283]	
[ 6.96537143	8.1086662	9.10555926	6.99173835]	
[ 9.40155261	8.34036837	6.9003399	8.76743091]	
[ 9.55997508	-0.19999934	6.46431835	-0.19999302]	
[ 8.55630545	-0.2	7.17396405	6.85637292]	
[ 8.62340922	-0.2	6.2177663	7.07568345]	
[ 7.14131971	-0.2	-0.9999999	6.4624257 ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]]	

Q-table after episode 3874

[[-0.2	-1.	7.78179792	-0.2	]
[-0.2	8.20494596	6.14966216	6.67511124]	
[-0.2	-1.	-1.	7.37538438]	
[ 0.	0.	0.	0. ]	
[ 7.65559173	8.50205489	-1.	-1. ]	

```

[ 0.      0.      0.      0.      ]
[-1.      7.1033941  6.79953009 -0.2      ]
[ 8.08423379 8.79940756 6.99261821 6.89440702]
[-1.      8.87646445 9.69958678 7.32472788]
[ 7.240215  7.91436533 9.99996885 8.44226283]
[ 6.96537143 8.1086662  9.10555926 6.99173835]
[ 9.40155261 8.34036837 6.9003399  8.76743091]
[ 9.55997508 -0.19999934 6.46431835 -0.19999302]
[ 8.55630545 -0.2      7.17396405 6.85637292]
[ 8.62340922 -0.2      6.2177663  7.07568345]
[ 7.14131971 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3875

```

[[-0.2      -1.      7.90878665 -0.2      ]
 [-0.2      8.2158255  6.14966216 6.67511124]
 [-0.2      -1.      -1.      7.37538438]
 [ 0.      0.      0.      0.      ]
 [ 7.65559173 8.50205489 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.1033941  6.79953009 -0.2      ]
 [ 8.08423379 8.79940756 6.99261821 6.89440702]
 [-1.      8.87646445 9.69958678 7.32472788]
 [ 7.240215  7.91436533 9.99996885 8.44226283]
 [ 6.96537143 8.1086662  9.10555926 6.99173835]
 [ 9.40155261 8.34036837 6.9003399  8.76743091]
 [ 9.55997508 -0.19999934 6.46431835 -0.19999302]
 [ 8.55630545 -0.2      7.17396405 6.85637292]
 [ 8.62340922 -0.2      6.2177663  7.07568345]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

Q-table after episode 3876

```

[[-0.2      -1.      7.93117918 -0.2      ]

```

```

[-0.2      8.21691345  6.14966216  6.67511124]
[-0.2      -1.         -1.         7.37538438]
[ 0.         0.         0.         0.         ]
[ 7.65559173 8.51047762 -1.         -1.         ]
[ 0.         0.         0.         0.         ]
[-1.         7.1033941  6.79953009 -0.2         ]
[ 8.08423379 8.79940756  9.16159364  6.89440702]
[-1.         8.87646445  9.69993092  7.32472788]
[ 7.240215   7.91436533  9.99999688  8.44226283]
[ 6.96537143 8.1086662   9.10555926  6.99173835]
[ 9.40155261 8.34036837  6.9003399   8.76743091]
[ 9.55997508 -0.19999934  6.46431835 -0.19999302]
[ 8.55630545 -0.2         7.17396405  6.85637292]
[ 8.62340922 -0.2         6.2177663   7.07568345]
[ 7.14131971 -0.2         -0.9999999  6.4624257  ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]]

```

Q-table after episode 3877

```

[[-0.2      -1.         7.93438781 -0.2         ]
[-0.2      8.22452691  6.14966216  6.67511124]
[-0.2      -1.         -1.         7.37538438]
[ 0.         0.         0.         0.         ]
[ 7.65559173 8.8340277  -1.         -1.         ]
[ 0.         0.         0.         0.         ]
[-1.         7.1033941  6.79953009 -0.2         ]
[ 8.08423379 8.81299406  9.16159364  6.89440702]
[-1.         8.87646445  8.67996953  7.32472788]
[ 7.240215   7.91436533  9.88551924  8.44226283]
[ 6.96537143 8.25453477  9.10751731  8.97917658]
[ 9.40279371 8.34036837  6.9003399   8.81138241]
[ 9.55997508 -0.19999934  6.46431835 -0.19999302]
[ 8.78868385 -0.2         7.17396405  6.85637292]
[ 8.62340922 -0.2         6.2177663   7.07568345]
[ 7.14131971 -0.2         -0.9999999  6.4624257  ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]

```



```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
Q-table after episode 3878
[[-0.2      -1.      7.94149226 -0.2      ]
 [-0.2      8.51357137 6.14966216 6.67511124]
 [-0.2      -1.      -1.      7.37538438]
 [ 0.      0.      0.      0.      ]
 [ 7.65559173 8.8663827 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.1033941 6.79953009 -0.2      ]
 [ 8.08423379 8.81299406 8.64508919 6.89440702]
 [-1.      9.08553564 8.67996953 7.32472788]
 [ 7.240215 7.91436533 9.88551924 0.66422628]
 [ 6.96537143 8.49843015 9.10751731 8.97917658]
 [ 9.40279371 8.33749446 6.9003399 8.81138241]
 [ 9.58399515 -0.19999934 6.46431835 -0.19999302]
 [ 8.8136663 -0.2      7.17396405 9.02357509]
 [ 8.62340922 -0.2      6.2177663 8.35828565]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

```

Q-table after episode 3879
[[-0.2      -1.      8.19974131 -0.2      ]
 [-0.2      8.57130412 6.14966216 6.67511124]
 [-0.2      -1.      -1.      7.37538438]
 [ 0.      0.      0.      0.      ]
 [ 7.65559173 8.8663827 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.1033941 6.79953009 -0.2      ]
 [ 8.08423379 8.81299406 8.64508919 6.89440702]
 [-1.      9.08553564 8.67996953 7.32472788]
 [ 7.240215 7.91436533 9.88551924 0.66422628]
 [ 6.96537143 8.49843015 9.10751731 8.97917658]
 [ 9.40279371 8.33749446 6.9003399 8.81138241]
 [ 9.58399515 -0.19999934 6.46431835 -0.19999302]
 [ 8.8136663 -0.2      7.17396405 9.02357509]
 [ 8.62340922 -0.2      6.2177663 8.35828565]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]

```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3880

```

[[-0.2      -1.      8.27700611 -0.2      ]
 [-0.2      8.57130412  6.14966216  7.86232357]
 [-0.2      -1.      -1.      7.37538438]
 [ 0.      0.      0.      0.      ]
 [ 7.65559173 8.8663827 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.1033941  6.79953009 -0.2      ]
 [ 8.08423379 8.81299406 8.64508919 6.89440702]
 [-1.      9.08553564 8.67996953 7.32472788]
 [ 7.240215  7.91436533 9.88551924 0.66422628]
 [ 6.96537143 8.49843015 9.10751731 8.97917658]
 [ 9.40279371 8.33749446 6.9003399  8.81138241]
 [ 9.58399515 -0.19999934 6.46431835 -0.19999302]
 [ 8.8136663 -0.2      7.17396405 9.02357509]
 [ 8.62340922 -0.2      6.2177663  8.35828565]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

Q-table after episode 3881

```

[[-0.2      -1.      8.28473259 -0.2      ]
 [-0.2      8.5770774  6.14966216  7.86232357]
 [-0.2      -1.      -1.      7.37538438]
 [ 0.      0.      0.      0.      ]
 [ 7.65559173 8.55901598 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.1033941  6.79953009 -0.2      ]
 [ 8.08423379 8.81609733 8.64508919 6.89440702]
 [-1.      8.6187966  9.4959946  7.32472788]
 [ 7.240215  7.91436533 9.98855192 0.66422628]
 [ 6.96537143 8.49843015 9.10864093 8.97917658]
 [ 8.43940202 8.33749446 6.9003399  8.81138241]
 [ 9.58399515 -0.19999934 6.46431835 -0.19999302]
 [ 8.8136663 -0.2      7.17396405 9.02357509]
 [ 8.62340922 -0.2      6.2177663  8.35828565]

```

```

[ 7.14131971 -0.2      -0.9999999  6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3882

```

[[-0.2      -1.          8.29124089 -0.2      ]
 [-0.2      8.27646233  6.14966216  7.99320081]
 [-0.2      -1.          -1.          7.37538438]
 [ 0.          0.          0.          0.          ]
 [ 7.98423693 8.53104431 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          7.1033941  6.79953009 -0.2      ]
 [ 8.08423379 8.8174088  8.64508919  6.89440702]
 [-1.          8.6187966  9.4959946  7.32472788]
 [ 7.240215  9.15077621  9.38824142  0.66422628]
 [ 6.96537143 8.70984842  8.43129244  9.61771742]
 [ 8.43940202 8.33749446  6.9003399  8.69060479]
 [ 9.67819928 -0.19999934 6.46431835 -0.19999302]
 [ 8.8136663  -0.2      7.17396405  9.02357509]
 [ 8.62340922 -0.2      6.2177663  8.35828565]
 [ 7.14131971 -0.2      -0.9999999  6.4624257 ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3883

```

[[-0.2      -1.          7.99667314 -0.2      ]
 [-0.2      8.24604116  6.14966216  7.76821584]
 [-0.2      -1.          -1.          7.37538438]
 [ 0.          0.          0.          0.          ]
 [ 7.96811048 8.53104431 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          7.1033941  6.79953009 -0.2      ]
 [ 8.08423379 8.8174088  8.64508919  6.89440702]
 [-1.          8.6187966  9.4959946  7.32472788]
 [ 7.240215  9.15077621  9.38824142  0.66422628]
 [ 6.96537143 8.70984842  8.43129244  9.61771742]

```

```

[ 8.43940202  8.33749446  6.9003399  8.69060479]
[ 9.67819928 -0.19999934  6.46431835 -0.19999302]
[ 8.8136663   -0.2         7.17396405  9.02357509]
[ 8.62340922 -0.2         6.2177663   8.35828565]
[ 7.14131971 -0.2        -0.9999999  6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3884

```

[[-0.2        -1.          7.96688998 -0.2         ]
 [-0.2         8.2457646  6.14966216  7.76821584]
 [-0.2        -1.          -1.          7.37538438]
 [ 0.          0.          0.          0.          ]
 [ 7.96811048  8.52941567 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          7.1033941  6.79953009 -0.2         ]
 [ 8.08423379  8.8174088  8.64508919  6.83856485]
 [-1.          8.6187966  9.4959946  7.32472788]
 [ 7.240215    9.15077621  9.38824142  0.66422628]
 [ 6.96537143  8.70984842  8.43129244  9.61771742]
 [ 8.43940202  8.33749446  6.9003399  8.69060479]
 [ 9.67819928 -0.19999934  6.46431835 -0.19999302]
 [ 8.8136663   -0.2         7.17396405  9.02357509]
 [ 8.62340922 -0.2         6.2177663   8.35828565]
 [ 7.14131971 -0.2        -0.9999999  6.4624257 ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3885

```

[[-0.2        -1.          7.96366526 -0.2         ]
 [-0.2         8.24428582  6.14966216  7.76821584]
 [-0.2        -1.          -1.          7.37538438]
 [ 0.          0.          0.          0.          ]
 [ 7.96811048  8.52925281 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          8.89526251  6.79953009 -0.2         ]

```

```

[ 8.08423379  9.2711271  8.64508919  6.83856485]
[-1.          8.6187966  9.4959946  7.32472788]
[ 6.87314565  9.35835318  8.90852925  0.66422628]
[ 6.96537143  8.70984842  8.43129244  8.88801109]
[ 8.43940202  8.33749446  6.9003399  8.69060479]
[ 9.67819928 -0.19999993  6.46431835 -0.19999302]
[ 8.8136663  -0.2        7.17396405  9.02357509]
[ 8.62340922 -0.2        6.2177663  8.35828565]
[ 7.14131971 -0.2        -0.9999999  6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3886

```

[[-0.2        -1.          7.96366526 -0.2        ]
 [-0.2        8.24428582  6.14966216  7.76821584]
 [-0.2        -1.          -1.          7.37538438]
 [ 0.          0.          0.          0.          ]
 [ 7.96811048  8.52925281 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          8.89526251  6.79953009 -0.2        ]
 [ 8.08423379  9.2711271  8.64508919  6.83856485]
 [-1.          8.6187966  9.4959946  7.32472788]
 [ 6.87314565  9.35835318  8.90852925  0.66422628]
 [ 6.96537143  8.70984842  8.43129244  8.88801109]
 [ 8.43940202  8.33749446  6.9003399  8.69060479]
 [ 9.67819928 -0.19999993  6.46431835 -0.19999302]
 [ 8.8136663  -0.2        7.17396405  9.02357509]
 [ 8.62340922 -0.2        6.2177663  8.35828565]
 [ 7.14131971 -0.2        -0.9999999  6.4624257 ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3887

```

[[-0.2        -1.          7.96202519 -0.2        ]
 [-0.2        8.24399283  6.14966216  7.76821584]
 [-0.2        -1.          -1.          7.37538438]

```

```

[ 0.      0.      0.      0.      ]
[ 7.96811048 8.52925281 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      8.89526251 6.79953009 -0.2      ]
[ 8.08423379 9.2711271 8.64508919 6.83856485]
[-1.      8.6187966 9.4959946 7.32472788]
[ 6.87314565 9.35835318 8.90852925 0.66422628]
[ 6.96537143 8.70984842 8.43129244 8.88801109]
[ 8.43940202 8.33749446 6.9003399 8.69060479]
[ 9.67819928 -0.19999993 6.46431835 -0.19999302]
[ 8.8136663 -0.2      7.17396405 9.02357509]
[ 8.62340922 -0.2      6.2177663 8.35828565]
[ 7.14131971 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3888

```

[[-0.2      -1.      7.96155763 -0.2      ]
[-0.2      8.24396353 6.14966216 7.6906073 ]
[-0.2      -1.      -1.      7.37538438]
[ 0.      0.      0.      0.      ]
[ 7.96811048 8.52925281 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      8.89526251 6.79953009 -0.2      ]
[ 8.08423379 9.2711271 8.64508919 6.83856485]
[-1.      8.6187966 9.4959946 7.32472788]
[ 6.87314565 9.35835318 8.90852925 0.66422628]
[ 6.96537143 8.70984842 8.43129244 8.88801109]
[ 8.43940202 8.33749446 6.9003399 8.69060479]
[ 9.67819928 -0.19999993 6.46431835 -0.19999302]
[ 8.8136663 -0.2      7.17396405 9.02357509]
[ 8.62340922 -0.2      6.2177663 8.35828565]
[ 7.14131971 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3889

```
[[-0.2      -1.      7.96152727 -0.2      ]
 [-0.2      8.24396353 6.14966216 7.6906073 ]
 [-0.2      -1.      -1.      7.37538438]
 [ 0.      0.      0.      0.      ]
 [ 7.96811048 8.52925281 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.89526251 6.79953009 -0.2      ]
 [ 8.08423379 9.2711271 8.64508919 6.83856485]
 [-1.      8.6187966 9.4959946 7.32472788]
 [ 6.87314565 9.35835318 8.90852925 0.66422628]
 [ 6.96537143 8.70984842 8.43129244 8.88801109]
 [ 8.43940202 8.33749446 6.9003399 8.69060479]
 [ 9.67819928 -0.19999993 6.46431835 -0.19999302]
 [ 8.8136663 -0.2      7.17396405 9.02357509]
 [ 8.62340922 -0.2      6.2177663 8.35828565]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]
```

Q-table after episode 3890

```
[[-0.2      -1.      7.96152727 -0.2      ]
 [-0.2      8.24396353 6.14966216 7.6906073 ]
 [-0.2      -1.      -1.      7.37538438]
 [ 0.      0.      0.      0.      ]
 [ 7.96811048 8.52925281 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.89526251 6.79953009 -0.2      ]
 [ 8.08423379 9.2711271 8.64508919 6.83856485]
 [-1.      8.6187966 9.4959946 7.32472788]
 [ 6.87314565 9.35835318 8.90852925 0.66422628]
 [ 6.96537143 8.70984842 8.43129244 8.88801109]
 [ 8.43940202 8.33749446 6.9003399 8.69060479]
 [ 9.67819928 -0.19999993 6.46431835 -0.19999302]
 [ 8.8136663 -0.2      7.17396405 9.02357509]
 [ 8.62340922 -0.2      6.2177663 8.35828565]
 [ 7.14131971 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]
```

```
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
```

Q-table after episode 3891

```
[[-0.2      -1.      7.96152424 -0.2      ]
[-0.2      8.2439606  6.14966216  7.6906073 ]
[-0.2      -1.      -1.      7.37538438]
[ 0.      0.      0.      0.      ]
[ 7.96811048 8.93349953 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      8.89526251  6.79953009 -0.2      ]
[ 8.08423379 9.2711271  9.14544011  6.83856485]
[-1.      8.6187966  9.10789214  7.32472788]
[ 6.87314565 9.35835318 9.89085292  0.66422628]
[ 6.96537143 8.70984842 8.43129244  8.88801109]
[ 8.43940202 8.33749446 6.9003399  8.69060479]
[ 9.67819928 -0.19999993 6.46431835 -0.19999302]
[ 8.8136663 -0.2      7.17396405  9.02357509]
[ 8.62340922 -0.2      6.2177663  8.35828565]
[ 7.14131971 -0.2      -0.9999999  6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
```

Q-table after episode 3892

```
[[-0.2      -1.      7.96152424 -0.2      ]
[-0.2      8.2439606  6.14966216  7.6906073 ]
[-0.2      -1.      -1.      7.37538438]
[ 0.      0.      0.      0.      ]
[ 7.96811048 8.93349953 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      8.89526251  6.79953009 -0.2      ]
[ 8.08423379 9.2711271  9.14544011  6.83856485]
[-1.      8.6187966  9.10789214  7.32472788]
[ 6.87314565 9.35835318 9.89085292  0.66422628]
[ 6.96537143 8.70984842 8.43129244  8.88801109]
[ 8.43940202 8.33749446 6.9003399  8.69060479]
[ 9.67819928 -0.19999993 6.46431835 -0.19999302]
[ 8.8136663 -0.2      7.17396405  9.02357509]
[ 8.62340922 -0.2      6.2177663  8.35828565]
[ 7.14131971 -0.2      -0.9999999  6.4624257 ]
[ 0.      0.      0.      0.      ]]
```



```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3893

```

[[-0.2      -1.      7.96152424 -0.2      ]
 [-0.2      8.2439606  6.14966216  7.6906073 ]
 [-0.2      -1.      -1.      7.37538438]
 [ 0.      0.      0.      0.      ]
 [ 7.96811048 8.93349953 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.89526251  6.79953009 -0.2      ]
 [ 8.08423379 9.2711271  9.14544011  6.83856485]
 [-1.      8.6187966  9.10789214  7.32472788]
 [ 6.87314565 9.35835318 9.89085292  0.66422628]
 [ 6.96537143 8.70984842 8.43129244  8.88801109]
 [ 8.43940202 8.33749446 6.9003399  8.69060479]
 [ 9.67819928 -0.19999993 6.46431835 -0.19999302]
 [ 8.8136663  -0.2      7.17396405  9.02357509]
 [ 8.62340922 -0.2      6.2177663  8.35828565]
 [ 7.14131971 -0.2      -0.9999999  6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

Q-table after episode 3894

```

[[-0.2      -1.      7.96152424 -0.2      ]
 [-0.2      8.2439606  6.14966216  7.6906073 ]
 [-0.2      -1.      -1.      7.37538438]
 [ 0.      0.      0.      0.      ]
 [ 7.96811048 8.93349953 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.89526251  6.79953009 -0.2      ]
 [ 8.08423379 9.2711271  9.14544011  6.83856485]
 [-1.      8.6187966  9.10789214  7.32472788]
 [ 6.87314565 9.35835318 9.89085292  0.66422628]
 [ 6.96537143 8.70984842 8.43129244  8.88801109]
 [ 8.43940202 8.33749446 6.9003399  8.69060479]
 [ 9.67819928 -0.19999993 6.46431835 -0.19999302]

```

[ 8.8136663	-0.2	7.17396405	9.02357509]
[ 8.62340922	-0.2	6.2177663	8.35828565]
[ 7.14131971	-0.2	-0.9999999	6.4624257 ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]]

Q-table after episode 3895

[[-0.2	-1.	8.28244456	-0.2	]
[-0.2	8.64016249	7.84807667	7.68277623]	
[-0.2	-1.	-1.	8.30867552]	
[ 0.	0.	0.	0. ]	
[ 8.28310348	8.93349953	-1.	-1. ]	
[ 0.	0.	0.	0. ]	
[-1.	8.89526251	6.79953009	-0.2 ]	
[ 8.08423379	9.2711271	9.14544011	6.83856485]	
[-1.	8.6187966	9.10789214	7.32472788]	
[ 6.87314565	9.35835318	9.89085292	0.66422628]	
[ 6.96537143	8.70984842	8.43129244	8.88801109]	
[ 8.43940202	8.33749446	6.9003399	8.69060479]	
[ 9.67819928	-0.19999993	6.46431835	-0.19999302]	
[ 8.8136663	-0.2	7.17396405	9.02357509]	
[ 8.62340922	-0.2	6.2177663	8.35828565]	
[ 7.14131971	-0.2	-0.9999999	6.4624257 ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]]	

Q-table after episode 3896

[[-0.2	-1.	8.34662924	-0.2	]
[-0.2	8.64376433	7.84807667	7.68277623]	
[-0.2	-1.	-1.	8.30867552]	
[ 0.	0.	0.	0. ]	
[ 8.28310348	8.9739242	-1.	-1. ]	
[ 0.	0.	0.	0. ]	
[-1.	8.89526251	6.79953009	-0.2 ]	
[ 8.08423379	8.66633059	8.84967591	6.83856485]	
[-1.	8.6187966	9.0690819	7.32472788]	

```

[ 6.87314565  8.90575656  9.92927873  0.66422628]
[ 8.66512428  8.70984842  8.40645811  9.52155106]
[ 8.43940202  8.33720706  6.9003399   9.17276248]
[ 9.01433425 -0.19999993  6.46431835 -0.19999302]
[ 8.8136663   -0.2        7.17396405  9.02357509]
[ 8.42566979 -0.2        6.2177663   8.35828565]
[ 7.14131971 -0.2        -0.9999999   6.4624257  ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3897

```

[[-0.2        -1.          8.35625694 -0.2        ]
 [-0.2        8.6801429   7.84807667  7.68277623]
 [-0.2        -1.          -1.          8.30867552]
 [ 0.          0.          0.          0.          ]
 [ 8.28310348  8.9739242  -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          8.89526251  6.79953009 -0.2        ]
 [ 8.08423379  8.66633059  8.84967591  6.83856485]
 [-1.          8.6187966   9.0690819   7.32472788]
 [ 6.87314565  8.90575656  9.92927873  0.66422628]
 [ 8.66512428  8.70984842  8.40645811  9.52155106]
 [ 8.43940202  8.33720706  6.9003399   9.17276248]
 [ 9.01433425 -0.19999993  6.46431835 -0.19999302]
 [ 8.8136663   -0.2        7.17396405  9.02357509]
 [ 8.42566979 -0.2        6.2177663   8.35828565]
 [ 7.14131971 -0.2        -0.9999999   6.4624257  ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3898

```

[[-0.2        -1.          8.38963302 -0.2        ]
 [-0.2        8.68378075  7.84807667  7.68277623]
 [-0.2        -1.          -1.          8.30867552]
 [ 0.          0.          0.          0.          ]
 [ 8.28310348  8.60245366 -1.          -1.          ]

```

```

[ 0.      0.      0.      0.      ]
[-1.      8.89526251  6.79953009 -0.2      ]
[ 8.08423379  8.66633059  8.78551956  6.83856485]
[-1.      8.6187966  9.57389554  7.32472788]
[-0.21268544  8.90575656  9.92927873  0.66422628]
[ 8.66512428  8.70984842  8.40645811  9.52155106]
[ 8.43940202  8.33720706  6.9003399  9.17276248]
[ 9.01433425 -0.19999993  6.46431835 -0.19999302]
[ 8.8136663  -0.2      7.17396405  9.02357509]
[ 8.42566979 -0.2      6.2177663  8.35828565]
[ 7.14131971 -0.2      -0.9999999  6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3899

```

[[-0.2      -1.      8.38963302 -0.2      ]
[-0.2      8.68378075  7.84807667  7.68277623]
[-0.2      -1.      -1.      8.30867552]
[ 0.      0.      0.      0.      ]
[ 8.28310348  8.60245366 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      8.89526251  6.79953009 -0.2      ]
[ 8.08423379  8.66633059  8.78551956  6.83856485]
[-1.      8.6187966  9.57389554  7.32472788]
[-0.21268544  8.90575656  9.92927873  0.66422628]
[ 8.66512428  8.70984842  8.40645811  9.52155106]
[ 8.43940202  8.33720706  6.9003399  9.17276248]
[ 9.01433425 -0.19999993  6.46431835 -0.19999302]
[ 8.8136663  -0.2      7.17396405  9.02357509]
[ 8.42566979 -0.2      6.2177663  8.35828565]
[ 7.14131971 -0.2      -0.9999999  6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3900

```

[[-0.2      -1.      8.39621195 -0.2      ]

```

```

[-0.2      8.35316428  7.84807667  7.68277623]
[-0.2      -1.         -1.         8.30867552]
[ 0.         0.         0.         0.         ]
[ 8.28310348 8.50814329 -1.         -1.         ]
[ 0.         0.         0.         0.         ]
[-1.         8.89526251  6.79953009 -0.2         ]
[ 8.08423379 8.66633059  9.22889288  6.83856485]
[-1.         8.6187966  9.6243769  7.32472788]
[-0.21268544 8.90575656  9.99292787  0.66422628]
[ 8.66512428 8.70984842  8.40645811  9.52155106]
[ 8.43940202 8.33720706  6.9003399  9.17276248]
[ 9.01433425 -0.19999993  6.46431835 -0.19999302]
[ 8.8136663  -0.2         7.17396405  9.02357509]
[ 8.42566979 -0.2         6.2177663  8.35828565]
[ 7.14131971 -0.2         -0.9999999  6.4624257 ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]]

```

Q-table after episode 3901

```

[[-0.2      -1.         8.39621195 -0.2         ]
[-0.2      8.35316428  7.84807667  7.68277623]
[-0.2      -1.         -1.         8.30867552]
[ 0.         0.         0.         0.         ]
[ 8.28310348 8.50814329 -1.         -1.         ]
[ 0.         0.         0.         0.         ]
[-1.         8.89526251  6.79953009 -0.2         ]
[ 8.08423379 8.66633059  9.22889288  6.83856485]
[-1.         8.6187966  9.6243769  7.32472788]
[-0.21268544 8.90575656  9.99292787  0.66422628]
[ 8.66512428 8.70984842  8.40645811  9.52155106]
[ 8.43940202 8.33720706  6.9003399  9.17276248]
[ 9.01433425 -0.19999993  6.46431835 -0.19999302]
[ 8.8136663  -0.2         7.17396405  9.02357509]
[ 8.42566979 -0.2         6.2177663  8.35828565]
[ 7.14131971 -0.2         -0.9999999  6.4624257 ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]

```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
Q-table after episode 3902
[[-0.2      -1.      8.39621195 -0.2      ]
 [-0.2      8.35316428  7.84807667  7.68277623]
 [-0.2      -1.      -1.      8.30867552]
 [ 0.      0.      0.      0.      ]
 [ 8.28310348 8.50814329 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.89526251  6.79953009 -0.2      ]
 [ 8.08423379 8.66633059  9.22889288  6.83856485]
 [-1.      8.6187966  9.6243769  7.32472788]
 [-0.21268544 8.90575656  9.99292787  0.66422628]
 [ 8.66512428 8.70984842  8.40645811  9.52155106]
 [ 8.43940202 8.33720706  6.9003399  9.17276248]
 [ 9.01433425 -0.19999993  6.46431835 -0.19999302]
 [ 8.8136663 -0.2      7.17396405  9.02357509]
 [ 8.42566979 -0.2      6.2177663  8.35828565]
 [ 7.14131971 -0.2      -0.9999999  6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

```

Q-table after episode 3903
[[-0.2      -1.      8.10229057 -0.2      ]
 [-0.2      8.2360721  7.84807667  7.68277623]
 [-0.2      -1.      -1.      8.30867552]
 [ 0.      0.      0.      0.      ]
 [ 8.28310348 8.50814329 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.89526251  6.79953009 -0.2      ]
 [ 8.08423379 8.66633059  9.22889288  6.83856485]
 [-1.      8.6187966  9.6243769  7.32472788]
 [-0.21268544 8.90575656  9.99292787  0.66422628]
 [ 8.66512428 8.70984842  8.40645811  9.52155106]
 [ 8.43940202 8.33720706  6.9003399  9.17276248]
 [ 9.01433425 -0.19999993  6.46431835 -0.19999302]
 [ 8.8136663 -0.2      7.17396405  9.02357509]
 [ 8.42566979 -0.2      6.2177663  8.35828565]
 [ 7.14131971 -0.2      -0.9999999  6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]

```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3904

```

[[-0.2      -1.      7.9685693 -0.2      ]
 [-0.2      8.2360721  8.00783755  7.68277623]
 [-0.2      -1.      -1.      8.30867552]
 [ 0.      0.      0.      0.      ]
 [ 8.28310348 8.50814329 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.89526251  6.79953009 -0.2      ]
 [ 8.08423379 8.66633059  9.22889288  6.83856485]
 [-1.      8.6187966  9.6243769  7.32472788]
 [-0.21268544 8.90575656  9.99292787  0.66422628]
 [ 8.66512428 8.70984842  8.40645811  9.52155106]
 [ 8.43940202 8.33720706  6.9003399  9.17276248]
 [ 9.01433425 -0.19999993  6.46431835 -0.19999302]
 [ 8.8136663 -0.2      7.17396405  9.02357509]
 [ 8.42566979 -0.2      6.2177663  8.35828565]
 [ 7.14131971 -0.2      -0.9999999  6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

Q-table after episode 3905

```

[[-0.2      -1.      7.95519717 -0.2      ]
 [-0.2      8.22436289  8.00783755  7.68277623]
 [-0.2      -1.      -1.      8.30867552]
 [ 0.      0.      0.      0.      ]
 [ 8.28310348 8.50814329 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.89526251  6.79953009 -0.2      ]
 [ 8.08423379 8.66633059  9.22889288  6.83856485]
 [-1.      8.6187966  9.6243769  7.32472788]
 [-0.21268544 8.90575656  9.99292787  0.66422628]
 [ 8.66512428 8.70984842  8.40645811  9.52155106]
 [ 8.43940202 8.33720706  6.9003399  9.17276248]
 [ 9.01433425 -0.19999993  6.46431835 -0.19999302]
 [ 8.8136663 -0.2      7.17396405  9.02357509]
 [ 8.42566979 -0.2      6.2177663  8.35828565]

```

```

[ 7.14131971 -0.2      -0.9999999  6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3906

```

[[-0.2      -1.          7.94342705 -0.2      ]
 [-0.2      8.22319196  8.00783755  7.68277623]
 [-0.2      -1.          -1.          8.30867552]
 [ 0.          0.          0.          0.          ]
 [ 8.28310348 8.89375789 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          8.89526251 6.79953009 -0.2      ]
 [ 8.08423379 8.66633059 9.31820911 6.83856485]
 [-1.          8.85481103 9.6243769  7.32472788]
 [-0.21268544 9.37907169 8.82376048 0.66422628]
 [ 8.66512428 8.70984842 8.83357718 9.0004448 ]
 [ 8.43940202 8.50852828 6.9003399  8.81073725]
 [ 9.68621195 -0.19999993 6.46431835 -0.19999993 ]
 [ 8.8136663  -0.2      7.17396405  8.75412932]
 [ 8.83549835 -0.2      6.2177663  8.69583397]
 [ 7.14131971 -0.2      -0.9999999  6.4624257 ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3907

```

[[-0.2      -1.          7.94342705 -0.2      ]
 [-0.2      8.22319196  8.00783755  7.68277623]
 [-0.2      -1.          -1.          8.30867552]
 [ 0.          0.          0.          0.          ]
 [ 8.28310348 8.89375789 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          8.89526251 6.79953009 -0.2      ]
 [ 8.08423379 8.66633059 9.31820911 6.83856485]
 [-1.          8.85481103 9.6243769  7.32472788]
 [-0.21268544 9.37907169 8.82376048 0.66422628]
 [ 8.66512428 8.70984842 8.83357718 9.0004448 ]

```



```

[ 8.43940202  8.50852828  6.9003399  8.81073725]
[ 9.68621195 -0.19999993  6.46431835 -0.19999993 ]
[ 8.8136663   -0.2         7.17396405  8.75412932]
[ 8.83549835  -0.2         6.2177663   8.69583397]
[ 7.14131971  -0.2        -0.9999999   6.4624257  ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3908

```

[[-0.2        -1.          7.94120674 -0.2         ]
 [-0.2         8.56665747  8.00783755  7.68277623]
 [-0.2        -1.          -1.          8.30867552]
 [ 0.          0.          0.          0.          ]
 [ 8.28310348  9.0119001  -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          8.89526251  6.79953009 -0.2         ]
 [ 8.08423379  8.66633059  9.32714073  6.83856485]
 [-1.          8.85481103  9.09488631  7.32472788]
 [-0.21268544  8.44389186  8.82376048  8.73007649]
 [ 8.66512428  8.70984842  8.83357718  9.0004448  ]
 [ 8.43940202  8.50852828  6.9003399  8.81073725]
 [ 8.67836302  6.16291587 -0.25356817 -0.19999993 ]
 [ 8.8136663   -0.2         7.17396405  8.75412932]
 [ 8.83549835  -0.2         6.2177663   8.69583397]
 [ 8.26655342  -0.2        -0.9999999   6.4624257  ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3909

```

[[-0.2        -1.          8.24701248 -0.2         ]
 [-0.2         8.70626874  8.00783755  7.68277623]
 [-0.2        -1.          -1.          8.30867552]
 [ 0.          0.          0.          0.          ]
 [ 8.28310348  9.0316724  -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          8.89526251  8.8104354  -0.2         ]

```

```

[ 8.08423379  8.66633059  8.85625778  8.42953538]
[-1.          8.85481103  8.59145922  7.32472788]
[-0.21268544  8.44389186  9.88237605  8.73007649]
[ 8.66512428  8.70984842  8.83357718  9.0004448 ]
[ 8.43940202  8.50852828  6.9003399   8.81073725]
[ 8.67836302  6.16291587 -0.25356817 -0.1999993 ]
[ 8.8136663   -0.2        7.17396405  8.75412932]
[ 8.83549835  -0.2        6.2177663   8.69583397]
[ 8.26655342  -0.2       -0.9999999   6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3910

```

[[-0.2        -1.          8.40198669 -0.2        ]
 [-0.2        8.73784698  8.00783755  7.68277623]
 [-0.2        -1.          -1.          8.30867552]
 [ 0.          0.          0.          0.          ]
 [ 8.28310348  9.0316724  -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          8.89526251  8.8104354  -0.2        ]
 [ 8.08423379  8.66633059  8.85625778  8.42953538]
 [-1.          8.85481103  8.59145922  7.32472788]
 [-0.21268544  8.44389186  9.88237605  8.73007649]
 [ 8.66512428  8.70984842  8.83357718  9.0004448 ]
 [ 8.43940202  8.50852828  6.9003399   8.81073725]
 [ 8.67836302  6.16291587 -0.25356817 -0.1999993 ]
 [ 8.8136663   -0.2        7.17396405  8.75412932]
 [ 8.83549835  -0.2        6.2177663   8.69583397]
 [ 8.26655342  -0.2       -0.9999999   6.4624257 ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3911

```

[[-0.2        -1.          8.44562033 -0.2        ]
 [-0.2        8.74100481  8.00783755  7.68277623]
 [-0.2        -1.          -1.          8.30867552]

```

```

[ 0.      0.      0.      0.      ]
[ 8.28310348 9.0316724 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      8.89526251 8.8104354 -0.2      ]
[ 8.08423379 8.66633059 8.85625778 8.42953538]
[-1.      8.85481103 8.59145922 7.32472788]
[-0.21268544 8.44389186 9.88237605 8.73007649]
[ 8.66512428 8.70984842 8.83357718 9.0004448 ]
[ 8.43940202 8.50852828 6.9003399 8.81073725]
[ 8.67836302 6.16291587 -0.25356817 -0.1999993 ]
[ 8.8136663 -0.2      7.17396405 8.75412932]
[ 8.83549835 -0.2      6.2177663 8.69583397]
[ 8.26655342 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3912

```

[[-0.2      -1.      8.44562033 -0.2      ]
[-0.2      8.74100481 8.00783755 7.68277623]
[-0.2      -1.      -1.      8.30867552]
[ 0.      0.      0.      0.      ]
[ 8.28310348 9.0316724 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      8.89526251 8.8104354 -0.2      ]
[ 8.08423379 8.66633059 8.85625778 8.42953538]
[-1.      8.85481103 8.59145922 7.32472788]
[-0.21268544 8.44389186 9.88237605 8.73007649]
[ 8.66512428 8.70984842 8.83357718 9.0004448 ]
[ 8.43940202 8.50852828 6.9003399 8.81073725]
[ 8.67836302 6.16291587 -0.25356817 -0.1999993 ]
[ 8.8136663 -0.2      7.17396405 8.75412932]
[ 8.83549835 -0.2      6.2177663 8.69583397]
[ 8.26655342 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3913

```
[[-0.2      -1.      8.45279732 -0.2      ]
 [-0.2      8.74100481 8.02381364 7.68277623]
 [-0.2      -1.      -1.      8.30867552]
 [ 0.      0.      0.      0.      ]
 [ 8.28310348 9.0316724 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.89526251 8.8104354 -0.2      ]
 [ 8.08423379 8.66633059 8.85625778 8.42953538]
 [-1.      8.85481103 8.59145922 7.32472788]
 [-0.21268544 8.44389186 9.88237605 8.73007649]
 [ 8.66512428 8.70984842 8.83357718 9.0004448 ]
 [ 8.43940202 8.50852828 6.9003399 8.81073725]
 [ 8.67836302 6.16291587 -0.25356817 -0.1999993 ]
 [ 8.8136663 -0.2      7.17396405 8.75412932]
 [ 8.83549835 -0.2      6.2177663 8.69583397]
 [ 8.26655342 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]
```

Q-table after episode 3914

```
[[-0.2      -1.      8.45351501 -0.2      ]
 [-0.2      8.74135217 8.02381364 7.68277623]
 [-0.2      -1.      -1.      8.30867552]
 [ 0.      0.      0.      0.      ]
 [ 8.43682699 8.61409292 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.89526251 8.59196922 -0.2      ]
 [ 8.08423379 8.70602938 8.85625778 8.58863244]
 [-1.      8.85481103 8.59145922 7.32472788]
 [-0.21268544 8.65184796 8.81714656 8.73007649]
 [ 8.66512428 8.70984842 8.44531127 8.5815348 ]
 [ 8.43940202 8.54328185 6.9003399 8.75967078]
 [ 8.96988429 6.16291587 -0.25356817 -0.19999993]
 [ 8.8136663 -0.2      7.17396405 8.75412932]
 [ 8.47348864 -0.2      6.2177663 8.69583397]
 [ 8.26655342 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]
```

```
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
```

Q-table after episode 3915

```
[[-0.2      -1.      8.45351501 -0.2      ]
[-0.2      8.74135217 8.02381364 7.68277623]
[-0.2      -1.      -1.      8.30867552]
[ 0.      0.      0.      0.      ]
[ 8.43682699 8.61409292 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      8.89526251 8.59196922 -0.2      ]
[ 8.08423379 8.70602938 8.85625778 8.58863244]
[-1.      8.85481103 8.59145922 7.32472788]
[-0.21268544 8.65184796 8.81714656 8.73007649]
[ 8.66512428 8.70984842 8.44531127 8.5815348 ]
[ 8.43940202 8.54328185 6.9003399 8.75967078]
[ 8.96988429 6.16291587 -0.25356817 -0.19999993]
[ 8.8136663 -0.2      7.17396405 8.75412932]
[ 8.47348864 -0.2      6.2177663 8.69583397]
[ 8.26655342 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
```

Q-table after episode 3916

```
[[-0.2      -1.      8.45393822 -0.2      ]
[-0.2      8.36929201 8.02381364 8.16452548]
[-0.2      -1.      -1.      8.30867552]
[ 0.      0.      0.      0.      ]
[ 8.43682699 8.57233497 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      8.56560383 8.59196922 -0.2      ]
[ 8.08423379 8.70602938 8.5952624 8.60454214]
[-1.      8.85481103 8.59145922 7.32472788]
[-0.21268544 8.65184796 8.4621896 8.73007649]
[ 8.57743811 8.54396152 8.44531127 8.5815348 ]
[ 8.43940202 8.54328185 6.9003399 8.75967078]
[ 8.96988429 6.16291587 -0.25356817 -0.19999993]
[ 8.42199236 -0.2      7.17396405 8.75412932]
[ 8.47348864 -0.2      6.2177663 8.69583397]
[ 8.26655342 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]]
```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3917

```

[[-0.2      -1.      8.45393822 -0.2      ]
 [-0.2      8.36929201 8.02381364 8.16452548]
 [-0.2      -1.      -1.      8.30867552]
 [ 0.      0.      0.      0.      ]
 [ 8.43682699 8.57233497 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.56560383 8.59196922 -0.2      ]
 [ 8.08423379 8.70602938 8.5952624 8.60454214]
 [-1.      8.85481103 8.59145922 7.32472788]
 [-0.21268544 8.65184796 8.4621896 8.73007649]
 [ 8.57743811 8.54396152 8.44531127 8.5815348 ]
 [ 8.43940202 8.54328185 6.9003399 8.75967078]
 [ 8.96988429 6.16291587 -0.25356817 -0.19999993]
 [ 8.42199236 -0.2      7.17396405 8.75412932]
 [ 8.47348864 -0.2      6.2177663 8.69583397]
 [ 8.26655342 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

Q-table after episode 3918

```

[[-0.2      -1.      8.122433  -0.2      ]
 [-0.2      8.29487966 8.02381364 8.16452548]
 [-0.2      -1.      -1.      8.30867552]
 [ 0.      0.      0.      0.      ]
 [ 8.43682699 8.43430567 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.56560383 8.59196922 -0.2      ]
 [ 8.08423379 8.33675044 8.5952624 8.60454214]
 [-1.      8.85481103 8.59145922 7.32472788]
 [-0.21268544 8.65184796 8.4621896 8.73007649]
 [ 8.57743811 8.47432538 8.44531127 8.5815348 ]
 [ 8.43940202 8.54328185 6.9003399 8.75967078]
 [ 8.96988429 6.16291587 -0.92535682 -0.19999993]

```



```

[-0.21268544  8.65184796  8.4621896  8.73007649]
[ 8.57743811  8.47432538  8.44531127  8.5815348 ]
[ 8.43940202  8.54328185  6.9003399  8.75967078]
[ 8.96988429  6.16291587 -0.92535682 -0.19999993]
[ 8.42199236 -0.2      8.28538447  8.75412932]
[ 8.47348864 -0.2      7.80727572  8.69583397]
[ 8.63882224 -0.2      -0.9999999  6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3921

```

[[-0.2      -1.          7.89882854 -0.2      ]
[-0.2      8.16670082  8.02541125  8.16452548]
[-0.2      -1.          -1.          8.30867552]
[ 0.        0.          0.          0.          ]
[ 8.43682699 8.43430567 -1.          -1.          ]
[ 0.        0.          0.          0.          ]
[-1.        8.56560383  8.59196922 -0.2      ]
[ 8.08423379 8.33675044  8.5952624  8.60454214]
[-1.        8.85481103  8.59145922  7.32472788]
[-0.21268544 8.65184796  8.4621896  8.73007649]
[ 8.57743811 8.47432538  8.44531127  8.5815348 ]
[ 8.43940202 8.54328185  6.9003399  8.75967078]
[ 8.96988429 6.16291587 -0.92535682 -0.19999993]
[ 8.42199236 -0.2      8.28538447  8.75412932]
[ 8.47348864 -0.2      7.80727572  8.69583397]
[ 8.63882224 -0.2      -0.9999999  6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3922

```

[[-0.2      -1.          7.88641328 -0.2      ]
[-0.2      8.16670082  8.02541125  8.16452548]
[-0.2      -1.          -1.          8.30867552]
[ 0.        0.          0.          0.          ]
[ 8.43682699 8.43430567 -1.          -1.          ]

```



```

[ 0.      0.      0.      0.      ]
[-1.      8.56560383 8.59196922 -0.2      ]
[ 8.08423379 8.33675044 8.5952624 8.60454214]
[-1.      8.85481103 8.59145922 7.32472788]
[-0.21268544 8.65184796 8.4621896 8.73007649]
[ 8.57743811 8.47432538 8.44531127 8.5815348 ]
[ 8.43940202 8.54328185 6.9003399 8.75967078]
[ 8.96988429 6.16291587 -0.92535682 -0.19999993]
[ 8.42199236 -0.2      8.28538447 8.75412932]
[ 8.47348864 -0.2      7.80727572 8.69583397]
[ 8.63882224 -0.2      -0.99999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3923

```

[[-0.2      -1.      7.87362687 -0.2      ]
[-0.2      8.15388293 8.02541125 7.66214058]
[-0.2      -1.      -1.      8.30867552]
[ 0.      0.      0.      0.      ]
[ 7.9382749 8.43430567 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      8.56560383 8.59196922 -0.2      ]
[ 8.08423379 8.33675044 8.5952624 8.60454214]
[-1.      8.85481103 8.59145922 7.32472788]
[-0.21268544 8.65184796 8.4621896 8.73007649]
[ 8.57743811 8.47432538 8.44531127 8.5815348 ]
[ 8.43940202 8.54328185 6.9003399 8.75967078]
[ 8.96988429 6.16291587 -0.92535682 -0.19999993]
[ 8.42199236 -0.2      8.28538447 8.75412932]
[ 8.47348864 -0.2      7.80727572 8.69583397]
[ 8.63882224 -0.2      -0.99999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3924

```

[[-0.2      -1.      7.87247238 -0.2      ]

```

```

[-0.2      8.15035465  8.02541125  7.66214058]
[-0.2      -1.         -1.         8.30867552]
[ 0.         0.         0.         0.         ]
[ 7.9382749  8.33007762 -1.         -1.         ]
[ 0.         0.         0.         0.         ]
[-1.         8.56560383  8.59196922 -0.2         ]
[ 8.08423379 8.29982255  8.5952624  8.60454214]
[-1.         8.85481103  8.59145922  7.32472788]
[-0.21268544 8.65184796  8.4621896  0.69300765]
[ 8.57743811 8.47432538  8.44531127  8.45665163]
[ 8.43940202 8.54328185  6.9003399  8.75967078]
[ 8.96988429 6.16291587 -0.92535682 -0.19999993]
[ 8.42199236 -0.2      8.28538447  8.75412932]
[ 8.47348864 -0.2      7.80727572  8.69583397]
[ 8.63882224 -0.2      -0.9999999  6.4624257 ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]]

```

Q-table after episode 3925

```

[[-0.2      -1.         7.86921323 -0.2         ]
[-0.2      8.05713462  8.02541125  7.66214058]
[-0.2      -1.         -1.         8.30867552]
[ 0.         0.         0.         0.         ]
[ 7.9382749  8.31965481 -1.         -1.         ]
[ 0.         0.         0.         0.         ]
[-1.         8.56560383  8.31432104 -0.2         ]
[ 8.08423379 8.29982255  8.33190645  8.33589879]
[-1.         8.28309891  8.59145922  7.32472788]
[-0.21268544 8.65184796  8.21684287  0.69300765]
[ 8.34439086 8.40806617  8.44531127  8.45665163]
[ 8.43940202 8.42231625  6.9003399  8.33846443]
[ 8.42578496 6.16291587 -0.92535682 -0.19999999]
[ 8.42199236 -0.2      8.28538447  8.19613238]
[ 8.47348864 -0.2      7.80727572  8.48951263]
[ 8.63882224 -0.2      -0.9999999  6.4624257 ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]

```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
Q-table after episode 3926
[[-0.2      -1.      7.86921323 -0.2      ]
 [-0.2      8.05713462 8.02541125 7.66214058]
 [-0.2      -1.      -1.      8.30867552]
 [ 0.      0.      0.      0.      ]
 [ 7.9382749 8.31965481 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.56560383 8.31432104 -0.2      ]
 [ 8.08423379 8.29982255 8.33190645 8.33589879]
 [-1.      8.28309891 8.59145922 7.32472788]
 [-0.21268544 8.65184796 8.21684287 0.69300765]
 [ 8.34439086 8.40806617 8.44531127 8.45665163]
 [ 8.43940202 8.42231625 6.9003399 8.33846443]
 [ 8.42578496 6.16291587 -0.92535682 -0.19999999]
 [ 8.42199236 -0.2      8.28538447 8.19613238]
 [ 8.47348864 -0.2      7.80727572 8.48951263]
 [ 8.63882224 -0.2      -0.99999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

```

Q-table after episode 3927
[[-0.2      -1.      7.78582827 -0.2      ]
 [-0.2      8.0385259 8.02541125 7.66214058]
 [-0.2      -1.      -1.      8.30867552]
 [ 0.      0.      0.      0.      ]
 [ 7.9382749 8.0792513 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.36733223 8.31432104 -0.2      ]
 [ 8.08423379 8.29982255 8.33190645 8.28554289]
 [-1.      8.28309891 8.59145922 7.32472788]
 [ 7.27008447 8.65184796 8.21684287 -0.11069924]
 [ 8.34439086 8.40806617 8.44531127 8.45665163]
 [ 8.43940202 8.42231625 6.9003399 8.33846443]
 [ 8.42578496 6.16291587 -0.92535682 -0.19999999]
 [ 8.42199236 -0.2      8.28538447 8.19613238]
 [ 8.47348864 -0.2      7.80727572 8.48951263]
 [ 8.63882224 -0.2      -0.99999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]

```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3928

```

[[-0.2      -1.      7.7609094 -0.2      ]
 [-0.2      8.0385259  8.02541125  7.50118433]
 [-0.2      -1.      -1.      8.30867552]
 [ 0.      0.      0.      0.      ]
 [ 7.9382749  8.0792513 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.36733223  8.31432104 -0.2      ]
 [ 8.08423379  8.29982255  8.33190645  8.28554289]
 [-1.      8.28309891  8.59145922  7.32472788]
 [ 7.27008447  8.65184796  8.21684287 -0.11069924]
 [ 8.34439086  8.40806617  8.44531127  8.45665163]
 [ 8.43940202  8.42231625  6.9003399  8.33846443]
 [ 8.42578496  6.16291587 -0.92535682 -0.19999999]
 [ 8.42199236 -0.2      8.28538447  8.19613238]
 [ 8.47348864 -0.2      7.80727572  8.48951263]
 [ 8.63882224 -0.2      -0.9999999  6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

Q-table after episode 3929

```

[[-0.2      -1.      7.75841751 -0.2      ]
 [-0.2      7.8224655  8.02541125  7.50118433]
 [-0.2      -1.      -1.      8.30867552]
 [ 0.      0.      0.      0.      ]
 [ 7.9382749  8.05165378 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.36733223  8.31432104 -0.2      ]
 [ 8.08423379  8.29982255  8.30818081  8.28554289]
 [-1.      8.28309891  8.38794246  7.32472788]
 [-0.17299155  8.65184796  8.21684287 -0.11069924]
 [ 8.34439086  8.40806617  8.44531127  8.45665163]
 [ 8.43940202  8.42231625  6.9003399  8.33846443]
 [ 8.42578496  6.16291587 -0.92535682 -0.19999999]
 [ 8.42199236 -0.2      8.28538447  8.19613238]
 [ 8.47348864 -0.2      7.80727572  8.48951263]

```

```

[ 8.63882224 -0.2      -0.9999999  6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3930

```

[[-0.2      -1.          7.74648317 -0.2      ]
 [-0.2      7.8224655   8.02541125  7.47223494]
 [-0.2      -1.          -1.          8.30867552]
 [ 0.          0.          0.          0.          ]
 [ 7.9382749  8.05165378 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          8.36733223  8.31432104 -0.2      ]
 [ 8.08423379 8.29982255   8.30818081  8.28554289]
 [-1.          8.28309891  8.38794246  7.32472788]
 [-0.17299155 8.65184796   8.21684287 -0.11069924]
 [ 8.34439086 8.40806617   8.44531127  8.45665163]
 [ 8.43940202 8.42231625   6.9003399   8.33846443]
 [ 8.42578496 6.16291587 -0.92535682 -0.19999999]
 [ 8.42199236 -0.2      8.28538447  8.19613238]
 [ 8.47348864 -0.2      7.80727572  8.48951263]
 [ 8.63882224 -0.2      -0.9999999  6.4624257 ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3931

```

[[-0.2      -1.          7.74648317 -0.2      ]
 [-0.2      7.8224655   8.02541125  7.47223494]
 [-0.2      -1.          -1.          8.30867552]
 [ 0.          0.          0.          0.          ]
 [ 7.9382749  8.05165378 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          8.36733223  8.31432104 -0.2      ]
 [ 8.08423379 8.29982255   8.30818081  8.28554289]
 [-1.          8.28309891  8.38794246  7.32472788]
 [-0.17299155 8.65184796   8.21684287 -0.11069924]
 [ 8.34439086 8.40806617   8.44531127  8.45665163]

```

```

[ 8.43940202  8.42231625  6.9003399  8.33846443]
[ 8.42578496  6.16291587 -0.92535682 -0.19999999]
[ 8.42199236 -0.2          8.28538447  8.19613238]
[ 8.47348864 -0.2          7.80727572  8.48951263]
[ 8.63882224 -0.2          -0.9999999  6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3932

```

[[-0.2        -1.          7.74648317 -0.2          ]
 [-0.2        7.8224655   8.02541125  7.47223494]
 [-0.2        -1.          -1.          8.30867552]
 [ 0.          0.          0.          0.          ]
 [ 7.9382749   8.05165378 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          8.36733223  8.31432104 -0.2          ]
 [ 8.08423379  8.29982255  8.30818081  8.28554289]
 [-1.          8.28309891  8.38794246  7.32472788]
 [-0.17299155  8.65184796  8.21684287 -0.11069924]
 [ 8.34439086  8.40806617  8.44531127  8.45665163]
 [ 8.43940202  8.42231625  6.9003399  8.33846443]
 [ 8.42578496  6.16291587 -0.92535682 -0.19999999]
 [ 8.42199236 -0.2          8.28538447  8.19613238]
 [ 8.47348864 -0.2          7.80727572  8.48951263]
 [ 8.63882224 -0.2          -0.9999999  6.4624257 ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3933

```

[[-0.2        -1.          7.54625133 -0.2          ]
 [-0.2        7.77627007  7.57382843  7.30665972]
 [-0.2        -1.          -1.          7.56998189]
 [ 0.          0.          0.          0.          ]
 [ 7.9382749   8.02775448 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          7.97775998  8.31432104 -0.2          ]

```

```

[ 8.08423379  8.29982255  8.30818081  8.1038473 ]
[-1.          8.28309891  8.38794246  7.32472788]
[ 7.25638786  8.1925592   8.17656089 -0.19106992]
[ 8.34439086  8.40806617  8.44531127  7.96523541]
[ 8.43940202  8.42231625  6.9003399   8.33846443]
[ 7.9837855   6.16291587 -0.92535682 -0.19999999]
[ 8.42199236 -0.2        8.28538447  8.19613238]
[ 8.47348864 -0.2        7.80727572  8.48951263]
[ 8.63882224 -0.2        -0.99999999  6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3934

```

[[-0.2        -1.          7.50328176 -0.2        ]
 [-0.2        7.75035625  7.57382843  7.30665972]
 [-0.2        -1.          -1.          7.56998189]
 [ 0.          0.          0.          0.          ]
 [ 7.9382749   8.02775448 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          7.97775998  8.31432104 -0.2        ]
 [ 8.08423379  8.29982255  8.30818081  8.1038473 ]
 [-1.          8.28309891  8.38794246  7.32472788]
 [ 7.25638786  8.1925592   8.17656089 -0.19106992]
 [ 8.34439086  8.40806617  8.44531127  7.96523541]
 [ 8.43940202  8.42231625  6.9003399   8.33846443]
 [ 7.9837855   6.16291587 -0.92535682 -0.19999999]
 [ 8.42199236 -0.2        8.28538447  8.19613238]
 [ 8.47348864 -0.2        7.80727572  8.48951263]
 [ 8.63882224 -0.2        -0.99999999  6.4624257 ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3935

```

[[-0.2        -1.          7.47589559 -0.2        ]
 [-0.2        7.74776487  7.57382843  7.30665972]
 [-0.2        -1.          -1.          7.56998189]

```

```

[ 0.      0.      0.      0.      ]
[ 7.9382749 8.02512556 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      7.97775998 8.31432104 -0.2      ]
[ 7.77902319 8.29982255 8.12447481 8.1038473 ]
[-1.      8.14106549 7.95836449 7.32472788]
[ 7.25638786 8.1925592 8.17656089 7.18113414]
[ 8.34439086 8.40806617 8.44531127 7.96523541]
[ 7.94146523 8.22638737 6.9003399 8.33846443]
[ 7.9837855 6.16291587 -0.92535682 -0.19999999]
[ 8.42199236 -0.2      8.28538447 8.19613238]
[ 8.47348864 -0.2      8.29791819 8.48951263]
[ 8.63882224 -0.2      -0.99999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3936

```

[[-0.2      -1.      7.47589559 -0.2      ]
[-0.2      7.74776487 7.57382843 7.30665972]
[-0.2      -1.      -1.      7.56998189]
[ 0.      0.      0.      0.      ]
[ 7.9382749 8.02512556 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      7.97775998 8.31432104 -0.2      ]
[ 7.77902319 8.29982255 8.12447481 8.1038473 ]
[-1.      8.14106549 7.95836449 7.32472788]
[ 7.25638786 8.1925592 8.17656089 7.18113414]
[ 8.34439086 8.40806617 8.44531127 7.96523541]
[ 7.94146523 8.22638737 6.9003399 8.33846443]
[ 7.9837855 6.16291587 -0.92535682 -0.19999999]
[ 8.42199236 -0.2      8.28538447 8.19613238]
[ 8.47348864 -0.2      8.29791819 8.48951263]
[ 8.63882224 -0.2      -0.99999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```



Q-table after episode 3937

```
[[-0.2      -1.          7.47084806 -0.2      ]
 [-0.2      7.74516336  7.57382843  7.30665972]
 [-0.2      -1.          -1.          7.56998189]
 [ 0.        0.          0.          0.          ]
 [ 7.9382749  8.01765445 -1.          -1.          ]
 [ 0.        0.          0.          0.          ]
 [-1.        7.97775998  8.31432104 -0.2      ]
 [ 7.77902319 8.17475459  8.12447481  8.1038473 ]
 [-1.        8.14106549  7.95836449  7.32472788]
 [ 7.25638786 7.7528088   8.16242843  7.18113414]
 [ 8.34439086 8.40806617  8.09410294  7.91609379]
 [ 7.86783587 8.22638737  6.9003399   8.33846443]
 [ 7.90369431 6.16291587 -0.92535682 -0.19999999]
 [ 8.42199236 -0.2      8.28538447  8.19613238]
 [ 8.47348864 -0.2      8.29791819  8.48951263]
 [ 8.63882224 -0.2      -0.99999999  6.4624257 ]
 [ 0.        0.          0.          0.          ]
 [ 0.        0.          0.          0.          ]
 [ 0.        0.          0.          0.          ]
 [ 0.        0.          0.          0.          ]
 [ 0.        0.          0.          0.          ]
 [ 0.        0.          0.          0.          ]
 [ 0.        0.          0.          0.          ]
 [ 0.        0.          0.          0.          ]
 [ 0.        0.          0.          0.          ]
 [ 0.        0.          0.          0.          ]]
```

Q-table after episode 3938

```
[[-0.2      -1.          7.47084806 -0.2      ]
 [-0.2      7.74516336  7.57382843  7.30665972]
 [-0.2      -1.          -1.          7.56998189]
 [ 0.        0.          0.          0.          ]
 [ 7.9382749  8.01765445 -1.          -1.          ]
 [ 0.        0.          0.          0.          ]
 [-1.        7.97775998  8.31432104 -0.2      ]
 [ 7.77902319 8.17475459  8.12447481  8.1038473 ]
 [-1.        8.14106549  7.95836449  7.32472788]
 [ 7.25638786 7.7528088   8.16242843  7.18113414]
 [ 8.34439086 8.40806617  8.09410294  7.91609379]
 [ 7.86783587 8.22638737  6.9003399   8.33846443]
 [ 7.90369431 6.16291587 -0.92535682 -0.19999999]
 [ 8.42199236 -0.2      8.28538447  8.19613238]
 [ 8.47348864 -0.2      8.29791819  8.48951263]
 [ 8.63882224 -0.2      -0.99999999  6.4624257 ]
 [ 0.        0.          0.          0.          ]
 [ 0.        0.          0.          0.          ]
 [ 0.        0.          0.          0.          ]
 [ 0.        0.          0.          0.          ]
 [ 0.        0.          0.          0.          ]]
```

```
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
```

Q-table after episode 3939

```
[[-0.2      -1.      7.46802536 -0.2      ]
[-0.2      7.73824645  7.57382843  7.30665972]
[-0.2      -1.      -1.      7.56998189]
[ 0.      0.      0.      0.      ]
[ 7.9382749  8.01765445 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      7.97775998  8.31432104 -0.2      ]
[ 7.77902319 8.17475459  8.12447481  8.1038473 ]
[-1.      8.14106549  7.95836449  7.32472788]
[ 7.25638786 7.7528088  8.16242843  7.18113414]
[ 8.34439086 8.40806617  8.09410294  7.91609379]
[ 7.86783587 8.22638737  6.9003399  8.33846443]
[ 7.90369431 6.16291587 -0.92535682 -0.19999999]
[ 8.42199236 -0.2      8.28538447  8.19613238]
[ 8.47348864 -0.2      8.29791819  8.48951263]
[ 8.63882224 -0.2      -0.99999999  6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
```

Q-table after episode 3940

```
[[-0.2      -1.      7.4609356 -0.2      ]
[-0.2      7.73755476  7.57382843  7.19893386]
[-0.2      -1.      -1.      7.56998189]
[ 0.      0.      0.      0.      ]
[ 7.9382749  7.90547179 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      7.97775998  8.31432104 -0.2      ]
[ 7.77902319 7.90774465  8.12447481  8.1038473 ]
[-1.      8.14106549  7.95836449  7.32472788]
[ 7.25638786 7.7528088  8.16242843  7.18113414]
[ 7.8974337  8.01875775  8.09410294  7.91609379]
[ 7.86783587 8.22638737  6.9003399  8.33846443]
[ 7.90369431 6.16291587 -0.92535682 -0.19999999]
[ 8.09705149 -0.2      8.28538447  8.19613238]
[ 8.47348864 -0.2      8.29791819  8.48951263]
[ 8.63882224 -0.2      -0.99999999  6.4624257 ]
[ 0.      0.      0.      0.      ]]
```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3941

```

[[-0.2      -1.      7.4609356 -0.2      ]
 [-0.2      7.73755476 7.57382843 7.19893386]
 [-0.2      -1.      -1.      7.56998189]
 [ 0.      0.      0.      0.      ]
 [ 7.9382749 7.90547179 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.97775998 8.31432104 -0.2      ]
 [ 7.77902319 7.90774465 8.12447481 8.1038473 ]
 [-1.      8.14106549 7.95836449 7.32472788]
 [ 7.25638786 7.7528088 8.16242843 7.18113414]
 [ 7.8974337 8.01875775 8.09410294 7.91609379]
 [ 7.86783587 8.22638737 6.9003399 8.33846443]
 [ 7.90369431 6.16291587 -0.92535682 -0.19999999]
 [ 8.09705149 -0.2      8.28538447 8.19613238]
 [ 8.47348864 -0.2      8.29791819 8.48951263]
 [ 8.63882224 -0.2      -0.99999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

Q-table after episode 3942

```

[[-0.2      -1.      7.39710723 -0.2      ]
 [-0.2      7.6304512 7.57382843 7.18698045]
 [-0.2      -1.      -1.      7.56998189]
 [ 0.      0.      0.      0.      ]
 [ 7.36322295 7.84945423 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.97775998 8.31432104 -0.2      ]
 [ 7.59176604 7.90774465 7.88613683 8.1038473 ]
 [-1.      8.06367836 7.95836449 7.77300073]
 [ 7.25638786 7.7528088 8.16242843 7.18113414]
 [ 7.8974337 8.01875775 8.09410294 7.91609379]
 [ 7.79152101 8.22638737 6.9003399 8.33846443]
 [ 7.90369431 6.16291587 -0.92535682 -0.19999999]

```



Q-table after episode 3945

Q-table after episode 3946

85

```

[ 0.      0.      0.      0.      ]
[-1.      7.97775998 8.31432104 -0.2      ]
[ 7.59176604 7.90774465 7.7933511  8.1038473 ]
[-1.      8.05593965 7.95836449 7.77300073]
[ 7.25638786 7.7528088 8.16242843 7.18113414]
[ 7.8974337  8.00415334 8.09410294 7.91609379]
[ 7.79152101 8.03608384 6.9003399  7.86569216]
[ 7.90369431 6.16291587 -0.92535682 -0.19999999]
[ 8.09705149 -0.2      8.1911478  8.19613238]
[ 7.99706001 -0.2      8.29791819 7.98646179]
[ 8.63882224 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3947

```

[[-0.2      -1.      7.35414712 -0.2      ]
 [-0.2      7.57690884 7.57382843 7.08072308]
 [-0.2      -1.      -1.      7.56998189]
 [ 0.      0.      0.      0.      ]
 [ 7.36322295 7.82547337 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.97775998 8.31432104 -0.2      ]
 [ 7.59176604 7.90774465 7.7933511  8.1038473 ]
 [-1.      8.05593965 7.95836449 7.77300073]
 [ 7.25638786 7.7528088 8.16242843 7.18113414]
 [ 7.8974337  8.00415334 8.09410294 7.91609379]
 [ 7.79152101 8.03608384 6.9003399  7.86569216]
 [ 7.90369431 6.16291587 -0.92535682 -0.19999999]
 [ 8.09705149 -0.2      8.1911478  8.19613238]
 [ 7.99706001 -0.2      8.29791819 7.98646179]
 [ 8.63882224 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

Q-table after episode 3948

```

[[-0.2      -1.      7.30644049 -0.2      ]

```

```

[-0.2      7.55018766  7.57382843  7.08072308]
[-0.2      -1.         -1.         7.56998189]
[ 0.         0.         0.         0.         ]
[ 7.36322295  7.82307528 -1.         -1.         ]
[ 0.         0.         0.         0.         ]
[-1.         7.97775998  7.8136864  -0.2         ]
[ 7.59176604  7.90774465  7.7933511  7.73202862]
[-1.         8.05593965  7.95836449  7.77300073]
[ 7.25638786  7.7528088  8.16242843  7.18113414]
[ 7.8974337   8.00415334  8.09410294  7.91609379]
[ 7.79152101  8.03608384  6.9003399  7.86569216]
[ 7.90369431  6.16291587 -0.92535682 -0.19999999]
[ 8.09705149 -0.2      8.1911478  8.19613238]
[ 7.99706001 -0.2      8.29791819  7.98646179]
[ 8.63882224 -0.2      -0.9999999  6.4624257 ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]]

```

Q-table after episode 3949

```

[[-0.2      -1.         7.29892518 -0.2         ]
[-0.2      7.54537884  7.32223671  7.08072308]
[-0.2      -1.         -1.         7.30421539]
[ 0.         0.         0.         0.         ]
[ 7.36322295  7.82307528 -1.         -1.         ]
[ 0.         0.         0.         0.         ]
[-1.         7.97775998  7.8136864  -0.2         ]
[ 7.59176604  7.90774465  7.7933511  7.73202862]
[-1.         8.05593965  7.95836449  7.77300073]
[ 7.25638786  7.7528088  8.16242843  7.18113414]
[ 7.8974337   8.00415334  8.09410294  7.91609379]
[ 7.79152101  8.03608384  6.9003399  7.86569216]
[ 7.90369431  6.16291587 -0.92535682 -0.19999999]
[ 8.09705149 -0.2      8.1911478  8.19613238]
[ 7.99706001 -0.2      8.29791819  7.98646179]
[ 8.63882224 -0.2      -0.9999999  6.4624257 ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]

```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
Q-table after episode 3950
[[-0.2      -1.      7.27282507 -0.2      ]
 [-0.2      7.54489796 7.32223671 7.08072308]
 [-0.2      -1.      -1.      7.30421539]
 [ 0.      0.      0.      0.      ]
 [ 7.36322295 7.64810802 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.97775998 7.8136864 -0.2      ]
 [ 7.39364085 7.90774465 7.7933511 7.73202862]
 [-1.      8.05593965 7.95836449 7.77300073]
 [ 7.25638786 7.7528088 8.16242843 7.18113414]
 [ 7.8974337 8.00415334 8.09410294 7.91609379]
 [ 7.79152101 8.03608384 6.9003399 7.86569216]
 [ 7.90369431 6.16291587 -0.92535682 -0.19999999]
 [ 8.09705149 -0.2      8.1911478 8.19613238]
 [ 7.99706001 -0.2      8.29791819 7.98646179]
 [ 8.63882224 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

```

Q-table after episode 3951
[[-0.2      -1.      7.27282507 -0.2      ]
 [-0.2      7.54489796 7.32223671 7.08072308]
 [-0.2      -1.      -1.      7.30421539]
 [ 0.      0.      0.      0.      ]
 [ 7.36322295 7.64810802 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.97775998 7.8136864 -0.2      ]
 [ 7.39364085 7.90774465 7.7933511 7.73202862]
 [-1.      8.05593965 7.95836449 7.77300073]
 [ 7.25638786 7.7528088 8.16242843 7.18113414]
 [ 7.8974337 8.00415334 8.09410294 7.91609379]
 [ 7.79152101 8.03608384 6.9003399 7.86569216]
 [ 7.90369431 6.16291587 -0.92535682 -0.19999999]
 [ 8.09705149 -0.2      8.1911478 8.19613238]
 [ 7.99706001 -0.2      8.29791819 7.98646179]
 [ 8.63882224 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]

```



```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3952

```

[[-0.2      -1.      7.26978659 -0.2      ]
 [-0.2      7.38895404 7.32223671 7.08072308]
 [-0.2      -1.      -1.      7.30421539]
 [ 0.      0.      0.      0.      ]
 [ 7.36322295 7.63061129 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.97775998 7.8136864 -0.2      ]
 [ 7.39364085 7.90774465 7.77717733 7.73202862]
 [-1.      7.78574467 7.95836449 7.77300073]
 [ 7.25638786 7.7528088 9.81624284 7.18113414]
 [ 7.8974337 8.00415334 8.09410294 7.91609379]
 [ 7.79152101 8.01705349 6.9003399 7.86569216]
 [ 7.88309316 7.32022339 -0.92535682 -0.19999999]
 [ 8.09705149 -0.2      8.1911478 8.19613238]
 [ 7.99706001 -0.2      8.34698243 7.98646179]
 [ 7.63479901 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

Q-table after episode 3953

```

[[-0.2      -1.      7.13053671 -0.2      ]
 [-0.2      7.38895404 7.32223671 7.08072308]
 [-0.2      -1.      -1.      7.30421539]
 [ 0.      0.      0.      0.      ]
 [ 7.36322295 7.63061129 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      7.97775998 7.8136864 -0.2      ]
 [ 7.39364085 7.90774465 7.77717733 7.73202862]
 [-1.      7.78574467 7.95836449 7.77300073]
 [ 7.25638786 7.7528088 9.81624284 7.18113414]
 [ 7.8974337 8.00415334 8.09410294 7.91609379]
 [ 7.79152101 8.01705349 6.9003399 7.86569216]
 [ 7.88309316 7.32022339 -0.92535682 -0.19999999]
 [ 8.09705149 -0.2      8.1911478 8.19613238]
 [ 7.99706001 -0.2      8.34698243 7.98646179]

```

Q-table after episode 3954

Q-table after episode 3955

90

```

[ 7.79152101  8.0588667  6.9003399  7.86569216]
[ 9.35458169  7.32022339 -0.92535682 -0.19999999]
[ 8.09705149 -0.2      8.1911478  8.19613238]
[ 7.99706001 -0.2      7.45730416  7.98646179]
[ 7.60731591 -0.2      -0.9999999  6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3956

```

[[-0.2      -1.          7.08729505 -0.2      ]
 [-0.2      7.35309271  7.32223671  6.86897335]
 [-0.2      -1.          -1.          7.30421539]
 [ 0.          0.          0.          0.          ]
 [ 7.36322295  7.55284074 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          7.97775998  7.8136864  -0.2      ]
 [ 7.39364085  7.73396264  7.77717733  7.73202862]
 [-1.          7.78574467  9.36210882  7.77300073]
 [ 7.25638786  7.7528088  9.28732825  7.62901617]
 [ 7.8974337   7.92316929  7.77260495  9.50523662]
 [ 7.79152101  8.0588667  6.9003399  7.86569216]
 [ 9.35458169  0.55202234 -0.92535682 -0.19999999]
 [ 8.09705149 -0.2      8.1911478  8.97454552]
 [ 7.99706001 -0.2      7.45730416  7.98646179]
 [ 7.60731591 -0.2      -0.9999999  6.4624257 ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3957

```

[[-0.2      -1.          7.08033511 -0.2      ]
 [-0.2      7.27807014  7.06027959  6.86897335]
 [-0.2      -1.          -1.          7.10202714]
 [ 0.          0.          0.          0.          ]
 [ 7.04715962  7.50474908 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          8.89278547  7.8136864  -0.2      ]

```

```

[ 7.39364085  7.73396264  9.05557463  7.701387 ]
[-1.          7.7790247   9.36210882  8.56226689]
[ 7.25638786  7.7528088   9.21789865  7.62901617]
[ 7.53920837  7.92316929  7.77260495  9.50523662]
[ 7.79152101  7.75126714  6.9003399   7.86569216]
[ 9.35458169  0.55202234 -0.92535682 -0.19999999]
[ 8.09705149 -0.2       8.1911478   8.97454552]
[ 7.99706001 -0.2       7.45730416  7.98646179]
[ 7.60731591 -0.2      -0.99999999  6.4624257 ]
[ 0.          0.         0.         0.         ]
[ 0.          0.         0.         0.         ]
[ 0.          0.         0.         0.         ]
[ 0.          0.         0.         0.         ]
[ 0.          0.         0.         0.         ]
[ 0.          0.         0.         0.         ]
[ 0.          0.         0.         0.         ]
[ 0.          0.         0.         0.         ]
[ 0.          0.         0.         0.         ]
[ 0.          0.         0.         0.         ]]

```

Q-table after episode 3958

```

[[-0.2       -1.          7.08033511 -0.2       ]
 [-0.2       7.27807014  7.06027959  6.86897335]
 [-0.2       -1.         -1.         7.10202714]
 [ 0.         0.         0.         0.         ]
 [ 7.04715962 7.50474908 -1.         -1.         ]
 [ 0.         0.         0.         0.         ]
 [-1.         8.89278547  7.8136864  -0.2       ]
 [ 7.39364085 7.73396264  9.05557463  7.701387 ]
 [-1.         7.7790247   9.36210882  8.56226689]
 [ 7.25638786 7.7528088   9.21789865  7.62901617]
 [ 7.53920837 7.92316929  7.77260495  9.50523662]
 [ 7.79152101 7.75126714  6.9003399   7.86569216]
 [ 9.35458169 0.55202234 -0.92535682 -0.19999999]
 [ 8.09705149 -0.2       8.1911478   8.97454552]
 [ 7.99706001 -0.2       7.45730416  7.98646179]
 [ 7.60731591 -0.2      -0.99999999  6.4624257 ]
 [ 0.         0.         0.         0.         ]
 [ 0.         0.         0.         0.         ]
 [ 0.         0.         0.         0.         ]
 [ 0.         0.         0.         0.         ]
 [ 0.         0.         0.         0.         ]
 [ 0.         0.         0.         0.         ]
 [ 0.         0.         0.         0.         ]
 [ 0.         0.         0.         0.         ]
 [ 0.         0.         0.         0.         ]]

```

Q-table after episode 3959

```

[[-0.2       -1.          7.01279401 -0.2       ]
 [-0.2       7.23453844  7.06027959  6.86897335]
 [-0.2       -1.         -1.         7.10202714]

```

```

[ 0.      0.      0.      0.      ]
[ 7.04715962 8.6389919 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      8.89278547 8.66988563 -0.2      ]
[ 7.39364085 7.73396264 9.06719642 8.51361055]
[-1.      7.7790247 9.36210882 8.56226689]
[ 7.25638786 7.7528088 9.21789865 7.62901617]
[ 7.53920837 7.92316929 7.77260495 9.50523662]
[ 7.79152101 7.75126714 6.9003399 7.86569216]
[ 9.35458169 0.55202234 -0.92535682 -0.19999999]
[ 8.09705149 -0.2      8.1911478 8.97454552]
[ 7.99706001 -0.2      7.45730416 7.98646179]
[ 7.60731591 -0.2      -0.99999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3960

```

[[-0.2      -1.      6.96725315 -0.2      ]
[-0.2      8.34142135 7.06027959 6.86897335]
[-0.2      -1.      -1.      7.10202714]
[ 0.      0.      0.      0.      ]
[ 7.86726487 8.6389919 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      8.89278547 8.66988563 -0.2      ]
[ 7.39364085 7.73396264 9.06719642 8.51361055]
[-1.      7.7790247 9.36210882 8.56226689]
[ 7.25638786 7.7528088 9.21789865 7.62901617]
[ 7.53920837 7.92316929 7.77260495 9.50523662]
[ 7.79152101 7.75126714 6.9003399 7.86569216]
[ 9.35458169 0.55202234 -0.92535682 -0.19999999]
[ 8.09705149 -0.2      8.1911478 8.97454552]
[ 7.99706001 -0.2      7.45730416 7.98646179]
[ 7.60731591 -0.2      -0.99999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3961

```
[[-0.2      -1.      7.94893174 -0.2      ]
 [-0.2      8.35148392 7.06027959 6.86897335]
 [-0.2      -1.      -1.      7.10202714]
 [ 0.      0.      0.      0.      ]
 [ 7.86726487 8.7627712 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.89278547 8.66988563 -0.2      ]
 [ 7.39364085 7.73396264 9.0683586 8.51361055]
 [-1.      7.60623418 9.36210882 8.56226689]
 [ 8.46911064 7.7528088 8.74624105 7.62901617]
 [ 7.53920837 7.92316929 7.77260495 8.51126791]
 [ 7.79152101 7.75126714 6.9003399 9.07573504]
 [ 9.35458169 0.55202234 -0.92535682 -0.19999999]
 [ 8.09705149 -0.2      8.1911478 8.97454552]
 [ 7.99706001 -0.2      7.45730416 7.98646179]
 [ 7.60731591 -0.2      -0.99999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]
```

Q-table after episode 3962

```
[[-0.2      -1.      8.05606535 -0.2      ]
 [-0.2      8.46277753 6.85393414 6.86897335]
 [-0.2      -1.      -1.      7.97137489]
 [ 0.      0.      0.      0.      ]
 [ 7.86726487 8.7627712 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.89278547 8.66988563 -0.2      ]
 [ 7.39364085 7.73396264 9.0683586 8.51361055]
 [-1.      7.60623418 9.36210882 8.56226689]
 [ 8.46911064 7.7528088 8.74624105 7.62901617]
 [ 7.53920837 7.92316929 7.77260495 8.51126791]
 [ 7.79152101 7.75126714 6.9003399 9.07573504]
 [ 9.35458169 0.55202234 -0.92535682 -0.19999999]
 [ 8.09705149 -0.2      8.1911478 8.97454552]
 [ 7.99706001 -0.2      7.45730416 7.98646179]
 [ 7.60731591 -0.2      -0.99999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]
```

```
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
```

Q-table after episode 3963

```
[[-0.2      -1.      8.05606535 -0.2      ]
[-0.2      8.46277753  6.85393414  6.86897335]
[-0.2      -1.      -1.      7.97137489]
[ 0.      0.      0.      0.      ]
[ 7.86726487 8.7627712 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      8.89278547  8.66988563 -0.2      ]
[ 7.39364085 7.73396264 9.0683586  8.51361055]
[-1.      7.60623418 9.36210882 8.56226689]
[ 8.46911064 7.7528088  8.74624105 7.62901617]
[ 7.53920837 7.92316929 7.77260495 8.51126791]
[ 7.79152101 7.75126714 6.9003399  9.07573504]
[ 9.35458169 0.55202234 -0.92535682 -0.19999999]
[ 8.09705149 -0.2      8.1911478  8.97454552]
[ 7.99706001 -0.2      7.45730416 7.98646179]
[ 7.60731591 -0.2      -0.99999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
```

Q-table after episode 3964

```
[[-0.2      -1.      8.16594132 -0.2      ]
[-0.2      8.47501983 6.85393414 6.86897335]
[-0.2      -1.      -1.      7.97137489]
[ 0.      0.      0.      0.      ]
[ 8.15697753 8.77618464 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      8.89278547 8.66988563 -0.2      ]
[ 7.39364085 7.73396264 9.06847482 8.51361055]
[-1.      7.60623418 9.36210882 8.56226689]
[ 8.46911064 7.7528088  8.74624105 7.62901617]
[ 7.53920837 7.92316929 7.77260495 8.51126791]
[ 7.79152101 7.75126714 6.9003399  9.07573504]
[ 9.35458169 0.55202234 -0.92535682 -0.19999999]
[ 8.09705149 -0.2      8.1911478  8.97454552]
[ 7.99706001 -0.2      7.45730416 7.98646179]
[ 7.60731591 -0.2      -0.99999999 6.4624257 ]
[ 0.      0.      0.      0.      ]]
```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3965

```

[[-0.2      -1.      8.1878368 -0.2      ]
 [-0.2      8.48708249 6.85393414 6.86897335]
 [-0.2      -1.      -1.      7.97137489]
 [ 0.      0.      0.      0.      ]
 [ 8.15697753 8.77618464 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.89278547 8.66988563 -0.2      ]
 [ 7.39364085 7.73396264 9.06847482 8.51361055]
 [-1.      7.60623418 9.36210882 8.56226689]
 [ 8.46911064 7.7528088 8.74624105 7.62901617]
 [ 7.53920837 7.92316929 7.77260495 8.51126791]
 [ 7.79152101 7.75126714 6.9003399 9.07573504]
 [ 9.35458169 0.55202234 -0.92535682 -0.19999999]
 [ 8.09705149 -0.2      8.1911478 8.97454552]
 [ 7.99706001 -0.2      7.45730416 7.98646179]
 [ 7.60731591 -0.2      -0.99999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

Q-table after episode 3966

```

[[-0.2      -1.      8.20077418 -0.2      ]
 [-0.2      8.48828876 6.85393414 6.86897335]
 [-0.2      -1.      -1.      7.97137489]
 [ 0.      0.      0.      0.      ]
 [ 8.15697753 8.77762953 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.89278547 8.66988563 -0.2      ]
 [ 7.39364085 7.73396264 9.06848644 8.51361055]
 [-1.      7.60623418 8.54911165 8.56226689]
 [ 8.46911064 7.7528088 9.8746241 7.62901617]
 [ 7.53920837 7.92316929 7.77260495 8.51126791]
 [ 7.79152101 7.75126714 6.9003399 9.07573504]
 [ 9.35458169 0.55202234 -0.92535682 -0.19999999]

```



[ 8.09705149	-0.2	8.1911478	8.97454552]
[ 7.99706001	-0.2	7.45730416	7.98646179]
[ 7.60731591	-0.2	-0.9999999	6.4624257 ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]]

Q-table after episode 3967

[[-0.2	-1.	8.20077418	-0.2	]
[-0.2	8.48828876	6.85393414	6.86897335]	
[-0.2	-1.	-1.	7.97137489]	
[ 0.	0.	0.	0. ]	
[ 8.15697753	8.77762953	-1.	-1. ]	
[ 0.	0.	0.	0. ]	
[-1.	8.89278547	8.66988563	-0.2 ]	
[ 7.39364085	7.73396264	9.06848644	8.51361055]	
[-1.	7.60623418	8.54911165	8.56226689]	
[ 8.46911064	7.7528088	9.8746241	7.62901617]	
[ 7.53920837	7.92316929	7.77260495	8.51126791]	
[ 7.79152101	7.75126714	6.9003399	9.07573504]	
[ 9.35458169	0.55202234	-0.92535682	-0.19999999]	
[ 8.09705149	-0.2	8.1911478	8.97454552]	
[ 7.99706001	-0.2	7.45730416	7.98646179]	
[ 7.60731591	-0.2	-0.9999999	6.4624257 ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]]	

Q-table after episode 3968

[[-0.2	-1.	8.2031427	-0.2	]
[-0.2	8.48828876	7.60788844	7.81589748]	
[-0.2	-1.	-1.	8.18020277]	
[ 0.	0.	0.	0. ]	
[ 8.15697753	8.77762953	-1.	-1. ]	
[ 0.	0.	0.	0. ]	
[-1.	8.89278547	8.66988563	-0.2 ]	
[ 7.39364085	7.73396264	9.06848644	8.51361055]	
[-1.	7.60623418	8.54911165	8.56226689]	

```

[ 8.46911064  7.7528088  9.8746241  7.62901617]
[ 7.53920837  7.92316929  7.77260495  8.51126791]
[ 7.79152101  7.75126714  6.9003399  9.07573504]
[ 9.35458169  0.55202234 -0.92535682 -0.19999999]
[ 8.09705149 -0.2      8.1911478  8.97454552]
[ 7.99706001 -0.2      7.45730416  7.98646179]
[ 7.60731591 -0.2      -0.9999999  6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3969

```

[[-0.2      -1.          8.20337956 -0.2      ]
 [-0.2      8.48969679  7.60788844  7.81589748]
 [-0.2      -1.          -1.          8.18020277]
 [ 0.        0.          0.          0.          ]
 [ 8.15697753 8.77778437 -1.          -1.          ]
 [ 0.        0.          0.          0.          ]
 [-1.        9.50756862  8.66988563 -0.2      ]
 [ 7.39364085 7.73396264  8.35582844  8.59483291]
 [-1.        7.60623418  8.54911165  8.26185369]
 [ 8.46911064 8.93021316  9.8746241  7.62901617]
 [ 7.53920837 7.92316929  7.77260495  8.51126791]
 [ 7.79152101 7.75126714  6.9003399  9.07573504]
 [ 9.35458169 0.55202234 -0.92535682 -0.2      ]
 [ 8.09705149 -0.2      8.1911478  8.97454552]
 [ 7.99706001 -0.2      7.45730416  7.98646179]
 [ 7.60731591 -0.2      -0.9999999  6.4624257 ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3970

```

[[-0.2      -1.          8.20465779 -0.2      ]
 [-0.2      8.48969679  7.86934952  7.81589748]
 [-0.2      -1.          -1.          8.18020277]
 [ 0.        0.          0.          0.          ]
 [ 8.15697753 8.77778437 -1.          -1.          ]

```

[ 0.	0.	0.	0.	]
[-1.	9.50756862	8.66988563	-0.2	]
[ 7.39364085	7.73396264	8.35582844	8.59483291]	
[-1.	7.60623418	8.54911165	8.26185369]	
[ 8.46911064	8.93021316	9.8746241	7.62901617]	
[ 7.53920837	7.92316929	7.77260495	8.51126791]	
[ 7.79152101	7.75126714	6.9003399	9.07573504]	
[ 9.35458169	0.55202234	-0.92535682	-0.2	]
[ 8.09705149	-0.2	8.1911478	8.97454552]	
[ 7.99706001	-0.2	7.45730416	7.98646179]	
[ 7.60731591	-0.2	-0.9999999	6.4624257	]
[ 0.	0.	0.	0.	]
[ 0.	0.	0.	0.	]
[ 0.	0.	0.	0.	]
[ 0.	0.	0.	0.	]
[ 0.	0.	0.	0.	]
[ 0.	0.	0.	0.	]
[ 0.	0.	0.	0.	]
[ 0.	0.	0.	0.	]
[ 0.	0.	0.	0.	]]

Q-table after episode 3971

[-0.2	-1.	8.20465779	-0.2	]
[-0.2	8.48969679	7.86934952	7.81589748]	
[-0.2	-1.	-1.	8.18020277]	
[ 0.	0.	0.	0.	]
[ 8.15697753	8.77778437	-1.	-1.	]
[ 0.	0.	0.	0.	]
[-1.	9.50756862	8.66988563	-0.2	]
[ 7.39364085	7.73396264	8.35582844	8.59483291]	
[-1.	7.60623418	8.54911165	8.26185369]	
[ 8.46911064	8.93021316	9.8746241	7.62901617]	
[ 7.53920837	7.92316929	7.77260495	8.51126791]	
[ 7.79152101	7.75126714	6.9003399	9.07573504]	
[ 9.35458169	0.55202234	-0.92535682	-0.2	]
[ 8.09705149	-0.2	8.1911478	8.97454552]	
[ 7.99706001	-0.2	7.45730416	7.98646179]	
[ 7.60731591	-0.2	-0.9999999	6.4624257	]
[ 0.	0.	0.	0.	]
[ 0.	0.	0.	0.	]
[ 0.	0.	0.	0.	]
[ 0.	0.	0.	0.	]
[ 0.	0.	0.	0.	]
[ 0.	0.	0.	0.	]
[ 0.	0.	0.	0.	]
[ 0.	0.	0.	0.	]]

Q-table after episode 3972

[-0.2	-1.	8.20478562	-0.2	]
-------	-----	------------	------	---

```

[-0.2      8.48969679  7.86934952  7.81589748]
[-0.2      -1.         -1.         8.18020277]
[ 0.         0.         0.         0.         ]
[ 8.15697753 8.77778437 -1.         -1.         ]
[ 0.         0.         0.         0.         ]
[-1.         9.50756862  8.66988563 -0.2         ]
[ 7.39364085 7.73396264  8.35582844  8.59483291]
[-1.         7.60623418  8.54911165  8.26185369]
[ 8.46911064 8.93021316  9.8746241  7.62901617]
[ 7.53920837 7.92316929  7.77260495  8.51126791]
[ 7.79152101 7.75126714  6.9003399  9.07573504]
[ 9.35458169 0.55202234 -0.92535682 -0.2         ]
[ 8.09705149 -0.2      8.1911478  8.97454552]
[ 7.99706001 -0.2      7.45730416  7.98646179]
[ 7.60731591 -0.2      -0.9999999  6.4624257 ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]]

```

Q-table after episode 3973

```

[[-0.2      -1.         8.20478562 -0.2         ]
[-0.2      8.48969679  7.86934952  7.81589748]
[-0.2      -1.         -1.         8.18020277]
[ 0.         0.         0.         0.         ]
[ 8.15697753 8.77778437 -1.         -1.         ]
[ 0.         0.         0.         0.         ]
[-1.         9.50756862  8.66988563 -0.2         ]
[ 7.39364085 7.73396264  8.35582844  8.59483291]
[-1.         7.60623418  8.54911165  8.26185369]
[ 8.46911064 8.93021316  9.8746241  7.62901617]
[ 7.53920837 7.92316929  7.77260495  8.51126791]
[ 7.79152101 7.75126714  6.9003399  9.07573504]
[ 9.35458169 0.55202234 -0.92535682 -0.2         ]
[ 8.09705149 -0.2      8.1911478  8.97454552]
[ 7.99706001 -0.2      7.45730416  7.98646179]
[ 7.60731591 -0.2      -0.9999999  6.4624257 ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]

```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
Q-table after episode 3974
[[-0.2      -1.      8.20504806 -0.2      ]
 [-0.2      8.49000343  7.89549562  7.91206512]
 [-0.2      -1.      -1.      8.2025885 ]
 [ 0.      0.      0.      0.      ]
 [ 8.20026597 8.35577456 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      9.50756862  8.84028626 -0.2      ]
 [ 7.39364085 7.73396264  8.35582844  9.20631634]
 [-1.      7.60623418  8.54911165  8.26185369]
 [ 8.46911064 8.93021316  9.8746241  7.62901617]
 [ 7.53920837 7.92316929  7.77260495  8.51126791]
 [ 7.79152101 7.75126714  6.9003399  9.07573504]
 [ 9.35458169 0.55202234 -0.92535682 -0.2      ]
 [ 8.09705149 -0.2      8.1911478  8.97454552]
 [ 7.99706001 -0.2      7.45730416  7.98646179]
 [ 7.60731591 -0.2      -0.9999999  6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

```

Q-table after episode 3975
[[-0.2      -1.      8.20509786 -0.2      ]
 [-0.2      8.49000343  7.89549562  7.91206512]
 [-0.2      -1.      -1.      8.2025885 ]
 [ 0.      0.      0.      0.      ]
 [ 8.20026597 8.35577456 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      9.50756862  8.84028626 -0.2      ]
 [ 7.39364085 7.73396264  8.35582844  9.20631634]
 [-1.      7.60623418  8.54911165  8.26185369]
 [ 8.46911064 8.93021316  9.8746241  7.62901617]
 [ 7.53920837 7.92316929  7.77260495  8.51126791]
 [ 7.79152101 7.75126714  6.9003399  9.07573504]
 [ 9.35458169 0.55202234 -0.92535682 -0.2      ]
 [ 8.09705149 -0.2      8.1911478  8.97454552]
 [ 7.99706001 -0.2      7.45730416  7.98646179]
 [ 7.60731591 -0.2      -0.9999999  6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]

```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3976

```

[[-0.2      -1.      8.20510284 -0.2      ]
 [-0.2      8.49000343  7.89549562  7.91206512]
 [-0.2      -1.      -1.      8.2025885 ]
 [ 0.      0.      0.      0.      ]
 [ 8.20026597 8.35577456 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      9.50756862  8.84028626 -0.2      ]
 [ 7.39364085 7.73396264  8.35582844  9.20631634]
 [-1.      7.60623418  8.54911165  8.26185369]
 [ 8.46911064 8.93021316  9.8746241  7.62901617]
 [ 7.53920837 7.92316929  7.77260495  8.51126791]
 [ 7.79152101 7.75126714  6.9003399  9.07573504]
 [ 9.35458169 0.55202234 -0.92535682 -0.2      ]
 [ 8.09705149 -0.2      8.1911478  8.97454552]
 [ 7.99706001 -0.2      7.45730416  7.98646179]
 [ 7.60731591 -0.2      -0.9999999  6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

Q-table after episode 3977

```

[[-0.2      -1.      8.20510284 -0.2      ]
 [-0.2      8.49000343  7.89549562  7.91206512]
 [-0.2      -1.      -1.      8.2025885 ]
 [ 0.      0.      0.      0.      ]
 [ 8.20026597 8.35577456 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      9.50756862  8.84028626 -0.2      ]
 [ 7.39364085 7.73396264  8.35582844  9.20631634]
 [-1.      7.60623418  8.54911165  8.26185369]
 [ 8.46911064 8.93021316  9.8746241  7.62901617]
 [ 7.53920837 7.92316929  7.77260495  8.51126791]
 [ 7.79152101 7.75126714  6.9003399  9.07573504]
 [ 9.35458169 0.55202234 -0.92535682 -0.2      ]
 [ 8.09705149 -0.2      8.1911478  8.97454552]
 [ 7.99706001 -0.2      7.45730416  7.98646179]

```

```

[ 7.60731591 -0.2      -0.9999999  6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3978

```

[[-0.2      -1.          8.20510339 -0.2      ]
 [-0.2      8.11399548  7.89549562  7.92195359]
 [-0.2      -1.          -1.          8.2025885 ]
 [ 0.        0.          0.          0.          ]
 [ 8.20026597 8.85840531 -1.          -1.          ]
 [ 0.        0.          0.          0.          ]
 [-1.        9.50756862  8.84028626 -0.2      ]
 [ 7.39364085 8.17693597  8.35582844  9.20631634]
 [-1.        7.60623418  8.54911165  8.26185369]
 [ 8.46911064 9.0479536  9.8746241  0.58290162]
 [ 7.53920837 7.92316929 7.77260495 9.46941687]
 [ 7.79152101 7.75126714 6.9003399  9.07573504]
 [ 9.55374825 0.55202234 -0.92535682 -0.2      ]
 [ 8.09705149 -0.2      8.1911478  8.97454552]
 [ 7.99706001 -0.2      7.45730416 7.98646179]
 [ 7.60731591 -0.2      -0.9999999  6.4624257 ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3979

```

[[-0.2      -1.          8.20510339 -0.2      ]
 [-0.2      8.11399548  7.89549562  7.92195359]
 [-0.2      -1.          -1.          8.2025885 ]
 [ 0.        0.          0.          0.          ]
 [ 8.20026597 8.85840531 -1.          -1.          ]
 [ 0.        0.          0.          0.          ]
 [-1.        9.50756862  8.84028626 -0.2      ]
 [ 7.39364085 8.17693597  8.35582844  9.20631634]
 [-1.        7.60623418  8.54911165  8.26185369]
 [ 8.46911064 9.0479536  9.8746241  0.58290162]
 [ 7.53920837 7.92316929 7.77260495 9.46941687]

```

```

[ 7.79152101  7.75126714  6.9003399  9.07573504]
[ 9.55374825  0.55202234 -0.92535682 -0.2      ]
[ 8.09705149 -0.2      8.1911478  8.97454552]
[ 7.99706001 -0.2      7.45730416  7.98646179]
[ 7.60731591 -0.2      -0.9999999  6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3980

```

[[-0.2      -1.          7.87008031 -0.2      ]
 [-0.2      8.565263    7.89549562  7.92195359]
 [-0.2      -1.          -1.          8.2025885 ]
 [ 0.        0.          0.          0.          ]
 [ 8.23512326 8.90866839 -1.          -1.          ]
 [ 0.        0.          0.          0.          ]
 [-1.        9.57519477  8.9118095  -0.2      ]
 [ 7.39364085 8.17693597  8.35582844  9.26720835]
 [-1.        7.60623418  8.54911165  8.26185369]
 [ 9.19293189 9.0479536  9.8746241  -0.12170984]
 [ 7.53920837 7.92316929 7.77260495  9.46941687]
 [ 7.79152101 7.75126714 6.9003399  9.07573504]
 [ 9.55374825 0.55202234 -0.92535682 -0.2      ]
 [ 8.09705149 -0.2      8.1911478  8.97454552]
 [ 7.99706001 -0.2      7.45730416  7.98646179]
 [ 7.60731591 -0.2      -0.9999999  6.4624257 ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3981

```

[[-0.2      -1.          7.87008031 -0.2      ]
 [-0.2      8.565263    7.89549562  7.92195359]
 [-0.2      -1.          -1.          8.2025885 ]
 [ 0.        0.          0.          0.          ]
 [ 8.23512326 8.90866839 -1.          -1.          ]
 [ 0.        0.          0.          0.          ]
 [-1.        9.57519477  8.9118095  -0.2      ]

```



```

[ 7.39364085  8.17693597  8.35582844  9.26720835]
[-1.          7.60623418  8.54911165  8.26185369]
[ 9.19293189  9.0479536   9.8746241  -0.12170984]
[ 7.53920837  7.92316929  7.77260495  9.46941687]
[ 7.79152101  7.75126714  6.9003399   9.07573504]
[ 9.55374825  0.55202234 -0.92535682 -0.2        ]
[ 8.09705149 -0.2        8.1911478   8.97454552]
[ 7.99706001 -0.2        7.45730416  7.98646179]
[ 7.60731591 -0.2        -0.99999999  6.4624257  ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3982

```

[[-0.2        -1.          8.27551507 -0.2        ]
 [-0.2        8.61414983  7.89549562  7.95283907]
 [-0.2        -1.          -1.          8.2025885  ]
 [ 0.          0.          0.          0.          ]
 [ 8.23512326  8.96794948 -1.          -1.          ]
 [ 0.          0.          0.          0.          ]
 [-1.          8.95416632  8.9118095  -0.2        ]
 [ 7.39364085  8.17693597  8.35582844  9.27821938]
 [-1.          7.60623418  8.54911165  8.26185369]
 [ 8.80029886  9.23718505  8.7670182  -0.19217098]
 [ 7.53920837  8.60863699  7.77260495  8.91130039]
 [ 7.79152101  7.75126714  6.9003399   9.07573504]
 [ 9.03613832  0.55202234 -0.92535682 -0.2        ]
 [ 9.06695558 -0.2        8.1911478   8.97454552]
 [ 7.99706001 -0.2        7.45730416  7.98646179]
 [ 7.60731591 -0.2        -0.99999999  6.4624257  ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3983

```

[[-0.2        -1.          8.32275901 -0.2        ]
 [-0.2        8.67185797  7.89549562  7.95283907]
 [-0.2        -1.          -1.          8.2025885  ]

```

```

[ 0.      0.      0.      0.      ]
[ 8.23512326 8.98368841 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      8.55168835 8.9118095 -0.2      ]
[ 7.39364085 8.57766225 8.35582844 9.27821938]
[-1.      7.60623418 8.54911165 8.26185369]
[ 8.67819208 8.75069102 8.7670182 -0.19217098]
[ 7.53920837 8.60863699 7.77260495 8.55521247]
[ 7.79152101 7.75126714 6.9003399 9.07573504]
[ 9.03613832 0.55202234 7.80612174 -0.2      ]
[ 8.69353813 -0.2      8.1911478 8.97454552]
[ 7.99706001 -0.2      7.45730416 7.98646179]
[ 7.60731591 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3984

```

[[-0.2      -1.      8.37890135 -0.2      ]
[-0.2      8.67185797 7.91805591 7.95283907]
[-0.2      -1.      -1.      8.2025885 ]
[ 0.      0.      0.      0.      ]
[ 8.23512326 8.98368841 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      8.55168835 8.9118095 -0.2      ]
[ 7.39364085 8.57766225 8.35582844 9.27821938]
[-1.      7.60623418 8.54911165 8.26185369]
[ 8.67819208 8.75069102 8.7670182 -0.19217098]
[ 7.53920837 8.60863699 7.77260495 8.55521247]
[ 7.79152101 7.75126714 6.9003399 9.07573504]
[ 9.03613832 0.55202234 7.80612174 -0.2      ]
[ 8.69353813 -0.2      8.1911478 8.97454552]
[ 7.99706001 -0.2      7.45730416 7.98646179]
[ 7.60731591 -0.2      -0.9999999 6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3985

```
[[-0.2      -1.      8.38451559 -0.2      ]
 [-0.2      8.69165217 7.91805591 7.95283907]
 [-0.2      -1.      -1.      8.2025885 ]
 [ 0.      0.      0.      0.      ]
 [ 8.23512326 8.98526231 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.48658205 8.9118095 -0.2      ]
 [ 7.39364085 8.57766225 8.35582844 8.6882442 ]
 [-1.      7.60623418 8.54911165 8.26185369]
 [ 8.67819208 8.75069102 8.36699738 -0.19217098]
 [ 7.53920837 8.67718376 7.77260495 8.55521247]
 [ 7.79152101 7.75126714 6.9003399 9.07573504]
 [ 9.03613832 0.55202234 7.80612174 -0.2      ]
 [ 8.69353813 -0.2      8.1911478 8.97454552]
 [ 7.99706001 -0.2      7.45730416 7.98646179]
 [ 7.60731591 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]
```

Q-table after episode 3986

```
[[-0.2      -1.      8.38451559 -0.2      ]
 [-0.2      8.69165217 7.91805591 7.95283907]
 [-0.2      -1.      -1.      8.2025885 ]
 [ 0.      0.      0.      0.      ]
 [ 8.23512326 8.98526231 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.48658205 8.9118095 -0.2      ]
 [ 7.39364085 8.57766225 8.35582844 8.6882442 ]
 [-1.      7.60623418 8.54911165 8.26185369]
 [ 8.67819208 8.75069102 8.36699738 -0.19217098]
 [ 7.53920837 8.67718376 7.77260495 8.55521247]
 [ 7.79152101 7.75126714 6.9003399 9.07573504]
 [ 9.03613832 0.55202234 7.80612174 -0.2      ]
 [ 8.69353813 -0.2      8.1911478 8.97454552]
 [ 7.99706001 -0.2      7.45730416 7.98646179]
 [ 7.60731591 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]
```

```
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
```

Q-table after episode 3987

```
[[-0.2      -1.      8.40271364 -0.2      ]
[-0.2      8.69503393  7.91805591  7.95283907]
[-0.2      -1.      -1.      8.2025885 ]
[ 0.      0.      0.      0.      ]
[ 8.23512326 8.45975181 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      8.14032318  8.39983975 -0.2      ]
[ 7.39364085 8.40913696  8.35582844  8.24446928]
[-1.      7.60623418  8.54911165  8.26185369]
[ 8.23060101 8.28286302  8.38807047 -0.1992171 ]
[ 8.2166179  8.68472391  7.77260495  8.55521247]
[ 7.79152101 7.75126714  6.9003399  9.07573504]
[ 8.39266145 0.55202234  7.80612174 -0.2      ]
[ 8.42683206 -0.2      8.1911478  8.20534998]
[ 7.99706001 -0.2      7.45730416  7.98646179]
[ 7.60731591 -0.2      -0.9999999  6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
```

Q-table after episode 3988

```
[[-0.2      -1.      8.40271364 -0.2      ]
[-0.2      8.69503393  7.91805591  7.95283907]
[-0.2      -1.      -1.      8.2025885 ]
[ 0.      0.      0.      0.      ]
[ 8.23512326 8.45975181 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      8.14032318  8.39983975 -0.2      ]
[ 7.39364085 8.40913696  8.35582844  8.24446928]
[-1.      7.60623418  8.54911165  8.26185369]
[ 8.23060101 8.28286302  8.38807047 -0.1992171 ]
[ 8.2166179  8.68472391  7.77260495  8.55521247]
[ 7.79152101 7.75126714  6.9003399  9.07573504]
[ 8.39266145 0.55202234  7.80612174 -0.2      ]
[ 8.42683206 -0.2      8.1911478  8.20534998]
[ 7.99706001 -0.2      7.45730416  7.98646179]
[ 7.60731591 -0.2      -0.9999999  6.4624257 ]
[ 0.      0.      0.      0.      ]]
```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3989

```

[[-0.2      -1.      8.4075466 -0.2      ]
 [-0.2      8.69503393 7.91805591 7.95283907]
 [-0.2      -1.      -1.      8.2025885 ]
 [ 0.      0.      0.      0.      ]
 [ 8.23512326 8.45975181 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.14032318 8.39983975 -0.2      ]
 [ 7.39364085 8.40913696 8.35582844 8.24446928]
 [-1.      7.60623418 8.54911165 8.26185369]
 [ 8.23060101 8.28286302 8.38807047 -0.1992171 ]
 [ 8.2166179 8.68472391 7.77260495 8.55521247]
 [ 7.79152101 7.75126714 6.9003399 9.07573504]
 [ 8.39266145 0.55202234 7.80612174 -0.2      ]
 [ 8.42683206 -0.2      8.1911478 8.20534998]
 [ 7.99706001 -0.2      7.45730416 7.98646179]
 [ 7.60731591 -0.2      -0.9999999 6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

Q-table after episode 3990

```

[[-0.2      -1.      8.40802989 -0.2      ]
 [-0.2      8.69503393 7.91805591 7.95283907]
 [-0.2      -1.      -1.      8.2025885 ]
 [ 0.      0.      0.      0.      ]
 [ 8.23512326 8.45975181 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.14032318 8.39983975 -0.2      ]
 [ 7.39364085 8.40913696 8.35582844 8.24446928]
 [-1.      7.60623418 8.54911165 8.26185369]
 [ 8.23060101 8.28286302 8.38807047 -0.1992171 ]
 [ 8.2166179 8.68472391 7.77260495 8.55521247]
 [ 7.79152101 7.75126714 6.9003399 9.07573504]
 [ 8.39266145 0.55202234 7.80612174 -0.2      ]

```

[ 8.42683206	-0.2	8.1911478	8.20534998]
[ 7.99706001	-0.2	7.45730416	7.98646179]
[ 7.60731591	-0.2	-0.9999999	6.4624257 ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]
[ 0.	0.	0.	0. ]]

Q-table after episode 3991

[[-0.2	-1.	8.40807822	-0.2	]
[-0.2	8.22714226	7.92031194	7.95283907]	
[-0.2	-1.	-1.	8.38753408]	
[ 0.	0.	0.	0. ]	
[ 8.23512326	8.15851621	-1.	-1. ]	
[ 0.	0.	0.	0. ]	
[-1.	8.14032318	8.39983975	-0.2 ]	
[ 7.39364085	8.3990027	8.35582844	8.24446928]	
[-1.	7.60623418	8.54911165	8.26185369]	
[ 8.23060101	8.28286302	8.38807047	-0.19992171]	
[ 8.2166179	8.68472391	7.77260495	8.14929203]	
[ 7.79152101	7.75126714	6.9003399	9.07573504]	
[ 8.39266145	0.55202234	7.80612174	-0.2 ]	
[ 8.42683206	-0.2	8.1911478	8.20534998]	
[ 7.99706001	-0.2	7.45730416	7.98646179]	
[ 7.60731591	-0.2	-0.9999999	6.4624257 ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]	
[ 0.	0.	0.	0. ]]	

Q-table after episode 3992

[[-0.2	-1.	7.99119158	-0.2	]
[-0.2	7.88725885	7.92031194	7.95283907]	
[-0.2	-1.	-1.	8.38753408]	
[ 0.	0.	0.	0. ]	
[ 7.75387859	8.11936302	-1.	-1. ]	
[ 0.	0.	0.	0. ]	
[-1.	8.14032318	8.39983975	-0.2 ]	
[ 7.39364085	7.96312969	8.35582844	8.24446928]	
[-1.	7.60623418	8.54911165	8.26185369]	

```

[ 8.23060101  8.28286302  8.38807047 -0.19992171]
[ 8.12427023  8.19677976  8.68374042  8.14929203]
[ 8.21641058  7.75126714  6.9003399  9.07573504]
[ 8.39266145  0.55202234  7.80612174 -0.2      ]
[ 7.98368976 -0.2      8.1911478  8.20534998]
[ 7.99706001 -0.2      7.45730416  7.98646179]
[ 7.60731591 -0.2      -0.9999999  6.4624257 ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]

```

Q-table after episode 3993

```

[[-0.2      -1.          7.70509877 -0.2      ]
 [-0.2      7.88725885  7.92031194  7.95283907]
 [-0.2      -1.          -1.          8.38753408]
 [ 0.        0.          0.          0.          ]
 [ 7.75387859 8.11936302 -1.          -1.          ]
 [ 0.        0.          0.          0.          ]
 [-1.        8.14032318  8.39983975 -0.2      ]
 [ 7.39364085 7.96312969 8.35582844  8.24446928]
 [-1.        7.60623418  8.54911165  8.26185369]
 [ 8.23060101 8.28286302 8.38807047 -0.19992171]
 [ 8.12427023 8.19677976 8.68374042  8.14929203]
 [ 8.21641058 7.75126714 6.9003399  9.07573504]
 [ 8.39266145 0.55202234 7.80612174 -0.2      ]
 [ 7.98368976 -0.2      8.1911478  8.20534998]
 [ 7.99706001 -0.2      7.45730416  7.98646179]
 [ 7.60731591 -0.2      -0.9999999  6.4624257 ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]
 [ 0.          0.          0.          0.          ]]

```

Q-table after episode 3994

```

[[-0.2      -1.          7.70509877 -0.2      ]
 [-0.2      7.88725885  7.92031194  7.95283907]
 [-0.2      -1.          -1.          8.38753408]
 [ 0.        0.          0.          0.          ]
 [ 7.75387859 8.11936302 -1.          -1.          ]

```

```

[ 0.      0.      0.      0.      ]
[-1.      8.14032318  8.39983975 -0.2      ]
[ 7.39364085  7.96312969  8.35582844  8.24446928]
[-1.      7.60623418  8.54911165  8.26185369]
[ 8.23060101  8.28286302  8.38807047 -0.19992171]
[ 8.12427023  8.19677976  8.68374042  8.14929203]
[ 8.21641058  7.75126714  6.9003399  9.07573504]
[ 8.39266145  0.55202234  7.80612174 -0.2      ]
[ 7.98368976 -0.2      8.1911478  8.20534998]
[ 7.99706001 -0.2      7.45730416  7.98646179]
[ 7.60731591 -0.2      -0.9999999  6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3995

```

[[-0.2      -1.      7.67648949 -0.2      ]
[-0.2      7.88725885  7.92031194  7.45503604]
[-0.2      -1.      -1.      8.38753408]
[ 0.      0.      0.      0.      ]
[ 7.75387859  8.11936302 -1.      -1.      ]
[ 0.      0.      0.      0.      ]
[-1.      8.14032318  8.39983975 -0.2      ]
[ 7.39364085  7.96312969  8.35582844  8.24446928]
[-1.      7.60623418  8.54911165  8.26185369]
[ 8.23060101  8.28286302  8.38807047 -0.19992171]
[ 8.12427023  8.19677976  8.68374042  8.14929203]
[ 8.21641058  7.75126714  6.9003399  9.07573504]
[ 8.39266145  0.55202234  7.80612174 -0.2      ]
[ 7.98368976 -0.2      8.1911478  8.20534998]
[ 7.99706001 -0.2      7.45730416  7.98646179]
[ 7.60731591 -0.2      -0.9999999  6.4624257 ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]

```

Q-table after episode 3996

```

[[-0.2      -1.      7.61201232 -0.2      ]

```



```

[-0.2      7.84307834  7.63426684  7.37688398]
[-0.2      -1.         -1.         7.63382535]
[ 0.         0.         0.         0.         ]
[ 7.75387859 8.11936302 -1.         -1.         ]
[ 0.         0.         0.         0.         ]
[-1.         8.14032318  8.39983975 -0.2         ]
[ 7.39364085 7.96312969  8.35582844  8.24446928]
[-1.         7.60623418  8.54911165  8.26185369]
[ 8.23060101 8.28286302  8.38807047 -0.19992171]
[ 8.12427023 8.19677976  8.68374042  8.14929203]
[ 8.21641058 7.75126714  6.9003399   9.07573504]
[ 8.39266145 0.55202234  7.80612174 -0.2         ]
[ 7.98368976 -0.2         8.1911478   8.20534998]
[ 7.99706001 -0.2         7.45730416  7.98646179]
[ 7.60731591 -0.2         -0.9999999  6.4624257 ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]]

```

Q-table after episode 3997

```

[[-0.2      -1.         7.56938403 -0.2         ]
[-0.2      7.84307834  7.63426684  7.30200957]
[-0.2      -1.         -1.         7.63382535]
[ 0.         0.         0.         0.         ]
[ 7.75387859 8.11936302 -1.         -1.         ]
[ 0.         0.         0.         0.         ]
[-1.         8.14032318  8.39983975 -0.2         ]
[ 7.39364085 7.96312969  8.35582844  8.24446928]
[-1.         7.60623418  8.54911165  8.26185369]
[ 8.23060101 8.28286302  8.38807047 -0.19992171]
[ 8.12427023 8.19677976  8.68374042  8.14929203]
[ 8.21641058 7.75126714  6.9003399   9.07573504]
[ 8.39266145 0.55202234  7.80612174 -0.2         ]
[ 7.98368976 -0.2         8.1911478   8.20534998]
[ 7.99706001 -0.2         7.45730416  7.98646179]
[ 7.60731591 -0.2         -0.9999999  6.4624257 ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]
[ 0.         0.         0.         0.         ]

```

```

[ 0.      0.      0.      0.      ]
[ 0.      0.      0.      0.      ]]
Q-table after episode 3998
[[-0.2      -1.      7.5651212  -0.2      ]
 [-0.2      7.83866029  7.63426684  7.30200957]
 [-0.2      -1.      -1.      7.63382535]
 [ 0.      0.      0.      0.      ]
 [ 7.75387859  8.07697944 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.14032318  8.39983975 -0.2      ]
 [ 7.39364085  7.96312969  8.27284133  8.24446928]
 [-1.      7.60623418  8.54911165  8.26185369]
 [ 8.23060101  8.28286302  8.38807047 -0.19992171]
 [ 8.12427023  8.19677976  8.68374042  8.14929203]
 [ 8.21641058  7.75126714  6.9003399  9.07573504]
 [ 8.39266145  0.55202234  7.80612174 -0.2      ]
 [ 7.98368976 -0.2      8.1911478  8.20534998]
 [ 7.99706001 -0.2      7.45730416  7.98646179]
 [ 7.60731591 -0.2      -0.9999999  6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]]

```

```

Q-table after episode 3999
[[-0.2      -1.      7.56075844 -0.2      ]
 [-0.2      7.80045471  7.63426684  7.30200957]
 [-0.2      -1.      -1.      7.63382535]
 [ 0.      0.      0.      0.      ]
 [ 7.75387859  8.07697944 -1.      -1.      ]
 [ 0.      0.      0.      0.      ]
 [-1.      8.14032318  8.39983975 -0.2      ]
 [ 7.39364085  7.96312969  8.27284133  8.24446928]
 [-1.      7.60623418  8.54911165  8.26185369]
 [ 8.23060101  8.28286302  8.38807047 -0.19992171]
 [ 8.12427023  8.19677976  8.68374042  8.14929203]
 [ 8.21641058  7.75126714  6.9003399  9.07573504]
 [ 8.39266145  0.55202234  7.80612174 -0.2      ]
 [ 7.98368976 -0.2      8.1911478  8.20534998]
 [ 7.99706001 -0.2      7.45730416  7.98646179]
 [ 7.60731591 -0.2      -0.9999999  6.4624257 ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]
 [ 0.      0.      0.      0.      ]

```

```
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]
[ 0.          0.          0.          0.          ]]
```

If you have trained everything right this method should demonstrate a solved environment. Please make sure to include these results in your saved PDF.

```
[272]: q_learning.exploration = 0.0
for i in range(0, 1):
    observation, info = lake.reset()
    terminated = False
    lake.render(screen, window_width, window_height)
    view = pygame.surfarray.array3d(screen)
    view = view.transpose([1, 0, 2])
    img_bgr = cv2.cvtColor(view, cv2.COLOR_RGB2BGR)
    cv2_imshow(img_bgr)
    time.sleep(.5)
    clear_output()
    while not terminated:
        action = q_learning.sample_action(observation)
        observation, old_state, reward, terminated, truncated, info = lake.
        ↪ step(action)
        lake.render(screen, window_width, window_height)

        view = pygame.surfarray.array3d(screen)
        view = view.transpose([1, 0, 2])
        img_bgr = cv2.cvtColor(view, cv2.COLOR_RGB2BGR)
        cv2_imshow(img_bgr)
        time.sleep(.5)
```













