1. Value Iteration for Markov Decision Process

Homework due May 3, 2023 08:59 -03 Completed

Consider the following problem through the lens of a Markov Decision Process (MDP), a
- 3 accordingly.

Damilola is a soccer player for the ML United under-15s who is debating whether to sig
youth team or the Computer Vision Wanderers youth team. After three years, signing fo
possibilities: He will still be in the youth team, earning 10,000 (60% chance), or he will n
and earn 70,000 (40% chance). Lastly, he is assured of making the Computer Vision Wa
after three years, with a salary of 37,000.

Q1

1/1 point (graded)

Given that Damilola only cares about having the highest expected salary after three yea
under-15s) is achieved through the action of signing for Computer Vision Wanderers.

- (•) True
- ( ) False

✔

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Q2

1/1 point (graded)

Let us now assume that Damilola cares about the utility derived from the salary as oppo
itself. And his utility function, which baffles economists, is given by Utility, $U = \Psi S^2 +$
Ψ & ζ are constants. In this scenario, the optimal policy π^* (ML United under-15s) wou
Albion.

- (•) True
- ( ) False

✔

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Convergence of the Value Iteration Algorithm

1.0/1 point (graded)

For an Markov Decision Process (MDP) with a single state and a single action, we know

Working with these equations, we can conclude that after each iteration, the difference and the optimal value of V decreases by a factor of ? (Enter your answer in terms of ; .)

gamma ✔

? STANDARD NOTATION

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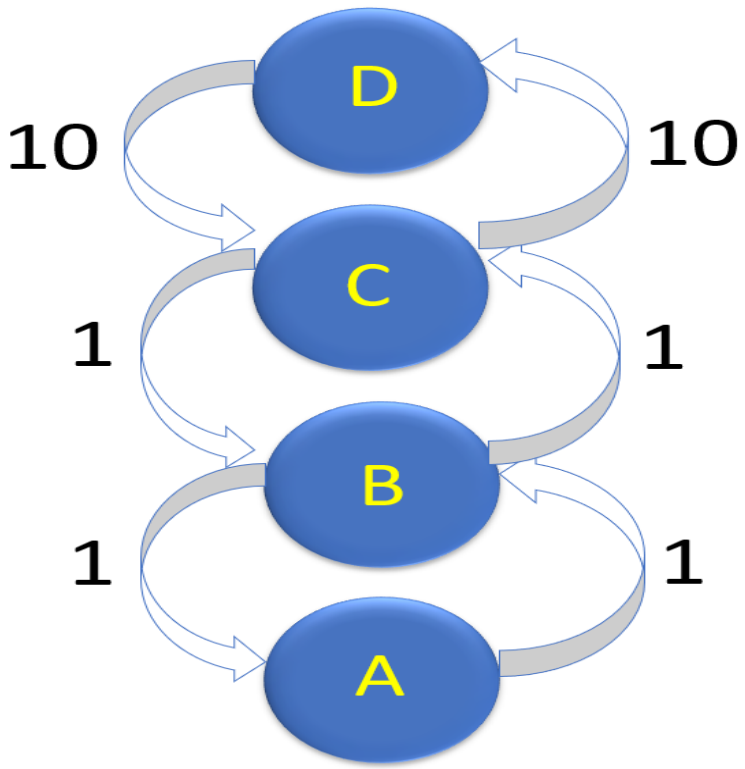
Consider the following Markov Decision Process (MDP):



MDP with 4 states (rewards for each action are indicated on the ar

There are 4 states A, B, C, and D. We can move up or down from states B and C, but on

- (●) UP
- ( ) DOWN

✔

- (●) UP
- ( ) DOWN

✔

- ( ) UP
- (●) DOWN

✔

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b

3/3 points (graded)

If we initialize the value function with 0, enter the value of state B after:

one value iteration, 1 ✔

two value iterations, 8.5 ✔

infinite value iterations, 31 ✔

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Submit You have used 1 of 3 attempts

Discussion

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? for Q3, do we include the starting state (before he takes any action)?
A starting state exists, though one could argue that this state is not "defined". A definition for the starting sta

Q3 c - In an MDP, the optimal policy for a given state s is unique

difference between our estimate and the optimal value decreases by gamma

? b - Value Iterations
I am a bit confused about value iterations. I correctly answered the first value iteration, however for the seco

? Consider the following Markov Decision Process (MDP): b, Which precision should be in the a

Question Q2- hint needed
I actually do not understand well the question, am I supposed to insert in the formula the salary and square it

? Question regarding end of course
Hi Stuff, I saw on the notification: "This course is ending in 14 days on May 16, 2023. After this date, the cour

? The last question - "for a given MDP the value function V*(s) of each state is known a priori"
A priori, after running value iteration algorithm?

? Convergence of the Value Iteration Algorithm
"Invalid Input: \'d_i\' not permitted in answer as a variable" why am I getting this error message? I don't see ar

Assistance from course staff
I get this on my page: *Could not format HTML for problem. Contact course staff in the discussion forum for

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