Intro to Dear AI - Spring 2022

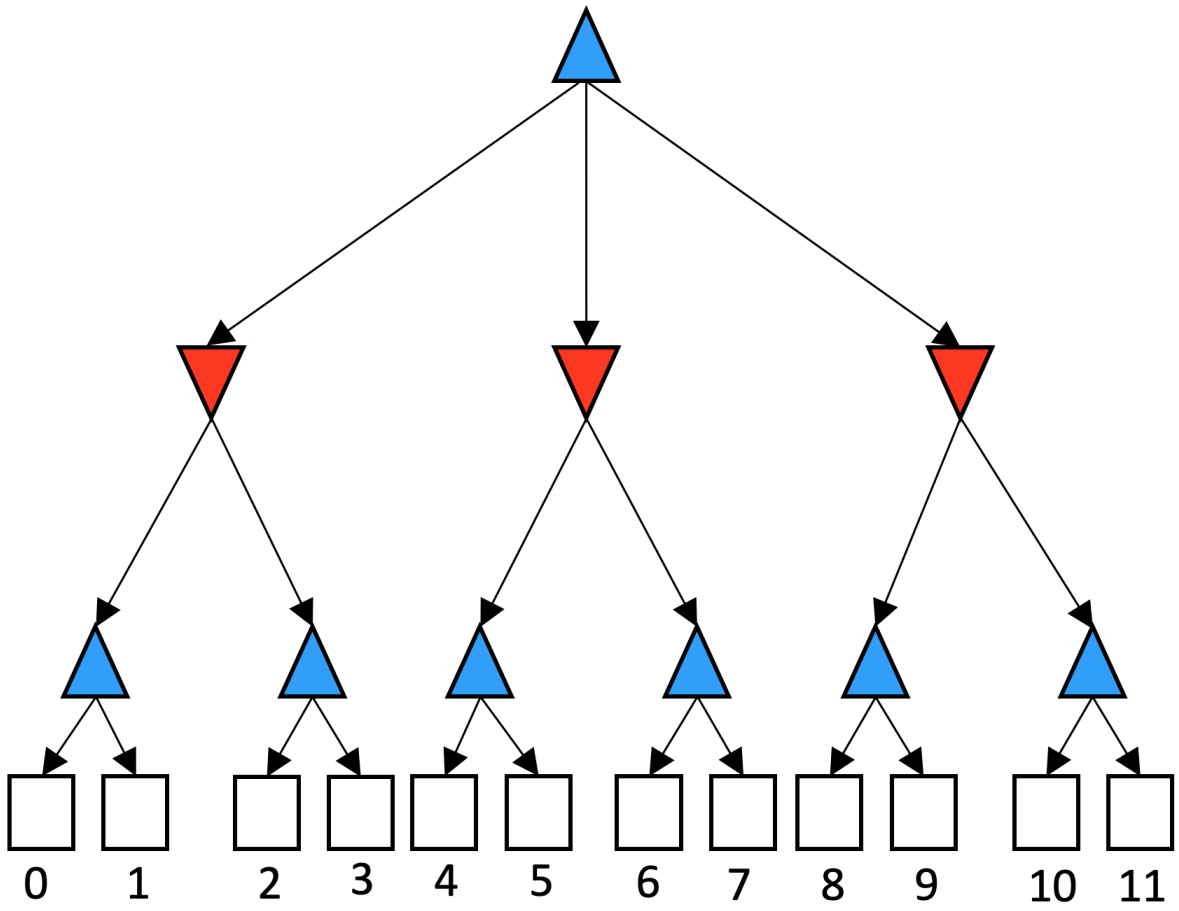
Homework 2

Alpha-beta search

Due: Friday, March 25th, 11:59 pm

Description

In this homework, you will work on the same alpha-beta search problem that we have solved in the class. The slide also had a youtube link for you to watch the complete solution for the example search tree. The tree structure is fixed and is shown in the figure below. You need to write a program that receives 12 numbers separated by space from the user. The 12 input numbers will correspond to the 12 terminal nodes of the tree from left to right. Your program should print the index of the terminal states that will be pruned using the alpha-beta search algorithm. The indexes are fixed and are shown in the figure below (0 to 11). As an example case, if the fourth blue triangle from the left should be pruned, your program must print: “6 7” referring to the two terminal nodes below that node.



Submitting Instructions and Grading

Follow the same procedure for accessing the homework on Moodle server as described on Homework 1. Look for "Alpha Beta Search" homework. The grading policy will be also similar (i.e., 10 test cases, and 10 points for each correct answer). The grade you see on Moodle will be a proposed grade. Your submission can be manually checked.

Integrity policy

Note that Moodle automatically checks for similarities between the submissions (including the previous submissions and manually submitted ones by the instructors). To ensure our course remains fair to everyone, we will proactively and carefully check for any suspicious pattern that violates our course policy. As we have done this in the past, we will certainly escalate and report any violation to the appropriate contacts at UD. Sharing or using a shared code is prohibited. Our course policy is simple: **your code, in its entirety, MUST be yours**. More about the collaboration and cheating policy is presented in our syllabus, and UD's policy on Academic Integrity can be seen here.

Questions?

Post them on Piazza.

Example input-output pairs

Example 1

Input:
2 4 13 11 1 3 3 7 3 3 2 2
Output:
3 6 7 10 11

Example 2

Input:
1 4 2 6 8 7 3 7 2 3 2 2
Output:
10 11

Example 3

Input:
15 4 12 16 10 7 3 1 2 3 2 2
Output:
6 7 10 11

Example 4

Input:
1 4 12 16 1 7 3 1 2 8 2 2

Output:
3

Example 5

Input:
1 4 12 16 1 7 3 1 2 8 10 2
Output:
3 11