Math Homework 11

CS540

August 2, 2019

1 Instruction

Please submit your answers on Canvas → Assignments → M11. Late submission will not be accepted.
Please add a file named "comments.txt", and in the first line of the file, grade yourself: $1, 1.5, 2$ (for the entire homework, not for individual questions). In your submission, please do not write your name if you do not want other students to see it (in the case it is posted as a sample solution).

Grade	Meaning
1	You attempted something but mostly incorrect.
1.5	You attempted something but there are mistakes.
2	You have the correct answers + permission to post as a sample solution.

You can put 2.5 if you already got 2 in the Quizzes for the week.

2 Questions

2.1 Question 1

Fall 2005 Midterm Q7
MAX can pick L or R. If MAX picks L, Chance picks L with probability 0.3 and R with probability 0.7. If Chance picks L, MIN picks L to get 3, R to get 2, and if Chance picks R, MIN gets 7. If MAX picks R, MIN picks L to get -1 and R to get 2. What is the value of the game?

2.2 Question 2

Which one of the following vertices can be Alpha Beta pruned? The answers are: X, Q, R, M, U, V. Explain.
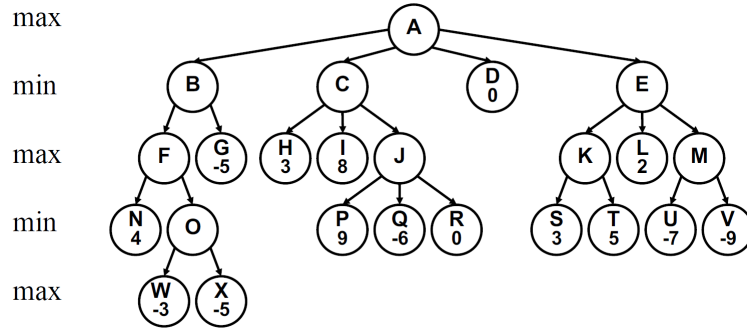
2.3 Question 3

Fall 2005 Final Q6
Both players are MAX players. Find the actions that survive iterated elimination of strictly dominated strategy.

$-$	A	B	C
A	$(2, 4)$	$(3, 7)$	$(4, 5)$
B	$(1, 2)$	$(5, 4)$	$(2, 3)$
C	$(4, 1)$	$(2, 8)$	$(5, 3)$
D	$(3, 6)$	$(4, 0)$	$(1, 9)$

2.4 Question 4

Fall 2005 Final Q5, Fall 2006 Final Q4
Find the value of the Nash equilibrium of the following zero-sum game. ROW player is MAX, COL player is MIN.

$-$	I	II	III
I	-4	-7	-3
II	9	1	7
III	-6	-1	5

2.5 Question 5

Find all Nash equilibria of the following game. Both players are MAX players.

$-$	I	II
I	$(3, 5)$	$(0, 0)$
II	$(0, 0)$	$(5, 3)$