Mohamed Kharaev

43121144

CS 171

Midterm Pedagogical Exercise

2b) I misinterpreted the coordinates that the question was referring too. I answered the question thinking it was asking about position [2, 2].

3a) I misunderstood the directions and did not realize you had to continue moving up the hill if the next x-value returned a higher value. I thought the algorithm had to stop at x = 4, therefore giving the answer y = 1. The correct thing to do would have been to go further one more x, giving x = 5 and y = 3.

5d) I got this question wrong because I did not know the forward checking only checks a single unassigned variable at time for consistency, not pairs. This means that I should not have been able to deduce the values of C.

6a2) For this question, I did not know what makes a heuristic function consistent. I have now learned that it when every node *N* and each successor *P* of *N*, the estimated cost of reaching the goal from *N* is no greater than the step cost of getting to *P* plus the estimated cost of reaching the goal from *P*. That is: h(N) <= c(N, P) + h(P) . That means that for every block, 0 < 1 + 0, which evaluates to True, making the function consistent.

6b2) This question is the same as 6b2. I did not know what made a heuristic function consistent. Now that I know, I am able to deduce that this function was not consistent because of block like a2 and b1 where 9 <= 1 + 7 which is false, making the function inconsistent.

6c1) For this one I failed to realize that moving from a black box cost 5 steps, so I only put 1 and 2 as options thinking that the stop cost was 2. I know that an admissible function has to always return a lower estimated cost than the actual cost, so any numbers from 0 - 5 would be okay.

6c2) For the function to be consistent, a3 can't have values 0 or 1 because both of those do not satisfy the requirement for a consistent function (7 < 1 + 5, and 7 < 0 + 5). They values

couldn't be higher than 5 though either because of the goal block, where the requirements would also fail (6 < 5 + 0). Therefore the answer would be numbers in the range [2, 5].

7c) When doing this problem, I though uniform-cost search followed the most expensive path rather than the cheapest. Now I know that it goes by cheapest path, meaning X6 would be the answer.

8) I thought that the initial proposition had to be from the waiter report. Because of that I started with ((¬ A) (¬ B) (C) (D)). Now I know that I am supposed to take propositions from the Knowledge Base. That means the solution would be,

Resolve ACD with (¬ A) (¬ B) to produce: ((¬ B) C D)

Resolve ((¬ B) C D) with ((¬ B) (¬ D)) to produce: ((¬ B) C)

Resolve ((¬ B) C) with ((¬ B) (¬ C)) to produce: ((¬ B))

Resolve ((¬ B)) with (B) to produce: ()