CPSC 4420/6420: Artificial Intelligence

Assignment 2

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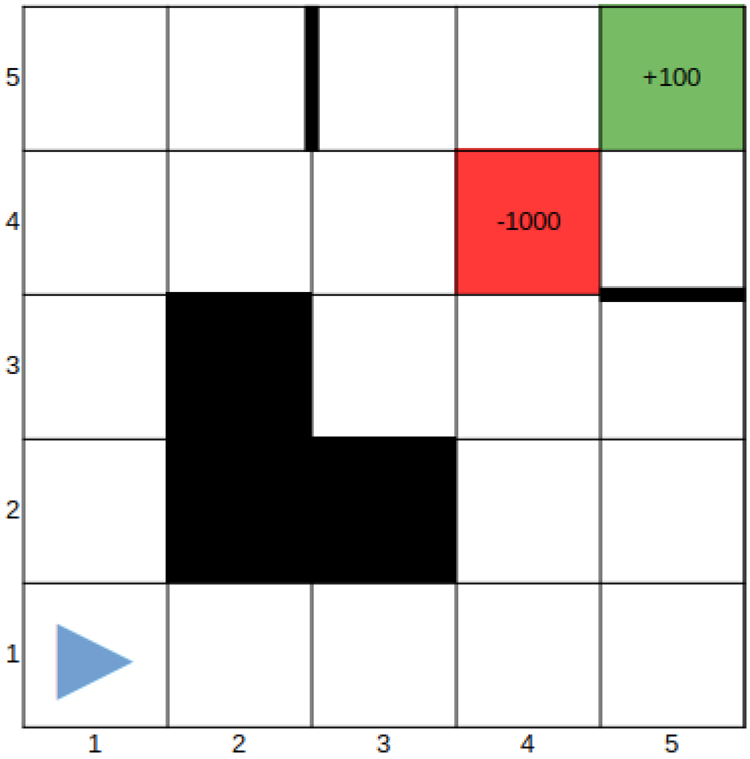
Consider the following puzzle. The green and red states are both terminal states, with the rewards as shown (so we can consider the green state the "goal", and the red a "game over" state with a large negative reward). Thick borders between cells represent walls that the robot player cannot cross, and the black squares contain obstacles and cannot be entered. The robot player is represented by the blue triangle, and the direction the triangle points is the way the robot is facing.



Let's represent a state with (x,y,d), where x and y represent the horizontal and vertical positions (i.e. location), and d represents the direction the robot is facing (1: up, 2: down, 3: left, and 4: right).

The robot can take the following actions:

- A_1: Move one cell forward in the direction it is facing. Cost: 1.5
- A_2: Move two cells forward in the direction it is facing. Cost: 2
- A_3: Turn to its left and stay in the same cell. Cost: 0.5
- A_4: Turn to its right and stay in the same cell. Cost: 0.5

Note that each action has a different cost value. This can also be considered an immediate negative reward. For example, we have $R(s,A_1,s') = -1.5$. The cost is evaluated on the current state, (the state the robot is in when it begins the action, not the one it lands on after performing the action). In the same way, the value of state V(s) represents the value of the current state and you should initialize the algorithm with $V_1(5,5,x)=+100$, $V_1(4,4,x)=-1000$ (for x=1,2,3,4 representing the robot orientation/direction), and zero for all other states.

So, for example, if the robot is in state (4,1,4), it means that it is in location (4,1) and facing right. The result of possible actions for this state are as follows:

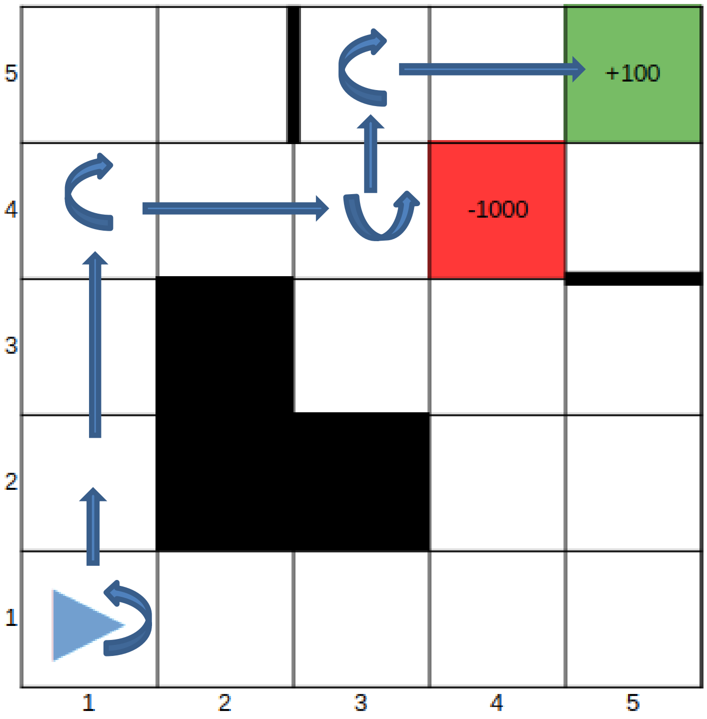
A_1 (move 1 cell forward) --> (5,1,4)
A_2 (move 2 cells forward) --> impossible remains in the current state (4,1,4)
A_3 (turn left) --> (4,1,1) : the robot stays in (4,1) but now faces up
A_4 (turn right) --> (4,1,2) : the robot stays in (4,1) but now faces down

A move is impossible if it would result in landing on a blocked cell, like (2,2), (2,3), or (3,2), or if it would result in crossing a barrier, like moving from state (2,5) to (3,5), or (5,3) to (5,4). A move that would take the robot outside of our 5x5 grid is also impossible.

Note that we have more states than the number of cells, because the robot facing a different direction produces a new state, even if it does not change location. In the example above, if we move to (4,1,1), where the robot is facing up, this is a different state from the one we were in, (4,1,4), even though the robot has not moved cells.

A) If there is no living reward/penalty, no noise, and no discount (gamma = 1), use your common sense to find the best possible route from (1,1) to (5,5).

Ans) Considering no living reward/penalty, no noise and discount factor = 1, the best possible route will be the one which costs the least. So, the following path should be followed for most optimal results:



Current State	Action	Resulting State	Cost
(1,1,4)	A3	(1,1,1)	-0.5
(1,1,1)	A1	(1,2,1)	-1.5
(1,2,1)	A2	(1,4,1)	-2.0
(1,4,1)	A4	(1,4,4)	-0.5
(1,4,4)	A2	(3,4,4)	-2.0
(3,4,4)	A3	(3,4,1)	-0.5
(3,4,1)	A1	(3,5,1)	-1.5
(3,5,1)	A4	(3,5,4)	-0.5
(3,5,4)	A2	(5,5,4)	-2.0
		Total Cost	-11

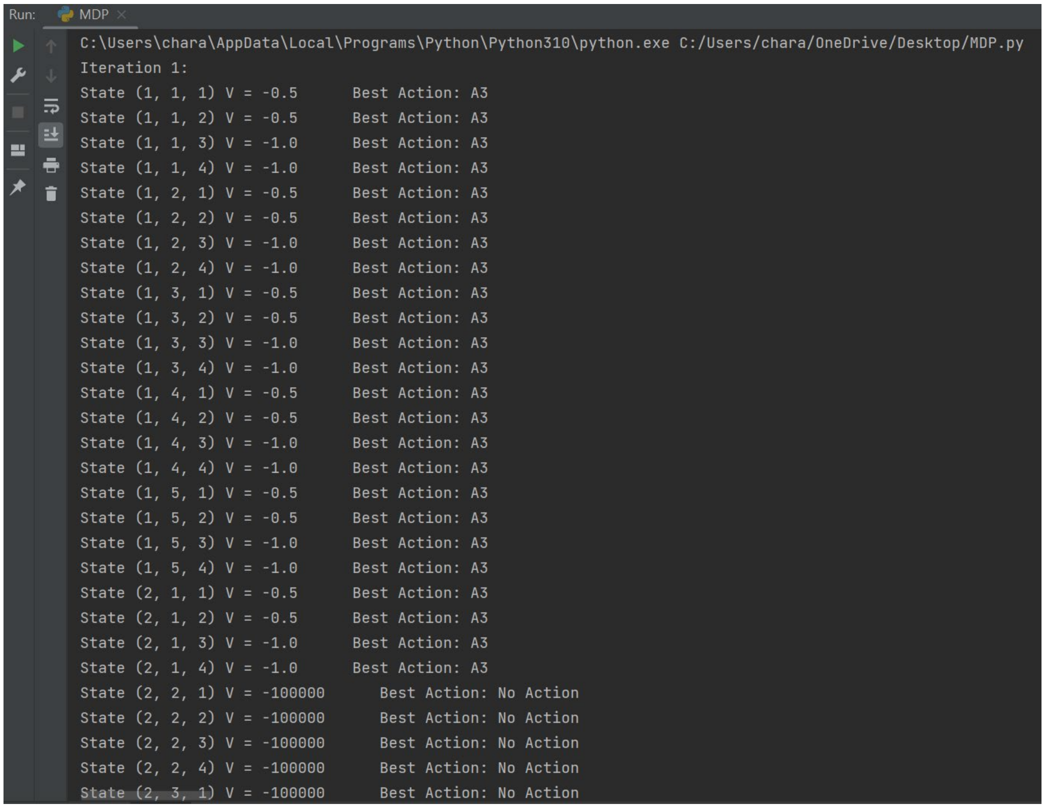
B) With no discount (gamma = 1), no living reward, and no noise, use the Value Iteration Algorithm with 100 iterations to update the optimal values for each state and print the result [only for the first 10 iterations] in the following format:

iter 1:
state (1,1,1) V = (some value) Best Action: A_i (where i is some number 1-4)
state (1,1,2) V = (some value) Best Action: A_j
…
state (5,5,4) V = (some value)

iter 2:
state (1,1,1) V = (some value) Best Action: A_i (where i is some number 1-4)
state (1,1,2) V = (some value) Best Action: A_j
…
state (5,5,4) V = (some value)

If two actions are tied for best, you can select one at random or always choose the one with the smallest index.

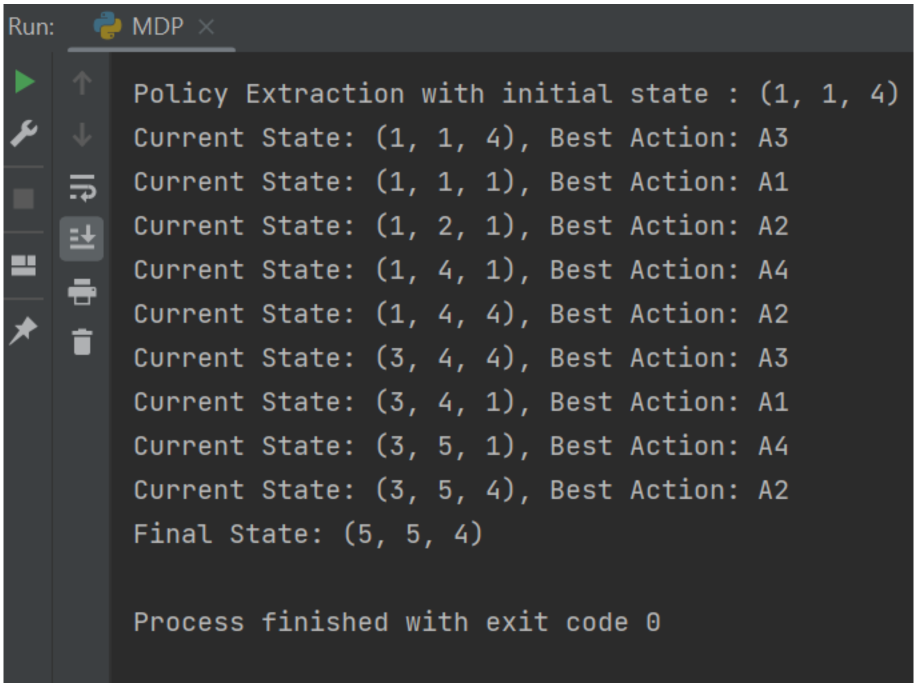
Ans) The result of first 10 value iterations is attached at the end.
Click on the following hyperlink for result: Iteration Value Results
Refer to HW2_B_Charanjit_Singh.py file for python code.



```
C:\Users\chara\AppData\Local\Programs\Python\Python310\python.exe C:/Users/chara/OneDrive/Desktop/MDP.py
Iteration 1:
State (1, 1, 1) V = -0.5      Best Action: A3
State (1, 1, 2) V = -0.5      Best Action: A3
State (1, 1, 3) V = -1.0      Best Action: A3
State (1, 1, 4) V = -1.0      Best Action: A3
State (1, 2, 1) V = -0.5      Best Action: A3
State (1, 2, 2) V = -0.5      Best Action: A3
State (1, 2, 3) V = -1.0      Best Action: A3
State (1, 2, 4) V = -1.0      Best Action: A3
State (1, 3, 1) V = -0.5      Best Action: A3
State (1, 3, 2) V = -0.5      Best Action: A3
State (1, 3, 3) V = -1.0      Best Action: A3
State (1, 3, 4) V = -1.0      Best Action: A3
State (1, 4, 1) V = -0.5      Best Action: A3
State (1, 4, 2) V = -0.5      Best Action: A3
State (1, 4, 3) V = -1.0      Best Action: A3
State (1, 4, 4) V = -1.0      Best Action: A3
State (1, 5, 1) V = -0.5      Best Action: A3
State (1, 5, 2) V = -0.5      Best Action: A3
State (1, 5, 3) V = -1.0      Best Action: A3
State (1, 5, 4) V = -1.0      Best Action: A3
State (2, 1, 1) V = -0.5      Best Action: A3
State (2, 1, 2) V = -0.5      Best Action: A3
State (2, 1, 3) V = -1.0      Best Action: A3
State (2, 1, 4) V = -1.0      Best Action: A3
State (2, 2, 1) V = -100000      Best Action: No Action
State (2, 2, 2) V = -100000      Best Action: No Action
State (2, 2, 3) V = -100000      Best Action: No Action
State (2, 2, 4) V = -100000      Best Action: No Action
State (2, 3, 1) V = -100000      Best Action: No Action
```

Figure 1: Screenshot of Value Iteration results for reference

The optimal policy recommended is shown in figure 2:



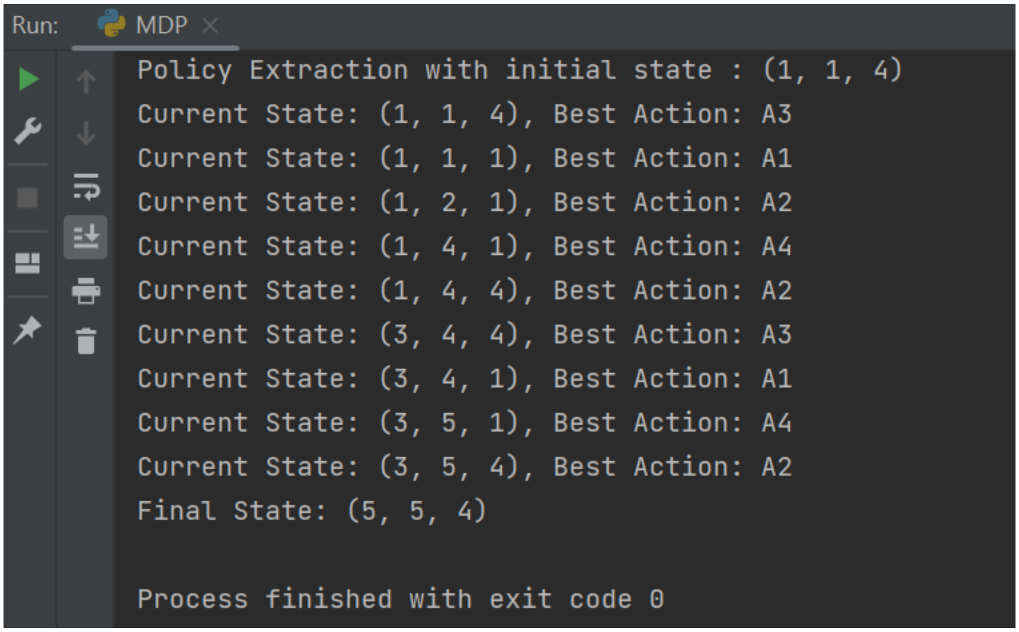
```
Policy Extraction with initial state : (1, 1, 4)
Current State: (1, 1, 4), Best Action: A3
Current State: (1, 1, 1), Best Action: A1
Current State: (1, 2, 1), Best Action: A2
Current State: (1, 4, 1), Best Action: A4
Current State: (1, 4, 4), Best Action: A2
Current State: (3, 4, 4), Best Action: A3
Current State: (3, 4, 1), Best Action: A1
Current State: (3, 5, 1), Best Action: A4
Current State: (3, 5, 4), Best Action: A2
Final State: (5, 5, 4)

Process finished with exit code 0
```

Figure 2: Optimal path recommended by the policy from state (1,1,4) to terminal state

C) If you start from state (1,1,4) and follow the optimal policy you found in part B, does it follow the same path you proposed in part A?

Ans) **Yes**, it follows the same path as proposed in part A.



```
Policy Extraction with initial state : (1, 1, 4)
Current State: (1, 1, 4), Best Action: A3
Current State: (1, 1, 1), Best Action: A1
Current State: (1, 2, 1), Best Action: A2
Current State: (1, 4, 1), Best Action: A4
Current State: (1, 4, 4), Best Action: A2
Current State: (3, 4, 4), Best Action: A3
Current State: (3, 4, 1), Best Action: A1
Current State: (3, 5, 1), Best Action: A4
Current State: (3, 5, 4), Best Action: A2
Final State: (5, 5, 4)

Process finished with exit code 0
```

Figure 3: Screenshot of path followed by optimal policy found in part B

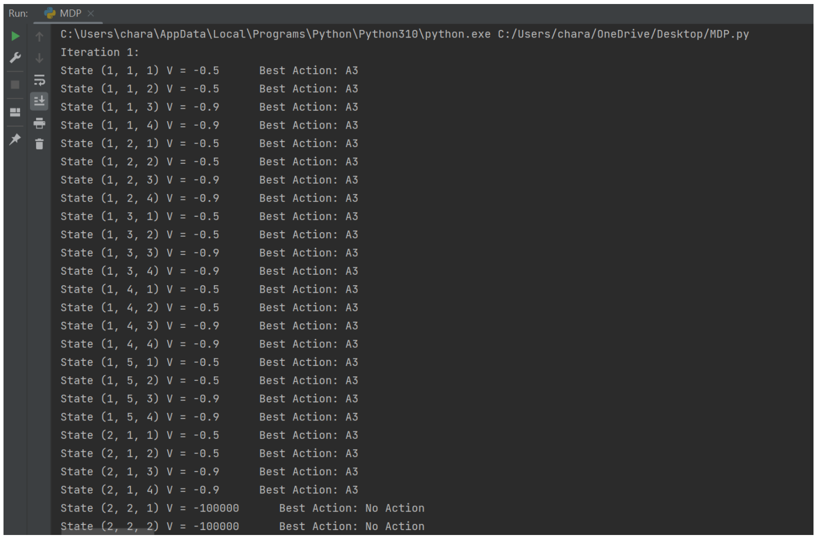
D) Repeat part B with the same assumptions, except for gamma = 0.8 (discount factor). Compare the results with that from part B. Do they match?

Ans) The result of first 10 value iterations is attached at the end.
Click on the following hyperlink for result: Iteration Value Results
Refer to HW2_D_Charanjit_Singh.py file for python code.

Comparing the results with part B, although the values of V* are different for cases when
discount factor = 1 (for Part B) or
discount factor = 0.8 (for Part D).
But, the best action obtained by following the path with maximum expected utility, i.e.

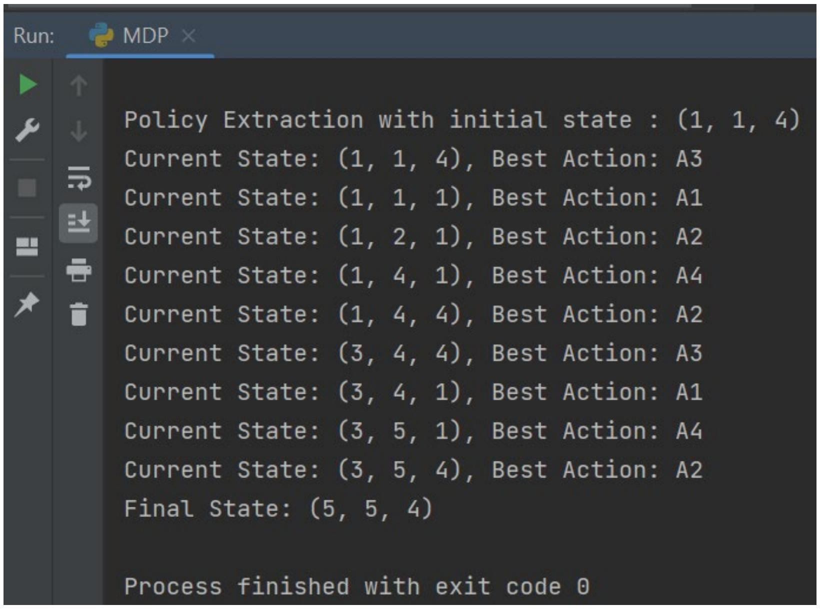
$$\pi^*(s) = \arg\max_a Q^*(s,a)$$

is **same for both parts B and D**.
So, the action A to be followed in a particular state S, will be the same if we choose to follow policy obtained in part D or in part B.



```
C:\Users\chara\AppData\Local\Programs\Python\Python310\python.exe C:/Users/chara/OneDrive/Desktop/MDP.py
Iteration 1:
State (1, 1, 1) V = -0.5      Best Action: A3
State (1, 1, 2) V = -0.5      Best Action: A3
State (1, 1, 3) V = -0.9      Best Action: A3
State (1, 1, 4) V = -0.9      Best Action: A3
State (1, 2, 1) V = -0.5      Best Action: A3
State (1, 2, 2) V = -0.5      Best Action: A3
State (1, 2, 3) V = -0.9      Best Action: A3
State (1, 2, 4) V = -0.9      Best Action: A3
State (1, 3, 1) V = -0.5      Best Action: A3
State (1, 3, 2) V = -0.5      Best Action: A3
State (1, 3, 3) V = -0.9      Best Action: A3
State (1, 3, 4) V = -0.9      Best Action: A3
State (1, 4, 1) V = -0.5      Best Action: A3
State (1, 4, 2) V = -0.5      Best Action: A3
State (1, 4, 3) V = -0.9      Best Action: A3
State (1, 4, 4) V = -0.9      Best Action: A3
State (1, 5, 1) V = -0.5      Best Action: A3
State (1, 5, 2) V = -0.5      Best Action: A3
State (1, 5, 3) V = -0.9      Best Action: A3
State (1, 5, 4) V = -0.9      Best Action: A3
State (2, 1, 1) V = -0.5      Best Action: A3
State (2, 1, 2) V = -0.5      Best Action: A3
State (2, 1, 3) V = -0.9      Best Action: A3
State (2, 1, 4) V = -0.9      Best Action: A3
State (2, 2, 1) V = -100000      Best Action: No Action
State (2, 2, 2) V = -100000      Best Action: No Action
```

Figure 4: Screenshot of Value Iteration results for reference



```

Policy Extraction with initial state : (1, 1, 4)
Current State: (1, 1, 4), Best Action: A3
Current State: (1, 1, 1), Best Action: A1
Current State: (1, 2, 1), Best Action: A2
Current State: (1, 4, 1), Best Action: A4
Current State: (1, 4, 4), Best Action: A2
Current State: (3, 4, 4), Best Action: A3
Current State: (3, 4, 1), Best Action: A1
Current State: (3, 5, 1), Best Action: A4
Current State: (3, 5, 4), Best Action: A2
Final State: (5, 5, 4)

Process finished with exit code 0
```

Path is same as seen in figure 2

Figure 5: Optimal Path for discount factor = 0.8

E) Repeat part B with the same assumptions, except for gamma = 0.2. Compare the results with that from parts B and D. Do they match?

Ans) The result of first 10 value iterations is attached at the end.

Click on the following hyperlink for result: Iteration Value Results

Refer to HW2_E_Charanjit_Singh.py file for python code.

Comparing with results from Parts B and D, the results (optimal paths recommended) do **NOT** match.

As the value of discount factor (gamma) has decreased considerably, the utility of future rewards has reduced drastically owing to discounting of rewards.

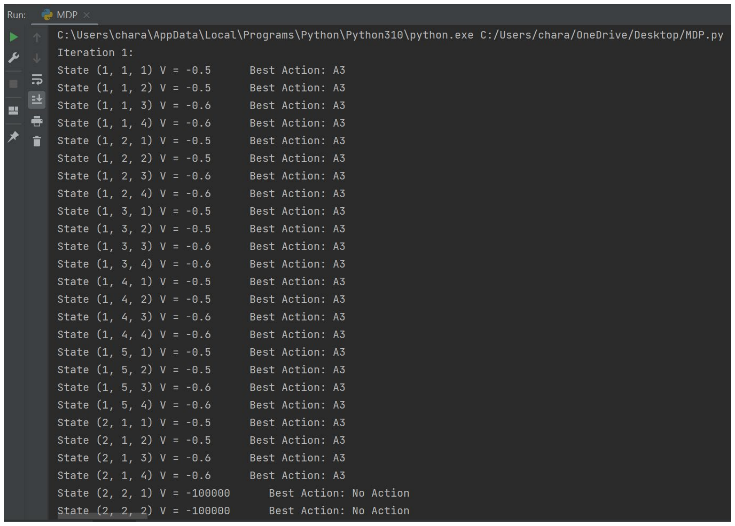
$$U_\pi = \sum_{t=0}^{H} \gamma^t R(\mathbf{s}_t)$$

This tends the agent more towards myopic behavior, i.e. the agent will consider the immediate rewards more strongly as compared to future rewards (as the reward component of equation is weighed more).

$$V^*(s) = \max_a \left(R(s,a,s') + \gamma V^*(s')\right)$$

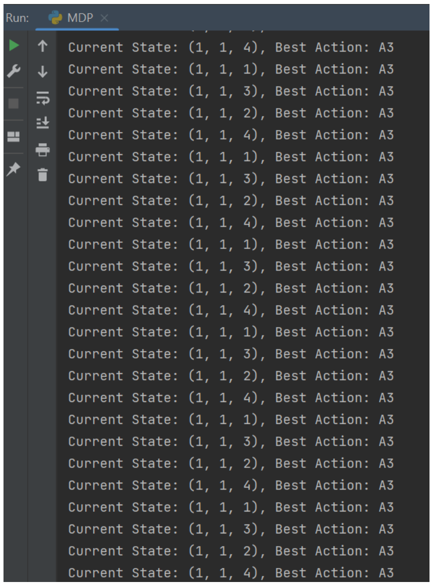
So, for the starting states (1,1,1), (1,1,2), (1,1,3) and (1,1,4), the best action recommended at V* values convergence is A3 (which costs the least [-0.5]).

This makes the agent fall in an infinite loop of rotating left while in the cell (1,1), as can be seen in figure 7.



```
C:\Users\chara\AppData\Local\Programs\Python\Python310\python.exe C:/Users/chara/OneDrive/Desktop/MDP.py
Iteration 1:
State (1, 1, 1) V = -0.5      Best Action: A3
State (1, 1, 2) V = -0.5      Best Action: A3
State (1, 1, 3) V = -0.6      Best Action: A3
State (1, 1, 4) V = -0.6      Best Action: A3
State (1, 2, 1) V = -0.5      Best Action: A3
State (1, 2, 2) V = -0.5      Best Action: A3
State (1, 2, 3) V = -0.6      Best Action: A3
State (1, 2, 4) V = -0.6      Best Action: A3
State (1, 3, 1) V = -0.5      Best Action: A3
State (1, 3, 2) V = -0.5      Best Action: A3
State (1, 3, 3) V = -0.6      Best Action: A3
State (1, 3, 4) V = -0.6      Best Action: A3
State (1, 4, 1) V = -0.5      Best Action: A3
State (1, 4, 2) V = -0.5      Best Action: A3
State (1, 4, 3) V = -0.6      Best Action: A3
State (1, 4, 4) V = -0.6      Best Action: A3
State (1, 5, 1) V = -0.5      Best Action: A3
State (1, 5, 2) V = -0.5      Best Action: A3
State (1, 5, 3) V = -0.6      Best Action: A3
State (1, 5, 4) V = -0.6      Best Action: A3
State (2, 1, 1) V = -0.5      Best Action: A3
State (2, 1, 2) V = -0.5      Best Action: A3
State (2, 1, 3) V = -0.6      Best Action: A3
State (2, 1, 4) V = -0.6      Best Action: A3
State (2, 2, 1) V = -100000      Best Action: No Action
State (2, 2, 2) V = -100000      Best Action: No Action
```

Figure 6: Screenshot of Value Iteration results for reference



```
Current State: (1, 1, 4), Best Action: A3
Current State: (1, 1, 1), Best Action: A3
Current State: (1, 1, 3), Best Action: A3
Current State: (1, 1, 2), Best Action: A3
Current State: (1, 1, 4), Best Action: A3
Current State: (1, 1, 1), Best Action: A3
Current State: (1, 1, 3), Best Action: A3
Current State: (1, 1, 2), Best Action: A3
Current State: (1, 1, 4), Best Action: A3
Current State: (1, 1, 1), Best Action: A3
Current State: (1, 1, 3), Best Action: A3
Current State: (1, 1, 2), Best Action: A3
Current State: (1, 1, 4), Best Action: A3
Current State: (1, 1, 1), Best Action: A3
Current State: (1, 1, 3), Best Action: A3
Current State: (1, 1, 2), Best Action: A3
Current State: (1, 1, 4), Best Action: A3
Current State: (1, 1, 1), Best Action: A3
Current State: (1, 1, 3), Best Action: A3
Current State: (1, 1, 2), Best Action: A3
Current State: (1, 1, 4), Best Action: A3
Current State: (1, 1, 1), Best Action: A3
Current State: (1, 1, 3), Best Action: A3
Current State: (1, 1, 2), Best Action: A3
Current State: (1, 1, 4), Best Action: A3
```

Figure 7: Path followed by agent for discount factor = 0.2 (infinite loop)

F) **(Optional for 4420)** Repeat part B, but this time with noise = 0.2, and gamma = 0.9 and no living reward. With a noise of 0.2, every time you take an action, the result will be the expected action with Probability 0.8 (80%), but 20% of the time, the robot will instead take a different action (taken randomly out of unexpected actions, with equal probability). If the action is impossible, it remains in the same cell.

For example, if we are in state (4,1,4), location (4,1) and facing right, and we take action A_1 (moving one cell forward), the resulting state will be:

s'= (5,1,2) with probability 0.8 [because A_1 is rendered]
s'= (4,1,4) with probability 0.2/3 [renders A_2 which is
impossible] s'= (4,1,1) with probability 0.2/3 [because A_3 is rendered]
s'= (4,1,2) with probability 0.2/3 [because A_4 is rendered]

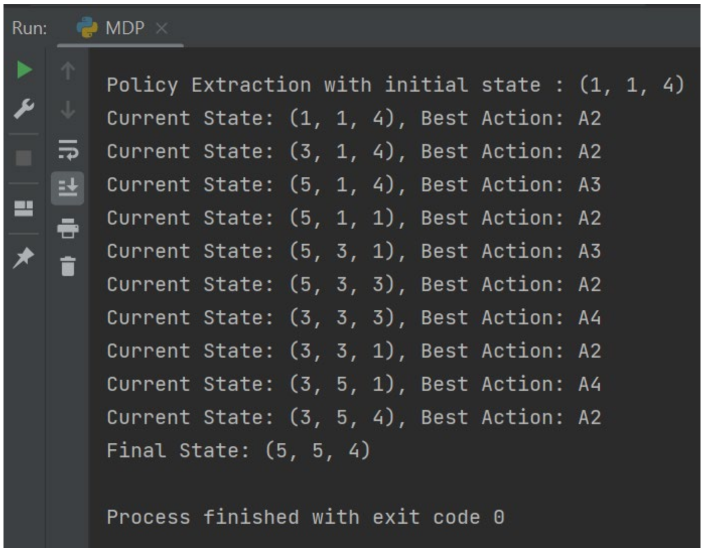
Compare the results with that of the previous parts and explain observations.

Ans) The result of first 10 value iterations is attached at the end.
Click on the following hyperlink for result: Iteration Value Results
Refer to HW2_F_Charanjit_Singh.py file for python code.
In the previous parts, there was no noise which meant the actions were executed with a probability of 1. As in this probabilistic case, there is a noise of 20%, there is a risk of falling in negative terminal state (4,4) which makes the agent skip the states (3,4,4) and (4,3,1) (which now have a negative V*).

V*(3,4,4) = -20.56, V*(4,3,1) = -35.27

Considering initial state as (1,1,4), the agent adopts a different path, via (3,1,4) to (5,1,1)
It avoids going upwards as it will eventually come across (3,4,4).
It avoids going through (4,1,1) as it will eventually come across (4,3,1).

So, it follows the safest option available to it which is guaranteed to give maximum expected utility. The path is shown in figure 8.



```
Policy Extraction with initial state : (1, 1, 4)
Current State: (1, 1, 4), Best Action: A2
Current State: (3, 1, 4), Best Action: A2
Current State: (5, 1, 4), Best Action: A3
Current State: (5, 1, 1), Best Action: A2
Current State: (5, 3, 1), Best Action: A3
Current State: (5, 3, 3), Best Action: A2
Current State: (3, 3, 3), Best Action: A4
Current State: (3, 3, 1), Best Action: A2
Current State: (3, 5, 1), Best Action: A4
Current State: (3, 5, 4), Best Action: A2
Final State: (5, 5, 4)

Process finished with exit code 0
```

Figure 8: Optimal path followed for discount factor = 0.9 and noise = 0.2

Markov Decision Process - Value Iteration Algorithm

```python
'''
Code Introduction:
The defined class MDP takes 2 positional arguments: Discount factor, Noise
This class has the following inbuilt functions built in them:
1. Transition Model: Takes current state and action as inputs and returns resulting state.
2. q_value function: Takes state and action as inputs and returns q value
3. value_iterations function:  prints Q*(s,a) value for all states along with the best recommended action
4. policy function: Takes current state as input and prints out the optimal path from current state to terminal state
'''

# Defining a class MDP which takes discount factor and noise as inputs
# i.e. inputs: 0 < Discount Factor, Noise < 1
class Mdp:
    def __init__(self, discount_factor, noise):
        self.discount_factor = discount_factor
        self.noise = noise
        self.actions = ["A1", "A2", "A3", "A4"]
        self.action_cost = {
            "A1": -1.5,
            "A2": -2,
            "A3": -0.5,
            "A4": -0.5
        }
        self.state_value = {}
        self.new_state_value_actions = {}
        self.states_best_actions = {}
        self.new_state_value = {}

    # Transition model which takes current state and action as inputs and returns resulting state
    # Input state in format (column, row, direction)
    # Input action as "Ai" where i = 1,2,3,4
    def transition_model(self, state, action):
        column_initial, row_initial, direction_initial = state

        # Defining inaccessible states for agent
        blocked_states = [(2, 2), (2, 3), (3, 2)]
        blocked_moves = []
        for z, y in blocked_states:
            for i in [1, 2, 3, 4]:
                blocked_moves.append((z,y,i))

        # returning initial state if agent tries to run in barriers
        if (column_initial, row_initial, direction_initial) in [(2, 5, 4), (3, 5, 3), (5, 3, 1), (5, 4, 2)]:
            if action in ["A1", "A2"]:
                return column_initial, row_initial, direction_initial

        # Assigning new direction to the agent depending on action A3 or A4
        rotating_actions = [1, 3, 2, 4, 1, 3, 2, 4]
        if action == "A3":
            direction = rotating_actions[rotating_actions.index(direction_initial)+1]
        elif action == "A4":
            direction = rotating_actions[rotating_actions.index(direction_initial)-1]
        else:
            direction = direction_initial

        # Defining the effect of actions A1 and A2 in initial direction 1/2/3/4
        steps = 1
        action_definition = {
            1: (column_initial, (row_initial+steps), direction),
            2: (column_initial, row_initial-steps, direction),
            3: ((column_initial-steps), row_initial, direction),
```

```python
            4: (column_initial+steps, row_initial, direction)
        }

        '''
        Defining the number of steps agent should take in a particular action i.e.
        for A1, no. of steps = 1 in facing direction
        for A2, no. of steps = 2 in facing direction
        for A3 and A4, no steps
        '''
        if action == 'A1':
            steps = 1
        elif action == 'A2':
            (c, r, d) = action_definition[direction_initial]
            if (c, r) in blocked_states or (c, r) in [(4, 4), (5, 5), (5, 3), (2, 5), (3, 5)]:
                return column_initial, row_initial, direction_initial
            else:
                steps = 2
        else:
            steps = 0

        # Updating the dictionary to according to the number of steps the agent should take
        action_definition = {
            1: (column_initial, (row_initial+steps), direction),
            2: (column_initial, row_initial-steps, direction),
            3: ((column_initial-steps), row_initial, direction),
            4: (column_initial+steps, row_initial, direction)
        }
        # Assigning the appropriate resulting stage after factoring in the effect of action on initial state
        resulting_state = action_definition[
direction_initial]
        (column, row, direction) = resulting_state

        # Filtering out the result in case action is making the agent fall out of the grid
        if (resulting_state in blocked_moves) or row > 5 or column > 5 or row < 1 or column < 1:
            return column_initial, row_initial, direction_initial
        else:
            return resulting_state

    '''
    Function to calculate Q value, which returns the expected value of utility for a particular action a in
    a state s.
    '''
    def q_value(self, state, action):
        actions = ["A1", "A2", "A3", "A4"]
        actions.remove(action)
        qval = (1-self.noise)*(self.action_cost[action] +
                               self.discount_factor*self.state_value[self.transition_model(state, action)])+\
        (self.noise/3)*(self.action_cost[actions[0]] +
                        self.discount_factor*self.state_value[self.transition_model(state, actions[0])])+\
        (self.noise/3)*(self.action_cost[actions[1]] +
                        self.discount_factor*self.state_value[self.transition_model(state,actions[1])])+\
        (self.noise/3)*(self.action_cost[actions[2]] +
                        self.discount_factor*self.state_value[self.transition_model(state,actions[2])])
        return qval

    # Defining a Value Iteration function which prints first 10 iterations and final values after 100 iterations
    def value_iterations(self):
        states = []
        # Initializing the states list containing all states on the grid
        for i in [1, 2, 3, 4, 5]:
            for t in [1, 2, 3, 4, 5]:
                for robot_direction in [1, 2, 3, 4]:
                    states.append((i, t, robot_direction))

        # Assign an initial value of 0 to all states
        for x in states:
            self.state_value[x] = 0

        # For terminal and blocked states, assign suitable values
        for col, ro, cost in [(4, 4, -1000), (5, 5, 100), (2, 3, -100000), (2, 2, -100000), (3, 2, -100000)]:
            for d in [1, 2, 3, 4]:
                self.state_value[col, ro, d] = cost

        # Value Iteration containing 100 iterations
        for i in range(100):
            if i < 10:
                print(f'Iteration {i+1}:')
            for a, b, c in states:
                # If state is blocked/terminal, value is fixed
                if (a, b) in [(4, 4), (5, 5), (3, 2), (2, 2), (2, 3)]:
                    self.new_state_value_actions[a, b, c] = (self.state_value[a, b, c], "No Action")
                # for accessible states, value should be updated in subsequent iterations
                else:
                    self.new_state_value[a, b, c] = [round(self.q_value((a, b, c), act), 2) for act in
                            ["A1", "A2", "A3", "A4"]]
                    self.new_state_value_actions[a, b, c] = max(self.new_state_value[a, b, c]),\
                            self.actions[(self.new_state_value[a, b, c]).index(max(self.new_state_value[a, b, c]))]
                # Forming a dictionary states_best_actions to keep track of best action in a particular state
                val, act = self.new_state_value_actions[a, b, c]
                self.states_best_actions[(a,b,c)] = f'State {a,b,c} V = {val}      Best Action: {act}'
                # Updating the state value dictionary with new values
                self.state_value[a, b, c] = val
            # Printing the first 10 value iterations
            if i < 10:
                for key, value in self.states_best_actions.items():
                    print(value)
            i += 1
        print(f'\n(Values, Best Action) after 100 iterations: {self.new_state_value_actions}')

    '''
    Defining a policy function with input: current state
    It returns the optimal path to reach the terminal state from current state
    '''
    def policy(self, state):
        print(f"\nPolicy Extraction with initial state : {state}")
        (c, r, d) = state
        while (c, r) not in [(4, 4), (5, 5)]:
            (v, ac) = self.new_state_value_actions[(
c, r, d)]
            print(f'Current State: {state}, Best Action: '
                  f'{self.actions[(self.new_state_value[c,r,d]).index(max(self.new_state_value[c,r,d]))]}')
            state = self.transition_model((c, r, d), ac)
            (c, r, d) = state
        print(f'Final State: {state}')

# initialize a class instance: puzzle = Mdp(1, 0)
# print value iterations using puzzle.value_iterations()
# Print policy: puzzle.policy((1, 1, 4))
```

Value Iteration Answers

Ans B)

```
Iteration 1:
State (1, 1, 1) V = -0.5     Best Action: A3
State (1, 1, 2) V = -0.5     Best Action: A3
State (1, 1, 3) V = -1.0     Best Action: A3
State (1, 1, 4) V = -1.0     Best Action: A3
State (1, 2, 1) V = -0.5     Best Action: A3
State (1, 2, 2) V = -0.5     Best Action: A3
State (1, 2, 3) V = -1.0     Best Action: A3
State (1, 2, 4) V = -1.0     Best Action: A3
State (1, 3, 1) V = -0.5     Best Action: A3
State (1, 3, 2) V = -0.5     Best Action: A3
State (1, 3, 3) V = -1.0     Best Action: A3
State (1, 3, 4) V = -1.0     Best Action: A3
State (1, 4, 1) V = -0.5     Best Action: A3
State (1, 4, 2) V = -0.5     Best Action: A3
State (1, 4, 3) V = -1.0     Best Action: A3
State (1, 4, 4) V = -1.0     Best Action: A3
State (1, 5, 1) V = -0.5     Best Action: A3
State (1, 5, 2) V = -0.5     Best Action: A3
State (1, 5, 3) V = -1.0     Best Action: A3
State (1, 5, 4) V = -1.0     Best Action: A3
State (2, 1, 1) V = -0.5     Best Action: A3
State (2, 1, 2) V = -0.5     Best Action: A3
State (2, 1, 3) V = -1.0     Best Action: A3
State (2, 1, 4) V = -1.0     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -0.5     Best Action: A3
State (2, 4, 2) V = -0.5     Best Action: A3
State (2, 4, 3) V = -1.0     Best Action: A3
State (2, 4, 4) V = -1.0     Best Action: A3
State (2, 5, 1) V = -0.5     Best Action: A3
State (2, 5, 2) V = -0.5     Best Action: A3
State (2, 5, 3) V = -1.0     Best Action: A3
State (2, 5, 4) V = -1.0     Best Action: A3
State (3, 1, 1) V = -0.5     Best Action: A3
State (3, 1, 2) V = -0.5     Best Action: A3
State (3, 1, 3) V = -1.0     Best Action: A3
State (3, 1, 4) V = -1.0     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = -0.5     Best Action: A3
State (3, 3, 2) V = -0.5     Best Action: A3
State (3, 3, 3) V = -1.0     Best Action: A3
State (3, 3, 4) V = -1.0     Best Action: A3
State (3, 4, 1) V = -0.5     Best Action: A3
State (3, 4, 2) V = -0.5     Best Action: A3
State (3, 4, 3) V = -1.0     Best Action: A3
State (3, 4, 4) V = -1.0     Best Action: A3
State (3, 5, 1) V = -0.5     Best Action: A3
State (3, 5, 2) V = -0.5     Best Action: A3
State (3, 5, 3) V = -1.0     Best Action: A3
State (3, 5, 4) V = 98.0     Best Action: A2
State (4, 1, 1) V = -0.5     Best Action: A3
State (4, 1, 2) V = -0.5     Best Action: A3
State (4, 1, 3) V = -1.0     Best Action: A3
State (4, 1, 4) V = -1.0     Best Action: A3
State (4, 2, 1) V = -0.5     Best Action: A3
State (4, 2, 2) V = -0.5     Best Action: A3
State (4, 2, 3) V = -1.0     Best Action: A3
State (4, 2, 4) V = -1.0     Best Action: A3
State (4, 3, 1) V = -0.5     Best Action: A3
State (4, 3, 2) V = -0.5     Best Action: A3
State (4, 3, 3) V = -1.0     Best Action: A3
State (4, 3, 4) V = -1.0     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = -0.5     Best Action: A3
State (4, 5, 2) V = -0.5     Best Action: A3
State (4, 5, 3) V = -1.0     Best Action: A3
State (4, 5, 4) V = 98.5     Best Action: A1
State (5, 1, 1) V = -0.5     Best Action: A3
State (5, 1, 2) V = -0.5     Best Action: A3
State (5, 1, 3) V = -1.0     Best Action: A3
State (5, 1, 4) V = -1.0     Best Action: A3
State (5, 2, 1) V = -0.5     Best Action: A3
State (5, 2, 2) V = -0.5     Best Action: A3
State (5, 2, 3) V = -1.0     Best Action: A3
State (5, 2, 4) V = -1.0     Best Action: A3
State (5, 3, 1) V = -0.5     Best Action: A3
State (5, 3, 2) V = -0.5     Best Action: A3
State (5, 3, 3) V = -1.0     Best Action: A3
State (5, 3, 4) V = -1.0     Best Action: A3
State (5, 4, 1) V = 98.5     Best Action: A1
State (5, 4, 2) V = -0.5     Best Action: A3
State (5, 4, 3) V = 98.0     Best Action: A4
State (5, 4, 4) V = 98.0     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 2:
State (1, 1, 1) V = -1.5     Best Action: A3
State (1, 1, 2) V = -1.5     Best Action: A3
State (1, 1, 3) V = -2.0     Best Action: A3
State (1, 1, 4) V = -2.0     Best Action: A3
State (1, 2, 1) V = -1.5     Best Action: A3
State (1, 2, 2) V = -1.5     Best Action: A3
State (1, 2, 3) V = -2.0     Best Action: A3
State (1, 2, 4) V = -2.0     Best Action: A3
State (1, 3, 1) V = -1.5     Best Action: A3
State (1, 3, 2) V = -1.5     Best Action: A3
State (1, 3, 3) V = -2.0     Best Action: A3
State (1, 3, 4) V = -2.0     Best Action: A3
State (1, 4, 1) V = -1.5     Best Action: A3
State (1, 4, 2) V = -1.5     Best Action: A3
State (1, 4, 3) V = -2.0     Best Action: A3
State (1, 4, 4) V = -2.0     Best Action: A3
State (1, 5, 1) V = -1.5     Best Action: A3
State (1, 5, 2) V = -1.5     Best Action: A3
State (1, 5, 3) V = -2.0     Best Action: A3
State (1, 5, 4) V = -2.0     Best Action: A3
State (2, 1, 1) V = -1.5     Best Action: A3
State (2, 1, 2) V = -1.5     Best Action: A3
State (2, 1, 3) V = -2.0     Best Action: A3
State (2, 1, 4) V = -2.0     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -1.5     Best Action: A3
State (2, 4, 2) V = -1.5     Best Action: A3
State (2, 4, 3) V = -2.0     Best Action: A3
State (2, 4, 4) V = -2.0     Best Action: A3
State (2, 5, 1) V = -1.5     Best Action: A3
State (2, 5, 2) V = -1.5     Best Action: A3
State (2, 5, 3) V = -2.0     Best Action: A3
State (2, 5, 4) V = -2.0     Best Action: A3
State (3, 1, 1) V = -1.5     Best Action: A3
State (3, 1, 2) V = -1.5     Best Action: A3
State (3, 1, 3) V = -2.0     Best Action: A3
State (3, 1, 4) V = -2.0     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = -1.5     Best Action: A3
State (3, 3, 2) V = -1.5     Best Action: A3
State (3, 3, 3) V = -2.0     Best Action: A3
State (3, 3, 4) V = -2.0     Best Action: A3
State (3, 4, 1) V = -1.5     Best Action: A3
State (3, 4, 2) V = -1.5     Best Action: A3
State (3, 4, 3) V = -2.0     Best Action: A3
State (3, 4, 4) V = -2.0     Best Action: A3
State (3, 5, 1) V = 97.5     Best Action: A4
State (3, 5, 2) V = 97.5     Best Action: A3
State (3, 5, 3) V = 97.0     Best Action: A3
State (3, 5, 4) V = 98.0     Best Action: A2
State (4, 1, 1) V = -1.5     Best Action: A3
State (4, 1, 2) V = -1.5     Best Action: A3
State (4, 1, 3) V = -2.0     Best Action: A3
State (4, 1, 4) V = -2.0     Best Action: A3
State (4, 2, 1) V = -1.5     Best Action: A3
State (4, 2, 2) V = -1.5     Best Action: A3
State (4, 2, 3) V = -2.0     Best Action: A3
State (4, 2, 4) V = -2.0     Best Action: A3
State (4, 3, 1) V = -1.5     Best Action: A3
State (4, 3, 2) V = -1.5     Best Action: A3
State (4, 3, 3) V = -2.0     Best Action: A3
State (4, 3, 4) V = -2.0     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 98.0     Best Action: A4
State (4, 5, 2) V = 98.0     Best Action: A3
State (4, 5, 3) V = 97.5     Best Action: A3
State (4, 5, 4) V = 98.5     Best Action: A1
State (5, 1, 1) V = -1.5     Best Action: A3
State (5, 1, 2) V = -1.5     Best Action: A3
State (5, 1, 3) V = -2.0     Best Action: A3
State (5, 1, 4) V = -2.0     Best Action: A3
State (5, 2, 1) V = -1.5     Best Action: A3
State (5, 2, 2) V = -1.5     Best Action: A3
State (5, 2, 3) V = -2.0     Best Action: A3
State (5, 2, 4) V = -2.0     Best Action: A3
State (5, 3, 1) V = -1.5     Best Action: A3
State (5, 3, 2) V = -1.5     Best Action: A3
State (5, 3, 3) V = -2.0     Best Action: A3
State (5, 3, 4) V = -2.0     Best Action: A3
State (5, 4, 1) V = 98.5     Best Action: A1
State (5, 4, 2) V = 97.5     Best Action: A3
State (5, 4, 3) V = 98.0     Best Action: A4
State (5, 4, 4) V = 98.0     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 3:
State (1, 1, 1) V = -2.5     Best Action: A3
State (1, 1, 2) V = -2.5     Best Action: A3
State (1, 1, 3) V = -3.0     Best Action: A3
State (1, 1, 4) V = -3.0     Best Action: A3
State (1, 2, 1) V = -2.5     Best Action: A3
State (1, 2, 2) V = -2.5     Best Action: A3
State (1, 2, 3) V = -3.0     Best Action: A3
State (1, 2, 4) V = -3.0     Best Action: A3
State (1, 3, 1) V = -2.5     Best Action: A3
State (1, 3, 2) V = -2.5     Best Action: A3
State (1, 3, 3) V = -3.0     Best Action: A3
State (1, 3, 4) V = -3.0     Best Action: A3
State (1, 4, 1) V = -2.5     Best Action: A3
State (1, 4, 2) V = -2.5     Best Action: A3
State (1, 4, 3) V = -3.0     Best Action: A3
State (1, 4, 4) V = -3.0     Best Action: A3
State (1, 5, 1) V = -2.5     Best Action: A3
State (1, 5, 2) V = -2.5     Best Action: A3
State (1, 5, 3) V = -3.0     Best Action: A3
State (1, 5, 4) V = -3.0     Best Action: A3
State (2, 1, 1) V = -2.5     Best Action: A3
State (2, 1, 2) V = -2.5     Best Action: A3
State (2, 1, 3) V = -3.0     Best Action: A3
State (2, 1, 4) V = -3.0     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -2.5     Best Action: A3
State (2, 4, 2) V = -2.5     Best Action: A3
State (2, 4, 3) V = -3.0     Best Action: A3
State (2, 4, 4) V = -3.0     Best Action: A3
State (2, 5, 1) V = -2.5     Best Action: A3
State (2, 5, 2) V = -2.5     Best Action: A3
State (2, 5, 3) V = -3.0     Best Action: A3
State (2, 5, 4) V = -3.0     Best Action: A3
State (3, 1, 1) V = -2.5     Best Action: A3
State (3, 1, 2) V = -2.5     Best Action: A3
State (3, 1, 3) V = -3.0     Best Action: A3
State (3, 1, 4) V = -3.0     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = 95.5     Best Action: A2
State (3, 3, 2) V = -2.5     Best Action: A3
State (3, 3, 3) V = 95.0     Best Action: A4
State (3, 3, 4) V = 95.0     Best Action: A3
State (3, 4, 1) V = 96.0     Best Action: A1
State (3, 4, 2) V = -2.5     Best Action: A3
State (3, 4, 3) V = 95.5     Best Action: A4
State (3, 4, 4) V = 95.5     Best Action: A3
State (3, 5, 1) V = 97.5     Best Action: A4
State (3, 5, 2) V = 97.5     Best Action: A3
State (3, 5, 3) V = 97.0     Best Action: A3
State (3, 5, 4) V = 98.0     Best Action: A2
State (4, 1, 1) V = -2.5     Best Action: A3
State (4, 1, 2) V = -2.5     Best Action: A3
State (4, 1, 3) V = -3.0     Best Action: A3
State (4, 1, 4) V = -3.0     Best Action: A3
State (4, 2, 1) V = -2.5     Best Action: A3
State (4, 2, 2) V = -2.5     Best Action: A3
State (4, 2, 3) V = -3.0     Best Action: A3
State (4, 2, 4) V = -3.0     Best Action: A3
State (4, 3, 1) V = -2.5     Best Action: A3
State (4, 3, 2) V = -2.5     Best Action: A3
State (4, 3, 3) V = 93.5     Best Action: A1
State (4, 3, 4) V = -3.0     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 98.0     Best Action: A4
State (4, 5, 2) V = 98.0     Best Action: A3
State (4, 5, 3) V = 97.5     Best Action: A3
State (4, 5, 4) V = 98.5     Best Action: A1
State (5, 1, 1) V = -2.5     Best Action: A3
State (5, 1, 2) V = -2.5     Best Action: A3
State (5, 1, 3) V = -3.0     Best Action: A3
State (5, 1, 4) V = -3.0     Best Action: A3
State (5, 2, 1) V = -2.5     Best Action: A3
State (5, 2, 2) V = -2.5     Best Action: A3
State (5, 2, 3) V = -3.0     Best Action: A3
State (5, 2, 4) V = -3.0     Best Action: A3
State (5, 3, 1) V = -2.5     Best Action: A3
State (5, 3, 2) V = -2.5     Best Action: A3
State (5, 3, 3) V = 93.0     Best Action: A2
State (5, 3, 4) V = -3.0     Best Action: A3
State (5, 4, 1) V = 98.5     Best Action: A1
State (5, 4, 2) V = 97.5     Best Action: A3
State (5, 4, 3) V = 98.0     Best Action: A4
State (5, 4, 4) V = 98.0     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 4:
State (1, 1, 1) V = -3.5     Best Action: A3
State (1, 1, 2) V = -3.5     Best Action: A3
State (1, 1, 3) V = -4.0     Best Action: A3
State (1, 1, 4) V = -4.0     Best Action: A3
State (1, 2, 1) V = -3.5     Best Action: A3
State (1, 2, 2) V = -3.5     Best Action: A3
State (1, 2, 3) V = -4.0     Best Action: A3
State (1, 2, 4) V = -4.0     Best Action: A3
State (1, 3, 1) V = -3.5     Best Action: A3
State (1, 3, 2) V = -3.5     Best Action: A3
State (1, 3, 3) V = -4.0     Best Action: A3
State (1, 3, 4) V = -4.0     Best Action: A3
State (1, 4, 1) V = -3.5     Best Action: A3
State (1, 4, 2) V = -3.5     Best Action: A3
State (1, 4, 3) V = -4.0     Best Action: A3
State (1, 4, 4) V = 93.5     Best Action: A2
State (1, 5, 1) V = -3.5     Best Action: A3
State (1, 5, 2) V = -3.5     Best Action: A3
State (1, 5, 3) V = -4.0     Best Action: A3
State (1, 5, 4) V = -4.0     Best Action: A3
State (2, 1, 1) V = -3.5     Best Action: A3
State (2, 1, 2) V = -3.5     Best Action: A3
State (2, 1, 3) V = -4.0     Best Action: A3
State (2, 1, 4) V = -4.0     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -3.5     Best Action: A3
State (2, 4, 2) V = -3.5     Best Action: A3
State (2, 4, 3) V = -4.0     Best Action: A3
State (2, 4, 4) V = 94.0     Best Action: A1
State (2, 5, 1) V = -3.5     Best Action: A3
State (2, 5, 2) V = -3.5     Best Action: A3
State (2, 5, 3) V = -4.0     Best Action: A3
State (2, 5, 4) V = -4.0     Best Action: A3
State (3, 1, 1) V = -3.5     Best Action: A3
State (3, 1, 2) V = -3.5     Best Action: A3
State (3, 1, 3) V = -4.0     Best Action: A3
State (3, 1, 4) V = -4.0     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = 95.5     Best Action: A2
State (3, 3, 2) V = 94.5     Best Action: A3
State (3, 3, 3) V = 95.0     Best Action: A4
State (3, 3, 4) V = 95.0     Best Action: A3
State (3, 4, 1) V = 96.0     Best Action: A1
State (3, 4, 2) V = 95.0     Best Action: A3
State (3, 4, 3) V = 95.5     Best Action: A4
State (3, 4, 4) V = 95.5     Best Action: A3
State (3, 5, 1) V = 97.5     Best Action: A4
State (3, 5, 2) V = 97.5     Best Action: A3
State (3, 5, 3) V = 97.0     Best Action: A3
State (3, 5, 4) V = 98.0     Best Action: A2
State (4, 1, 1) V = -3.5     Best Action: A3
State (4, 1, 2) V = -3.5     Best Action: A3
State (4, 1, 3) V = -4.0     Best Action: A3
State (4, 1, 4) V = -4.0     Best Action: A3
State (4, 2, 1) V = -3.5     Best Action: A3
State (4, 2, 2) V = -3.5     Best Action: A3
State (4, 2, 3) V = -4.0     Best Action: A3
State (4, 2, 4) V = -4.0     Best Action: A3
State (4, 3, 1) V = 93.0     Best Action: A3
State (4, 3, 2) V = 93.0     Best Action: A4
State (4, 3, 3) V = 93.5     Best Action: A1
State (4, 3, 4) V = 92.5     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 98.0     Best Action: A4
State (4, 5, 2) V = 98.0     Best Action: A3
State (4, 5, 3) V = 97.5     Best Action: A3
State (4, 5, 4) V = 98.5     Best Action: A1
State (5, 1, 1) V = -3.5     Best Action: A3
State (5, 1, 2) V = -3.5     Best Action: A3
State (5, 1, 3) V = -4.0     Best Action: A3
State (5, 1, 4) V = -4.0     Best Action: A3
State (5, 2, 1) V = -3.5     Best Action: A3
State (5, 2, 2) V = -3.5     Best Action: A3
State (5, 2, 3) V = -4.0     Best Action: A3
State (5, 2, 4) V = -4.0     Best Action: A3
State (5, 3, 1) V = 92.5     Best Action: A3
State (5, 3, 2) V = 92.5     Best Action: A4
State (5, 3, 3) V = 93.0     Best Action: A2
State (5, 3, 4) V = 92.0     Best Action: A3
State (5, 4, 1) V = 98.5     Best Action: A1
State (5, 4, 2) V = 97.5     Best Action: A3
State (5, 4, 3) V = 98.0     Best Action: A4
State (5, 4, 4) V = 98.0     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 5:
State (1, 1, 1) V = -4.5     Best Action: A3
State (1, 1, 2) V = -4.5     Best Action: A3
State (1, 1, 3) V = -5.0     Best Action: A3
State (1, 1, 4) V = -5.0     Best Action: A3
State (1, 2, 1) V = -4.5     Best Action: A3
State (1, 2, 2) V = -4.5     Best Action: A3
State (1, 2, 3) V = -5.0     Best Action: A3
State (1, 2, 4) V = -5.0     Best Action: A3
State (1, 3, 1) V = -4.5     Best Action: A3
State (1, 3, 2) V = -4.5     Best Action: A3
State (1, 3, 3) V = -5.0     Best Action: A3
State (1, 3, 4) V = -5.0     Best Action: A3
State (1, 4, 1) V = 93.0     Best Action: A4
State (1, 4, 2) V = 93.0     Best Action: A3
State (1, 4, 3) V = 92.5     Best Action: A3
State (1, 4, 4) V = 93.5     Best Action: A2
State (1, 5, 1) V = -4.5     Best Action: A3
State (1, 5, 2) V = 91.5     Best Action: A1
State (1, 5, 3) V = 91.0     Best Action: A3
State (1, 5, 4) V = 91.0     Best Action: A4
State (2, 1, 1) V = -4.5     Best Action: A3
State (2, 1, 2) V = -4.5     Best Action: A3
State (2, 1, 3) V = -5.0     Best Action: A3
State (2, 1, 4) V = -5.0     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = 93.5     Best Action: A4
State (2, 4, 2) V = 93.5     Best Action: A3
State (2, 4, 3) V = 93.0     Best Action: A3
State (2, 4, 4) V = 94.0     Best Action: A1
State (2, 5, 1) V = -4.5     Best Action: A3
State (2, 5, 2) V = 92.0     Best Action: A1
State (2, 5, 3) V = 91.5     Best Action: A3
State (2, 5, 4) V = 91.5     Best Action: A4
State (3, 1, 1) V = -4.5     Best Action: A3
State (3, 1, 2) V = -4.5     Best Action: A3
State (3, 1, 3) V = -5.0     Best Action: A3
State (3, 1, 4) V = -5.0     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = 95.5     Best Action: A2
State (3, 3, 2) V = 94.5     Best Action: A3
State (3, 3, 3) V = 95.0     Best Action: A4
State (3, 3, 4) V = 95.0     Best Action: A3
State (3, 4, 1) V = 96.0     Best Action: A1
State (3, 4, 2) V = 95.0     Best Action: A3
State (3, 4, 3) V = 95.5     Best Action: A4
State (3, 4, 4) V = 95.5     Best Action: A3
State (3, 5, 1) V = 97.5     Best Action: A4
State (3, 5, 2) V = 97.5     Best Action: A3
State (3, 5, 3) V = 97.0     Best Action: A3
State (3, 5, 4) V = 98.0     Best Action: A2
State (4, 1, 1) V = 91.0     Best Action: A2
State (4, 1, 2) V = -4.5     Best Action: A3
State (4, 1, 3) V = 90.5     Best Action: A4
State (4, 1, 4) V = 90.5     Best Action: A3
State (4, 2, 1) V = 91.5     Best Action: A1
State (4, 2, 2) V = -4.5     Best Action: A3
State (4, 2, 3) V = 91.0     Best Action: A4
State (4, 2, 4) V = 91.0     Best Action: A3
State (4, 3, 1) V = 93.0     Best Action: A3
State (4, 3, 2) V = 93.0     Best Action: A4
State (4, 3, 3) V = 93.5     Best Action: A1
State (4, 3, 4) V = 92.5     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 98.0     Best Action: A4
State (4, 5, 2) V = 98.0     Best Action: A3
State (4, 5, 3) V = 97.5     Best Action: A3
State (4, 5, 4) V = 98.5     Best Action: A1
State (5, 1, 1) V = 90.5     Best Action: A2
State (5, 1, 2) V = -4.5     Best Action: A3
State (5, 1, 3) V = 90.0     Best Action: A4
State (5, 1, 4) V = 90.0     Best Action: A3
State (5, 2, 1) V = 91.0     Best Action: A1
State (5, 2, 2) V = -4.5     Best Action: A3
State (5, 2, 3) V = 90.5     Best Action: A4
State (5, 2, 4) V = 90.5     Best Action: A3
State (5, 3, 1) V = 92.5     Best Action: A3
State (5, 3, 2) V = 92.5     Best Action: A4
State (5, 3, 3) V = 93.0     Best Action: A2
State (5, 3, 4) V = 92.0     Best Action: A3
State (5, 4, 1) V = 98.5     Best Action: A1
State (5, 4, 2) V = 97.5     Best Action: A3
State (5, 4, 3) V = 98.0     Best Action: A4
State (5, 4, 4) V = 98.0     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 6:
State (1, 1, 1) V = -5.5     Best Action: A3
State (1, 1, 2) V = -5.5     Best Action: A3
State (1, 1, 3) V = -6.0     Best Action: A3
State (1, 1, 4) V = -6.0     Best Action: A3
State (1, 2, 1) V = 91.0     Best Action: A2
State (1, 2, 2) V = -5.5     Best Action: A3
State (1, 2, 3) V = 90.5     Best Action: A4
State (1, 2, 4) V = 90.5     Best Action: A3
State (1, 3, 1) V = 91.5     Best Action: A1
State (1, 3, 2) V = -5.5     Best Action: A3
State (1, 3, 3) V = 91.0     Best Action: A4
State (1, 3, 4) V = 91.0     Best Action: A3
State (1, 4, 1) V = 93.0     Best Action: A4
State (1, 4, 2) V = 93.0     Best Action: A3
State (1, 4, 3) V = 92.5     Best Action: A3
State (1, 4, 4) V = 93.5     Best Action: A2
State (1, 5, 1) V = 90.5     Best Action: A3
State (1, 5, 2) V = 91.5     Best Action: A1
State (1, 5, 3) V = 91.0     Best Action: A3
State (1, 5, 4) V = 91.0     Best Action: A4
State (2, 1, 1) V = -5.5     Best Action: A3
State (2, 1, 2) V = -5.5     Best Action: A3
State (2, 1, 3) V = -6.0     Best Action: A3
State (2, 1, 4) V = 88.5     Best Action: A2
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = 93.5     Best Action: A4
State (2, 4, 2) V = 93.5     Best Action: A3
State (2, 4, 3) V = 93.0     Best Action: A3
State (2, 4, 4) V = 94.0     Best Action: A1
State (2, 5, 1) V = 91.0     Best Action: A3
State (2, 5, 2) V = 92.0     Best Action: A1
State (2, 5, 3) V = 91.5     Best Action: A3
State (2, 5, 4) V = 91.5     Best Action: A4
State (3, 1, 1) V = -5.5     Best Action: A3
State (3, 1, 2) V = -5.5     Best Action: A3
State (3, 1, 3) V = -6.0     Best Action: A3
State (3, 1, 4) V = 89.0     Best Action: A1
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = 95.5     Best Action: A2
State (3, 3, 2) V = 94.5     Best Action: A3
State (3, 3, 3) V = 95.0     Best Action: A4
State (3, 3, 4) V = 95.0     Best Action: A3
State (3, 4, 1) V = 96.0     Best Action: A1
State (3, 4, 2) V = 95.0     Best Action: A3
State (3, 4, 3) V = 95.5     Best Action: A4
State (3, 4, 4) V = 95.5     Best Action: A3
State (3, 5, 1) V = 97.5     Best Action: A4
State (3, 5, 2) V = 97.5     Best Action: A3
State (3, 5, 3) V = 97.0     Best Action: A3
State (3, 5, 4) V = 98.0     Best Action: A2
State (4, 1, 1) V = 91.0     Best Action: A2
State (4, 1, 2) V = 90.0     Best Action: A3
State (4, 1, 3) V = 90.5     Best Action: A4
State (4, 1, 4) V = 90.5     Best Action: A3
State (4, 2, 1) V = 91.5     Best Action: A1
State (4, 2, 2) V = 90.5     Best Action: A3
State (4, 2, 3) V = 91.0     Best Action: A4
State (4, 2, 4) V = 91.0     Best Action: A3
State (4, 3, 1) V = 93.0     Best Action: A3
State (4, 3, 2) V = 93.0     Best Action: A4
State (4, 3, 3) V = 93.5     Best Action: A1
State (4, 3, 4) V = 92.5     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 98.0     Best Action: A4
State (4, 5, 2) V = 98.0     Best Action: A3
State (4, 5, 3) V = 97.5     Best Action: A3
State (4, 5, 4) V = 98.5     Best Action: A1
State (5, 1, 1) V = 90.5     Best Action: A2
State (5, 1, 2) V = 89.5     Best Action: A3
State (5, 1, 3) V = 90.0     Best Action: A4
State (5, 1, 4) V = 90.0     Best Action: A3
State (5, 2, 1) V = 91.0     Best Action: A1
State (5, 2, 2) V = 90.0     Best Action: A3
State (5, 2, 3) V = 90.5     Best Action: A4
State (5, 2, 4) V = 90.5     Best Action: A3
State (5, 3, 1) V = 92.5     Best Action: A3
State (5, 3, 2) V = 92.5     Best Action: A4
State (5, 3, 3) V = 93.0     Best Action: A2
State (5, 3, 4) V = 92.0     Best Action: A3
State (5, 4, 1) V = 98.5     Best Action: A1
State (5, 4, 2) V = 97.5     Best Action: A3
State (5, 4, 3) V = 98.0     Best Action: A4
State (5, 4, 4) V = 98.0     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 7:
State (1, 1, 1) V = 89.5     Best Action: A1
State (1, 1, 2) V = -6.5     Best Action: A3
State (1, 1, 3) V = 89.0     Best Action: A4
State (1, 1, 4) V = 89.0     Best Action: A3
State (1, 2, 1) V = 91.0     Best Action: A2
State (1, 2, 2) V = 90.0     Best Action: A3
State (1, 2, 3) V = 90.5     Best Action: A4
State (1, 2, 4) V = 90.5     Best Action: A3
State (1, 3, 1) V = 91.5     Best Action: A1
State (1, 3, 2) V = 90.5     Best Action: A3
State (1, 3, 3) V = 91.0     Best Action: A4
State (1, 3, 4) V = 91.0     Best Action: A3
State (1, 4, 1) V = 93.0     Best Action: A4
State (1, 4, 2) V = 93.0     Best Action: A3
State (1, 4, 3) V = 92.5     Best Action: A3
State (1, 4, 4) V = 93.5     Best Action: A2
State (1, 5, 1) V = 90.5     Best Action: A3
State (1, 5, 2) V = 91.5     Best Action: A1
State (1, 5, 3) V = 91.0     Best Action: A3
State (1, 5, 4) V = 91.0     Best Action: A4
State (2, 1, 1) V = 88.0     Best Action: A4
State (2, 1, 2) V = 88.0     Best Action: A3
State (2, 1, 3) V = 87.5     Best Action: A1
State (2, 1, 4) V = 88.5     Best Action: A2
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = 93.5     Best Action: A4
State (2, 4, 2) V = 93.5     Best Action: A3
State (2, 4, 3) V = 93.0     Best Action: A3
State (2, 4, 4) V = 94.0     Best Action: A1
State (2, 5, 1) V = 91.0     Best Action: A3
State (2, 5, 2) V = 92.0     Best Action: A1
State (2, 5, 3) V = 91.5     Best Action: A3
State (2, 5, 4) V = 91.5     Best Action: A4
State (3, 1, 1) V = 88.5     Best Action: A4
State (3, 1, 2) V = 88.5     Best Action: A3
State (3, 1, 3) V = 88.0     Best Action: A3
State (3, 1, 4) V = 89.0     Best Action: A1
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = 95.5     Best Action: A2
State (3, 3, 2) V = 94.5     Best Action: A3
State (3, 3, 3) V = 95.0     Best Action: A4
State (3, 3, 4) V = 95.0     Best Action: A3
State (3, 4, 1) V = 96.0     Best Action: A1
State (3, 4, 2) V = 95.0     Best Action: A3
State (3, 4, 3) V = 95.5     Best Action: A4
State (3, 4, 4) V = 95.5     Best Action: A3
State (3, 5, 1) V = 97.5     Best Action: A4
State (3, 5, 2) V = 97.5     Best Action: A3
State (3, 5, 3) V = 97.0     Best Action: A3
State (3, 5, 4) V = 98.0     Best Action: A2
State (4, 1, 1) V = 91.0     Best Action: A2
State (4, 1, 2) V = 90.0     Best Action: A3
State (4, 1, 3) V = 90.5     Best Action: A4
State (4, 1, 4) V = 90.5     Best Action: A3
State (4, 2, 1) V = 91.5     Best Action: A1
State (4, 2, 2) V = 90.5     Best Action: A3
State (4, 2, 3) V = 91.0     Best Action: A4
State (4, 2, 4) V = 91.0     Best Action: A3
State (4, 3, 1) V = 93.0     Best Action: A3
State (4, 3, 2) V = 93.0     Best Action: A4
State (4, 3, 3) V = 93.5     Best Action: A1
State (4, 3, 4) V = 92.5     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 98.0     Best Action: A4
State (4, 5, 2) V = 98.0     Best Action: A3
State (4, 5, 3) V = 97.5     Best Action: A3
State (4, 5, 4) V = 98.5     Best Action: A1
State (5, 1, 1) V = 90.5     Best Action: A2
State (5, 1, 2) V = 89.5     Best Action: A3
State (5, 1, 3) V = 90.0     Best Action: A4
State (5, 1, 4) V = 90.0     Best Action: A3
State (5, 2, 1) V = 91.0     Best Action: A1
State (5, 2, 2) V = 90.0     Best Action: A3
State (5, 2, 3) V = 90.5     Best Action: A4
State (5, 2, 4) V = 90.5     Best Action: A3
State (5, 3, 1) V = 92.5     Best Action: A3
State (5, 3, 2) V = 92.5     Best Action: A4
State (5, 3, 3) V = 93.0     Best Action: A2
State (5, 3, 4) V = 92.0     Best Action: A3
State (5, 4, 1) V = 98.5     Best Action: A1
State (5, 4, 2) V = 97.5     Best Action: A3
State (5, 4, 3) V = 98.0     Best Action: A4
State (5, 4, 4) V = 98.0     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 8:
State (1, 1, 1) V = 89.5     Best Action: A1
State (1, 1, 2) V = 88.5     Best Action: A3
State (1, 1, 3) V = 89.0     Best Action: A4
State (1, 1, 4) V = 89.0     Best Action: A3
State (1, 2, 1) V = 91.0     Best Action: A2
State (1, 2, 2) V = 90.0     Best Action: A3
State (1, 2, 3) V = 90.5     Best Action: A4
State (1, 2, 4) V = 90.5     Best Action: A3
State (1, 3, 1) V = 91.5     Best Action: A1
State (1, 3, 2) V = 90.5     Best Action: A3
State (1, 3, 3) V = 91.0     Best Action: A4
State (1, 3, 4) V = 91.0     Best Action: A3
State (1, 4, 1) V = 93.0     Best Action: A4
State (1, 4, 2) V = 93.0     Best Action: A3
State (1, 4, 3) V = 92.5     Best Action: A3
State (1, 4, 4) V = 93.5     Best Action: A2
State (1, 5, 1) V = 90.5     Best Action: A3
State (1, 5, 2) V = 91.5     Best Action: A1
State (1, 5, 3) V = 91.0     Best Action: A3
State (1, 5, 4) V = 91.0     Best Action: A4
State (2, 1, 1) V = 88.0     Best Action: A4
State (2, 1, 2) V = 88.0     Best Action: A3
State (2, 1, 3) V = 87.5     Best Action: A1
State (2, 1, 4) V = 88.5     Best Action: A2
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = 93.5     Best Action: A4
State (2, 4, 2) V = 93.5     Best Action: A3
State (2, 4, 3) V = 93.0     Best Action: A3
State (2, 4, 4) V = 94.0     Best Action: A1
State (2, 5, 1) V = 91.0     Best Action: A3
State (2, 5, 2) V = 92.0     Best Action: A1
State (2, 5, 3) V = 91.5     Best Action: A3
State (2, 5, 4) V = 91.5     Best Action: A4
State (3, 1, 1) V = 88.5     Best Action: A4
State (3, 1, 2) V = 88.5     Best Action: A3
State (3, 1, 3) V = 88.0     Best Action: A3
State (3, 1, 4) V = 89.0     Best Action: A1
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = 95.5     Best Action: A2
State (3, 3, 2) V = 94.5     Best Action: A3
State (3, 3, 3) V = 95.0     Best Action: A4
State (3, 3, 4) V = 95.0     Best Action: A3
State (3, 4, 1) V = 96.0     Best Action: A1
State (3, 4, 2) V = 95.0     Best Action: A3
State (3, 4, 3) V = 95.5     Best Action: A4
State (3, 4, 4) V = 95.5     Best Action: A3
State (3, 5, 1) V = 97.5     Best Action: A4
State (3, 5, 2) V = 97.5     Best Action: A3
State (3, 5, 3) V = 97.0     Best Action: A3
State (3, 5, 4) V = 98.0     Best Action: A2
State (4, 1, 1) V = 91.0     Best Action: A2
State (4, 1, 2) V = 90.0     Best Action: A3
State (4, 1, 3) V = 90.5     Best Action: A4
State (4, 1, 4) V = 90.5     Best Action: A3
State (4, 2, 1) V = 91.5     Best Action: A1
State (4, 2, 2) V = 90.5     Best Action: A3
State (4, 2, 3) V = 91.0     Best Action: A4
State (4, 2, 4) V = 91.0     Best Action: A3
State (4, 3, 1) V = 93.0     Best Action: A3
State (4, 3, 2) V = 93.0     Best Action: A4
State (4, 3, 3) V = 93.5     Best Action: A1
State (4, 3, 4) V = 92.5     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 98.0     Best Action: A4
State (4, 5, 2) V = 98.0     Best Action: A3
State (4, 5, 3) V = 97.5     Best Action: A3
State (4, 5, 4) V = 98.5     Best Action: A1
State (5, 1, 1) V = 90.5     Best Action: A2
State (5, 1, 2) V = 89.5     Best Action: A3
State (5, 1, 3) V = 90.0     Best Action: A4
State (5, 1, 4) V = 90.0     Best Action: A3
State (5, 2, 1) V = 91.0     Best Action: A1
State (5, 2, 2) V = 90.0     Best Action: A3
State (5, 2, 3) V = 90.5     Best Action: A4
State (5, 2, 4) V = 90.5     Best Action: A3
State (5, 3, 1) V = 92.5     Best Action: A3
State (5, 3, 2) V = 92.5     Best Action: A4
State (5, 3, 3) V = 93.0     Best Action: A2
State (5, 3, 4) V = 92.0     Best Action: A3
State (5, 4, 1) V = 98.5     Best Action: A1
State (5, 4, 2) V = 97.5     Best Action: A3
State (5, 4, 3) V = 98.0     Best Action: A4
State (5, 4, 4) V = 98.0     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 9:
State (1, 1, 1) V = 89.5     Best Action: A1
State (1, 1, 2) V = 88.5     Best Action: A3
State (1, 1, 3) V = 89.0     Best Action: A4
State (1, 1, 4) V = 89.0     Best Action: A3
State (1, 2, 1) V = 91.0     Best Action: A2
State (1, 2, 2) V = 90.0     Best Action: A3
State (1, 2, 3) V = 90.5     Best Action: A4
State (1, 2, 4) V = 90.5     Best Action: A3
State (1, 3, 1) V = 91.5     Best Action: A1
State (1, 3, 2) V = 90.5     Best Action: A3
State (1, 3, 3) V = 91.0     Best Action: A4
State (1, 3, 4) V = 91.0     Best Action: A3
State (1, 4, 1) V = 93.0     Best Action: A4
State (1, 4, 2) V = 93.0     Best Action: A3
State (1, 4, 3) V = 92.5     Best Action: A3
State (1, 4, 4) V = 93.5     Best Action: A2
State (1, 5, 1) V = 90.5     Best Action: A3
State (1, 5, 2) V = 91.5     Best Action: A1
State (1, 5, 3) V = 91.0     Best Action: A3
State (1, 5, 4) V = 91.0     Best Action: A4
State (2, 1, 1) V = 88.0     Best Action: A4
State (2, 1, 2) V = 88.0     Best Action: A3
State (2, 1, 3) V = 87.5     Best Action: A1
State (2, 1, 4) V = 88.5     Best Action: A2
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = 93.5     Best Action: A4
State (2, 4, 2) V = 93.5     Best Action: A3
State (2, 4, 3) V = 93.0     Best Action: A3
State (2, 4, 4) V = 94.0     Best Action: A1
State (2, 5, 1) V = 91.0     Best Action: A3
State (2, 5, 2) V = 92.0     Best Action: A1
State (2, 5, 3) V = 91.5     Best Action: A3
State (2, 5, 4) V = 91.5     Best Action: A4
State (3, 1, 1) V = 88.5     Best Action: A4
State (3, 1, 2) V = 88.5     Best Action: A3
State (3, 1, 3) V = 88.0     Best Action: A3
State (3, 1, 4) V = 89.0     Best Action: A1
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = 95.5     Best Action: A2
State (3, 3, 2) V = 94.5     Best Action: A3
State (3, 3, 3) V = 95.0     Best Action: A4
State (3, 3, 4) V = 95.0     Best Action: A3
State (3, 4, 1) V = 96.0     Best Action: A1
State (3, 4, 2) V = 95.0     Best Action: A3
State (3, 4, 3) V = 95.5     Best Action: A4
State (3, 4, 4) V = 95.5     Best Action: A3
State (3, 5, 1) V = 97.5     Best Action: A4
State (3, 5, 2) V = 97.5     Best Action: A3
State (3, 5, 3) V = 97.0     Best Action: A3
State (3, 5, 4) V = 98.0     Best Action: A2
State (4, 1, 1) V = 91.0     Best Action: A2
State (4, 1, 2) V = 90.0     Best Action: A3
State (4, 1, 3) V = 90.5     Best Action: A4
State (4, 1, 4) V = 90.5      Best Action: A3
State (4, 2, 1) V = 91.5      Best Action: A1
State (4, 2, 2) V = 90.5      Best Action: A3
State (4, 2, 3) V = 91.0      Best Action: A4
State (4, 2, 4) V = 91.0      Best Action: A3
State (4, 3, 1) V = 93.0      Best Action: A3
State (4, 3, 2) V = 93.0      Best Action: A4
State (4, 3, 3) V = 93.5      Best Action: A1
State (4, 3, 4) V = 92.5      Best Action: A3
State (4, 4, 1) V = -1000      Best Action: No
Action
State (4, 4, 2) V = -1000      Best Action: No
Action
State (4, 4, 3) V = -1000      Best Action: No
Action
State (4, 4, 4) V = -1000      Best Action: No
Action
State (4, 5, 1) V = 98.0      Best Action: A4
State (4, 5, 2) V = 98.0      Best Action: A3
State (4, 5, 3) V = 97.5      Best Action: A3
State (4, 5, 4) V = 98.5      Best Action: A1
State (5, 1, 1) V = 90.5      Best Action: A2
State (5, 1, 2) V = 89.5      Best Action: A3
State (5, 1, 3) V = 90.0      Best Action: A4
State (5, 1, 4) V = 90.0      Best Action: A3
State (5, 2, 1) V = 91.0      Best Action: A1
State (5, 2, 2) V = 90.0      Best Action: A3
State (5, 2, 3) V = 90.5      Best Action: A4
State (5, 2, 4) V = 90.5      Best Action: A3
State (5, 3, 1) V = 92.5      Best Action: A3
State (5, 3, 2) V = 92.5      Best Action: A4
State (5, 3, 3) V = 93.0      Best Action: A2
State (5, 3, 4) V = 92.0      Best Action: A3
State (5, 4, 1) V = 98.5      Best Action: A1
State (5, 4, 2) V = 97.5      Best Action: A3
State (5, 4, 3) V = 98.0      Best Action: A4
State (5, 4, 4) V = 98.0      Best Action: A3
State (5, 5, 1) V = 100      Best Action: No Action
State (5, 5, 2) V = 100      Best Action: No Action
State (5, 5, 3) V = 100      Best Action: No Action
State (5, 5, 4) V = 100      Best Action: No Action
Iteration 10:
State (1, 1, 1) V = 89.5      Best Action: A1
State (1, 1, 2) V = 88.5      Best Action: A3
State (1, 1, 3) V = 89.0      Best Action: A4
State (1, 1, 4) V = 89.0      Best Action: A3
State (1, 2, 1) V = 91.0      Best Action: A2
State (1, 2, 2) V = 90.0      Best Action: A3
State (1, 2, 3) V = 90.5      Best Action: A4
State (1, 2, 4) V = 90.5      Best Action: A3
State (1, 3, 1) V = 91.5      Best Action: A1
State (1, 3, 2) V = 90.5      Best Action: A3
State (1, 3, 3) V = 91.0      Best Action: A4
State (1, 3, 4) V = 91.0      Best Action: A3
State (1, 4, 1) V = 93.0      Best Action: A4
State (1, 4, 2) V = 93.0      Best Action: A3
State (1, 4, 3) V = 92.5      Best Action: A3
State (1, 4, 4) V = 93.5      Best Action: A2
State (1, 5, 1) V = 90.5      Best Action: A3
State (1, 5, 2) V = 91.5      Best Action: A1
State (1, 5, 3) V = 91.0      Best Action: A3
State (1, 5, 4) V = 91.0      Best Action: A4
State (2, 1, 1) V = 88.0      Best Action: A4
State (2, 1, 2) V = 88.0      Best Action: A3
State (2, 1, 3) V = 87.5      Best Action: A1
State (2, 1, 4) V = 88.5      Best Action: A2
State (2, 2, 1) V = -100000      Best Action: No
Action
State (2, 2, 2) V = -100000      Best Action: No
Action
State (2, 2, 3) V = -100000      Best Action: No
Action
State (2, 2, 4) V = -100000      Best Action: No
Action
State (2, 3, 1) V = -100000      Best Action: No
Action
State (2, 3, 2) V = -100000      Best Action: No
Action
State (2, 3, 3) V = -100000      Best Action: No
Action
State (2, 3, 4) V = -100000      Best Action: No
Action
State (2, 4, 1) V = 93.5      Best Action: A4
State (2, 4, 2) V = 93.5      Best Action: A3
State (2, 4, 3) V = 93.0      Best Action: A3
State (2, 4, 4) V = 94.0      Best Action: A1
State (2, 5, 1) V = 91.0      Best Action: A3
State (2, 5, 2) V = 92.0      Best Action: A1
State (2, 5, 3) V = 91.5      Best Action: A3
State (2, 5, 4) V = 91.5      Best Action: A4
State (3, 1, 1) V = 88.5      Best Action: A4
State (3, 1, 2) V = 88.5      Best Action: A3
State (3, 1, 3) V = 88.0      Best Action: A3
State (3, 1, 4) V = 89.0      Best Action: A1
State (3, 2, 1) V = -100000      Best Action: No
Action
State (3, 2, 2) V = -100000      Best Action: No
Action
State (3, 2, 3) V = -100000      Best Action: No
Action
State (3, 2, 4) V = -100000      Best Action: No
Action
State (3, 3, 1) V = 95.5      Best Action: A2
State (3, 3, 2) V = 94.5      Best Action: A3
State (3, 3, 3) V = 95.0      Best Action: A4
State (3, 3, 4) V = 95.0      Best Action: A3
State (3, 4, 1) V = 96.0      Best Action: A1
State (3, 4, 2) V = 95.0      Best Action: A3
State (3, 4, 3) V = 95.5      Best Action: A4
State (3, 4, 4) V = 95.5      Best Action: A3
State (3, 5, 1) V = 97.5      Best Action: A4
State (3, 5, 2) V = 97.5      Best Action: A3
State (3, 5, 3) V = 97.0      Best Action: A3
State (3, 5, 4) V = 98.0      Best Action: A2
State (4, 1, 1) V = 91.0      Best Action: A2
State (4, 1, 2) V = 90.0      Best Action: A3
State (4, 1, 3) V = 90.5      Best Action: A4
State (4, 1, 4) V = 90.5      Best Action: A3
State (4, 2, 1) V = 91.5      Best Action: A1
State (4, 2, 2) V = 90.5      Best Action: A3
State (4, 2, 3) V = 91.0      Best Action: A4
State (4, 2, 4) V = 91.0      Best Action: A3
State (4, 3, 1) V = 93.0      Best Action: A3
State (4, 3, 2) V = 93.0      Best Action: A4
State (4, 3, 3) V = 93.5      Best Action: A1
State (4, 3, 4) V = 92.5      Best Action: A3
State (4, 4, 1) V = -1000      Best Action: No
Action
State (4, 4, 2) V = -1000      Best Action: No
Action
State (4, 4, 3) V = -1000      Best Action: No
Action
State (4, 4, 4) V = -1000      Best Action: No
Action
State (4, 5, 1) V = 98.0      Best Action: A4
State (4, 5, 2) V = 98.0      Best Action: A3
State (4, 5, 3) V = 97.5      Best Action: A3
State (4, 5, 4) V = 98.5      Best Action: A1
State (5, 1, 1) V = 90.5      Best Action: A2
State (5, 1, 2) V = 89.5      Best Action: A3
State (5, 1, 3) V = 90.0      Best Action: A4
State (5, 1, 4) V = 90.0      Best Action: A3
State (5, 2, 1) V = 91.0      Best Action: A1
State (5, 2, 2) V = 90.0      Best Action: A3
State (5, 2, 3) V = 90.5      Best Action: A4
State (5, 2, 4) V = 90.5      Best Action: A3
State (5, 3, 1) V = 92.5      Best Action: A3
State (5, 3, 2) V = 92.5      Best Action: A4
State (5, 3, 3) V = 93.0      Best Action: A2
State (5, 3, 4) V = 92.0      Best Action: A3
State (5, 4, 1) V = 98.5      Best Action: A1
State (5, 4, 2) V = 97.5      Best Action: A3
State (5, 4, 3) V = 98.0      Best Action: A4
State (5, 4, 4) V = 98.0      Best Action: A3
State (5, 5, 1) V = 100      Best Action: No Action
State (5, 5, 2) V = 100      Best Action: No Action
State (5, 5, 3) V = 100      Best Action: No Action
State (5, 5, 4) V = 100      Best Action: No Action
```

Ans D)

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Iteration 1:
State (1, 1, 1) V = -0.5     Best Action: A3
State (1, 1, 2) V = -0.5     Best Action: A3
State (1, 1, 3) V = -0.9     Best Action: A3
State (1, 1, 4) V = -0.9     Best Action: A3
State (1, 2, 1) V = -0.5     Best Action: A3
State (1, 2, 2) V = -0.5     Best Action: A3
State (1, 2, 3) V = -0.9     Best Action: A3
State (1, 2, 4) V = -0.9     Best Action: A3
State (1, 3, 1) V = -0.5     Best Action: A3
State (1, 3, 2) V = -0.5     Best Action: A3
State (1, 3, 3) V = -0.9     Best Action: A3
State (1, 3, 4) V = -0.9     Best Action: A3
State (1, 4, 1) V = -0.5     Best Action: A3
State (1, 4, 2) V = -0.5     Best Action: A3
State (1, 4, 3) V = -0.9     Best Action: A3
State (1, 4, 4) V = -0.9     Best Action: A3
State (1, 5, 1) V = -0.5     Best Action: A3
State (1, 5, 2) V = -0.5     Best Action: A3
State (1, 5, 3) V = -0.9     Best Action: A3
State (1, 5, 4) V = -0.9     Best Action: A3
State (2, 1, 1) V = -0.5     Best Action: A3
State (2, 1, 2) V = -0.5     Best Action: A3
State (2, 1, 3) V = -0.9     Best Action: A3
State (2, 1, 4) V = -0.9     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -0.5     Best Action: A3
State (2, 4, 2) V = -0.5     Best Action: A3
State (2, 4, 3) V = -0.9     Best Action: A3
State (2, 4, 4) V = -0.9     Best Action: A3
State (2, 5, 1) V = -0.5     Best Action: A3
State (2, 5, 2) V = -0.5     Best Action: A3
State (2, 5, 3) V = -0.9     Best Action: A3
State (2, 5, 4) V = -0.9     Best Action: A3
State (3, 1, 1) V = -0.5     Best Action: A3
State (3, 1, 2) V = -0.5     Best Action: A3
State (3, 1, 3) V = -0.9     Best Action: A3
State (3, 1, 4) V = -0.9     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = -0.5     Best Action: A3
State (3, 3, 2) V = -0.5     Best Action: A3
State (3, 3, 3) V = -0.9     Best Action: A3
State (3, 3, 4) V = -0.9     Best Action: A3
State (3, 4, 1) V = -0.5     Best Action: A3
State (3, 4, 2) V = -0.5     Best Action: A3
State (3, 4, 3) V = -0.9     Best Action: A3
State (3, 4, 4) V = -0.9     Best Action: A3
State (3, 5, 1) V = -0.5     Best Action: A3
State (3, 5, 2) V = -0.5     Best Action: A3
State (3, 5, 3) V = -0.9     Best Action: A3
State (3, 5, 4) V = 78.0     Best Action: A2
State (4, 1, 1) V = -0.5     Best Action: A3
State (4, 1, 2) V = -0.5     Best Action: A3
State (4, 1, 3) V = -0.9     Best Action: A3
State (4, 1, 4) V = -0.9     Best Action: A3
State (4, 2, 1) V = -0.5     Best Action: A3
State (4, 2, 2) V = -0.5     Best Action: A3
State (4, 2, 3) V = -0.9     Best Action: A3
State (4, 2, 4) V = -0.9     Best Action: A3
State (4, 3, 1) V = -0.5     Best Action: A3
State (4, 3, 2) V = -0.5     Best Action: A3
State (4, 3, 3) V = -0.9     Best Action: A3
State (4, 3, 4) V = -0.9     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = -0.5     Best Action: A3
State (4, 5, 2) V = -0.5     Best Action: A3
State (4, 5, 3) V = -0.9     Best Action: A3
State (4, 5, 4) V = 78.5     Best Action: A1
State (5, 1, 1) V = -0.5     Best Action: A3
State (5, 1, 2) V = -0.5     Best Action: A3
State (5, 1, 3) V = -0.9     Best Action: A3
State (5, 1, 4) V = -0.9     Best Action: A3
State (5, 2, 1) V = -0.5     Best Action: A3
State (5, 2, 2) V = -0.5     Best Action: A3
State (5, 2, 3) V = -0.9     Best Action: A3
State (5, 2, 4) V = -0.9     Best Action: A3
State (5, 3, 1) V = -0.5     Best Action: A3
State (5, 3, 2) V = -0.5     Best Action: A3
State (5, 3, 3) V = -0.9     Best Action: A3
State (5, 3, 4) V = -0.9     Best Action: A3
State (5, 4, 1) V = 78.5     Best Action: A1
State (5, 4, 2) V = -0.5     Best Action: A3
State (5, 4, 3) V = 62.3     Best Action: A4
State (5, 4, 4) V = 62.3     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 2:
State (1, 1, 1) V = -1.22     Best Action: A3
State (1, 1, 2) V = -1.22     Best Action: A3
State (1, 1, 3) V = -1.48     Best Action: A3
State (1, 1, 4) V = -1.48     Best Action: A3
State (1, 2, 1) V = -1.22     Best Action: A3
State (1, 2, 2) V = -1.22     Best Action: A3
State (1, 2, 3) V = -1.48     Best Action: A3
State (1, 2, 4) V = -1.48     Best Action: A3
State (1, 3, 1) V = -1.22     Best Action: A3
State (1, 3, 2) V = -1.22     Best Action: A3
State (1, 3, 3) V = -1.48     Best Action: A3
State (1, 3, 4) V = -1.48     Best Action: A3
State (1, 4, 1) V = -1.22     Best Action: A3
State (1, 4, 2) V = -1.22     Best Action: A3
State (1, 4, 3) V = -1.48     Best Action: A3
State (1, 4, 4) V = -1.48     Best Action: A3
State (1, 5, 1) V = -1.22     Best Action: A3
State (1, 5, 2) V = -1.22     Best Action: A3
State (1, 5, 3) V = -1.48     Best Action: A3
State (1, 5, 4) V = -1.48     Best Action: A3
State (2, 1, 1) V = -1.22     Best Action: A3
State (2, 1, 2) V = -1.22     Best Action: A3
State (2, 1, 3) V = -1.48     Best Action: A3
State (2, 1, 4) V = -1.48     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -1.22     Best Action: A3
State (2, 4, 2) V = -1.22     Best Action: A3
State (2, 4, 3) V = -1.48     Best Action: A3
State (2, 4, 4) V = -1.48     Best Action: A3
State (2, 5, 1) V = -1.22     Best Action: A3
State (2, 5, 2) V = -1.22     Best Action: A3
State (2, 5, 3) V = -1.48     Best Action: A3
State (2, 5, 4) V = -1.48     Best Action: A3
State (3, 1, 1) V = -1.22     Best Action: A3
State (3, 1, 2) V = -1.22     Best Action: A3
State (3, 1, 3) V = -1.48     Best Action: A3
State (3, 1, 4) V = -1.48     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = -1.22     Best Action: A3
State (3, 3, 2) V = -1.22     Best Action: A3
State (3, 3, 3) V = -1.48     Best Action: A3
State (3, 3, 4) V = -1.48     Best Action: A3
State (3, 4, 1) V = -1.22     Best Action: A3
State (3, 4, 2) V = -1.22     Best Action: A3
State (3, 4, 3) V = -1.48     Best Action: A3
State (3, 4, 4) V = -1.48     Best Action: A3
State (3, 5, 1) V = 61.9     Best Action: A4
State (3, 5, 2) V = 61.9     Best Action: A3
State (3, 5, 3) V = 49.02     Best Action: A3
State (3, 5, 4) V = 78.0     Best Action: A2
State (4, 1, 1) V = -1.22     Best Action: A3
State (4, 1, 2) V = -1.22     Best Action: A3
State (4, 1, 3) V = -1.48     Best Action: A3
State (4, 1, 4) V = -1.48     Best Action: A3
State (4, 2, 1) V = -1.22     Best Action: A3
State (4, 2, 2) V = -1.22     Best Action: A3
State (4, 2, 3) V = -1.48     Best Action: A3
State (4, 2, 4) V = -1.48     Best Action: A3
State (4, 3, 1) V = -1.22     Best Action: A3
State (4, 3, 2) V = -1.22     Best Action: A3
State (4, 3, 3) V = -1.48     Best Action: A3
State (4, 3, 4) V = -1.48     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 62.3     Best Action: A4
State (4, 5, 2) V = 62.3     Best Action: A3
State (4, 5, 3) V = 49.34     Best Action: A3
State (4, 5, 4) V = 78.5     Best Action: A1
State (5, 1, 1) V = -1.22     Best Action: A3
State (5, 1, 2) V = -1.22     Best Action: A3
State (5, 1, 3) V = -1.48     Best Action: A3
State (5, 1, 4) V = -1.48     Best Action: A3
State (5, 2, 1) V = -1.22     Best Action: A3
State (5, 2, 2) V = -1.22     Best Action: A3
State (5, 2, 3) V = -1.48     Best Action: A3
State (5, 2, 4) V = -1.48     Best Action: A3
State (5, 3, 1) V = -1.22     Best Action: A3
State (5, 3, 2) V = -1.22     Best Action: A3
State (5, 3, 3) V = -1.48     Best Action: A3
State (5, 3, 4) V = -1.48     Best Action: A3
State (5, 4, 1) V = 78.5     Best Action: A1
State (5, 4, 2) V = 49.34     Best Action: A3
State (5, 4, 3) V = 62.3     Best Action: A4
State (5, 4, 4) V = 62.3     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 3:
State (1, 1, 1) V = -1.68     Best Action: A3
State (1, 1, 2) V = -1.68     Best Action: A3
State (1, 1, 3) V = -1.84     Best Action: A3
State (1, 1, 4) V = -1.84     Best Action: A3
State (1, 2, 1) V = -1.68     Best Action: A3
State (1, 2, 2) V = -1.68     Best Action: A3
State (1, 2, 3) V = -1.84     Best Action: A3
State (1, 2, 4) V = -1.84     Best Action: A3
State (1, 3, 1) V = -1.68     Best Action: A3
State (1, 3, 2) V = -1.68     Best Action: A3
State (1, 3, 3) V = -1.84     Best Action: A3
State (1, 3, 4) V = -1.84     Best Action: A3
State (1, 4, 1) V = -1.68     Best Action: A3
State (1, 4, 2) V = -1.68     Best Action: A3
State (1, 4, 3) V = -1.84     Best Action: A3
State (1, 4, 4) V = -1.84     Best Action: A3
State (1, 5, 1) V = -1.68     Best Action: A3
State (1, 5, 2) V = -1.68     Best Action: A3
State (1, 5, 3) V = -1.84     Best Action: A3
State (1, 5, 4) V = -1.84     Best Action: A3
State (2, 1, 1) V = -1.68     Best Action: A3
State (2, 1, 2) V = -1.68     Best Action: A3
State (2, 1, 3) V = -1.84     Best Action: A3
State (2, 1, 4) V = -1.84     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -1.68     Best Action: A3
State (2, 4, 2) V = -1.68     Best Action: A3
State (2, 4, 3) V = -1.84     Best Action: A3
State (2, 4, 4) V = -1.84     Best Action: A3
State (2, 5, 1) V = -1.68     Best Action: A3
State (2, 5, 2) V = -1.68     Best Action: A3
State (2, 5, 3) V = -1.84     Best Action: A3
State (2, 5, 4) V = -1.84     Best Action: A3
State (3, 1, 1) V = -1.68     Best Action: A3
State (3, 1, 2) V = -1.68     Best Action: A3
State (3, 1, 3) V = -1.84     Best Action: A3
State (3, 1, 4) V = -1.84     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = 47.52     Best Action: A2
State (3, 3, 2) V = -1.68     Best Action: A3
State (3, 3, 3) V = 37.52     Best Action: A4
State (3, 3, 4) V = 37.52     Best Action: A3
State (3, 4, 1) V = 48.02     Best Action: A1
State (3, 4, 2) V = -1.68     Best Action: A3
State (3, 4, 3) V = 37.92     Best Action: A4
State (3, 4, 4) V = 37.92     Best Action: A3
State (3, 5, 1) V = 61.9     Best Action: A4
State (3, 5, 2) V = 61.9     Best Action: A3
State (3, 5, 3) V = 49.02     Best Action: A3
State (3, 5, 4) V = 78.0     Best Action: A2
State (4, 1, 1) V = -1.68     Best Action: A3
State (4, 1, 2) V = -1.68     Best Action: A3
State (4, 1, 3) V = -1.84     Best Action: A3
State (4, 1, 4) V = -1.84     Best Action: A3
State (4, 2, 1) V = -1.68     Best Action: A3
State (4, 2, 2) V = -1.68     Best Action: A3
State (4, 2, 3) V = -1.84     Best Action: A3
State (4, 2, 4) V = -1.84     Best Action: A3
State (4, 3, 1) V = -1.68     Best Action: A3
State (4, 3, 2) V = -1.68     Best Action: A3
State (4, 3, 3) V = 28.52     Best Action: A1
State (4, 3, 4) V = -1.84     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 62.3     Best Action: A4
State (4, 5, 2) V = 62.3     Best Action: A3
State (4, 5, 3) V = 49.34     Best Action: A3
State (4, 5, 4) V = 78.5     Best Action: A1
State (5, 1, 1) V = -1.68     Best Action: A3
State (5, 1, 2) V = -1.68     Best Action: A3
State (5, 1, 3) V = -1.84     Best Action: A3
State (5, 1, 4) V = -1.84     Best Action: A3
State (5, 2, 1) V = -1.68     Best Action: A3
State (5, 2, 2) V = -1.68     Best Action: A3
State (5, 2, 3) V = -1.84     Best Action: A3
State (5, 2, 4) V = -1.84     Best Action: A3
State (5, 3, 1) V = -1.68     Best Action: A3
State (5, 3, 2) V = -1.68     Best Action: A3
State (5, 3, 3) V = 28.02     Best Action: A2
State (5, 3, 4) V = -1.84     Best Action: A3
State (5, 4, 1) V = 78.5     Best Action: A1
State (5, 4, 2) V = 49.34     Best Action: A3
State (5, 4, 3) V = 62.3     Best Action: A4
State (5, 4, 4) V = 62.3     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 4:
State (1, 1, 1) V = -1.97     Best Action: A3
State (1, 1, 2) V = -1.97     Best Action: A3
State (1, 1, 3) V = -2.08     Best Action: A3
State (1, 1, 4) V = -2.08     Best Action: A3
State (1, 2, 1) V = -1.97     Best Action: A3
State (1, 2, 2) V = -1.97     Best Action: A3
State (1, 2, 3) V = -2.08     Best Action: A3
State (1, 2, 4) V = -2.08     Best Action: A3
State (1, 3, 1) V = -1.97     Best Action: A3
State (1, 3, 2) V = -1.97     Best Action: A3
State (1, 3, 3) V = -2.08     Best Action: A3
State (1, 3, 4) V = -2.08     Best Action: A3
State (1, 4, 1) V = -1.97     Best Action: A3
State (1, 4, 2) V = -1.97     Best Action: A3
State (1, 4, 3) V = -2.08     Best Action: A3
State (1, 4, 4) V = 28.34     Best Action: A2
State (1, 5, 1) V = -1.97     Best Action: A3
State (1, 5, 2) V = -1.97     Best Action: A3
State (1, 5, 3) V = -2.08     Best Action: A3
State (1, 5, 4) V = -2.08     Best Action: A3
State (2, 1, 1) V = -1.97     Best Action: A3
State (2, 1, 2) V = -1.97     Best Action: A3
State (2, 1, 3) V = -2.08     Best Action: A3
State (2, 1, 4) V = -2.08     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -1.97     Best Action: A3
State (2, 4, 2) V = -1.97     Best Action: A3
State (2, 4, 3) V = -2.08     Best Action: A3
State (2, 4, 4) V = 28.84     Best Action: A1
State (2, 5, 1) V = -1.97     Best Action: A3
State (2, 5, 2) V = -1.97     Best Action: A3
State (2, 5, 3) V = -2.08     Best Action: A3
State (2, 5, 4) V = -2.08     Best Action: A3
State (3, 1, 1) V = -1.97     Best Action: A3
State (3, 1, 2) V = -1.97     Best Action: A3
State (3, 1, 3) V = -2.08     Best Action: A3
State (3, 1, 4) V = -2.08     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = 47.52     Best Action: A2
State (3, 3, 2) V = 29.52     Best Action: A3
State (3, 3, 3) V = 37.52     Best Action: A4
State (3, 3, 4) V = 37.52     Best Action: A3
State (3, 4, 1) V = 48.02     Best Action: A1
State (3, 4, 2) V = 29.84     Best Action: A3
State (3, 4, 3) V = 37.92     Best Action: A4
State (3, 4, 4) V = 37.92     Best Action: A3
State (3, 5, 1) V = 61.9     Best Action: A4
State (3, 5, 2) V = 61.9     Best Action: A3
State (3, 5, 3) V = 49.02     Best Action: A3
State (3, 5, 4) V = 78.0     Best Action: A2
State (4, 1, 1) V = -1.97     Best Action: A3
State (4, 1, 2) V = -1.97     Best Action: A3
State (4, 1, 3) V = -2.08     Best Action: A3
State (4, 1, 4) V = -2.08     Best Action: A3
State (4, 2, 1) V = -1.97     Best Action: A3
State (4, 2, 2) V = -1.97     Best Action: A3
State (4, 2, 3) V = -2.08     Best Action: A3
State (4, 2, 4) V = -2.08     Best Action: A3
State (4, 3, 1) V = 22.32     Best Action: A3
State (4, 3, 2) V = 22.32     Best Action: A4
State (4, 3, 3) V = 28.52     Best Action: A1
State (4, 3, 4) V = 17.36     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 62.3     Best Action: A4
State (4, 5, 2) V = 62.3     Best Action: A3
State (4, 5, 3) V = 49.34     Best Action: A3
State (4, 5, 4) V = 78.5     Best Action: A1
State (5, 1, 1) V = -1.97     Best Action: A3
State (5, 1, 2) V = -1.97     Best Action: A3
State (5, 1, 3) V = -2.08     Best Action: A3
State (5, 1, 4) V = -2.08     Best Action: A3
State (5, 2, 1) V = -1.97     Best Action: A3
State (5, 2, 2) V = -1.97     Best Action: A3
State (5, 2, 3) V = -2.08     Best Action: A3
State (5, 2, 4) V = -2.08     Best Action: A3
State (5, 3, 1) V = 21.92     Best Action: A3
State (5, 3, 2) V = 21.92     Best Action: A4
State (5, 3, 3) V = 28.02     Best Action: A2
State (5, 3, 4) V = 17.04     Best Action: A3
State (5, 4, 1) V = 78.5     Best Action: A1
State (5, 4, 2) V = 49.34     Best Action: A3
State (5, 4, 3) V = 62.3     Best Action: A4
State (5, 4, 4) V = 62.3     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 5:
State (1, 1, 1) V = -2.16     Best Action: A3
State (1, 1, 2) V = -2.16     Best Action: A3
State (1, 1, 3) V = -2.23     Best Action: A3
State (1, 1, 4) V = -2.23     Best Action: A3
State (1, 2, 1) V = -2.16     Best Action: A3
State (1, 2, 2) V = -2.16     Best Action: A3
State (1, 2, 3) V = -2.23     Best Action: A3
State (1, 2, 4) V = -2.23     Best Action: A3
State (1, 3, 1) V = -2.16     Best Action: A3
State (1, 3, 2) V = -2.16     Best Action: A3
State (1, 3, 3) V = -2.23     Best Action: A3
State (1, 3, 4) V = -2.23     Best Action: A3
State (1, 4, 1) V = 22.17     Best Action: A4
State (1, 4, 2) V = 22.17     Best Action: A3
State (1, 4, 3) V = 17.24     Best Action: A3
State (1, 4, 4) V = 28.34     Best Action: A2
State (1, 5, 1) V = -2.16     Best Action: A3
State (1, 5, 2) V = 16.24     Best Action: A1
State (1, 5, 3) V = 12.49     Best Action: A3
State (1, 5, 4) V = 12.49     Best Action: A4
State (2, 1, 1) V = -2.16     Best Action: A3
State (2, 1, 2) V = -2.16     Best Action: A3
State (2, 1, 3) V = -2.23     Best Action: A3
State (2, 1, 4) V = -2.23     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = 22.57     Best Action: A4
State (2, 4, 2) V = 22.57     Best Action: A3
State (2, 4, 3) V = 17.56     Best Action: A3
State (2, 4, 4) V = 28.84     Best Action: A1
State (2, 5, 1) V = -2.16     Best Action: A3
State (2, 5, 2) V = 16.56     Best Action: A1
State (2, 5, 3) V = 12.75     Best Action: A3
State (2, 5, 4) V = 12.75     Best Action: A4
State (3, 1, 1) V = -2.16     Best Action: A3
State (3, 1, 2) V = -2.16     Best Action: A3
State (3, 1, 3) V = -2.23     Best Action: A3
State (3, 1, 4) V = -2.23     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = 47.52     Best Action: A2
State (3, 3, 2) V = 29.52     Best Action: A3
State (3, 3, 3) V = 37.52     Best Action: A4
State (3, 3, 4) V = 37.52     Best Action: A3
State (3, 4, 1) V = 48.02     Best Action: A1
State (3, 4, 2) V = 29.84     Best Action: A3
State (3, 4, 3) V = 37.92     Best Action: A4
State (3, 4, 4) V = 37.92     Best Action: A3
State (3, 5, 1) V = 61.9     Best Action: A4
State (3, 5, 2) V = 61.9     Best Action: A3
State (3, 5, 3) V = 49.02     Best Action: A3
State (3, 5, 4) V = 78.0     Best Action: A2
State (4, 1, 1) V = 15.86     Best Action: A2
State (4, 1, 2) V = -2.16     Best Action: A3
State (4, 1, 3) V = 12.19     Best Action: A4
State (4, 1, 4) V = 12.19     Best Action: A3
State (4, 2, 1) V = 16.36     Best Action: A1
State (4, 2, 2) V = -2.16     Best Action: A3
State (4, 2, 3) V = 12.59     Best Action: A4
State (4, 2, 4) V = 12.59     Best Action: A3
State (4, 3, 1) V = 22.32     Best Action: A3
State (4, 3, 2) V = 22.32     Best Action: A4
State (4, 3, 3) V = 28.52     Best Action: A1
State (4, 3, 4) V = 17.36     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 62.3     Best Action: A4
State (4, 5, 2) V = 62.3     Best Action: A3
State (4, 5, 3) V = 49.34     Best Action: A3
State (4, 5, 4) V = 78.5     Best Action: A1
State (5, 1, 1) V = 15.54     Best Action: A2
State (5, 1, 2) V = -2.16     Best Action: A3
State (5, 1, 3) V = 11.93     Best Action: A4
State (5, 1, 4) V = 11.93     Best Action: A3
State (5, 2, 1) V = 16.04     Best Action: A1
State (5, 2, 2) V = -2.16     Best Action: A3
State (5, 2, 3) V = 12.33     Best Action: A4
State (5, 2, 4) V = 12.33     Best Action: A3
State (5, 3, 1) V = 21.92     Best Action: A3
State (5, 3, 2) V = 21.92     Best Action: A4
State (5, 3, 3) V = 28.02     Best Action: A2
State (5, 3, 4) V = 17.04     Best Action: A3
State (5, 4, 1) V = 78.5     Best Action: A1
State (5, 4, 2) V = 49.34     Best Action: A3
State (5, 4, 3) V = 62.3     Best Action: A4
State (5, 4, 4) V = 62.3     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 6:
State (1, 1, 1) V = -2.28     Best Action: A3
State (1, 1, 2) V = -2.28     Best Action: A3
State (1, 1, 3) V = -2.32     Best Action: A3
State (1, 1, 4) V = -2.32     Best Action: A3
State (1, 2, 1) V = 15.74     Best Action: A2
State (1, 2, 2) V = -2.28     Best Action: A3
State (1, 2, 3) V = 12.09     Best Action: A4
State (1, 2, 4) V = 12.09     Best Action: A3
State (1, 3, 1) V = 16.24     Best Action: A1
State (1, 3, 2) V = -2.28     Best Action: A3
State (1, 3, 3) V = 12.49     Best Action: A4
State (1, 3, 4) V = 12.49     Best Action: A3
State (1, 4, 1) V = 22.17     Best Action: A4
State (1, 4, 2) V = 22.17     Best Action: A3
State (1, 4, 3) V = 17.24     Best Action: A3
State (1, 4, 4) V = 28.34     Best Action: A2
State (1, 5, 1) V = 9.49     Best Action: A3
State (1, 5, 2) V = 16.24     Best Action: A1
State (1, 5, 3) V = 12.49     Best Action: A3
State (1, 5, 4) V = 12.49     Best Action: A4
State (2, 1, 1) V = -2.28     Best Action: A3
State (2, 1, 2) V = -2.28     Best Action: A3
State (2, 1, 3) V = -2.32     Best Action: A3
State (2, 1, 4) V = 7.75     Best Action: A2
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = 22.57     Best Action: A4
State (2, 4, 2) V = 22.57     Best Action: A3
State (2, 4, 3) V = 17.56     Best Action: A3
State (2, 4, 4) V = 28.84     Best Action: A1
State (2, 5, 1) V = 9.7     Best Action: A3
State (2, 5, 2) V = 16.56     Best Action: A1
State (2, 5, 3) V = 12.75     Best Action: A3
State (2, 5, 4) V = 12.75     Best Action: A4
State (3, 1, 1) V = -2.28     Best Action: A3
State (3, 1, 2) V = -2.28     Best Action: A3
State (3, 1, 3) V = -2.32     Best Action: A3
State (3, 1, 4) V = 8.25     Best Action: A1
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = 47.52     Best Action: A2
State (3, 3, 2) V = 29.52     Best Action: A3
State (3, 3, 3) V = 37.52     Best Action: A4
State (3, 3, 4) V = 37.52     Best Action: A3
State (3, 4, 1) V = 48.02     Best Action: A1
State (3, 4, 2) V = 29.84     Best Action: A3
State (3, 4, 3) V = 37.92     Best Action: A4
State (3, 4, 4) V = 37.92     Best Action: A3
State (3, 5, 1) V = 61.9     Best Action: A4
State (3, 5, 2) V = 61.9     Best Action: A3
State (3, 5, 3) V = 49.02     Best Action: A3
State (3, 5, 4) V = 78.0     Best Action: A2
State (4, 1, 1) V = 15.86     Best Action: A2
State (4, 1, 2) V = 9.25     Best Action: A3
State (4, 1, 3) V = 12.19     Best Action: A4
State (4, 1, 4) V = 12.19     Best Action: A3
State (4, 2, 1) V = 16.36     Best Action: A1
State (4, 2, 2) V = 9.57     Best Action: A3
State (4, 2, 3) V = 12.59     Best Action: A4
State (4, 2, 4) V = 12.59     Best Action: A3
State (4, 3, 1) V = 22.32     Best Action: A3
State (4, 3, 2) V = 22.32     Best Action: A4
State (4, 3, 3) V = 28.52     Best Action: A1
State (4, 3, 4) V = 17.36     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 62.3     Best Action: A4
State (4, 5, 2) V = 62.3     Best Action: A3
State (4, 5, 3) V = 49.34     Best Action: A3
State (4, 5, 4) V = 78.5     Best Action: A1
State (5, 1, 1) V = 15.54     Best Action: A2
State (5, 1, 2) V = 9.04     Best Action: A3
State (5, 1, 3) V = 11.93     Best Action: A4
State (5, 1, 4) V = 11.93     Best Action: A3
State (5, 2, 1) V = 16.04     Best Action: A1
State (5, 2, 2) V = 9.36     Best Action: A3
State (5, 2, 3) V = 12.33     Best Action: A4
State (5, 2, 4) V = 12.33     Best Action: A3
State (5, 3, 1) V = 21.92     Best Action: A3
State (5, 3, 2) V = 21.92     Best Action: A4
State (5, 3, 3) V = 28.02     Best Action: A2
State (5, 3, 4) V = 17.04     Best Action: A3
State (5, 4, 1) V = 78.5     Best Action: A1
State (5, 4, 2) V = 49.34     Best Action: A3
State (5, 4, 3) V = 62.3     Best Action: A4
State (5, 4, 4) V = 62.3     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 7:
State (1, 1, 1) V = 11.09     Best Action: A1
State (1, 1, 2) V = -2.36     Best Action: A3
State (1, 1, 3) V = 8.37     Best Action: A4
State (1, 1, 4) V = 8.37     Best Action: A3
State (1, 2, 1) V = 15.74     Best Action: A2
State (1, 2, 2) V = 9.17     Best Action: A3
State (1, 2, 3) V = 12.09     Best Action: A4
State (1, 2, 4) V = 12.09     Best Action: A3
State (1, 3, 1) V = 16.24     Best Action: A1
State (1, 3, 2) V = 9.49     Best Action: A3
State (1, 3, 3) V = 12.49     Best Action: A4
State (1, 3, 4) V = 12.49     Best Action: A3
State (1, 4, 1) V = 22.17     Best Action: A4
State (1, 4, 2) V = 22.17     Best Action: A3
State (1, 4, 3) V = 17.24     Best Action: A3
State (1, 4, 4) V = 28.34     Best Action: A2
State (1, 5, 1) V = 9.49     Best Action: A3
State (1, 5, 2) V = 16.24     Best Action: A1
State (1, 5, 3) V = 12.49     Best Action: A3
State (1, 5, 4) V = 12.49     Best Action: A4
State (2, 1, 1) V = 5.7     Best Action: A4
State (2, 1, 2) V = 5.7     Best Action: A3
State (2, 1, 3) V = 5.2     Best Action: A1
State (2, 1, 4) V = 7.75     Best Action: A2
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = 22.57     Best Action: A4
State (2, 4, 2) V = 22.57     Best Action: A3
State (2, 4, 3) V = 17.56     Best Action: A3
State (2, 4, 4) V = 28.84     Best Action: A1
State (2, 5, 1) V = 9.7     Best Action: A3
State (2, 5, 2) V = 16.56     Best Action: A1
State (2, 5, 3) V = 12.75     Best Action: A3
State (2, 5, 4) V = 12.75     Best Action: A4
State (3, 1, 1) V = 6.1     Best Action: A4
State (3, 1, 2) V = 6.1     Best Action: A3
State (3, 1, 3) V = 4.7     Best Action: A2
State (3, 1, 4) V = 8.25     Best Action: A1
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = 47.52     Best Action: A2
State (3, 3, 2) V = 29.52     Best Action: A3
State (3, 3, 3) V = 37.52     Best Action: A4
State (3, 3, 4) V = 37.52     Best Action: A3
State (3, 4, 1) V = 48.02     Best Action: A1
State (3, 4, 2) V = 29.84     Best Action: A3
State (3, 4, 3) V = 37.92     Best Action: A4
State (3, 4, 4) V = 37.92     Best Action: A3
State (3, 5, 1) V = 61.9     Best Action: A4
State (3, 5, 2) V = 61.9     Best Action: A3
State (3, 5, 3) V = 49.02     Best Action: A3
State (3, 5, 4) V = 78.0     Best Action: A2
State (4, 1, 1) V = 15.86     Best Action: A2
State (4, 1, 2) V = 9.25     Best Action: A3
State (4, 1, 3) V = 12.19     Best Action: A4
State (4, 1, 4) V = 12.19     Best Action: A3
State (4, 2, 1) V = 16.36     Best Action: A1
State (4, 2, 2) V = 9.57     Best Action: A3
State (4, 2, 3) V = 12.59     Best Action: A4
State (4, 2, 4) V = 12.59     Best Action: A3
State (4, 3, 1) V = 22.32     Best Action: A3
State (4, 3, 2) V = 22.32     Best Action: A4
State (4, 3, 3) V = 28.52     Best Action: A1
State (4, 3, 4) V = 17.36     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 62.3     Best Action: A4
State (4, 5, 2) V = 62.3     Best Action: A3
State (4, 5, 3) V = 49.34     Best Action: A3
State (4, 5, 4) V = 78.5     Best Action: A1
State (5, 1, 1) V = 15.54     Best Action: A2
State (5, 1, 2) V = 9.04     Best Action: A3
State (5, 1, 3) V = 11.93     Best Action: A4
State (5, 1, 4) V = 11.93     Best Action: A3
State (5, 2, 1) V = 16.04     Best Action: A1
State (5, 2, 2) V = 9.36     Best Action: A3
State (5, 2, 3) V = 12.33     Best Action: A4
State (5, 2, 4) V = 12.33     Best Action: A3
State (5, 3, 1) V = 21.92     Best Action: A3
State (5, 3, 2) V = 21.92     Best Action: A4
State (5, 3, 3) V = 28.02     Best Action: A2
State (5, 3, 4) V = 17.04     Best Action: A3
State (5, 4, 1) V = 78.5     Best Action: A1
State (5, 4, 2) V = 49.34     Best Action: A3
State (5, 4, 3) V = 62.3     Best Action: A4
State (5, 4, 4) V = 62.3     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 8:
State (1, 1, 1) V = 11.09     Best Action: A1
State (1, 1, 2) V = 6.2     Best Action: A3
State (1, 1, 3) V = 8.37     Best Action: A4
State (1, 1, 4) V = 8.37     Best Action: A3
State (1, 2, 1) V = 15.74     Best Action: A2
State (1, 2, 2) V = 9.17     Best Action: A3
State (1, 2, 3) V = 12.09     Best Action: A4
State (1, 2, 4) V = 12.09     Best Action: A3
State (1, 3, 1) V = 16.24     Best Action: A1
State (1, 3, 2) V = 9.49     Best Action: A3
State (1, 3, 3) V = 12.49     Best Action: A4
State (1, 3, 4) V = 12.49     Best Action: A3
State (1, 4, 1) V = 22.17     Best Action: A4
State (1, 4, 2) V = 22.17     Best Action: A3
State (1, 4, 3) V = 17.24     Best Action: A3
State (1, 4, 4) V = 28.34     Best Action: A2
State (1, 5, 1) V = 9.49     Best Action: A3
State (1, 5, 2) V = 16.24     Best Action: A1
State (1, 5, 3) V = 12.49     Best Action: A3
State (1, 5, 4) V = 12.49     Best Action: A4
State (2, 1, 1) V = 5.7     Best Action: A4
State (2, 1, 2) V = 5.7     Best Action: A3
State (2, 1, 3) V = 5.2     Best Action: A1
State (2, 1, 4) V = 7.75     Best Action: A2
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = 22.57     Best Action: A4
State (2, 4, 2) V = 22.57     Best Action: A3
State (2, 4, 3) V = 17.56     Best Action: A3
State (2, 4, 4) V = 28.84     Best Action: A1
State (2, 5, 1) V = 9.7     Best Action: A3
State (2, 5, 2) V = 16.56     Best Action: A1
State (2, 5, 3) V = 12.75     Best Action: A3
State (2, 5, 4) V = 12.75     Best Action: A4
State (3, 1, 1) V = 6.1     Best Action: A4
State (3, 1, 2) V = 6.1     Best Action: A3
State (3, 1, 3) V = 4.7     Best Action: A2
State (3, 1, 4) V = 8.25     Best Action: A1
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = 47.52     Best Action: A2
State (3, 3, 2) V = 29.52     Best Action: A3
State (3, 3, 3) V = 37.52     Best Action: A4
State (3, 3, 4) V = 37.52     Best Action: A3
State (3, 4, 1) V = 48.02     Best Action: A1
State (3, 4, 2) V = 29.84     Best Action: A3
State (3, 4, 3) V = 37.92     Best Action: A4
State (3, 4, 4) V = 37.92     Best Action: A3
State (3, 5, 1) V = 61.9     Best Action: A4
State (3, 5, 2) V = 61.9     Best Action: A3
State (3, 5, 3) V = 49.02     Best Action: A3
State (3, 5, 4) V = 78.0     Best Action: A2
State (4, 1, 1) V = 15.86     Best Action: A2
State (4, 1, 2) V = 9.25     Best Action: A3
State (4, 1, 3) V = 12.19     Best Action: A4
State (4, 1, 4) V = 12.19     Best Action: A3
State (4, 2, 1) V = 16.36     Best Action: A1
State (4, 2, 2) V = 9.57     Best Action: A3
State (4, 2, 3) V = 12.59     Best Action: A4
State (4, 2, 4) V = 12.59     Best Action: A3
State (4, 3, 1) V = 22.32     Best Action: A3
State (4, 3, 2) V = 22.32     Best Action: A4
State (4, 3, 3) V = 28.52     Best Action: A1
State (4, 3, 4) V = 17.36     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 62.3     Best Action: A4
State (4, 5, 2) V = 62.3     Best Action: A3
State (4, 5, 3) V = 49.34     Best Action: A3
State (4, 5, 4) V = 78.5     Best Action: A1
State (5, 1, 1) V = 15.54     Best Action: A2
State (5, 1, 2) V = 9.04     Best Action: A3
State (5, 1, 3) V = 11.93     Best Action: A4
State (5, 1, 4) V = 11.93     Best Action: A3
State (5, 2, 1) V = 16.04     Best Action: A1
State (5, 2, 2) V = 9.36     Best Action: A3
State (5, 2, 3) V = 12.33     Best Action: A4
State (5, 2, 4) V = 12.33     Best Action: A3
State (5, 3, 1) V = 21.92     Best Action: A3
State (5, 3, 2) V = 21.92     Best Action: A4
State (5, 3, 3) V = 28.02     Best Action: A2
State (5, 3, 4) V = 17.04     Best Action: A3
State (5, 4, 1) V = 78.5     Best Action: A1
State (5, 4, 2) V = 49.34     Best Action: A3
State (5, 4, 3) V = 62.3     Best Action: A4
State (5, 4, 4) V = 62.3     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 9:
State (1, 1, 1) V = 11.09     Best Action: A1
State (1, 1, 2) V = 6.2     Best Action: A3
State (1, 1, 3) V = 8.37     Best Action: A4
State (1, 1, 4) V = 8.37     Best Action: A3
State (1, 2, 1) V = 15.74     Best Action: A2
State (1, 2, 2) V = 9.17     Best Action: A3
State (1, 2, 3) V = 12.09     Best Action: A4
State (1, 2, 4) V = 12.09     Best Action: A3
State (1, 3, 1) V = 16.24     Best Action: A1
State (1, 3, 2) V = 9.49     Best Action: A3
State (1, 3, 3) V = 12.49     Best Action: A4
State (1, 3, 4) V = 12.49     Best Action: A3
State (1, 4, 1) V = 22.17     Best Action: A4
State (1, 4, 2) V = 22.17     Best Action: A3
State (1, 4, 3) V = 17.24     Best Action: A3
State (1, 4, 4) V = 28.34     Best Action: A2
State (1, 5, 1) V = 9.49     Best Action: A3
State (1, 5, 2) V = 16.24     Best Action: A1
State (1, 5, 3) V = 12.49     Best Action: A3
State (1, 5, 4) V = 12.49     Best Action: A4
State (2, 1, 1) V = 5.7     Best Action: A4
State (2, 1, 2) V = 5.7     Best Action: A3
State (2, 1, 3) V = 5.2     Best Action: A1
State (2, 1, 4) V = 7.75     Best Action: A2
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = 22.57     Best Action: A4
State (2, 4, 2) V = 22.57     Best Action: A3
State (2, 4, 3) V = 17.56     Best Action: A3
State (2, 4, 4) V = 28.84     Best Action: A1
State (2, 5, 1) V = 9.7     Best Action: A3
State (2, 5, 2) V = 16.56     Best Action: A1
State (2, 5, 3) V = 12.75     Best Action: A3
State (2, 5, 4) V = 12.75     Best Action: A4
State (3, 1, 1) V = 6.1     Best Action: A4
State (3, 1, 2) V = 6.1     Best Action: A3
State (3, 1, 3) V = 4.7     Best Action: A2
State (3, 1, 4) V = 8.25     Best Action: A1
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = 47.52     Best Action: A2
State (3, 3, 2) V = 29.52     Best Action: A3
State (3, 3, 3) V = 37.52     Best Action: A4
State (3, 3, 4) V = 37.52     Best Action: A3
State (3, 4, 1) V = 48.02     Best Action: A1
State (3, 4, 2) V = 29.84     Best Action: A3
State (3, 4, 3) V = 37.92     Best Action: A4
State (3, 4, 4) V = 37.92     Best Action: A3
State (3, 5, 1) V = 61.9     Best Action: A4
State (3, 5, 2) V = 61.9     Best Action: A3
State (3, 5, 3) V = 49.02     Best Action: A3
State (3, 5, 4) V = 78.0     Best Action: A2
State (4, 1, 1) V = 15.86     Best Action: A2
State (4, 1, 2) V = 9.25     Best Action: A3
State (4, 1, 3) V = 12.19     Best Action: A4
State (4, 1, 4) V = 12.19      Best Action: A3
State (4, 2, 1) V = 16.36      Best Action: A1
State (4, 2, 2) V = 9.57      Best Action: A3
State (4, 2, 3) V = 12.59      Best Action: A4
State (4, 2, 4) V = 12.59      Best Action: A3
State (4, 3, 1) V = 22.32      Best Action: A3
State (4, 3, 2) V = 22.32      Best Action: A4
State (4, 3, 3) V = 28.52      Best Action: A1
State (4, 3, 4) V = 17.36      Best Action: A3
State (4, 4, 1) V = -1000      Best Action: No
Action
State (4, 4, 2) V = -1000      Best Action: No
Action
State (4, 4, 3) V = -1000      Best Action: No
Action
State (4, 4, 4) V = -1000      Best Action: No
Action
State (4, 5, 1) V = 62.3      Best Action: A4
State (4, 5, 2) V = 62.3      Best Action: A3
State (4, 5, 3) V = 49.34      Best Action: A3
State (4, 5, 4) V = 78.5      Best Action: A1
State (5, 1, 1) V = 15.54      Best Action: A2
State (5, 1, 2) V = 9.04      Best Action: A3
State (5, 1, 3) V = 11.93      Best Action: A4
State (5, 1, 4) V = 11.93      Best Action: A3
State (5, 2, 1) V = 16.04      Best Action: A1
State (5, 2, 2) V = 9.36      Best Action: A3
State (5, 2, 3) V = 12.33      Best Action: A4
State (5, 2, 4) V = 12.33      Best Action: A3
State (5, 3, 1) V = 21.92      Best Action: A3
State (5, 3, 2) V = 21.92      Best Action: A4
State (5, 3, 3) V = 28.02      Best Action: A2
State (5, 3, 4) V = 17.04      Best Action: A3
State (5, 4, 1) V = 78.5      Best Action: A1
State (5, 4, 2) V = 49.34      Best Action: A3
State (5, 4, 3) V = 62.3      Best Action: A4
State (5, 4, 4) V = 62.3      Best Action: A3
State (5, 5, 1) V = 100      Best Action: No Action
State (5, 5, 2) V = 100      Best Action: No Action
State (5, 5, 3) V = 100      Best Action: No Action
State (5, 5, 4) V = 100      Best Action: No Action
Iteration 10:
State (1, 1, 1) V = 11.09      Best Action: A1
State (1, 1, 2) V = 6.2      Best Action: A3
State (1, 1, 3) V = 8.37      Best Action: A4
State (1, 1, 4) V = 8.37      Best Action: A3
State (1, 2, 1) V = 15.74      Best Action: A2
State (1, 2, 2) V = 9.17      Best Action: A3
State (1, 2, 3) V = 12.09      Best Action: A4
State (1, 2, 4) V = 12.09      Best Action: A3
State (1, 3, 1) V = 16.24      Best Action: A1
State (1, 3, 2) V = 9.49      Best Action: A3
State (1, 3, 3) V = 12.49      Best Action: A4
State (1, 3, 4) V = 12.49      Best Action: A3
State (1, 4, 1) V = 22.17      Best Action: A4
State (1, 4, 2) V = 22.17      Best Action: A3
State (1, 4, 3) V = 17.24      Best Action: A3
State (1, 4, 4) V = 28.34      Best Action: A2
State (1, 5, 1) V = 9.49      Best Action: A3
State (1, 5, 2) V = 16.24      Best Action: A1
State (1, 5, 3) V = 12.49      Best Action: A3
State (1, 5, 4) V = 12.49      Best Action: A4
State (2, 1, 1) V = 5.7      Best Action: A4
State (2, 1, 2) V = 5.7      Best Action: A3
State (2, 1, 3) V = 5.2      Best Action: A1
State (2, 1, 4) V = 7.75      Best Action: A2
State (2, 2, 1) V = -100000      Best Action: No
Action
State (2, 2, 2) V = -100000      Best Action: No
Action
State (2, 2, 3) V = -100000      Best Action: No
Action
State (2, 2, 4) V = -100000      Best Action: No
Action
State (2, 3, 1) V = -100000      Best Action: No
Action
State (2, 3, 2) V = -100000      Best Action: No
Action
State (2, 3, 3) V = -100000      Best Action: No
Action
State (2, 3, 4) V = -100000      Best Action: No
Action
State (2, 4, 1) V = 22.57      Best Action: A4
State (2, 4, 2) V = 22.57      Best Action: A3
State (2, 4, 3) V = 17.56      Best Action: A3
State (2, 4, 4) V = 28.84      Best Action: A1
State (2, 5, 1) V = 9.7      Best Action: A3
State (2, 5, 2) V = 16.56      Best Action: A1
State (2, 5, 3) V = 12.75      Best Action: A3
State (2, 5, 4) V = 12.75      Best Action: A4
State (3, 1, 1) V = 6.1      Best Action: A4
State (3, 1, 2) V = 6.1      Best Action: A3
State (3, 1, 3) V = 4.7      Best Action: A2
State (3, 1, 4) V = 8.25      Best Action: A1
State (3, 2, 1) V = -100000      Best Action: No
Action
State (3, 2, 2) V = -100000      Best Action: No
Action
State (3, 2, 3) V = -100000      Best Action: No
Action
State (3, 2, 4) V = -100000      Best Action: No
Action
State (3, 3, 1) V = 47.52      Best Action: A2
State (3, 3, 2) V = 29.52      Best Action: A3
State (3, 3, 3) V = 37.52      Best Action: A4
State (3, 3, 4) V = 37.52      Best Action: A3
State (3, 4, 1) V = 48.02      Best Action: A1
State (3, 4, 2) V = 29.84      Best Action: A3
State (3, 4, 3) V = 37.92      Best Action: A4
State (3, 4, 4) V = 37.92      Best Action: A3
State (3, 5, 1) V = 61.9      Best Action: A4
State (3, 5, 2) V = 61.9      Best Action: A3
State (3, 5, 3) V = 49.02      Best Action: A3
State (3, 5, 4) V = 78.0      Best Action: A2
State (4, 1, 1) V = 15.86      Best Action: A2
State (4, 1, 2) V = 9.25      Best Action: A3
State (4, 1, 3) V = 12.19      Best Action: A4
State (4, 1, 4) V = 12.19      Best Action: A3
State (4, 2, 1) V = 16.36      Best Action: A1
State (4, 2, 2) V = 9.57      Best Action: A3
State (4, 2, 3) V = 12.59      Best Action: A4
State (4, 2, 4) V = 12.59      Best Action: A3
State (4, 3, 1) V = 22.32      Best Action: A3
State (4, 3, 2) V = 22.32      Best Action: A4
State (4, 3, 3) V = 28.52      Best Action: A1
State (4, 3, 4) V = 17.36      Best Action: A3
State (4, 4, 1) V = -1000      Best Action: No
Action
State (4, 4, 2) V = -1000      Best Action: No
Action
State (4, 4, 3) V = -1000      Best Action: No
Action
State (4, 4, 4) V = -1000      Best Action: No
Action
State (4, 5, 1) V = 62.3      Best Action: A4
State (4, 5, 2) V = 62.3      Best Action: A3
State (4, 5, 3) V = 49.34      Best Action: A3
State (4, 5, 4) V = 78.5      Best Action: A1
State (5, 1, 1) V = 15.54      Best Action: A2
State (5, 1, 2) V = 9.04      Best Action: A3
State (5, 1, 3) V = 11.93      Best Action: A4
State (5, 1, 4) V = 11.93      Best Action: A3
State (5, 2, 1) V = 16.04      Best Action: A1
State (5, 2, 2) V = 9.36      Best Action: A3
State (5, 2, 3) V = 12.33      Best Action: A4
State (5, 2, 4) V = 12.33      Best Action: A3
State (5, 3, 1) V = 21.92      Best Action: A3
State (5, 3, 2) V = 21.92      Best Action: A4
State (5, 3, 3) V = 28.02      Best Action: A2
State (5, 3, 4) V = 17.04      Best Action: A3
State (5, 4, 1) V = 78.5      Best Action: A1
State (5, 4, 2) V = 49.34      Best Action: A3
State (5, 4, 3) V = 62.3      Best Action: A4
State (5, 4, 4) V = 62.3      Best Action: A3
State (5, 5, 1) V = 100      Best Action: No Action
State (5, 5, 2) V = 100      Best Action: No Action
State (5, 5, 3) V = 100      Best Action: No Action
State (5, 5, 4) V = 100      Best Action: No Action
```

Ans E)

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Iteration 1:
State (1, 1, 1) V = -0.5     Best Action: A3
State (1, 1, 2) V = -0.5     Best Action: A3
State (1, 1, 3) V = -0.6     Best Action: A3
State (1, 1, 4) V = -0.6     Best Action: A3
State (1, 2, 1) V = -0.5     Best Action: A3
State (1, 2, 2) V = -0.5     Best Action: A3
State (1, 2, 3) V = -0.6     Best Action: A3
State (1, 2, 4) V = -0.6     Best Action: A3
State (1, 3, 1) V = -0.5     Best Action: A3
State (1, 3, 2) V = -0.5     Best Action: A3
State (1, 3, 3) V = -0.6     Best Action: A3
State (1, 3, 4) V = -0.6     Best Action: A3
State (1, 4, 1) V = -0.5     Best Action: A3
State (1, 4, 2) V = -0.5     Best Action: A3
State (1, 4, 3) V = -0.6     Best Action: A3
State (1, 4, 4) V = -0.6     Best Action: A3
State (1, 5, 1) V = -0.5     Best Action: A3
State (1, 5, 2) V = -0.5     Best Action: A3
State (1, 5, 3) V = -0.6     Best Action: A3
State (1, 5, 4) V = -0.6     Best Action: A3
State (2, 1, 1) V = -0.5     Best Action: A3
State (2, 1, 2) V = -0.5     Best Action: A3
State (2, 1, 3) V = -0.6     Best Action: A3
State (2, 1, 4) V = -0.6     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -0.5     Best Action: A3
State (2, 4, 2) V = -0.5     Best Action: A3
State (2, 4, 3) V = -0.6     Best Action: A3
State (2, 4, 4) V = -0.6     Best Action: A3
State (2, 5, 1) V = -0.5     Best Action: A3
State (2, 5, 2) V = -0.5     Best Action: A3
State (2, 5, 3) V = -0.6     Best Action: A3
State (2, 5, 4) V = -0.6     Best Action: A3
State (3, 1, 1) V = -0.5     Best Action: A3
State (3, 1, 2) V = -0.5     Best Action: A3
State (3, 1, 3) V = -0.6     Best Action: A3
State (3, 1, 4) V = -0.6     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = -0.5     Best Action: A3
State (3, 3, 2) V = -0.5     Best Action: A3
State (3, 3, 3) V = -0.6     Best Action: A3
State (3, 3, 4) V = -0.6     Best Action: A3
State (3, 4, 1) V = -0.5     Best Action: A3
State (3, 4, 2) V = -0.5     Best Action: A3
State (3, 4, 3) V = -0.6     Best Action: A3
State (3, 4, 4) V = -0.6     Best Action: A3
State (3, 5, 1) V = -0.5     Best Action: A3
State (3, 5, 2) V = -0.5     Best Action: A3
State (3, 5, 3) V = -0.6     Best Action: A3
State (3, 5, 4) V = 18.0     Best Action: A2
State (4, 1, 1) V = -0.5     Best Action: A3
State (4, 1, 2) V = -0.5     Best Action: A3
State (4, 1, 3) V = -0.6     Best Action: A3
State (4, 1, 4) V = -0.6     Best Action: A3
State (4, 2, 1) V = -0.5     Best Action: A3
State (4, 2, 2) V = -0.5     Best Action: A3
State (4, 2, 3) V = -0.6     Best Action: A3
State (4, 2, 4) V = -0.6     Best Action: A3
State (4, 3, 1) V = -0.5     Best Action: A3
State (4, 3, 2) V = -0.5     Best Action: A3
State (4, 3, 3) V = -0.6     Best Action: A3
State (4, 3, 4) V = -0.6     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = -0.5     Best Action: A3
State (4, 5, 2) V = -0.5     Best Action: A3
State (4, 5, 3) V = -0.6     Best Action: A3
State (4, 5, 4) V = 18.5     Best Action: A1
State (5, 1, 1) V = -0.5     Best Action: A3
State (5, 1, 2) V = -0.5     Best Action: A3
State (5, 1, 3) V = -0.6     Best Action: A3
State (5, 1, 4) V = -0.6     Best Action: A3
State (5, 2, 1) V = -0.5     Best Action: A3
State (5, 2, 2) V = -0.5     Best Action: A3
State (5, 2, 3) V = -0.6     Best Action: A3
State (5, 2, 4) V = -0.6     Best Action: A3
State (5, 3, 1) V = -0.5     Best Action: A3
State (5, 3, 2) V = -0.5     Best Action: A3
State (5, 3, 3) V = -0.6     Best Action: A3
State (5, 3, 4) V = -0.6     Best Action: A3
State (5, 4, 1) V = 18.5     Best Action: A1
State (5, 4, 2) V = -0.5     Best Action: A3
State (5, 4, 3) V = 3.2     Best Action: A4
State (5, 4, 4) V = 3.2     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 2:
State (1, 1, 1) V = -0.62     Best Action: A3
State (1, 1, 2) V = -0.62     Best Action: A3
State (1, 1, 3) V = -0.62     Best Action: A3
State (1, 1, 4) V = -0.62     Best Action: A3
State (1, 2, 1) V = -0.62     Best Action: A3
State (1, 2, 2) V = -0.62     Best Action: A3
State (1, 2, 3) V = -0.62     Best Action: A3
State (1, 2, 4) V = -0.62     Best Action: A3
State (1, 3, 1) V = -0.62     Best Action: A3
State (1, 3, 2) V = -0.62     Best Action: A3
State (1, 3, 3) V = -0.62     Best Action: A3
State (1, 3, 4) V = -0.62     Best Action: A3
State (1, 4, 1) V = -0.62     Best Action: A3
State (1, 4, 2) V = -0.62     Best Action: A3
State (1, 4, 3) V = -0.62     Best Action: A3
State (1, 4, 4) V = -0.62     Best Action: A3
State (1, 5, 1) V = -0.62     Best Action: A3
State (1, 5, 2) V = -0.62     Best Action: A3
State (1, 5, 3) V = -0.62     Best Action: A3
State (1, 5, 4) V = -0.62     Best Action: A3
State (2, 1, 1) V = -0.62     Best Action: A3
State (2, 1, 2) V = -0.62     Best Action: A3
State (2, 1, 3) V = -0.62     Best Action: A3
State (2, 1, 4) V = -0.62     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -0.62     Best Action: A3
State (2, 4, 2) V = -0.62     Best Action: A3
State (2, 4, 3) V = -0.62     Best Action: A3
State (2, 4, 4) V = -0.62     Best Action: A3
State (2, 5, 1) V = -0.62     Best Action: A3
State (2, 5, 2) V = -0.62     Best Action: A3
State (2, 5, 3) V = -0.62     Best Action: A3
State (2, 5, 4) V = -0.62     Best Action: A3
State (3, 1, 1) V = -0.62     Best Action: A3
State (3, 1, 2) V = -0.62     Best Action: A3
State (3, 1, 3) V = -0.62     Best Action: A3
State (3, 1, 4) V = -0.62     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = -0.62     Best Action: A3
State (3, 3, 2) V = -0.62     Best Action: A3
State (3, 3, 3) V = -0.62     Best Action: A3
State (3, 3, 4) V = -0.62     Best Action: A3
State (3, 4, 1) V = -0.62     Best Action: A3
State (3, 4, 2) V = -0.62     Best Action: A3
State (3, 4, 3) V = -0.62     Best Action: A3
State (3, 4, 4) V = -0.62     Best Action: A3
State (3, 5, 1) V = 3.1     Best Action: A4
State (3, 5, 2) V = 3.1     Best Action: A3
State (3, 5, 3) V = 0.12     Best Action: A3
State (3, 5, 4) V = 18.0     Best Action: A2
State (4, 1, 1) V = -0.62     Best Action: A3
State (4, 1, 2) V = -0.62     Best Action: A3
State (4, 1, 3) V = -0.62     Best Action: A3
State (4, 1, 4) V = -0.62     Best Action: A3
State (4, 2, 1) V = -0.62     Best Action: A3
State (4, 2, 2) V = -0.62     Best Action: A3
State (4, 2, 3) V = -0.62     Best Action: A3
State (4, 2, 4) V = -0.62     Best Action: A3
State (4, 3, 1) V = -0.62     Best Action: A3
State (4, 3, 2) V = -0.62     Best Action: A3
State (4, 3, 3) V = -0.62     Best Action: A3
State (4, 3, 4) V = -0.62     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 3.2     Best Action: A4
State (4, 5, 2) V = 3.2     Best Action: A3
State (4, 5, 3) V = 0.14     Best Action: A3
State (4, 5, 4) V = 18.5     Best Action: A1
State (5, 1, 1) V = -0.62     Best Action: A3
State (5, 1, 2) V = -0.62     Best Action: A3
State (5, 1, 3) V = -0.62     Best Action: A3
State (5, 1, 4) V = -0.62     Best Action: A3
State (5, 2, 1) V = -0.62     Best Action: A3
State (5, 2, 2) V = -0.62     Best Action: A3
State (5, 2, 3) V = -0.62     Best Action: A3
State (5, 2, 4) V = -0.62     Best Action: A3
State (5, 3, 1) V = -0.62     Best Action: A3
State (5, 3, 2) V = -0.62     Best Action: A3
State (5, 3, 3) V = -0.62     Best Action: A3
State (5, 3, 4) V = -0.62     Best Action: A3
State (5, 4, 1) V = 18.5     Best Action: A1
State (5, 4, 2) V = 0.14     Best Action: A3
State (5, 4, 3) V = 3.2     Best Action: A4
State (5, 4, 4) V = 3.2     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 3:
State (1, 1, 1) V = -0.62     Best Action: A3
State (1, 1, 2) V = -0.62     Best Action: A3
State (1, 1, 3) V = -0.62     Best Action: A3
State (1, 1, 4) V = -0.62     Best Action: A3
State (1, 2, 1) V = -0.62     Best Action: A3
State (1, 2, 2) V = -0.62     Best Action: A3
State (1, 2, 3) V = -0.62     Best Action: A3
State (1, 2, 4) V = -0.62     Best Action: A3
State (1, 3, 1) V = -0.62     Best Action: A3
State (1, 3, 2) V = -0.62     Best Action: A3
State (1, 3, 3) V = -0.62     Best Action: A3
State (1, 3, 4) V = -0.62     Best Action: A3
State (1, 4, 1) V = -0.62     Best Action: A3
State (1, 4, 2) V = -0.62     Best Action: A3
State (1, 4, 3) V = -0.62     Best Action: A3
State (1, 4, 4) V = -0.62     Best Action: A3
State (1, 5, 1) V = -0.62     Best Action: A3
State (1, 5, 2) V = -0.62     Best Action: A3
State (1, 5, 3) V = -0.62     Best Action: A3
State (1, 5, 4) V = -0.62     Best Action: A3
State (2, 1, 1) V = -0.62     Best Action: A3
State (2, 1, 2) V = -0.62     Best Action: A3
State (2, 1, 3) V = -0.62     Best Action: A3
State (2, 1, 4) V = -0.62     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -0.62     Best Action: A3
State (2, 4, 2) V = -0.62     Best Action: A3
State (2, 4, 3) V = -0.62     Best Action: A3
State (2, 4, 4) V = -0.62     Best Action: A3
State (2, 5, 1) V = -0.62     Best Action: A3
State (2, 5, 2) V = -0.62     Best Action: A3
State (2, 5, 3) V = -0.62     Best Action: A3
State (2, 5, 4) V = -0.62     Best Action: A3
State (3, 1, 1) V = -0.62     Best Action: A3
State (3, 1, 2) V = -0.62     Best Action: A3
State (3, 1, 3) V = -0.62     Best Action: A3
State (3, 1, 4) V = -0.62     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = -0.62     Best Action: A3
State (3, 3, 2) V = -0.62     Best Action: A3
State (3, 3, 3) V = -0.62     Best Action: A3
State (3, 3, 4) V = -0.62     Best Action: A3
State (3, 4, 1) V = -0.62     Best Action: A3
State (3, 4, 2) V = -0.62     Best Action: A3
State (3, 4, 3) V = -0.62     Best Action: A3
State (3, 4, 4) V = -0.62     Best Action: A3
State (3, 5, 1) V = 3.1     Best Action: A4
State (3, 5, 2) V = 3.1     Best Action: A3
State (3, 5, 3) V = 0.12     Best Action: A3
State (3, 5, 4) V = 18.0     Best Action: A2
State (4, 1, 1) V = -0.62     Best Action: A3
State (4, 1, 2) V = -0.62     Best Action: A3
State (4, 1, 3) V = -0.62     Best Action: A3
State (4, 1, 4) V = -0.62     Best Action: A3
State (4, 2, 1) V = -0.62     Best Action: A3
State (4, 2, 2) V = -0.62     Best Action: A3
State (4, 2, 3) V = -0.62     Best Action: A3
State (4, 2, 4) V = -0.62     Best Action: A3
State (4, 3, 1) V = -0.62     Best Action: A3
State (4, 3, 2) V = -0.62     Best Action: A3
State (4, 3, 3) V = -0.62     Best Action: A3
State (4, 3, 4) V = -0.62     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 3.2     Best Action: A4
State (4, 5, 2) V = 3.2     Best Action: A3
State (4, 5, 3) V = 0.14     Best Action: A3
State (4, 5, 4) V = 18.5     Best Action: A1
State (5, 1, 1) V = -0.62     Best Action: A3
State (5, 1, 2) V = -0.62     Best Action: A3
State (5, 1, 3) V = -0.62     Best Action: A3
State (5, 1, 4) V = -0.62     Best Action: A3
State (5, 2, 1) V = -0.62     Best Action: A3
State (5, 2, 2) V = -0.62     Best Action: A3
State (5, 2, 3) V = -0.62     Best Action: A3
State (5, 2, 4) V = -0.62     Best Action: A3
State (5, 3, 1) V = -0.62     Best Action: A3
State (5, 3, 2) V = -0.62     Best Action: A3
State (5, 3, 3) V = -0.62     Best Action: A3
State (5, 3, 4) V = -0.62     Best Action: A3
State (5, 4, 1) V = 18.5     Best Action: A1
State (5, 4, 2) V = 0.14     Best Action: A3
State (5, 4, 3) V = 3.2     Best Action: A4
State (5, 4, 4) V = 3.2     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 4:
State (1, 1, 1) V = -0.62     Best Action: A3
State (1, 1, 2) V = -0.62     Best Action: A3
State (1, 1, 3) V = -0.62     Best Action: A3
State (1, 1, 4) V = -0.62     Best Action: A3
State (1, 2, 1) V = -0.62     Best Action: A3
State (1, 2, 2) V = -0.62     Best Action: A3
State (1, 2, 3) V = -0.62     Best Action: A3
State (1, 2, 4) V = -0.62     Best Action: A3
State (1, 3, 1) V = -0.62     Best Action: A3
State (1, 3, 2) V = -0.62     Best Action: A3
State (1, 3, 3) V = -0.62     Best Action: A3
State (1, 3, 4) V = -0.62     Best Action: A3
State (1, 4, 1) V = -0.62     Best Action: A3
State (1, 4, 2) V = -0.62     Best Action: A3
State (1, 4, 3) V = -0.62     Best Action: A3
State (1, 4, 4) V = -0.62     Best Action: A3
State (1, 5, 1) V = -0.62     Best Action: A3
State (1, 5, 2) V = -0.62     Best Action: A3
State (1, 5, 3) V = -0.62     Best Action: A3
State (1, 5, 4) V = -0.62     Best Action: A3
State (2, 1, 1) V = -0.62     Best Action: A3
State (2, 1, 2) V = -0.62     Best Action: A3
State (2, 1, 3) V = -0.62     Best Action: A3
State (2, 1, 4) V = -0.62     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -0.62     Best Action: A3
State (2, 4, 2) V = -0.62     Best Action: A3
State (2, 4, 3) V = -0.62     Best Action: A3
State (2, 4, 4) V = -0.62     Best Action: A3
State (2, 5, 1) V = -0.62     Best Action: A3
State (2, 5, 2) V = -0.62     Best Action: A3
State (2, 5, 3) V = -0.62     Best Action: A3
State (2, 5, 4) V = -0.62     Best Action: A3
State (3, 1, 1) V = -0.62     Best Action: A3
State (3, 1, 2) V = -0.62     Best Action: A3
State (3, 1, 3) V = -0.62     Best Action: A3
State (3, 1, 4) V = -0.62     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = -0.62     Best Action: A3
State (3, 3, 2) V = -0.62     Best Action: A3
State (3, 3, 3) V = -0.62     Best Action: A3
State (3, 3, 4) V = -0.62     Best Action: A3
State (3, 4, 1) V = -0.62     Best Action: A3
State (3, 4, 2) V = -0.62     Best Action: A3
State (3, 4, 3) V = -0.62     Best Action: A3
State (3, 4, 4) V = -0.62     Best Action: A3
State (3, 5, 1) V = 3.1     Best Action: A4
State (3, 5, 2) V = 3.1     Best Action: A3
State (3, 5, 3) V = 0.12     Best Action: A3
State (3, 5, 4) V = 18.0     Best Action: A2
State (4, 1, 1) V = -0.62     Best Action: A3
State (4, 1, 2) V = -0.62     Best Action: A3
State (4, 1, 3) V = -0.62     Best Action: A3
State (4, 1, 4) V = -0.62     Best Action: A3
State (4, 2, 1) V = -0.62     Best Action: A3
State (4, 2, 2) V = -0.62     Best Action: A3
State (4, 2, 3) V = -0.62     Best Action: A3
State (4, 2, 4) V = -0.62     Best Action: A3
State (4, 3, 1) V = -0.62     Best Action: A3
State (4, 3, 2) V = -0.62     Best Action: A3
State (4, 3, 3) V = -0.62     Best Action: A3
State (4, 3, 4) V = -0.62     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 3.2     Best Action: A4
State (4, 5, 2) V = 3.2     Best Action: A3
State (4, 5, 3) V = 0.14     Best Action: A3
State (4, 5, 4) V = 18.5     Best Action: A1
State (5, 1, 1) V = -0.62     Best Action: A3
State (5, 1, 2) V = -0.62     Best Action: A3
State (5, 1, 3) V = -0.62     Best Action: A3
State (5, 1, 4) V = -0.62     Best Action: A3
State (5, 2, 1) V = -0.62     Best Action: A3
State (5, 2, 2) V = -0.62     Best Action: A3
State (5, 2, 3) V = -0.62     Best Action: A3
State (5, 2, 4) V = -0.62     Best Action: A3
State (5, 3, 1) V = -0.62     Best Action: A3
State (5, 3, 2) V = -0.62     Best Action: A3
State (5, 3, 3) V = -0.62     Best Action: A3
State (5, 3, 4) V = -0.62     Best Action: A3
State (5, 4, 1) V = 18.5     Best Action: A1
State (5, 4, 2) V = 0.14     Best Action: A3
State (5, 4, 3) V = 3.2     Best Action: A4
State (5, 4, 4) V = 3.2     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 5:
State (1, 1, 1) V = -0.62     Best Action: A3
State (1, 1, 2) V = -0.62     Best Action: A3
State (1, 1, 3) V = -0.62     Best Action: A3
State (1, 1, 4) V = -0.62     Best Action: A3
State (1, 2, 1) V = -0.62     Best Action: A3
State (1, 2, 2) V = -0.62     Best Action: A3
State (1, 2, 3) V = -0.62     Best Action: A3
State (1, 2, 4) V = -0.62     Best Action: A3
State (1, 3, 1) V = -0.62     Best Action: A3
State (1, 3, 2) V = -0.62     Best Action: A3
State (1, 3, 3) V = -0.62     Best Action: A3
State (1, 3, 4) V = -0.62     Best Action: A3
State (1, 4, 1) V = -0.62     Best Action: A3
State (1, 4, 2) V = -0.62     Best Action: A3
State (1, 4, 3) V = -0.62     Best Action: A3
State (1, 4, 4) V = -0.62     Best Action: A3
State (1, 5, 1) V = -0.62     Best Action: A3
State (1, 5, 2) V = -0.62     Best Action: A3
State (1, 5, 3) V = -0.62     Best Action: A3
State (1, 5, 4) V = -0.62     Best Action: A3
State (2, 1, 1) V = -0.62     Best Action: A3
State (2, 1, 2) V = -0.62     Best Action: A3
State (2, 1, 3) V = -0.62     Best Action: A3
State (2, 1, 4) V = -0.62     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -0.62     Best Action: A3
State (2, 4, 2) V = -0.62     Best Action: A3
State (2, 4, 3) V = -0.62     Best Action: A3
State (2, 4, 4) V = -0.62     Best Action: A3
State (2, 5, 1) V = -0.62     Best Action: A3
State (2, 5, 2) V = -0.62     Best Action: A3
State (2, 5, 3) V = -0.62     Best Action: A3
State (2, 5, 4) V = -0.62     Best Action: A3
State (3, 1, 1) V = -0.62     Best Action: A3
State (3, 1, 2) V = -0.62     Best Action: A3
State (3, 1, 3) V = -0.62     Best Action: A3
State (3, 1, 4) V = -0.62     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = -0.62     Best Action: A3
State (3, 3, 2) V = -0.62     Best Action: A3
State (3, 3, 3) V = -0.62     Best Action: A3
State (3, 3, 4) V = -0.62     Best Action: A3
State (3, 4, 1) V = -0.62     Best Action: A3
State (3, 4, 2) V = -0.62     Best Action: A3
State (3, 4, 3) V = -0.62     Best Action: A3
State (3, 4, 4) V = -0.62     Best Action: A3
State (3, 5, 1) V = 3.1     Best Action: A4
State (3, 5, 2) V = 3.1     Best Action: A3
State (3, 5, 3) V = 0.12     Best Action: A3
State (3, 5, 4) V = 18.0     Best Action: A2
State (4, 1, 1) V = -0.62     Best Action: A3
State (4, 1, 2) V = -0.62     Best Action: A3
State (4, 1, 3) V = -0.62     Best Action: A3
State (4, 1, 4) V = -0.62     Best Action: A3
State (4, 2, 1) V = -0.62     Best Action: A3
State (4, 2, 2) V = -0.62     Best Action: A3
State (4, 2, 3) V = -0.62     Best Action: A3
State (4, 2, 4) V = -0.62     Best Action: A3
State (4, 3, 1) V = -0.62     Best Action: A3
State (4, 3, 2) V = -0.62     Best Action: A3
State (4, 3, 3) V = -0.62     Best Action: A3
State (4, 3, 4) V = -0.62     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 3.2     Best Action: A4
State (4, 5, 2) V = 3.2     Best Action: A3
State (4, 5, 3) V = 0.14     Best Action: A3
State (4, 5, 4) V = 18.5     Best Action: A1
State (5, 1, 1) V = -0.62     Best Action: A3
State (5, 1, 2) V = -0.62     Best Action: A3
State (5, 1, 3) V = -0.62     Best Action: A3
State (5, 1, 4) V = -0.62     Best Action: A3
State (5, 2, 1) V = -0.62     Best Action: A3
State (5, 2, 2) V = -0.62     Best Action: A3
State (5, 2, 3) V = -0.62     Best Action: A3
State (5, 2, 4) V = -0.62     Best Action: A3
State (5, 3, 1) V = -0.62     Best Action: A3
State (5, 3, 2) V = -0.62     Best Action: A3
State (5, 3, 3) V = -0.62     Best Action: A3
State (5, 3, 4) V = -0.62     Best Action: A3
State (5, 4, 1) V = 18.5     Best Action: A1
State (5, 4, 2) V = 0.14     Best Action: A3
State (5, 4, 3) V = 3.2     Best Action: A4
State (5, 4, 4) V = 3.2     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 6:
State (1, 1, 1) V = -0.62     Best Action: A3
State (1, 1, 2) V = -0.62     Best Action: A3
State (1, 1, 3) V = -0.62     Best Action: A3
State (1, 1, 4) V = -0.62     Best Action: A3
State (1, 2, 1) V = -0.62     Best Action: A3
State (1, 2, 2) V = -0.62     Best Action: A3
State (1, 2, 3) V = -0.62     Best Action: A3
State (1, 2, 4) V = -0.62     Best Action: A3
State (1, 3, 1) V = -0.62     Best Action: A3
State (1, 3, 2) V = -0.62     Best Action: A3
State (1, 3, 3) V = -0.62     Best Action: A3
State (1, 3, 4) V = -0.62     Best Action: A3
State (1, 4, 1) V = -0.62     Best Action: A3
State (1, 4, 2) V = -0.62     Best Action: A3
State (1, 4, 3) V = -0.62     Best Action: A3
State (1, 4, 4) V = -0.62     Best Action: A3
State (1, 5, 1) V = -0.62     Best Action: A3
State (1, 5, 2) V = -0.62     Best Action: A3
State (1, 5, 3) V = -0.62     Best Action: A3
State (1, 5, 4) V = -0.62     Best Action: A3
State (2, 1, 1) V = -0.62     Best Action: A3
State (2, 1, 2) V = -0.62     Best Action: A3
State (2, 1, 3) V = -0.62     Best Action: A3
State (2, 1, 4) V = -0.62     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -0.62     Best Action: A3
State (2, 4, 2) V = -0.62     Best Action: A3
State (2, 4, 3) V = -0.62     Best Action: A3
State (2, 4, 4) V = -0.62     Best Action: A3
State (2, 5, 1) V = -0.62     Best Action: A3
State (2, 5, 2) V = -0.62     Best Action: A3
State (2, 5, 3) V = -0.62     Best Action: A3
State (2, 5, 4) V = -0.62     Best Action: A3
State (3, 1, 1) V = -0.62     Best Action: A3
State (3, 1, 2) V = -0.62     Best Action: A3
State (3, 1, 3) V = -0.62     Best Action: A3
State (3, 1, 4) V = -0.62     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = -0.62     Best Action: A3
State (3, 3, 2) V = -0.62     Best Action: A3
State (3, 3, 3) V = -0.62     Best Action: A3
State (3, 3, 4) V = -0.62     Best Action: A3
State (3, 4, 1) V = -0.62     Best Action: A3
State (3, 4, 2) V = -0.62     Best Action: A3
State (3, 4, 3) V = -0.62     Best Action: A3
State (3, 4, 4) V = -0.62     Best Action: A3
State (3, 5, 1) V = 3.1     Best Action: A4
State (3, 5, 2) V = 3.1     Best Action: A3
State (3, 5, 3) V = 0.12     Best Action: A3
State (3, 5, 4) V = 18.0     Best Action: A2
State (4, 1, 1) V = -0.62     Best Action: A3
State (4, 1, 2) V = -0.62     Best Action: A3
State (4, 1, 3) V = -0.62     Best Action: A3
State (4, 1, 4) V = -0.62     Best Action: A3
State (4, 2, 1) V = -0.62     Best Action: A3
State (4, 2, 2) V = -0.62     Best Action: A3
State (4, 2, 3) V = -0.62     Best Action: A3
State (4, 2, 4) V = -0.62     Best Action: A3
State (4, 3, 1) V = -0.62     Best Action: A3
State (4, 3, 2) V = -0.62     Best Action: A3
State (4, 3, 3) V = -0.62     Best Action: A3
State (4, 3, 4) V = -0.62     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 3.2     Best Action: A4
State (4, 5, 2) V = 3.2     Best Action: A3
State (4, 5, 3) V = 0.14     Best Action: A3
State (4, 5, 4) V = 18.5     Best Action: A1
State (5, 1, 1) V = -0.62     Best Action: A3
State (5, 1, 2) V = -0.62     Best Action: A3
State (5, 1, 3) V = -0.62     Best Action: A3
State (5, 1, 4) V = -0.62     Best Action: A3
State (5, 2, 1) V = -0.62     Best Action: A3
State (5, 2, 2) V = -0.62     Best Action: A3
State (5, 2, 3) V = -0.62     Best Action: A3
State (5, 2, 4) V = -0.62     Best Action: A3
State (5, 3, 1) V = -0.62     Best Action: A3
State (5, 3, 2) V = -0.62     Best Action: A3
State (5, 3, 3) V = -0.62     Best Action: A3
State (5, 3, 4) V = -0.62     Best Action: A3
State (5, 4, 1) V = 18.5     Best Action: A1
State (5, 4, 2) V = 0.14     Best Action: A3
State (5, 4, 3) V = 3.2     Best Action: A4
State (5, 4, 4) V = 3.2     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 7:
State (1, 1, 1) V = -0.62     Best Action: A3
State (1, 1, 2) V = -0.62     Best Action: A3
State (1, 1, 3) V = -0.62     Best Action: A3
State (1, 1, 4) V = -0.62     Best Action: A3
State (1, 2, 1) V = -0.62     Best Action: A3
State (1, 2, 2) V = -0.62     Best Action: A3
State (1, 2, 3) V = -0.62     Best Action: A3
State (1, 2, 4) V = -0.62     Best Action: A3
State (1, 3, 1) V = -0.62     Best Action: A3
State (1, 3, 2) V = -0.62     Best Action: A3
State (1, 3, 3) V = -0.62     Best Action: A3
State (1, 3, 4) V = -0.62     Best Action: A3
State (1, 4, 1) V = -0.62     Best Action: A3
State (1, 4, 2) V = -0.62     Best Action: A3
State (1, 4, 3) V = -0.62     Best Action: A3
State (1, 4, 4) V = -0.62     Best Action: A3
State (1, 5, 1) V = -0.62     Best Action: A3
State (1, 5, 2) V = -0.62     Best Action: A3
State (1, 5, 3) V = -0.62     Best Action: A3
State (1, 5, 4) V = -0.62     Best Action: A3
State (2, 1, 1) V = -0.62     Best Action: A3
State (2, 1, 2) V = -0.62     Best Action: A3
State (2, 1, 3) V = -0.62     Best Action: A3
State (2, 1, 4) V = -0.62     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -0.62     Best Action: A3
State (2, 4, 2) V = -0.62     Best Action: A3
State (2, 4, 3) V = -0.62     Best Action: A3
State (2, 4, 4) V = -0.62     Best Action: A3
State (2, 5, 1) V = -0.62     Best Action: A3
State (2, 5, 2) V = -0.62     Best Action: A3
State (2, 5, 3) V = -0.62     Best Action: A3
State (2, 5, 4) V = -0.62     Best Action: A3
State (3, 1, 1) V = -0.62     Best Action: A3
State (3, 1, 2) V = -0.62     Best Action: A3
State (3, 1, 3) V = -0.62     Best Action: A3
State (3, 1, 4) V = -0.62     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = -0.62     Best Action: A3
State (3, 3, 2) V = -0.62     Best Action: A3
State (3, 3, 3) V = -0.62     Best Action: A3
State (3, 3, 4) V = -0.62     Best Action: A3
State (3, 4, 1) V = -0.62     Best Action: A3
State (3, 4, 2) V = -0.62     Best Action: A3
State (3, 4, 3) V = -0.62     Best Action: A3
State (3, 4, 4) V = -0.62     Best Action: A3
State (3, 5, 1) V = 3.1     Best Action: A4
State (3, 5, 2) V = 3.1     Best Action: A3
State (3, 5, 3) V = 0.12     Best Action: A3
State (3, 5, 4) V = 18.0     Best Action: A2
State (4, 1, 1) V = -0.62     Best Action: A3
State (4, 1, 2) V = -0.62     Best Action: A3
State (4, 1, 3) V = -0.62     Best Action: A3
State (4, 1, 4) V = -0.62     Best Action: A3
State (4, 2, 1) V = -0.62     Best Action: A3
State (4, 2, 2) V = -0.62     Best Action: A3
State (4, 2, 3) V = -0.62     Best Action: A3
State (4, 2, 4) V = -0.62     Best Action: A3
State (4, 3, 1) V = -0.62     Best Action: A3
State (4, 3, 2) V = -0.62     Best Action: A3
State (4, 3, 3) V = -0.62     Best Action: A3
State (4, 3, 4) V = -0.62     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 3.2     Best Action: A4
State (4, 5, 2) V = 3.2     Best Action: A3
State (4, 5, 3) V = 0.14     Best Action: A3
State (4, 5, 4) V = 18.5     Best Action: A1
State (5, 1, 1) V = -0.62     Best Action: A3
State (5, 1, 2) V = -0.62     Best Action: A3
State (5, 1, 3) V = -0.62     Best Action: A3
State (5, 1, 4) V = -0.62     Best Action: A3
State (5, 2, 1) V = -0.62     Best Action: A3
State (5, 2, 2) V = -0.62     Best Action: A3
State (5, 2, 3) V = -0.62     Best Action: A3
State (5, 2, 4) V = -0.62     Best Action: A3
State (5, 3, 1) V = -0.62     Best Action: A3
State (5, 3, 2) V = -0.62     Best Action: A3
State (5, 3, 3) V = -0.62     Best Action: A3
State (5, 3, 4) V = -0.62     Best Action: A3
State (5, 4, 1) V = 18.5     Best Action: A1
State (5, 4, 2) V = 0.14     Best Action: A3
State (5, 4, 3) V = 3.2     Best Action: A4
State (5, 4, 4) V = 3.2     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 8:
State (1, 1, 1) V = -0.62     Best Action: A3
State (1, 1, 2) V = -0.62     Best Action: A3
State (1, 1, 3) V = -0.62     Best Action: A3
State (1, 1, 4) V = -0.62     Best Action: A3
State (1, 2, 1) V = -0.62     Best Action: A3
State (1, 2, 2) V = -0.62     Best Action: A3
State (1, 2, 3) V = -0.62     Best Action: A3
State (1, 2, 4) V = -0.62     Best Action: A3
State (1, 3, 1) V = -0.62     Best Action: A3
State (1, 3, 2) V = -0.62     Best Action: A3
State (1, 3, 3) V = -0.62     Best Action: A3
State (1, 3, 4) V = -0.62     Best Action: A3
State (1, 4, 1) V = -0.62     Best Action: A3
State (1, 4, 2) V = -0.62     Best Action: A3
State (1, 4, 3) V = -0.62     Best Action: A3
State (1, 4, 4) V = -0.62     Best Action: A3
State (1, 5, 1) V = -0.62     Best Action: A3
State (1, 5, 2) V = -0.62     Best Action: A3
State (1, 5, 3) V = -0.62     Best Action: A3
State (1, 5, 4) V = -0.62     Best Action: A3
State (2, 1, 1) V = -0.62     Best Action: A3
State (2, 1, 2) V = -0.62     Best Action: A3
State (2, 1, 3) V = -0.62     Best Action: A3
State (2, 1, 4) V = -0.62     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -0.62     Best Action: A3
State (2, 4, 2) V = -0.62     Best Action: A3
State (2, 4, 3) V = -0.62     Best Action: A3
State (2, 4, 4) V = -0.62     Best Action: A3
State (2, 5, 1) V = -0.62     Best Action: A3
State (2, 5, 2) V = -0.62     Best Action: A3
State (2, 5, 3) V = -0.62     Best Action: A3
State (2, 5, 4) V = -0.62     Best Action: A3
State (3, 1, 1) V = -0.62     Best Action: A3
State (3, 1, 2) V = -0.62     Best Action: A3
State (3, 1, 3) V = -0.62     Best Action: A3
State (3, 1, 4) V = -0.62     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = -0.62     Best Action: A3
State (3, 3, 2) V = -0.62     Best Action: A3
State (3, 3, 3) V = -0.62     Best Action: A3
State (3, 3, 4) V = -0.62     Best Action: A3
State (3, 4, 1) V = -0.62     Best Action: A3
State (3, 4, 2) V = -0.62     Best Action: A3
State (3, 4, 3) V = -0.62     Best Action: A3
State (3, 4, 4) V = -0.62     Best Action: A3
State (3, 5, 1) V = 3.1     Best Action: A4
State (3, 5, 2) V = 3.1     Best Action: A3
State (3, 5, 3) V = 0.12     Best Action: A3
State (3, 5, 4) V = 18.0     Best Action: A2
State (4, 1, 1) V = -0.62     Best Action: A3
State (4, 1, 2) V = -0.62     Best Action: A3
State (4, 1, 3) V = -0.62     Best Action: A3
State (4, 1, 4) V = -0.62     Best Action: A3
State (4, 2, 1) V = -0.62     Best Action: A3
State (4, 2, 2) V = -0.62     Best Action: A3
State (4, 2, 3) V = -0.62     Best Action: A3
State (4, 2, 4) V = -0.62     Best Action: A3
State (4, 3, 1) V = -0.62     Best Action: A3
State (4, 3, 2) V = -0.62     Best Action: A3
State (4, 3, 3) V = -0.62     Best Action: A3
State (4, 3, 4) V = -0.62     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 3.2     Best Action: A4
State (4, 5, 2) V = 3.2     Best Action: A3
State (4, 5, 3) V = 0.14     Best Action: A3
State (4, 5, 4) V = 18.5     Best Action: A1
State (5, 1, 1) V = -0.62     Best Action: A3
State (5, 1, 2) V = -0.62     Best Action: A3
State (5, 1, 3) V = -0.62     Best Action: A3
State (5, 1, 4) V = -0.62     Best Action: A3
State (5, 2, 1) V = -0.62     Best Action: A3
State (5, 2, 2) V = -0.62     Best Action: A3
State (5, 2, 3) V = -0.62     Best Action: A3
State (5, 2, 4) V = -0.62     Best Action: A3
State (5, 3, 1) V = -0.62     Best Action: A3
State (5, 3, 2) V = -0.62     Best Action: A3
State (5, 3, 3) V = -0.62     Best Action: A3
State (5, 3, 4) V = -0.62     Best Action: A3
State (5, 4, 1) V = 18.5     Best Action: A1
State (5, 4, 2) V = 0.14     Best Action: A3
State (5, 4, 3) V = 3.2     Best Action: A4
State (5, 4, 4) V = 3.2     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 9:
State (1, 1, 1) V = -0.62     Best Action: A3
State (1, 1, 2) V = -0.62     Best Action: A3
State (1, 1, 3) V = -0.62     Best Action: A3
State (1, 1, 4) V = -0.62     Best Action: A3
State (1, 2, 1) V = -0.62     Best Action: A3
State (1, 2, 2) V = -0.62     Best Action: A3
State (1, 2, 3) V = -0.62     Best Action: A3
State (1, 2, 4) V = -0.62     Best Action: A3
State (1, 3, 1) V = -0.62     Best Action: A3
State (1, 3, 2) V = -0.62     Best Action: A3
State (1, 3, 3) V = -0.62     Best Action: A3
State (1, 3, 4) V = -0.62     Best Action: A3
State (1, 4, 1) V = -0.62     Best Action: A3
State (1, 4, 2) V = -0.62     Best Action: A3
State (1, 4, 3) V = -0.62     Best Action: A3
State (1, 4, 4) V = -0.62     Best Action: A3
State (1, 5, 1) V = -0.62     Best Action: A3
State (1, 5, 2) V = -0.62     Best Action: A3
State (1, 5, 3) V = -0.62     Best Action: A3
State (1, 5, 4) V = -0.62     Best Action: A3
State (2, 1, 1) V = -0.62     Best Action: A3
State (2, 1, 2) V = -0.62     Best Action: A3
State (2, 1, 3) V = -0.62     Best Action: A3
State (2, 1, 4) V = -0.62     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -0.62     Best Action: A3
State (2, 4, 2) V = -0.62     Best Action: A3
State (2, 4, 3) V = -0.62     Best Action: A3
State (2, 4, 4) V = -0.62     Best Action: A3
State (2, 5, 1) V = -0.62     Best Action: A3
State (2, 5, 2) V = -0.62     Best Action: A3
State (2, 5, 3) V = -0.62     Best Action: A3
State (2, 5, 4) V = -0.62     Best Action: A3
State (3, 1, 1) V = -0.62     Best Action: A3
State (3, 1, 2) V = -0.62     Best Action: A3
State (3, 1, 3) V = -0.62     Best Action: A3
State (3, 1, 4) V = -0.62     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = -0.62     Best Action: A3
State (3, 3, 2) V = -0.62     Best Action: A3
State (3, 3, 3) V = -0.62     Best Action: A3
State (3, 3, 4) V = -0.62     Best Action: A3
State (3, 4, 1) V = -0.62     Best Action: A3
State (3, 4, 2) V = -0.62     Best Action: A3
State (3, 4, 3) V = -0.62     Best Action: A3
State (3, 4, 4) V = -0.62     Best Action: A3
State (3, 5, 1) V = 3.1     Best Action: A4
State (3, 5, 2) V = 3.1     Best Action: A3
State (3, 5, 3) V = 0.12     Best Action: A3
State (3, 5, 4) V = 18.0     Best Action: A2
State (4, 1, 1) V = -0.62     Best Action: A3
State (4, 1, 2) V = -0.62     Best Action: A3
State (4, 1, 3) V = -0.62     Best Action: A3
State (4, 1, 4) V = -0.62     Best Action: A3
State (4, 2, 1) V = -0.62     Best Action: A3
State (4, 2, 2) V = -0.62     Best Action: A3
State (4, 2, 3) V = -0.62     Best Action: A3
State (4, 2, 4) V = -0.62     Best Action: A3
State (4, 3, 1) V = -0.62     Best Action: A3
State (4, 3, 2) V = -0.62     Best Action: A3
State (4, 3, 3) V = -0.62     Best Action: A3
State (4, 3, 4) V = -0.62     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No
Action
State (4, 4, 2) V = -1000     Best Action: No
Action
State (4, 4, 3) V = -1000     Best Action: No
Action
State (4, 4, 4) V = -1000     Best Action: No
Action
State (4, 5, 1) V = 3.2     Best Action: A4
State (4, 5, 2) V = 3.2     Best Action: A3
State (4, 5, 3) V = 0.14     Best Action: A3
State (4, 5, 4) V = 18.5     Best Action: A1
State (5, 1, 1) V = -0.62     Best Action: A3
State (5, 1, 2) V = -0.62     Best Action: A3
State (5, 1, 3) V = -0.62     Best Action: A3
State (5, 1, 4) V = -0.62     Best Action: A3
State (5, 2, 1) V = -0.62     Best Action: A3
State (5, 2, 2) V = -0.62     Best Action: A3
State (5, 2, 3) V = -0.62     Best Action: A3
State (5, 2, 4) V = -0.62     Best Action: A3
State (5, 3, 1) V = -0.62     Best Action: A3
State (5, 3, 2) V = -0.62     Best Action: A3
State (5, 3, 3) V = -0.62     Best Action: A3
State (5, 3, 4) V = -0.62     Best Action: A3
State (5, 4, 1) V = 18.5     Best Action: A1
State (5, 4, 2) V = 0.14     Best Action: A3
State (5, 4, 3) V = 3.2     Best Action: A4
State (5, 4, 4) V = 3.2     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 10:
State (1, 1, 1) V = -0.62     Best Action: A3
State (1, 1, 2) V = -0.62     Best Action: A3
State (1, 1, 3) V = -0.62     Best Action: A3
State (1, 1, 4) V = -0.62     Best Action: A3
State (1, 2, 1) V = -0.62     Best Action: A3
State (1, 2, 2) V = -0.62     Best Action: A3
State (1, 2, 3) V = -0.62     Best Action: A3
State (1, 2, 4) V = -0.62     Best Action: A3
State (1, 3, 1) V = -0.62     Best Action: A3
State (1, 3, 2) V = -0.62     Best Action: A3
State (1, 3, 3) V = -0.62     Best Action: A3
State (1, 3, 4) V = -0.62     Best Action: A3
State (1, 4, 1) V = -0.62     Best Action: A3
State (1, 4, 2) V = -0.62     Best Action: A3
State (1, 4, 3) V = -0.62     Best Action: A3
State (1, 4, 4) V = -0.62     Best Action: A3
State (1, 5, 1) V = -0.62     Best Action: A3
State (1, 5, 2) V = -0.62     Best Action: A3
State (1, 5, 3) V = -0.62     Best Action: A3
State (1, 5, 4) V = -0.62     Best Action: A3
State (2, 1, 1) V = -0.62     Best Action: A3
State (2, 1, 2) V = -0.62     Best Action: A3
State (2, 1, 3) V = -0.62     Best Action: A3
State (2, 1, 4) V = -0.62     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No
Action
State (2, 2, 2) V = -100000     Best Action: No
Action
State (2, 2, 3) V = -100000     Best Action: No
Action
State (2, 2, 4) V = -100000     Best Action: No
Action
State (2, 3, 1) V = -100000     Best Action: No
Action
State (2, 3, 2) V = -100000     Best Action: No
Action
State (2, 3, 3) V = -100000     Best Action: No
Action
State (2, 3, 4) V = -100000     Best Action: No
Action
State (2, 4, 1) V = -0.62     Best Action: A3
State (2, 4, 2) V = -0.62     Best Action: A3
State (2, 4, 3) V = -0.62     Best Action: A3
State (2, 4, 4) V = -0.62     Best Action: A3
State (2, 5, 1) V = -0.62     Best Action: A3
State (2, 5, 2) V = -0.62     Best Action: A3
State (2, 5, 3) V = -0.62     Best Action: A3
State (2, 5, 4) V = -0.62     Best Action: A3
State (3, 1, 1) V = -0.62     Best Action: A3
State (3, 1, 2) V = -0.62     Best Action: A3
State (3, 1, 3) V = -0.62     Best Action: A3
State (3, 1, 4) V = -0.62     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No
Action
State (3, 2, 2) V = -100000     Best Action: No
Action
State (3, 2, 3) V = -100000     Best Action: No
Action
State (3, 2, 4) V = -100000     Best Action: No
Action
State (3, 3, 1) V = -0.62     Best Action: A3
State (3, 3, 2) V = -0.62     Best Action: A3
State (3, 3, 3) V = -0.62     Best Action: A3
State (3, 3, 4) V = -0.62     Best Action: A3
State (3, 4, 1) V = -0.62     Best Action: A3
State (3, 4, 2) V = -0.62     Best Action: A3
State (3, 4, 3) V = -0.62     Best Action: A3
State (3, 4, 4) V = -0.62     Best Action: A3
State (3, 5, 1) V = 3.1     Best Action: A4
State (3, 5, 2) V = 3.1     Best Action: A3
State (3, 5, 3) V = 0.12     Best Action: A3
State (3, 5, 4) V = 18.0     Best Action: A2
State (4, 1, 1) V = -0.62     Best Action: A3
State (4, 1, 2) V = -0.62     Best Action: A3
State (4, 1, 3) V = -0.62     Best Action: A3
State (4, 1, 4) V = -0.62     Best Action: A3
State (4, 2, 1) V = -0.62     Best Action: A3
State (4, 2, 2) V = -0.62     Best Action: A3
State (4, 2, 3) V = -0.62     Best Action: A3
State (4, 2, 4) V = -0.62     Best Action: A3
State (4, 3, 1) V = -0.62     Best Action: A3
State (4, 3, 2) V = -0.62     Best Action: A3
State (4, 3, 3) V = -0.62     Best Action: A3
State (4, 3, 4) V = -0.62     Best Action: A3
State (4, 4, 1) V = -1000     Best Action: No
Action
State (4, 4, 2) V = -1000     Best Action: No
Action
State (4, 4, 3) V = -1000     Best Action: No
Action
State (4, 4, 4) V = -1000     Best Action: No
Action
State (4, 5, 1) V = 3.2     Best Action: A4
State (4, 5, 2) V = 3.2     Best Action: A3
State (4, 5, 3) V = 0.14     Best Action: A3
State (4, 5, 4) V = 18.5     Best Action: A1
State (5, 1, 1) V = -0.62     Best Action: A3
State (5, 1, 2) V = -0.62     Best Action: A3
State (5, 1, 3) V = -0.62     Best Action: A3
State (5, 1, 4) V = -0.62     Best Action: A3
State (5, 2, 1) V = -0.62     Best Action: A3
State (5, 2, 2) V = -0.62     Best Action: A3
State (5, 2, 3) V = -0.62     Best Action: A3
State (5, 2, 4) V = -0.62     Best Action: A3
State (5, 3, 1) V = -0.62     Best Action: A3
State (5, 3, 2) V = -0.62     Best Action: A3
State (5, 3, 3) V = -0.62     Best Action: A3
State (5, 3, 4) V = -0.62     Best Action: A3
State (5, 4, 1) V = 18.5     Best Action: A1
State (5, 4, 2) V = 0.14     Best Action: A3
State (5, 4, 3) V = 3.2     Best Action: A4
State (5, 4, 4) V = 3.2     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
```

Ans F)

```
Iteration 1:
State (1, 1, 1) V = -0.67     Best Action: A3
State (1, 1, 2) V = -0.67     Best Action: A3
State (1, 1, 3) V = -1.19     Best Action: A3
State (1, 1, 4) V = -1.19     Best Action: A3
State (1, 2, 1) V = -0.67     Best Action: A3
State (1, 2, 2) V = -0.71     Best Action: A3
State (1, 2, 3) V = -1.19     Best Action: A4
State (1, 2, 4) V = -1.19     Best Action: A3
State (1, 3, 1) V = -0.67     Best Action: A3
State (1, 3, 2) V = -0.75     Best Action: A3
State (1, 3, 3) V = -1.19     Best Action: A4
State (1, 3, 4) V = -1.19     Best Action: A3
State (1, 4, 1) V = -0.67     Best Action: A3
State (1, 4, 2) V = -0.75     Best Action: A3
State (1, 4, 3) V = -1.19     Best Action: A4
State (1, 4, 4) V = -1.19     Best Action: A3
State (1, 5, 1) V = -0.67     Best Action: A3
State (1, 5, 2) V = -0.76     Best Action: A3
State (1, 5, 3) V = -1.19     Best Action: A4
State (1, 5, 4) V = -1.19     Best Action: A3
State (2, 1, 1) V = -0.67     Best Action: A3
State (2, 1, 2) V = -0.67     Best Action: A3
State (2, 1, 3) V = -1.26     Best Action: A3
State (2, 1, 4) V = -1.19     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -0.67     Best Action: A3
State (2, 4, 2) V = -0.67     Best Action: A3
State (2, 4, 3) V = -1.26     Best Action: A3
State (2, 4, 4) V = -61.19     Best Action: A3
State (2, 5, 1) V = -0.67     Best Action: A3
State (2, 5, 2) V = -0.71     Best Action: A3
State (2, 5, 3) V = -1.26     Best Action: A4
State (2, 5, 4) V = -1.19     Best Action: A3
State (3, 1, 1) V = -0.67     Best Action: A3
State (3, 1, 2) V = -0.67     Best Action: A3
State (3, 1, 3) V = -1.34     Best Action: A3
State (3, 1, 4) V = -1.19     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = -0.67     Best Action: A3
State (3, 3, 2) V = -0.67     Best Action: A3
State (3, 3, 3) V = -1.19     Best Action: A3
State (3, 3, 4) V = -1.19     Best Action: A3
State (3, 4, 1) V = -0.67     Best Action: A3
State (3, 4, 2) V = -0.71     Best Action: A3
State (3, 4, 3) V = -1.34     Best Action: A4
State (3, 4, 4) V = -61.19     Best Action: A3
State (3, 5, 1) V = -0.67     Best Action: A3
State (3, 5, 2) V = -0.75     Best Action: A3
State (3, 5, 3) V = -1.19     Best Action: A4
State (3, 5, 4) V = 70.15     Best Action: A2
State (4, 1, 1) V = -0.67     Best Action: A3
State (4, 1, 2) V = -0.67     Best Action: A3
State (4, 1, 3) V = -1.35     Best Action: A3
State (4, 1, 4) V = -1.19     Best Action: A3
State (4, 2, 1) V = -60.67     Best Action: A3
State (4, 2, 2) V = -0.71     Best Action: A3
State (4, 2, 3) V = -4.82     Best Action: A3
State (4, 2, 4) V = -4.82     Best Action: A4
State (4, 3, 1) V = -60.67     Best Action: A3
State (4, 3, 2) V = -0.75     Best Action: A3
State (4, 3, 3) V = -4.92     Best Action: A3
State (4, 3, 4) V = -4.85     Best Action: A4
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = -0.67     Best Action: A3
State (4, 5, 2) V = -60.67     Best Action: A3
State (4, 5, 3) V = -4.86     Best Action: A4
State (4, 5, 4) V = 66.92     Best Action: A1
State (5, 1, 1) V = -0.67     Best Action: A3
State (5, 1, 2) V = -0.67     Best Action: A3
State (5, 1, 3) V = -1.35     Best Action: A3
State (5, 1, 4) V = -1.19     Best Action: A3
State (5, 2, 1) V = -0.67     Best Action: A3
State (5, 2, 2) V = -0.71     Best Action: A3
State (5, 2, 3) V = -1.48     Best Action: A4
State (5, 2, 4) V = -1.19     Best Action: A3
State (5, 3, 1) V = -0.67     Best Action: A3
State (5, 3, 2) V = -0.75     Best Action: A3
State (5, 3, 3) V = -1.56     Best Action: A4
State (5, 3, 4) V = -1.19     Best Action: A3
State (5, 4, 1) V = 70.6     Best Action: A1
State (5, 4, 2) V = -0.67     Best Action: A3
State (5, 4, 3) V = -9.87     Best Action: A4
State (5, 4, 4) V = 50.13     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 2:
State (1, 1, 1) V = -1.68     Best Action: A3
State (1, 1, 2) V = -1.68     Best Action: A3
State (1, 1, 3) V = -2.12     Best Action: A3
State (1, 1, 4) V = -2.12     Best Action: A3
State (1, 2, 1) V = -1.68     Best Action: A3
State (1, 2, 2) V = -1.74     Best Action: A3
State (1, 2, 3) V = -2.12     Best Action: A4
State (1, 2, 4) V = -2.12     Best Action: A3
State (1, 3, 1) V = -1.68     Best Action: A3
State (1, 3, 2) V = -1.8     Best Action: A3
State (1, 3, 3) V = -2.13     Best Action: A4
State (1, 3, 4) V = -2.13     Best Action: A3
State (1, 4, 1) V = -1.68     Best Action: A3
State (1, 4, 2) V = -1.81     Best Action: A3
State (1, 4, 3) V = -2.13     Best Action: A4
State (1, 4, 4) V = -9.33     Best Action: A3
State (1, 5, 1) V = -1.68     Best Action: A3
State (1, 5, 2) V = -1.81     Best Action: A3
State (1, 5, 3) V = -2.13     Best Action: A4
State (1, 5, 4) V = -2.13     Best Action: A3
State (2, 1, 1) V = -1.68     Best Action: A4
State (2, 1, 2) V = -1.68     Best Action: A3
State (2, 1, 3) V = -2.18     Best Action: A3
State (2, 1, 4) V = -2.12     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -5.33     Best Action: A3
State (2, 4, 2) V = -5.33     Best Action: A4
State (2, 4, 3) V = -3.44     Best Action: A2
State (2, 4, 4) V = -68.5     Best Action: A3
State (2, 5, 1) V = -1.68     Best Action: A4
State (2, 5, 2) V = -1.96     Best Action: A3
State (2, 5, 3) V = -2.2     Best Action: A4
State (2, 5, 4) V = -2.14     Best Action: A3
State (3, 1, 1) V = -1.68     Best Action: A4
State (3, 1, 2) V = -1.68     Best Action: A3
State (3, 1, 3) V = -2.24     Best Action: A3
State (3, 1, 4) V = -2.12     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = -1.68     Best Action: A3
State (3, 3, 2) V = -1.68     Best Action: A3
State (3, 3, 3) V = -2.12     Best Action: A3
State (3, 3, 4) V = -2.34     Best Action: A3
State (3, 4, 1) V = -5.38     Best Action: A3
State (3, 4, 2) V = -5.45     Best Action: A4
State (3, 4, 3) V = -4.16     Best Action: A2
State (3, 4, 4) V = -68.54     Best Action: A3
State (3, 5, 1) V = 49.69     Best Action: A4
State (3, 5, 2) V = 49.34     Best Action: A3
State (3, 5, 3) V = 37.93     Best Action: A4
State (3, 5, 4) V = 80.19     Best Action: A2
State (4, 1, 1) V = -8.88     Best Action: A4
State (4, 1, 2) V = -1.68     Best Action: A3
State (4, 1, 3) V = -2.67     Best Action: A3
State (4, 1, 4) V = -2.55     Best Action: A4
State (4, 2, 1) V = -68.07     Best Action: A3
State (4, 2, 2) V = -2.96     Best Action: A2
State (4, 2, 3) V = -7.46     Best Action: A3
State (4, 2, 4) V = -6.81     Best Action: A1
State (4, 3, 1) V = -68.09     Best Action: A4
State (4, 3, 2) V = -3.74     Best Action: A2
State (4, 3, 3) V = -7.53     Best Action: A1
State (4, 3, 4) V = -6.86     Best Action: A1
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 47.14     Best Action: A4
State (4, 5, 2) V = -16.42     Best Action: A3
State (4, 5, 3) V = 34.27     Best Action: A4
State (4, 5, 4) V = 76.46     Best Action: A1
State (5, 1, 1) V = -1.68     Best Action: A4
State (5, 1, 2) V = -1.68     Best Action: A3
State (5, 1, 3) V = -2.27     Best Action: A3
State (5, 1, 4) V = -2.12     Best Action: A3
State (5, 2, 1) V = -1.69     Best Action: A4
State (5, 2, 2) V = -1.76     Best Action: A3
State (5, 2, 3) V = -2.53     Best Action: A4
State (5, 2, 4) V = -2.13     Best Action: A3
State (5, 3, 1) V = -1.7     Best Action: A4
State (5, 3, 2) V = -1.82     Best Action: A3
State (5, 3, 3) V = -2.58     Best Action: A4
State (5, 3, 4) V = -2.14     Best Action: A3
State (5, 4, 1) V = 77.25     Best Action: A1
State (5, 4, 2) V = 34.75     Best Action: A3
State (5, 4, 3) V = -3.55     Best Action: A4
State (5, 4, 4) V = 63.05     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 3:
State (1, 1, 1) V = -2.52     Best Action: A3
State (1, 1, 2) V = -2.52     Best Action: A3
State (1, 1, 3) V = -2.89     Best Action: A3
State (1, 1, 4) V = -2.89     Best Action: A3
State (1, 2, 1) V = -2.52     Best Action: A3
State (1, 2, 2) V = -2.58     Best Action: A3
State (1, 2, 3) V = -2.89     Best Action: A4
State (1, 2, 4) V = -2.89     Best Action: A3
State (1, 3, 1) V = -2.53     Best Action: A3
State (1, 3, 2) V = -2.63     Best Action: A3
State (1, 3, 3) V = -2.9     Best Action: A4
State (1, 3, 4) V = -2.9     Best Action: A3
State (1, 4, 1) V = -2.96     Best Action: A3
State (1, 4, 2) V = -3.07     Best Action: A4
State (1, 4, 3) V = -3.24     Best Action: A4
State (1, 4, 4) V = -11.2     Best Action: A3
State (1, 5, 1) V = -2.53     Best Action: A3
State (1, 5, 2) V = -2.67     Best Action: A3
State (1, 5, 3) V = -2.9     Best Action: A4
State (1, 5, 4) V = -2.9     Best Action: A3
State (2, 1, 1) V = -2.53     Best Action: A4
State (2, 1, 2) V = -2.53     Best Action: A3
State (2, 1, 3) V = -2.94     Best Action: A3
State (2, 1, 4) V = -2.92     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -7.25     Best Action: A1
State (2, 4, 2) V = -7.89     Best Action: A4
State (2, 4, 3) V = -4.85     Best Action: A1
State (2, 4, 4) V = -70.47     Best Action: A3
State (2, 5, 1) V = -2.54     Best Action: A4
State (2, 5, 2) V = -2.93     Best Action: A3
State (2, 5, 3) V = -2.98     Best Action: A4
State (2, 5, 4) V = -2.93     Best Action: A3
State (3, 1, 1) V = -2.53     Best Action: A4
State (3, 1, 2) V = -2.53     Best Action: A3
State (3, 1, 3) V = -2.99     Best Action: A3
State (3, 1, 4) V = -2.92     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = 33.42     Best Action: A2
State (3, 3, 2) V = -2.54     Best Action: A4
State (3, 3, 3) V = 22.99     Best Action: A4
State (3, 3, 4) V = 22.7     Best Action: A3
State (3, 4, 1) V = 29.69     Best Action: A1
State (3, 4, 2) V = -7.92     Best Action: A1
State (3, 4, 3) V = 19.75     Best Action: A4
State (3, 4, 4) V = -43.88     Best Action: A3
State (3, 5, 1) V = 65.31     Best Action: A4
State (3, 5, 2) V = 58.72     Best Action: A3
State (3, 5, 3) V = 54.43     Best Action: A4
State (3, 5, 4) V = 82.26     Best Action: A2
State (4, 1, 1) V = -10.83     Best Action: A4
State (4, 1, 2) V = -2.86     Best Action: A3
State (4, 1, 3) V = -3.73     Best Action: A3
State (4, 1, 4) V = -3.66     Best Action: A4
State (4, 2, 1) V = -70.1     Best Action: A4
State (4, 2, 2) V = -4.49     Best Action: A1
State (4, 2, 3) V = -9.0     Best Action: A3
State (4, 2, 4) V = -7.82     Best Action: A1
State (4, 3, 1) V = -70.14     Best Action: A4
State (4, 3, 2) V = -4.96     Best Action: A2
State (4, 3, 3) V = 10.2     Best Action: A1
State (4, 3, 4) V = -7.86     Best Action: A1
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 62.1     Best Action: A4
State (4, 5, 2) V = -4.54     Best Action: A3
State (4, 5, 3) V = 49.09     Best Action: A4
State (4, 5, 4) V = 78.64     Best Action: A1
State (5, 1, 1) V = -2.53     Best Action: A4
State (5, 1, 2) V = -2.53     Best Action: A3
State (5, 1, 3) V = -3.04     Best Action: A3
State (5, 1, 4) V = -2.89     Best Action: A3
State (5, 2, 1) V = -2.56     Best Action: A4
State (5, 2, 2) V = -2.61     Best Action: A3
State (5, 2, 3) V = -3.36     Best Action: A4
State (5, 2, 4) V = -2.92     Best Action: A3
State (5, 3, 1) V = -2.57     Best Action: A4
State (5, 3, 2) V = -2.67     Best Action: A3
State (5, 3, 3) V = 15.08     Best Action: A2
State (5, 3, 4) V = -2.93     Best Action: A3
State (5, 4, 1) V = 78.8     Best Action: A1
State (5, 4, 2) V = 48.69     Best Action: A3
State (5, 4, 3) V = -1.22     Best Action: A4
State (5, 4, 4) V = 66.56     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 4:
State (1, 1, 1) V = -3.22     Best Action: A3
State (1, 1, 2) V = -3.22     Best Action: A3
State (1, 1, 3) V = -3.53     Best Action: A3
State (1, 1, 4) V = -3.53     Best Action: A3
State (1, 2, 1) V = -3.25     Best Action: A3
State (1, 2, 2) V = -3.27     Best Action: A3
State (1, 2, 3) V = -3.55     Best Action: A4
State (1, 2, 4) V = -3.55     Best Action: A3
State (1, 3, 1) V = -3.26     Best Action: A3
State (1, 3, 2) V = -3.32     Best Action: A3
State (1, 3, 3) V = -3.56     Best Action: A4
State (1, 3, 4) V = -3.56     Best Action: A3
State (1, 4, 1) V = -4.0     Best Action: A3
State (1, 4, 2) V = -4.07     Best Action: A4
State (1, 4, 3) V = -4.18     Best Action: A4
State (1, 4, 4) V = -10.65     Best Action: A3
State (1, 5, 1) V = -3.23     Best Action: A3
State (1, 5, 2) V = -3.37     Best Action: A3
State (1, 5, 3) V = -3.54     Best Action: A4
State (1, 5, 4) V = -3.54     Best Action: A3
State (2, 1, 1) V = -3.25     Best Action: A4
State (2, 1, 2) V = -3.25     Best Action: A3
State (2, 1, 3) V = -3.59     Best Action: A3
State (2, 1, 4) V = -3.6     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -8.18     Best Action: A1
State (2, 4, 2) V = -9.33     Best Action: A4
State (2, 4, 3) V = -5.75     Best Action: A1
State (2, 4, 4) V = -69.75     Best Action: A3
State (2, 5, 1) V = -3.26     Best Action: A4
State (2, 5, 2) V = -3.69     Best Action: A3
State (2, 5, 3) V = -3.63     Best Action: A4
State (2, 5, 4) V = -3.59     Best Action: A3
State (3, 1, 1) V = -3.25     Best Action: A4
State (3, 1, 2) V = -3.25     Best Action: A3
State (3, 1, 3) V = -3.63     Best Action: A3
State (3, 1, 4) V = -3.59     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = 49.78     Best Action: A2
State (3, 3, 2) V = 16.94     Best Action: A4
State (3, 3, 3) V = 38.95     Best Action: A4
State (3, 3, 4) V = 35.54     Best Action: A3
State (3, 4, 1) V = 45.96     Best Action: A1
State (3, 4, 2) V = 11.46     Best Action: A4
State (3, 4, 3) V = 32.52     Best Action: A4
State (3, 4, 4) V = -29.52     Best Action: A3
State (3, 5, 1) V = 69.66     Best Action: A4
State (3, 5, 2) V = 63.53     Best Action: A3
State (3, 5, 3) V = 59.83     Best Action: A4
State (3, 5, 4) V = 82.94     Best Action: A2
State (4, 1, 1) V = -11.94     Best Action: A4
State (4, 1, 2) V = -3.87     Best Action: A3
State (4, 1, 3) V = -4.6     Best Action: A3
State (4, 1, 4) V = -4.56     Best Action: A4
State (4, 2, 1) V = -71.05     Best Action: A4
State (4, 2, 2) V = -5.46     Best Action: A1
State (4, 2, 3) V = -9.94     Best Action: A3
State (4, 2, 4) V = -8.56     Best Action: A1
State (4, 3, 1) V = -58.0     Best Action: A3
State (4, 3, 2) V = 5.65     Best Action: A4
State (4, 3, 3) V = 24.12     Best Action: A1
State (4, 3, 4) V = -0.73     Best Action: A4
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 66.35     Best Action: A4
State (4, 5, 2) V = -1.37     Best Action: A3
State (4, 5, 3) V = 53.56     Best Action: A4
State (4, 5, 4) V = 79.22     Best Action: A1
State (5, 1, 1) V = -3.24     Best Action: A4
State (5, 1, 2) V = -3.23     Best Action: A3
State (5, 1, 3) V = -3.68     Best Action: A3
State (5, 1, 4) V = -3.53     Best Action: A4
State (5, 2, 1) V = -3.28     Best Action: A4
State (5, 2, 2) V = -3.32     Best Action: A3
State (5, 2, 3) V = -4.03     Best Action: A4
State (5, 2, 4) V = -3.58     Best Action: A3
State (5, 3, 1) V = 9.71     Best Action: A3
State (5, 3, 2) V = 9.62     Best Action: A4
State (5, 3, 3) V = 28.88     Best Action: A2
State (5, 3, 4) V = 6.55     Best Action: A3
State (5, 4, 1) V = 79.25     Best Action: A1
State (5, 4, 2) V = 53.03     Best Action: A3
State (5, 4, 3) V = -0.5     Best Action: A4
State (5, 4, 4) V = 67.56     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 5:
State (1, 1, 1) V = -3.81     Best Action: A3
State (1, 1, 2) V = -3.81     Best Action: A3
State (1, 1, 3) V = -4.06     Best Action: A3
State (1, 1, 4) V = -4.07     Best Action: A3
State (1, 2, 1) V = -3.87     Best Action: A3
State (1, 2, 2) V = -3.86     Best Action: A3
State (1, 2, 3) V = -4.1     Best Action: A3
State (1, 2, 4) V = -4.1     Best Action: A4
State (1, 3, 1) V = -3.88     Best Action: A3
State (1, 3, 2) V = -3.9     Best Action: A3
State (1, 3, 3) V = -4.12     Best Action: A4
State (1, 3, 4) V = -4.12     Best Action: A3
State (1, 4, 1) V = -4.75     Best Action: A3
State (1, 4, 2) V = -4.78     Best Action: A4
State (1, 4, 3) V = -4.88     Best Action: A4
State (1, 4, 4) V = -10.33     Best Action: A3
State (1, 5, 1) V = -3.82     Best Action: A3
State (1, 5, 2) V = -3.95     Best Action: A3
State (1, 5, 3) V = -4.08     Best Action: A4
State (1, 5, 4) V = -4.08     Best Action: A3
State (2, 1, 1) V = -3.86     Best Action: A3
State (2, 1, 2) V = -3.86     Best Action: A3
State (2, 1, 3) V = -4.14     Best Action: A3
State (2, 1, 4) V = -4.17     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -8.77     Best Action: A1
State (2, 4, 2) V = -10.11     Best Action: A4
State (2, 4, 3) V = -6.39     Best Action: A1
State (2, 4, 4) V = -69.36     Best Action: A3
State (2, 5, 1) V = -3.86     Best Action: A4
State (2, 5, 2) V = -4.3     Best Action: A3
State (2, 5, 3) V = -4.17     Best Action: A4
State (2, 5, 4) V = -4.13     Best Action: A3
State (3, 1, 1) V = -3.86     Best Action: A4
State (3, 1, 2) V = -3.86     Best Action: A3
State (3, 1, 3) V = -4.17     Best Action: A3
State (3, 1, 4) V = -4.16     Best Action: A3
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = 55.62     Best Action: A2
State (3, 3, 2) V = 31.54     Best Action: A4
State (3, 3, 3) V = 45.95     Best Action: A4
State (3, 3, 4) V = 41.62     Best Action: A3
State (3, 4, 1) V = 51.69     Best Action: A1
State (3, 4, 2) V = 23.56     Best Action: A4
State (3, 4, 3) V = 37.29     Best Action: A4
State (3, 4, 4) V = -23.81     Best Action: A3
State (3, 5, 1) V = 71.0     Best Action: A4
State (3, 5, 2) V = 65.95     Best Action: A3
State (3, 5, 3) V = 61.59     Best Action: A4
State (3, 5, 4) V = 83.2     Best Action: A2
State (4, 1, 1) V = -11.97     Best Action: A4
State (4, 1, 2) V = -4.69     Best Action: A3
State (4, 1, 3) V = -5.26     Best Action: A3
State (4, 1, 4) V = -5.21     Best Action: A1
State (4, 2, 1) V = -70.91     Best Action: A4
State (4, 2, 2) V = -6.21     Best Action: A1
State (4, 2, 3) V = -10.59     Best Action: A3
State (4, 2, 4) V = -9.12     Best Action: A1
State (4, 3, 1) V = -46.82     Best Action: A3
State (4, 3, 2) V = 16.0     Best Action: A4
State (4, 3, 3) V = 31.28     Best Action: A1
State (4, 3, 4) V = 8.39     Best Action: A4
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 67.55     Best Action: A4
State (4, 5, 2) V = -0.5     Best Action: A3
State (4, 5, 3) V = 54.85     Best Action: A4
State (4, 5, 4) V = 79.38     Best Action: A1
State (5, 1, 1) V = 4.6     Best Action: A2
State (5, 1, 2) V = -3.82     Best Action: A3
State (5, 1, 3) V = 1.85     Best Action: A4
State (5, 1, 4) V = 1.99     Best Action: A3
State (5, 2, 1) V = 4.94     Best Action: A1
State (5, 2, 2) V = -3.91     Best Action: A3
State (5, 2, 3) V = 1.78     Best Action: A4
State (5, 2, 4) V = 2.23     Best Action: A3
State (5, 3, 1) V = 21.69     Best Action: A3
State (5, 3, 2) V = 20.06     Best Action: A4
State (5, 3, 3) V = 35.7     Best Action: A2
State (5, 3, 4) V = 16.94     Best Action: A3
State (5, 4, 1) V = 79.38     Best Action: A1
State (5, 4, 2) V = 54.31     Best Action: A3
State (5, 4, 3) V = -0.28     Best Action: A4
State (5, 4, 4) V = 67.85     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 6:
State (1, 1, 1) V = -4.3     Best Action: A3
State (1, 1, 2) V = -4.29     Best Action: A4
State (1, 1, 3) V = -4.5     Best Action: A3
State (1, 1, 4) V = -4.51     Best Action: A4
State (1, 2, 1) V = -4.38     Best Action: A3
State (1, 2, 2) V = -4.35     Best Action: A3
State (1, 2, 3) V = -4.55     Best Action: A3
State (1, 2, 4) V = -4.55     Best Action: A4
State (1, 3, 1) V = -4.39     Best Action: A3
State (1, 3, 2) V = -4.4     Best Action: A3
State (1, 3, 3) V = -4.59     Best Action: A3
State (1, 3, 4) V = -4.59     Best Action: A3
State (1, 4, 1) V = -5.31     Best Action: A3
State (1, 4, 2) V = -5.33     Best Action: A4
State (1, 4, 3) V = -5.4     Best Action: A4
State (1, 4, 4) V = -10.4     Best Action: A3
State (1, 5, 1) V = -4.31     Best Action: A3
State (1, 5, 2) V = -4.43     Best Action: A3
State (1, 5, 3) V = -4.53     Best Action: A4
State (1, 5, 4) V = -4.53     Best Action: A3
State (2, 1, 1) V = -4.36     Best Action: A3
State (2, 1, 2) V = -4.36     Best Action: A4
State (2, 1, 3) V = -4.59     Best Action: A3
State (2, 1, 4) V = -4.63     Best Action: A3
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -9.25     Best Action: A1
State (2, 4, 2) V = -10.64     Best Action: A4
State (2, 4, 3) V = -6.86     Best Action: A1
State (2, 4, 4) V = -69.39     Best Action: A3
State (2, 5, 1) V = -4.35     Best Action: A4
State (2, 5, 2) V = -4.79     Best Action: A3
State (2, 5, 3) V = -4.61     Best Action: A4
State (2, 5, 4) V = -4.58     Best Action: A3
State (3, 1, 1) V = -4.38     Best Action: A3
State (3, 1, 2) V = -4.38     Best Action: A3
State (3, 1, 3) V = -4.63     Best Action: A3
State (3, 1, 4) V = -1.17     Best Action: A2
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = 57.71     Best Action: A2
State (3, 3, 2) V = 38.7     Best Action: A4
State (3, 3, 3) V = 48.72     Best Action: A4
State (3, 3, 4) V = 44.73     Best Action: A3
State (3, 4, 1) V = 53.63     Best Action: A1
State (3, 4, 2) V = 28.69     Best Action: A1
State (3, 4, 3) V = 38.93     Best Action: A4
State (3, 4, 4) V = -21.76     Best Action: A3
State (3, 5, 1) V = 71.45     Best Action: A4
State (3, 5, 2) V = 66.98     Best Action: A3
State (3, 5, 3) V = 62.19     Best Action: A4
State (3, 5, 4) V = 83.3     Best Action: A2
State (4, 1, 1) V = -11.8     Best Action: A4
State (4, 1, 2) V = -5.3     Best Action: A3
State (4, 1, 3) V = -5.74     Best Action: A3
State (4, 1, 4) V = -1.31     Best Action: A1
State (4, 2, 1) V = -70.68     Best Action: A4
State (4, 2, 2) V = -6.77     Best Action: A1
State (4, 2, 3) V = -11.05     Best Action: A3
State (4, 2, 4) V = -4.99     Best Action: A1
State (4, 3, 1) V = -40.45     Best Action: A3
State (4, 3, 2) V = 21.63     Best Action: A4
State (4, 3, 3) V = 34.43     Best Action: A1
State (4, 3, 4) V = 14.0     Best Action: A4
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 67.88     Best Action: A4
State (4, 5, 2) V = -0.25     Best Action: A3
State (4, 5, 3) V = 55.21     Best Action: A4
State (4, 5, 4) V = 79.42     Best Action: A1
State (5, 1, 1) V = 14.38     Best Action: A2
State (5, 1, 2) V = 0.42     Best Action: A3
State (5, 1, 3) V = 9.09     Best Action: A4
State (5, 1, 4) V = 9.95     Best Action: A3
State (5, 2, 1) V = 14.75     Best Action: A1
State (5, 2, 2) V = 0.84     Best Action: A3
State (5, 2, 3) V = 9.45     Best Action: A4
State (5, 2, 4) V = 10.27     Best Action: A3
State (5, 3, 1) V = 28.66     Best Action: A3
State (5, 3, 2) V = 26.13     Best Action: A4
State (5, 3, 3) V = 38.66     Best Action: A2
State (5, 3, 4) V = 23.57     Best Action: A3
State (5, 4, 1) V = 79.42     Best Action: A1
State (5, 4, 2) V = 54.69     Best Action: A3
State (5, 4, 3) V = -0.22     Best Action: A4
State (5, 4, 4) V = 67.94     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 7:
State (1, 1, 1) V = -4.7     Best Action: A3
State (1, 1, 2) V = -4.69     Best Action: A4
State (1, 1, 3) V = -4.87     Best Action: A3
State (1, 1, 4) V = -3.45     Best Action: A2
State (1, 2, 1) V = -4.8     Best Action: A3
State (1, 2, 2) V = -4.76     Best Action: A3
State (1, 2, 3) V = -4.93     Best Action: A3
State (1, 2, 4) V = -4.93     Best Action: A4
State (1, 3, 1) V = -4.82     Best Action: A3
State (1, 3, 2) V = -4.81     Best Action: A3
State (1, 3, 3) V = -4.97     Best Action: A3
State (1, 3, 4) V = -4.97     Best Action: A4
State (1, 4, 1) V = -5.76     Best Action: A3
State (1, 4, 2) V = -5.75     Best Action: A4
State (1, 4, 3) V = -5.8     Best Action: A3
State (1, 4, 4) V = -10.62     Best Action: A4
State (1, 5, 1) V = -4.72     Best Action: A3
State (1, 5, 2) V = -4.83     Best Action: A3
State (1, 5, 3) V = -4.9     Best Action: A4
State (1, 5, 4) V = -4.9     Best Action: A3
State (2, 1, 1) V = -4.77     Best Action: A3
State (2, 1, 2) V = -4.77     Best Action: A4
State (2, 1, 3) V = -4.95     Best Action: A3
State (2, 1, 4) V = -2.89     Best Action: A1
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -9.66     Best Action: A1
State (2, 4, 2) V = -11.05     Best Action: A4
State (2, 4, 3) V = -7.23     Best Action: A1
State (2, 4, 4) V = -69.59     Best Action: A3
State (2, 5, 1) V = -4.76     Best Action: A4
State (2, 5, 2) V = -5.19     Best Action: A3
State (2, 5, 3) V = -4.98     Best Action: A4
State (2, 5, 4) V = -4.95     Best Action: A3
State (3, 1, 1) V = -2.31     Best Action: A4
State (3, 1, 2) V = -2.31     Best Action: A3
State (3, 1, 3) V = -3.06     Best Action: A3
State (3, 1, 4) V = 5.04     Best Action: A2
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = 58.5     Best Action: A2
State (3, 3, 2) V = 41.74     Best Action: A4
State (3, 3, 3) V = 49.8     Best Action: A4
State (3, 3, 4) V = 46.21     Best Action: A3
State (3, 4, 1) V = 54.29     Best Action: A1
State (3, 4, 2) V = 31.4     Best Action: A1
State (3, 4, 3) V = 39.52     Best Action: A4
State (3, 4, 4) V = -21.0     Best Action: A3
State (3, 5, 1) V = 71.61     Best Action: A4
State (3, 5, 2) V = 67.43     Best Action: A3
State (3, 5, 3) V = 62.4     Best Action: A4
State (3, 5, 4) V = 83.34     Best Action: A2
State (4, 1, 1) V = -8.62     Best Action: A4
State (4, 1, 2) V = -2.59     Best Action: A3
State (4, 1, 3) V = -3.53     Best Action: A3
State (4, 1, 4) V = 5.01     Best Action: A1
State (4, 2, 1) V = -67.35     Best Action: A4
State (4, 2, 2) V = -4.63     Best Action: A1
State (4, 2, 3) V = -9.37     Best Action: A3
State (4, 2, 4) V = 1.38     Best Action: A1
State (4, 3, 1) V = -37.46     Best Action: A3
State (4, 3, 2) V = 24.53     Best Action: A4
State (4, 3, 3) V = 35.75     Best Action: A1
State (4, 3, 4) V = 17.0     Best Action: A4
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 67.97     Best Action: A4
State (4, 5, 2) V = -0.19     Best Action: A3
State (4, 5, 3) V = 55.32     Best Action: A4
State (4, 5, 4) V = 79.43     Best Action: A1
State (5, 1, 1) V = 20.9     Best Action: A2
State (5, 1, 2) V = 7.09     Best Action: A3
State (5, 1, 3) V = 14.41     Best Action: A4
State (5, 1, 4) V = 16.0     Best Action: A3
State (5, 2, 1) V = 21.3     Best Action: A1
State (5, 2, 2) V = 7.77     Best Action: A3
State (5, 2, 3) V = 15.14     Best Action: A4
State (5, 2, 4) V = 16.37     Best Action: A3
State (5, 3, 1) V = 32.02     Best Action: A3
State (5, 3, 2) V = 29.47     Best Action: A4
State (5, 3, 3) V = 39.92     Best Action: A2
State (5, 3, 4) V = 26.98     Best Action: A3
State (5, 4, 1) V = 79.43     Best Action: A1
State (5, 4, 2) V = 54.8     Best Action: A3
State (5, 4, 3) V = -0.2     Best Action: A4
State (5, 4, 4) V = 67.96     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 8:
State (1, 1, 1) V = -4.02     Best Action: A4
State (1, 1, 2) V = -4.01     Best Action: A3
State (1, 1, 3) V = -4.38     Best Action: A3
State (1, 1, 4) V = 1.21     Best Action: A2
State (1, 2, 1) V = -5.15     Best Action: A3
State (1, 2, 2) V = -5.04     Best Action: A3
State (1, 2, 3) V = -5.2     Best Action: A3
State (1, 2, 4) V = -5.2     Best Action: A4
State (1, 3, 1) V = -5.17     Best Action: A3
State (1, 3, 2) V = -5.09     Best Action: A3
State (1, 3, 3) V = -5.24     Best Action: A3
State (1, 3, 4) V = -5.24     Best Action: A4
State (1, 4, 1) V = -6.11     Best Action: A3
State (1, 4, 2) V = -6.09     Best Action: A4
State (1, 4, 3) V = -6.11     Best Action: A3
State (1, 4, 4) V = -10.85     Best Action: A4
State (1, 5, 1) V = -5.06     Best Action: A3
State (1, 5, 2) V = -5.16     Best Action: A3
State (1, 5, 3) V = -5.21     Best Action: A4
State (1, 5, 4) V = -5.21     Best Action: A3
State (2, 1, 1) V = -3.62     Best Action: A4
State (2, 1, 2) V = -3.62     Best Action: A3
State (2, 1, 3) V = -4.05     Best Action: A3
State (2, 1, 4) V = 2.1     Best Action: A1
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -10.02     Best Action: A1
State (2, 4, 2) V = -11.37     Best Action: A4
State (2, 4, 3) V = -7.52     Best Action: A1
State (2, 4, 4) V = -69.82     Best Action: A3
State (2, 5, 1) V = -5.1     Best Action: A4
State (2, 5, 2) V = -5.52     Best Action: A3
State (2, 5, 3) V = -5.28     Best Action: A4
State (2, 5, 4) V = -5.26     Best Action: A3
State (3, 1, 1) V = 2.5     Best Action: A4
State (3, 1, 2) V = 2.5     Best Action: A3
State (3, 1, 3) V = 0.78     Best Action: A3
State (3, 1, 4) V = 10.35     Best Action: A2
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = 58.81     Best Action: A2
State (3, 3, 2) V = 42.97     Best Action: A4
State (3, 3, 3) V = 50.23     Best Action: A4
State (3, 3, 4) V = 46.89     Best Action: A3
State (3, 4, 1) V = 54.53     Best Action: A1
State (3, 4, 2) V = 32.53     Best Action: A1
State (3, 4, 3) V = 39.73     Best Action: A4
State (3, 4, 4) V = -20.71     Best Action: A3
State (3, 5, 1) V = 71.68     Best Action: A4
State (3, 5, 2) V = 67.61     Best Action: A3
State (3, 5, 3) V = 62.49     Best Action: A4
State (3, 5, 4) V = 83.36     Best Action: A2
State (4, 1, 1) V = -3.56     Best Action: A4
State (4, 1, 2) V = 2.42     Best Action: A3
State (4, 1, 3) V = 0.67     Best Action: A3
State (4, 1, 4) V = 10.35     Best Action: A1
State (4, 2, 1) V = -62.48     Best Action: A4
State (4, 2, 2) V = -0.37     Best Action: A3
State (4, 2, 3) V = -5.81     Best Action: A3
State (4, 2, 4) V = 6.7     Best Action: A1
State (4, 3, 1) V = -36.15     Best Action: A3
State (4, 3, 2) V = 26.22     Best Action: A4
State (4, 3, 3) V = 36.31     Best Action: A1
State (4, 3, 4) V = 18.68     Best Action: A4
State (4, 4, 1) V = -1000     Best Action: No Action
State (4, 4, 2) V = -1000     Best Action: No Action
State (4, 4, 3) V = -1000     Best Action: No Action
State (4, 4, 4) V = -1000     Best Action: No Action
State (4, 5, 1) V = 68.0     Best Action: A4
State (4, 5, 2) V = -0.17     Best Action: A3
State (4, 5, 3) V = 55.35     Best Action: A4
State (4, 5, 4) V = 79.44     Best Action: A1
State (5, 1, 1) V = 24.39     Best Action: A2
State (5, 1, 2) V = 12.57     Best Action: A3
State (5, 1, 3) V = 17.74     Best Action: A4
State (5, 1, 4) V = 19.57     Best Action: A3
State (5, 2, 1) V = 24.82     Best Action: A1
State (5, 2, 2) V = 13.25     Best Action: A3
State (5, 2, 3) V = 18.56     Best Action: A4
State (5, 2, 4) V = 19.96     Best Action: A3
State (5, 3, 1) V = 33.54     Best Action: A3
State (5, 3, 2) V = 31.24     Best Action: A4
State (5, 3, 3) V = 40.46     Best Action: A2
State (5, 3, 4) V = 28.59     Best Action: A3
State (5, 4, 1) V = 79.43     Best Action: A1
State (5, 4, 2) V = 54.83     Best Action: A3
State (5, 4, 3) V = -0.2     Best Action: A4
State (5, 4, 4) V = 67.97     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 9:
State (1, 1, 1) V = -0.68     Best Action: A4
State (1, 1, 2) V = -0.54     Best Action: A3
State (1, 1, 3) V = -1.62     Best Action: A3
State (1, 1, 4) V = 5.74     Best Action: A2
State (1, 2, 1) V = -5.4     Best Action: A3
State (1, 2, 2) V = -2.72     Best Action: A1
State (1, 2, 3) V = -3.57     Best Action: A3
State (1, 2, 4) V = -3.57     Best Action: A4
State (1, 3, 1) V = -5.42     Best Action: A3
State (1, 3, 2) V = -2.95     Best Action: A2
State (1, 3, 3) V = -3.74     Best Action: A3
State (1, 3, 4) V = -3.74     Best Action: A4
State (1, 4, 1) V = -6.39     Best Action: A3
State (1, 4, 2) V = -4.7     Best Action: A1
State (1, 4, 3) V = -5.17     Best Action: A3
State (1, 4, 4) V = -9.87     Best Action: A4
State (1, 5, 1) V = -5.34     Best Action: A3
State (1, 5, 2) V = -4.8     Best Action: A2
State (1, 5, 3) V = -5.07     Best Action: A3
State (1, 5, 4) V = -5.07     Best Action: A4
State (2, 1, 1) V = 0.17     Best Action: A4
State (2, 1, 2) V = 0.17     Best Action: A3
State (2, 1, 3) V = -0.87     Best Action: A3
State (2, 1, 4) V = 6.69     Best Action: A1
State (2, 2, 1) V = -100000     Best Action: No Action
State (2, 2, 2) V = -100000     Best Action: No Action
State (2, 2, 3) V = -100000     Best Action: No Action
State (2, 2, 4) V = -100000     Best Action: No Action
State (2, 3, 1) V = -100000     Best Action: No Action
State (2, 3, 2) V = -100000     Best Action: No Action
State (2, 3, 3) V = -100000     Best Action: No Action
State (2, 3, 4) V = -100000     Best Action: No Action
State (2, 4, 1) V = -10.31     Best Action: A1
State (2, 4, 2) V = -11.63     Best Action: A4
State (2, 4, 3) V = -6.89     Best Action: A1
State (2, 4, 4) V = -70.03     Best Action: A3
State (2, 5, 1) V = -5.38     Best Action: A4
State (2, 5, 2) V = -5.8     Best Action: A3
State (2, 5, 3) V = -5.51     Best Action: A4
State (2, 5, 4) V = -5.52     Best Action: A3
State (3, 1, 1) V = 7.13     Best Action: A4
State (3, 1, 2) V = 7.13     Best Action: A3
State (3, 1, 3) V = 4.75     Best Action: A3
State (3, 1, 4) V = 13.8     Best Action: A2
State (3, 2, 1) V = -100000     Best Action: No Action
State (3, 2, 2) V = -100000     Best Action: No Action
State (3, 2, 3) V = -100000     Best Action: No Action
State (3, 2, 4) V = -100000     Best Action: No Action
State (3, 3, 1) V = 58.94     Best Action: A2
State (3, 3, 2) V = 43.47     Best Action: A4
State (3, 3, 3) V = 50.41     Best Action: A4
State (3, 3, 4) V = 47.21     Best Action: A3
State (3, 4, 1) V = 54.62     Best Action: A1
State (3, 4, 2) V = 32.99     Best Action: A1
State (3, 4, 3) V = 39.92     Best Action: A4
State (3, 4, 4) V = -20.6     Best Action: A3
State (3, 5, 1) V = 71.7     Best Action: A4
State (3, 5, 2) V = 67.69     Best Action: A3
State (3, 5, 3) V = 62.52     Best Action: A4
State (3, 5, 4) V = 83.36     Best Action: A2
State (4, 1, 1) V = 0.91     Best Action: A4
State (4, 1, 2) V = 7.12     Best Action: A3
State (4, 1, 3) V = 4.75     Best Action: A3
State (4, 1, 4) V = 13.79     Best Action: A1
State (4, 2, 1) V = -58.36     Best Action: A4
State (4, 2, 2) V = 4.21     Best Action: A3
State (4, 2, 3) V = -1.83     Best Action: A3
State (4, 2, 4) V = 10.12     Best Action: A1
State (4, 3, 1) V = -35.57     Best Action: A3
State (4, 3, 2) V = 27.28     Best Action: A4
State (4, 3, 3) V = 36.58     Best Action: A1
State (4, 3, 4) V = 19.81     Best Action: A1
State (4, 4, 1) V = -1000     Best Action: No
Action
State (4, 4, 2) V = -1000     Best Action: No
Action
State (4, 4, 3) V = -1000     Best Action: No
Action
State (4, 4, 4) V = -1000     Best Action: No
Action
State (4, 5, 1) V = 68.01     Best Action: A4
State (4, 5, 2) V = -0.16     Best Action: A3
State (4, 5, 3) V = 55.36     Best Action: A4
State (4, 5, 4) V = 79.44     Best Action: A1
State (5, 1, 1) V = 26.11     Best Action: A2
State (5, 1, 2) V = 16.0     Best Action: A3
State (5, 1, 3) V = 19.66     Best Action: A4
State (5, 1, 4) V = 21.44     Best Action: A3
State (5, 2, 1) V = 26.55     Best Action: A1
State (5, 2, 2) V = 16.57     Best Action: A3
State (5, 2, 3) V = 20.45     Best Action: A4
State (5, 2, 4) V = 21.84     Best Action: A3
State (5, 3, 1) V = 34.2     Best Action: A3
State (5, 3, 2) V = 32.13     Best Action: A4
State (5, 3, 3) V = 40.7     Best Action: A2
State (5, 3, 4) V = 29.32     Best Action: A3
State (5, 4, 1) V = 79.43     Best Action: A1
State (5, 4, 2) V = 54.84     Best Action: A3
State (5, 4, 3) V = -0.2     Best Action: A4
State (5, 4, 4) V = 67.97     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
Iteration 10:
State (1, 1, 1) V = 2.72     Best Action: A4
State (1, 1, 2) V = 3.3     Best Action: A3
State (1, 1, 3) V = 1.68     Best Action: A3
State (1, 1, 4) V = 8.93     Best Action: A2
State (1, 2, 1) V = -4.16     Best Action: A3
State (1, 2, 2) V = 0.38     Best Action: A1
State (1, 2, 3) V = -1.07     Best Action: A3
State (1, 2, 4) V = -1.07     Best Action: A4
State (1, 3, 1) V = -4.29     Best Action: A3
State (1, 3, 2) V = 0.18     Best Action: A2
State (1, 3, 3) V = -1.24     Best Action: A3
State (1, 3, 4) V = -1.24     Best Action: A4
State (1, 4, 1) V = -5.69     Best Action: A3
State (1, 4, 2) V = -2.15     Best Action: A1
State (1, 4, 3) V = -3.18     Best Action: A3
State (1, 4, 4) V = -7.99     Best Action: A4
State (1, 5, 1) V = -5.26     Best Action: A3
State (1, 5, 2) V = -2.37     Best Action: A2
State (1, 5, 3) V = -3.3     Best Action: A3
State (1, 5, 4) V = -3.32     Best Action: A4
State (2, 1, 1) V = 4.12     Best Action: A4
State (2, 1, 2) V = 4.12     Best Action: A3
State (2, 1, 3) V = 2.6     Best Action: A3
State (2, 1, 4) V = 9.86     Best Action: A1
State (2, 2, 1) V = -100000     Best Action: No
Action
State (2, 2, 2) V = -100000     Best Action: No
Action
State (2, 2, 3) V = -100000     Best Action: No
Action
State (2, 2, 4) V = -100000     Best Action: No
Action
State (2, 3, 1) V = -100000     Best Action: No
Action
State (2, 3, 2) V = -100000     Best Action: No
Action
State (2, 3, 3) V = -100000     Best Action: No
Action
State (2, 3, 4) V = -100000     Best Action: No
Action
State (2, 4, 1) V = -10.51     Best Action: A1
State (2, 4, 2) V = -11.22     Best Action: A4
State (2, 4, 3) V = -5.41     Best Action: A1
State (2, 4, 4) V = -70.14     Best Action: A3
State (2, 5, 1) V = -5.61     Best Action: A3
State (2, 5, 2) V = -5.99     Best Action: A3
State (2, 5, 3) V = -4.8     Best Action: A1
State (2, 5, 4) V = -5.73     Best Action: A3
State (3, 1, 1) V = 10.41     Best Action: A4
State (3, 1, 2) V = 10.41     Best Action: A3
State (3, 1, 3) V = 7.71     Best Action: A3
State (3, 1, 4) V = 15.75     Best Action: A2
State (3, 2, 1) V = -100000     Best Action: No
Action
State (3, 2, 2) V = -100000     Best Action: No
Action
State (3, 2, 3) V = -100000     Best Action: No
Action
State (3, 2, 4) V = -100000     Best Action: No
Action
State (3, 3, 1) V = 58.99     Best Action: A2
State (3, 3, 2) V = 43.68     Best Action: A4
State (3, 3, 3) V = 50.48     Best Action: A4
State (3, 3, 4) V = 47.37     Best Action: A3
State (3, 4, 1) V = 54.66     Best Action: A1
State (3, 4, 2) V = 33.19     Best Action: A1
State (3, 4, 3) V = 40.16     Best Action: A4
State (3, 4, 4) V = -20.56     Best Action: A3
State (3, 5, 1) V = 71.71     Best Action: A4
State (3, 5, 2) V = 67.72     Best Action: A3
State (3, 5, 3) V = 62.53     Best Action: A4
State (3, 5, 4) V = 83.37     Best Action: A2
State (4, 1, 1) V = 3.91     Best Action: A4
State (4, 1, 2) V = 10.4     Best Action: A3
State (4, 1, 3) V = 7.67     Best Action: A3
State (4, 1, 4) V = 15.72     Best Action: A1
State (4, 2, 1) V = -55.62     Best Action: A4
State (4, 2, 2) V = 7.39     Best Action: A3
State (4, 2, 3) V = 1.1     Best Action: A3
State (4, 2, 4) V = 12.04     Best Action: A1
State (4, 3, 1) V = -35.27     Best Action: A3
State (4, 3, 2) V = 27.93     Best Action: A4
State (4, 3, 3) V = 36.7     Best Action: A1
State (4, 3, 4) V = 20.46     Best Action: A1
State (4, 4, 1) V = -1000     Best Action: No
Action
State (4, 4, 2) V = -1000     Best Action: No
Action
State (4, 4, 3) V = -1000     Best Action: No
Action
State (4, 4, 4) V = -1000     Best Action: No
Action
State (4, 5, 1) V = 68.01     Best Action: A4
State (4, 5, 2) V = -0.16     Best Action: A3
State (4, 5, 3) V = 55.36     Best Action: A4
State (4, 5, 4) V = 79.44     Best Action: A1
State (5, 1, 1) V = 26.92     Best Action: A2
State (5, 1, 2) V = 17.87     Best Action: A3
State (5, 1, 3) V = 20.71     Best Action: A4
State (5, 1, 4) V = 22.36     Best Action: A3
State (5, 2, 1) V = 27.35     Best Action: A1
State (5, 2, 2) V = 18.35     Best Action: A3
State (5, 2, 3) V = 21.42     Best Action: A4
State (5, 2, 4) V = 22.75     Best Action: A3
State (5, 3, 1) V = 34.5     Best Action: A3
State (5, 3, 2) V = 32.57     Best Action: A4
State (5, 3, 3) V = 40.81     Best Action: A2
State (5, 3, 4) V = 29.65     Best Action: A3
State (5, 4, 1) V = 79.43     Best Action: A1
State (5, 4, 2) V = 54.84     Best Action: A3
State (5, 4, 3) V = -0.2     Best Action: A4
State (5, 4, 4) V = 67.97     Best Action: A3
State (5, 5, 1) V = 100     Best Action: No Action
State (5, 5, 2) V = 100     Best Action: No Action
State (5, 5, 3) V = 100     Best Action: No Action
State (5, 5, 4) V = 100     Best Action: No Action
```