CptS 540 Artificial Intelligence
Homework 4
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1. Consider the game tree below. Upward-pointing triangles are MAX nodes, downward-pointing triangles are MIN nodes, and squares are terminal nodes.

a. Show the result of performing Minimax-Decision search on the game tree. Put the final value next to each node in the tree. Finally, indicate which action MAX should take: a1, a2 or a3.

b. Show the result after performing Alpha-Beta-Search on the game tree (don't reuse your tree from part (a)). Put an "X" over all nodes (internal and terminal, and all nodes in a subtree) that are pruned, i.e., not evaluated. Put the final value next to all non-pruned nodes. Finally, indicate which action MAX should take: a1, a2 or a3.

Solution:
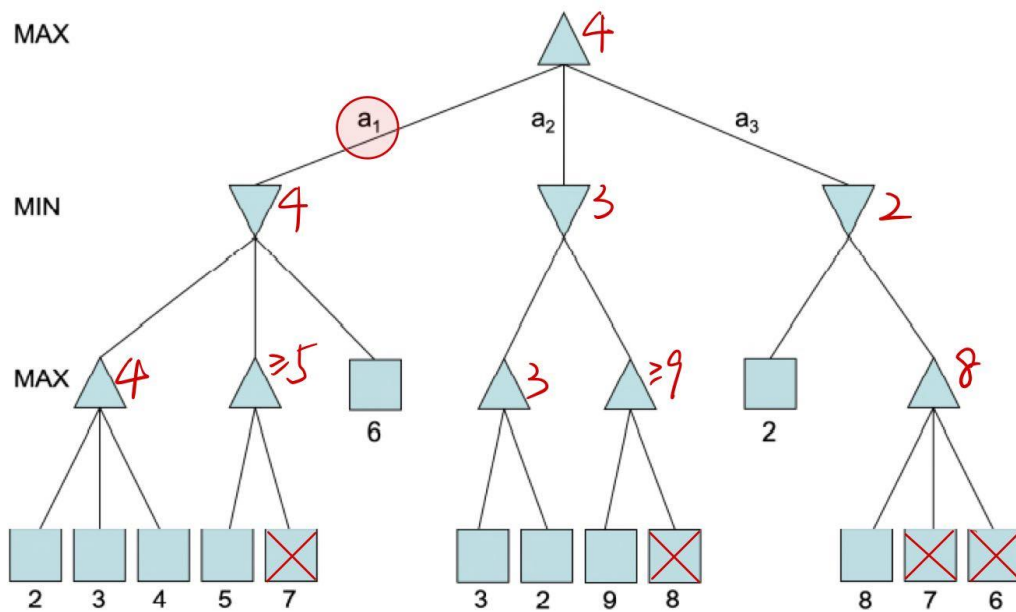
a. Minimax-Decision
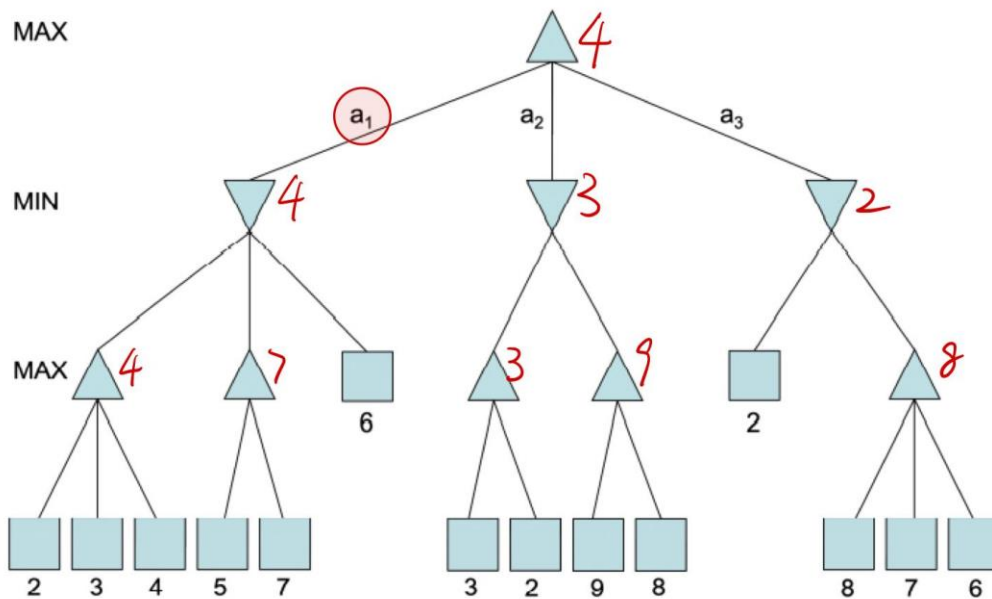


MAX take action a1

## b. Alpha-Beta-Search



MAX take action a1

2. We can change the value 2 to any number bigger than 4, such as 5.