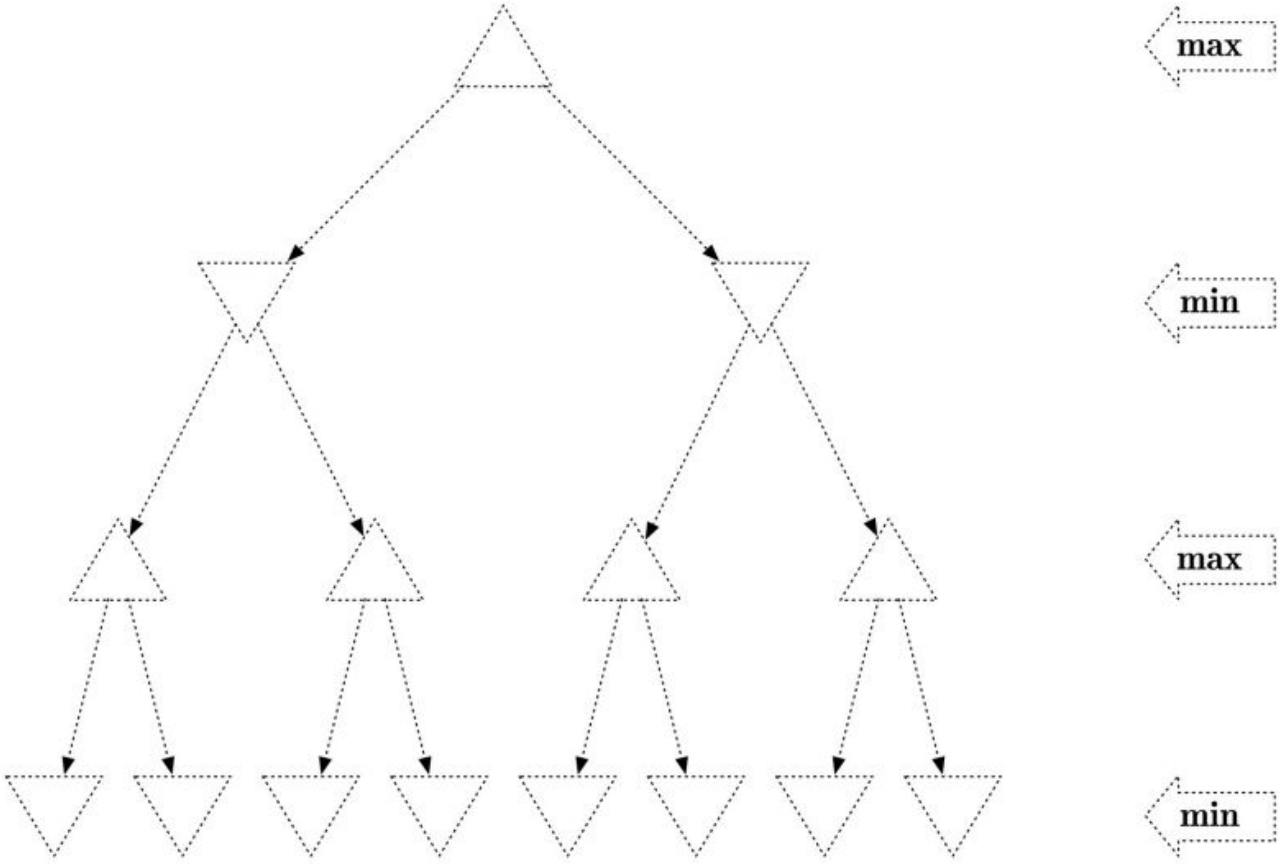
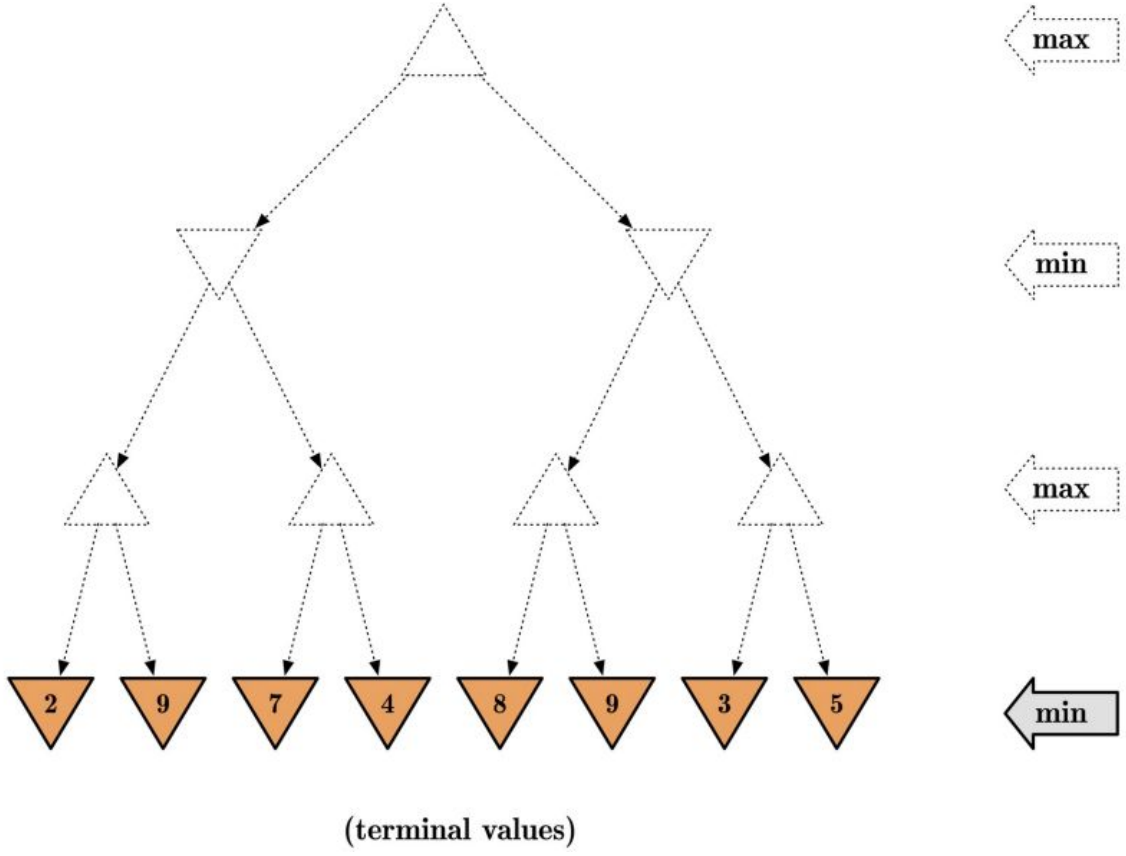
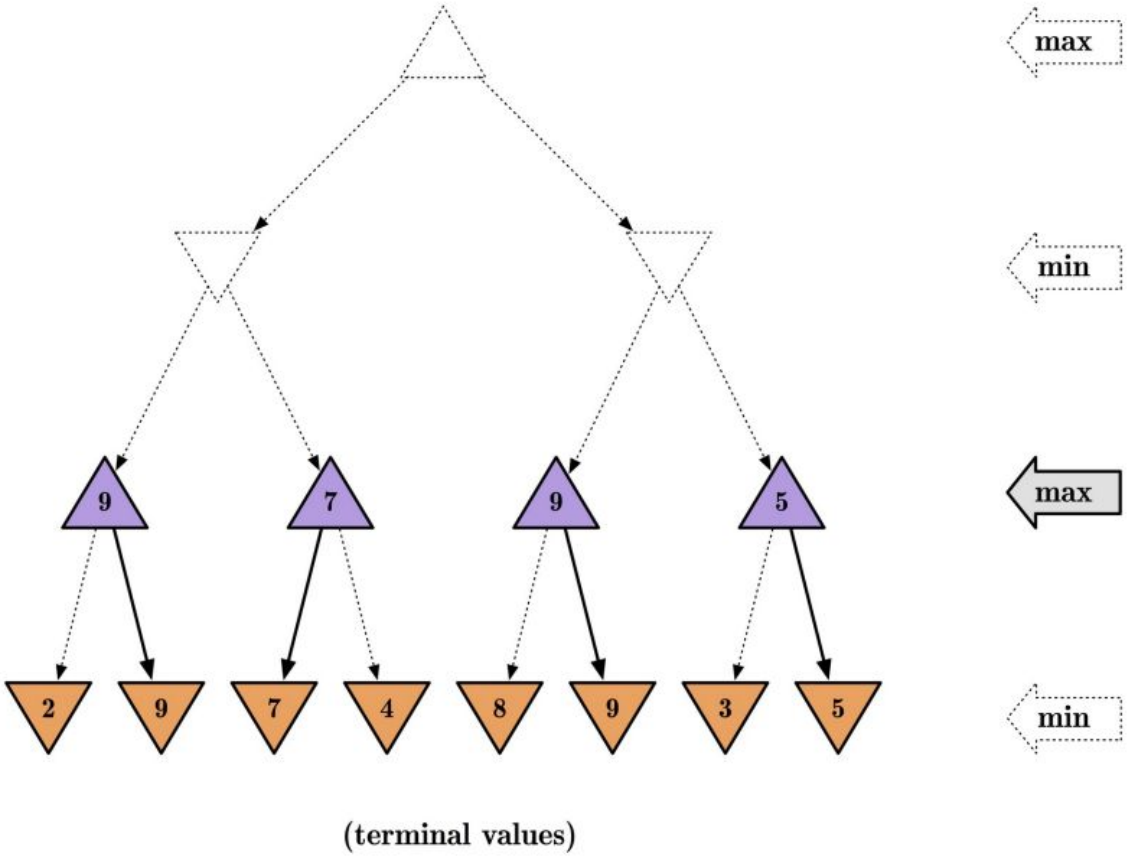
Min-Max Algorithm



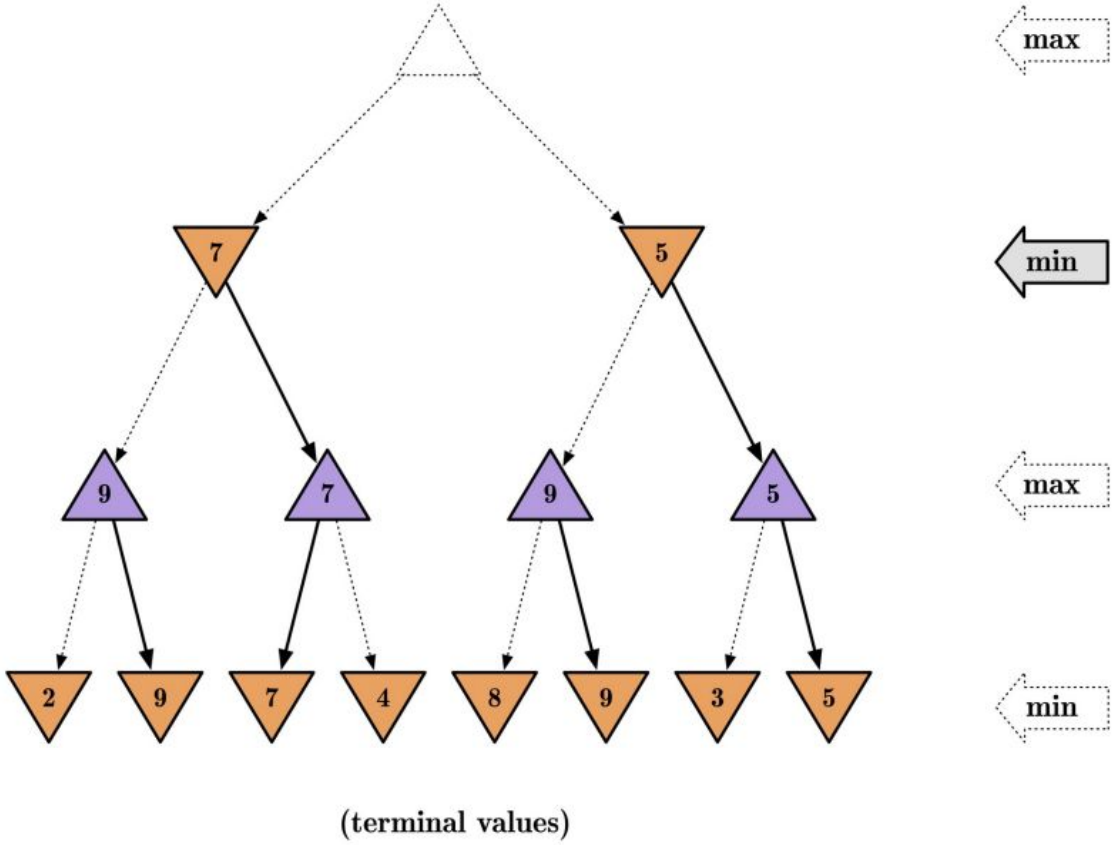
Min-Max Algorithm



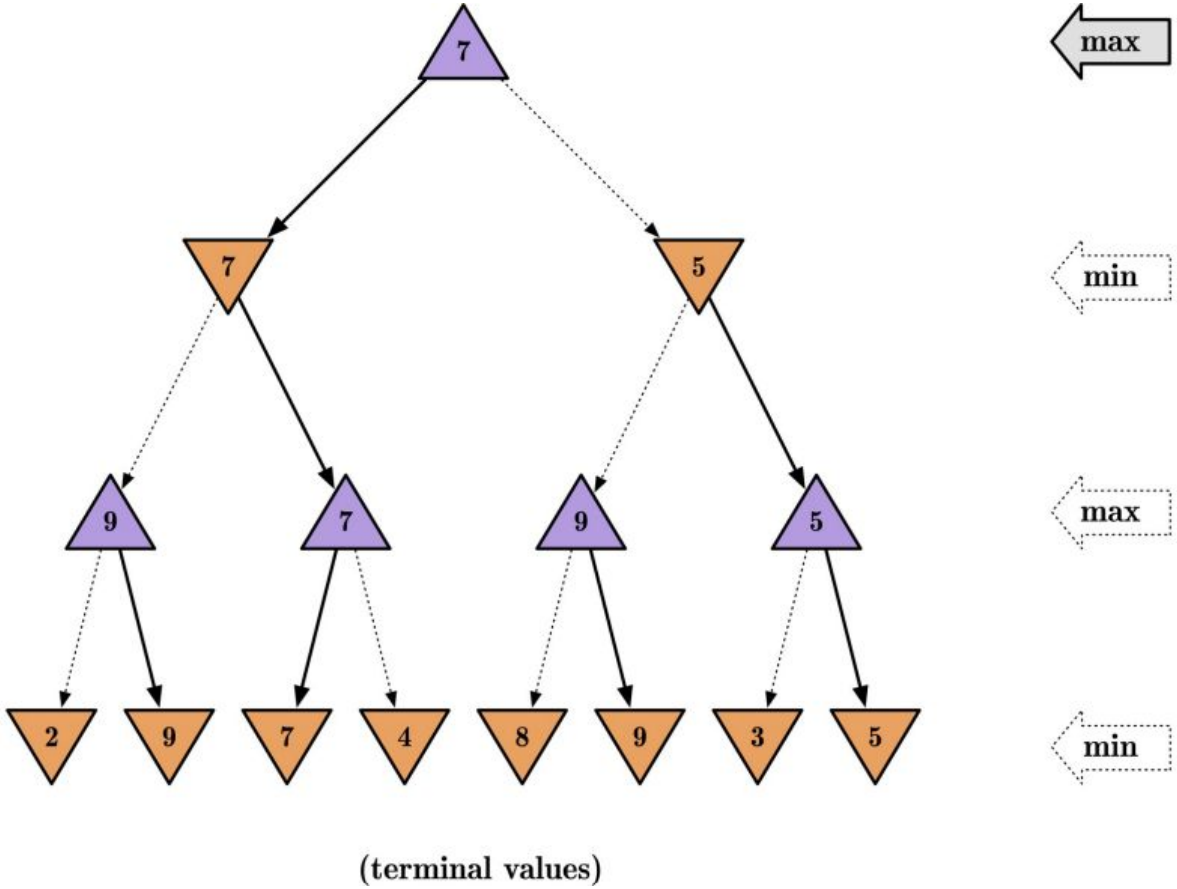
Min-Max Algorithm



Min-Max Algorithm



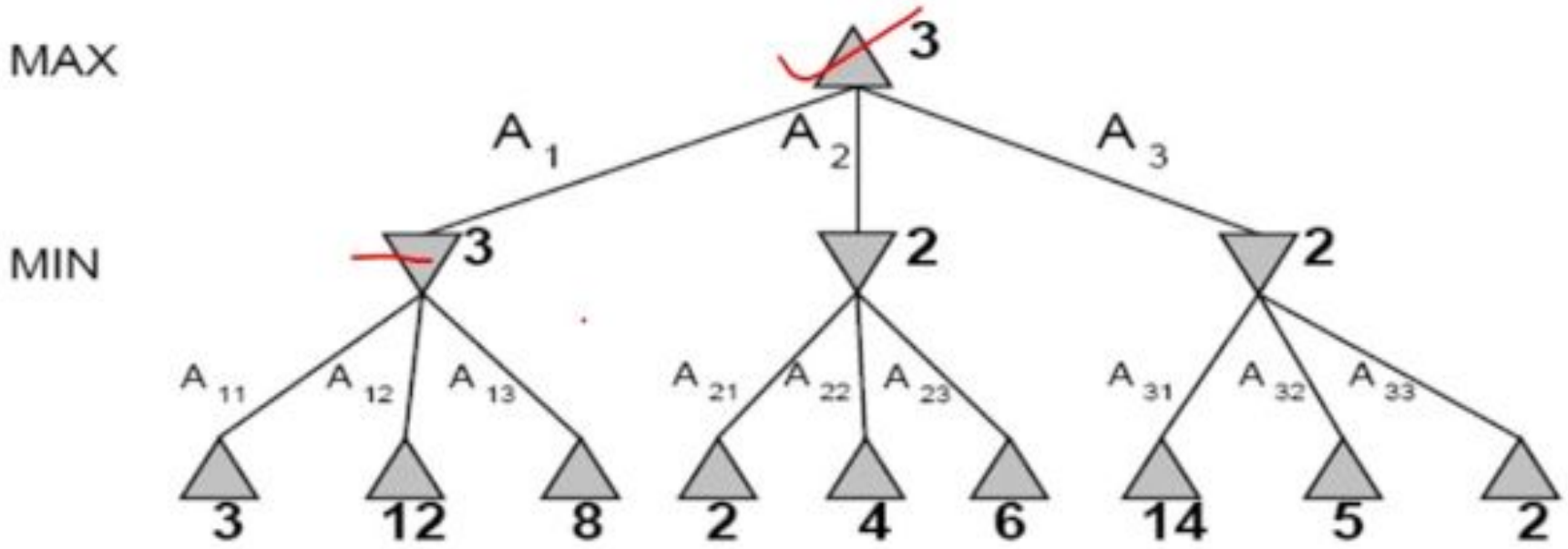
Min-Max Algorithm



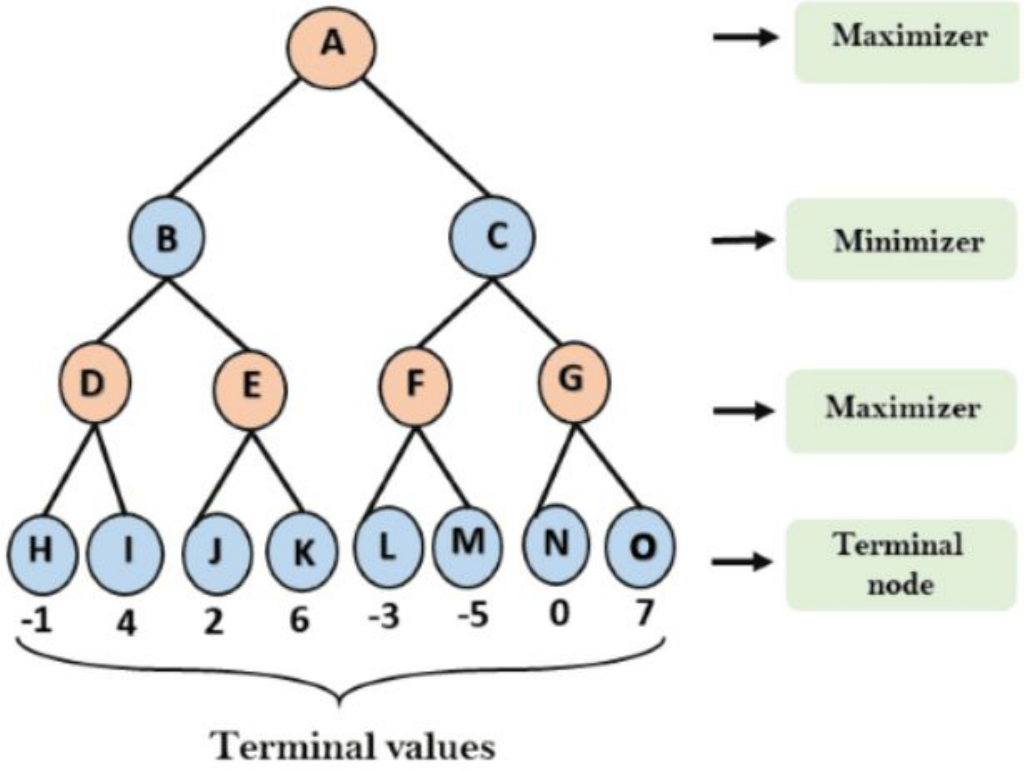
Properties of Min-Max Algorithm

- **Complete-** Min-Max algorithm is Complete.
- **Optimal-** Min-Max algorithm is optimal if both opponents are playing optimally.
- **Time complexity- $O(b^m)$**, where b is branching factor of the game-tree, and m is the maximum depth of the tree.
- **Space Complexity- O(bm)**
- **Limitation**
    - Gets really slow for complex games such as Chess
    - This type of games has a huge branching factor, and the player has lots of choices to decide.
    - This limitation of the minimax algorithm can be improved from **alpha-beta pruning**

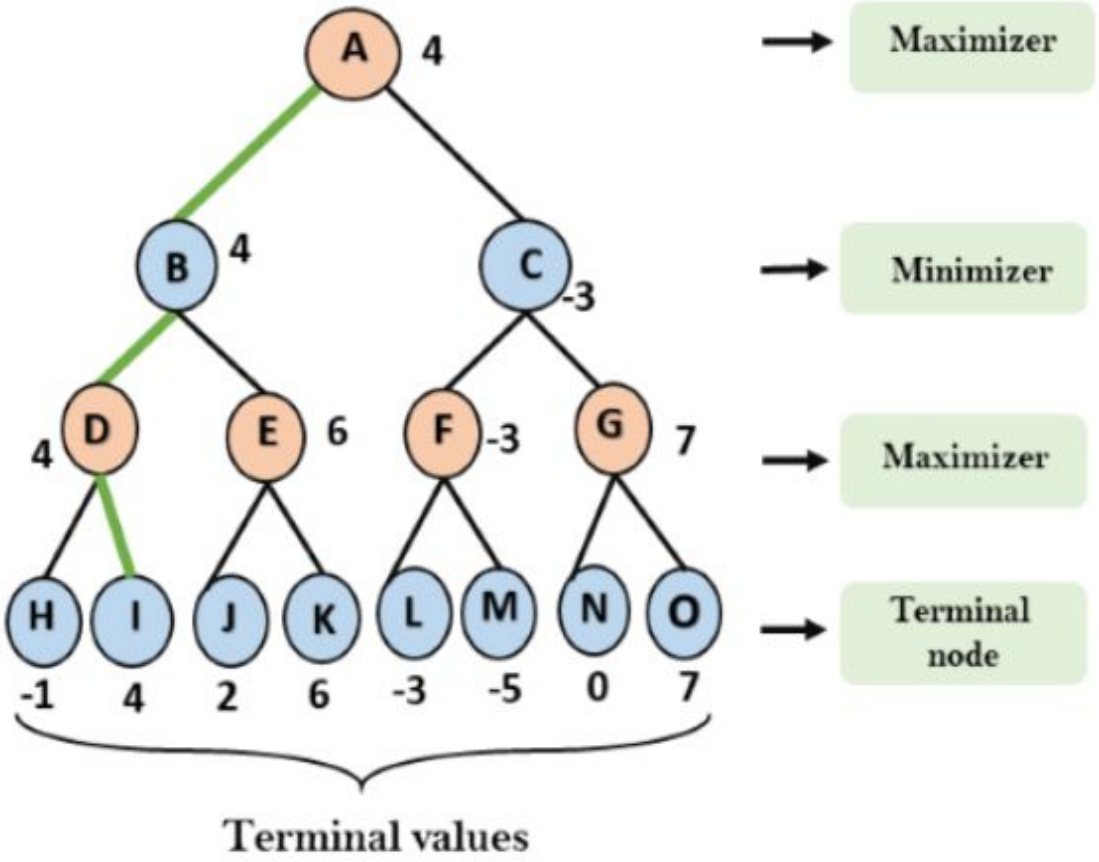
Min Max Examples



Min Max Example



Min Max Solution



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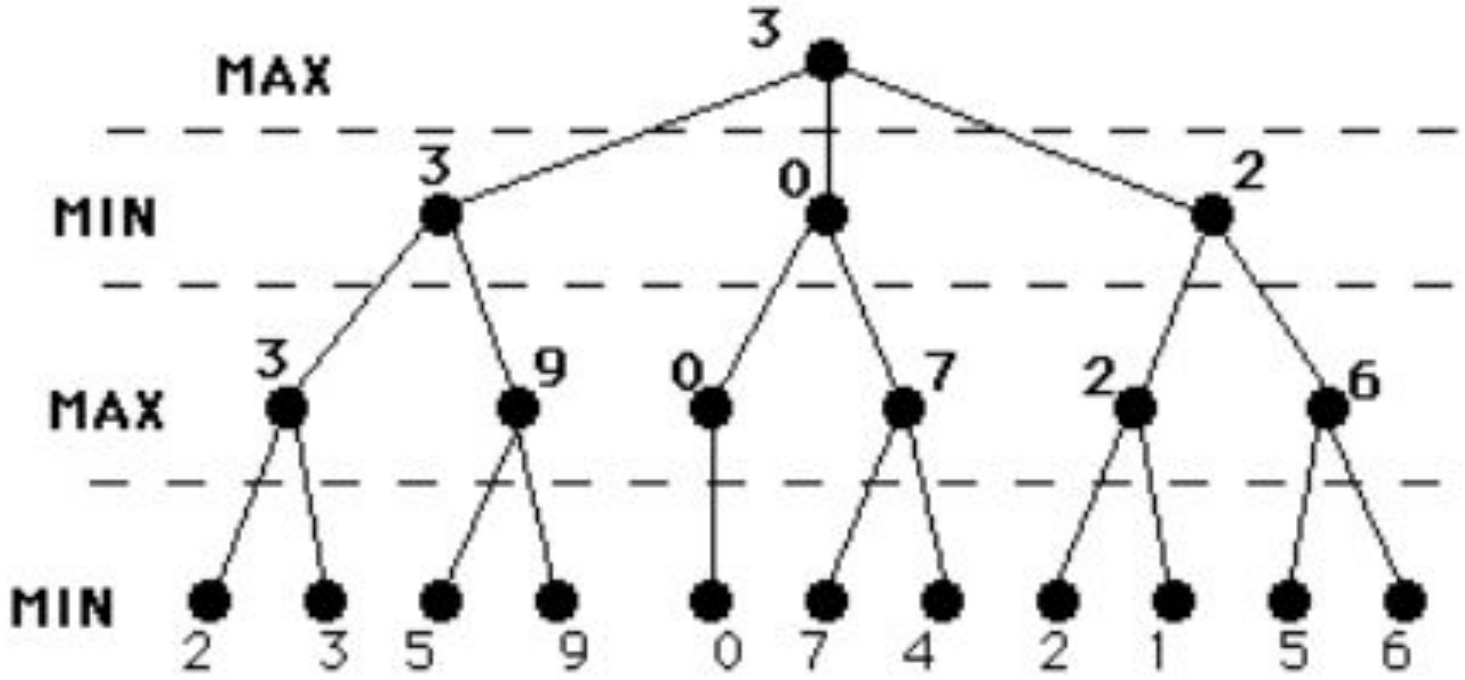
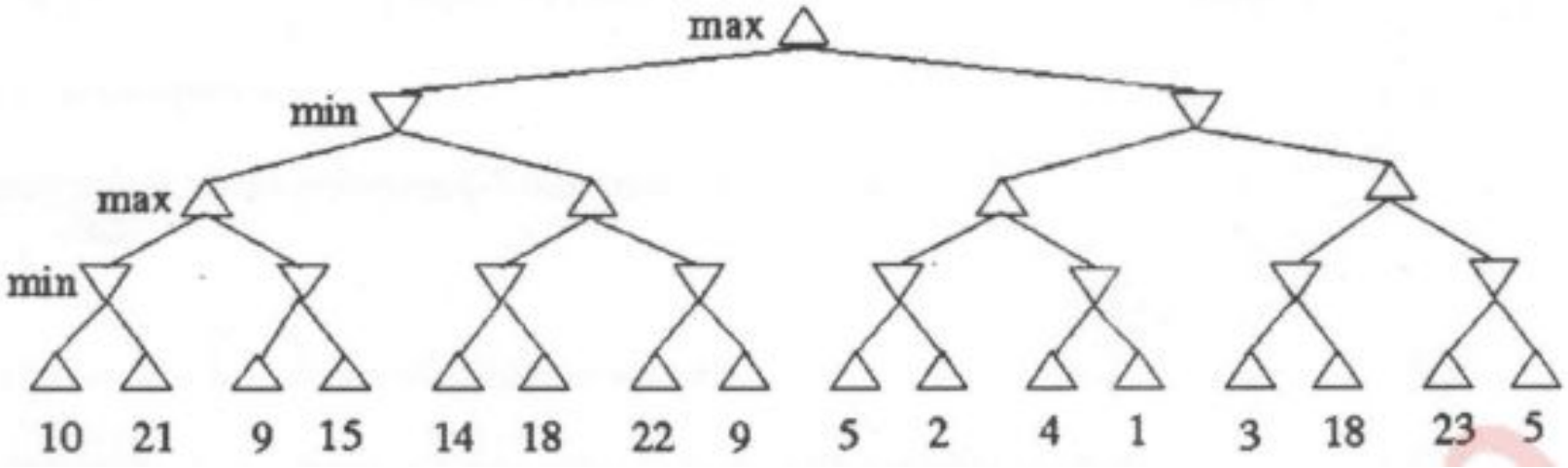
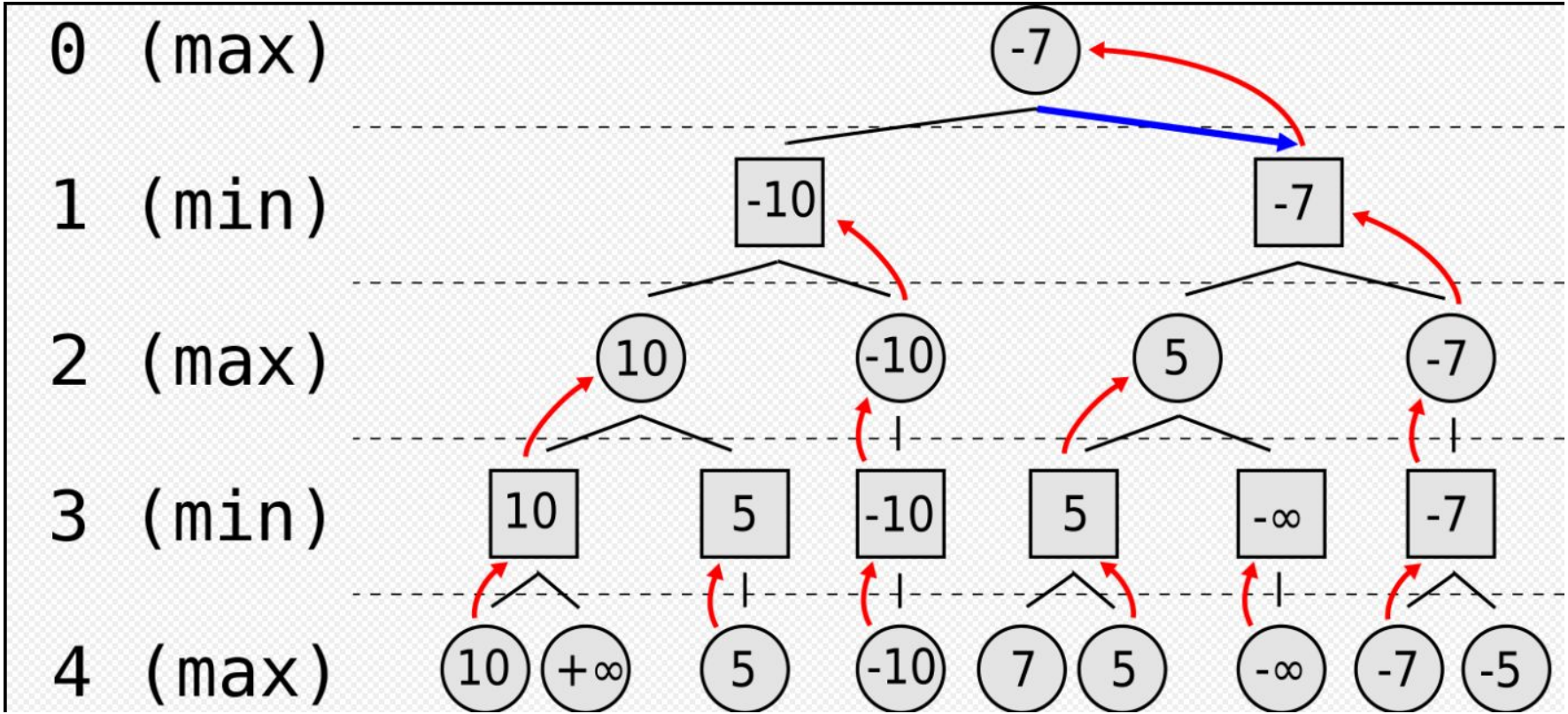


Min Max Example



Min Max Examples



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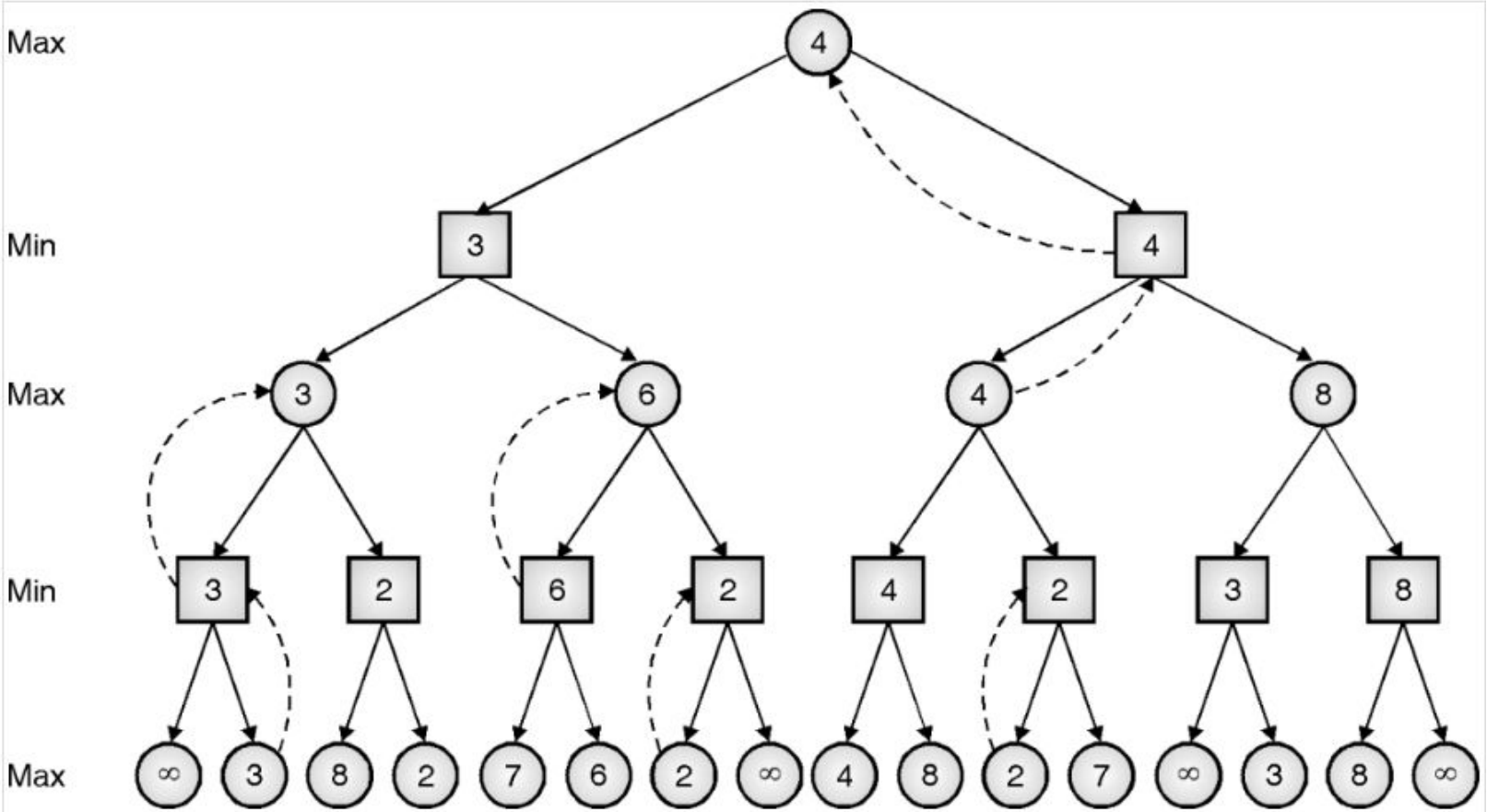

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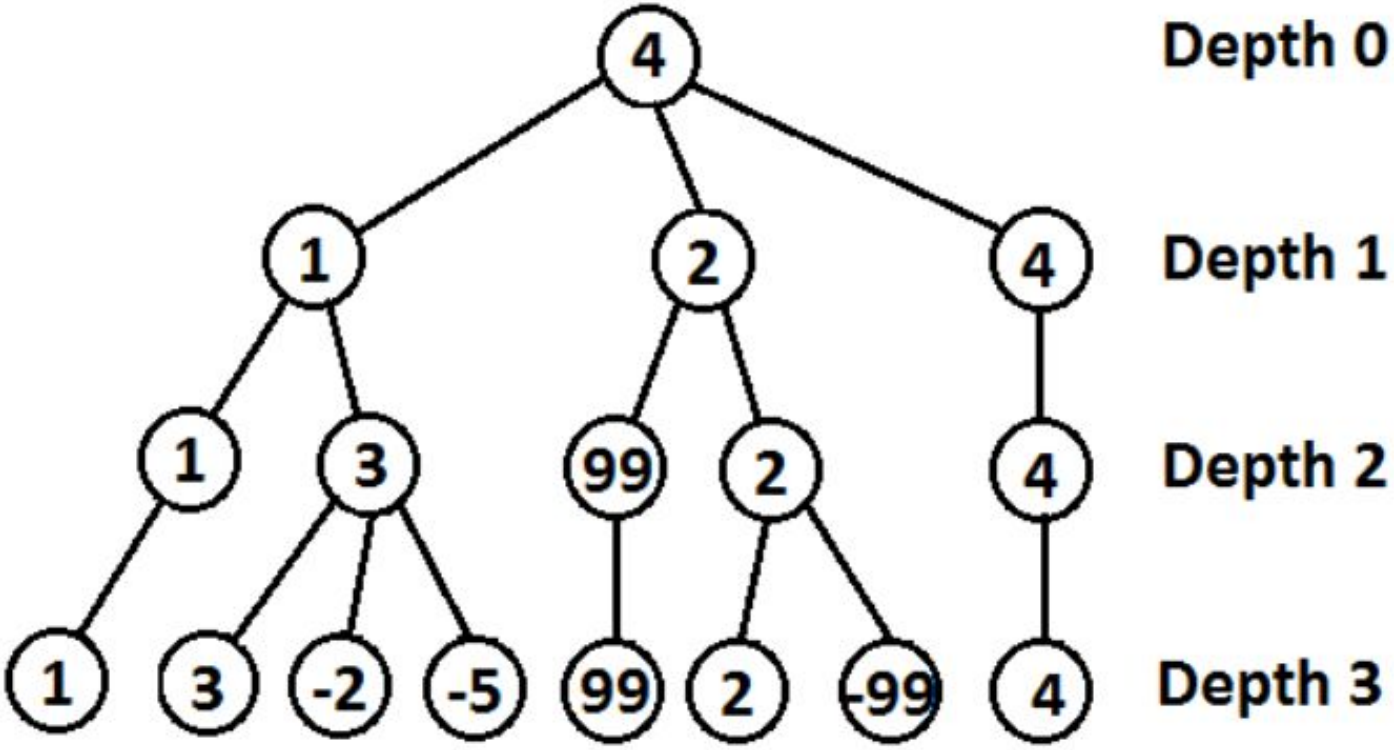
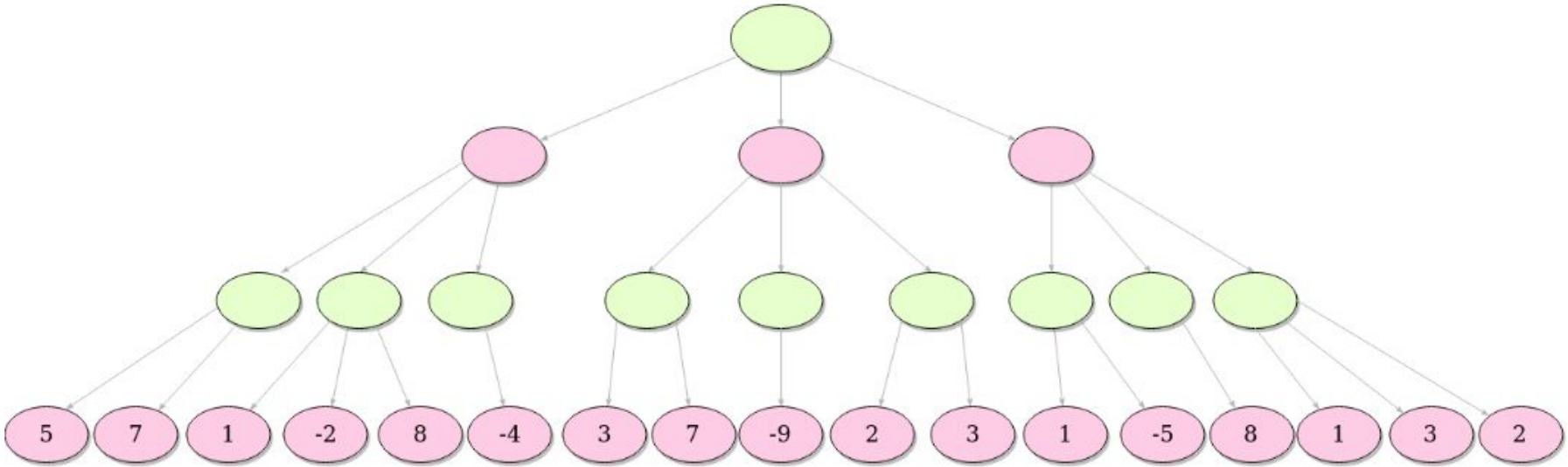
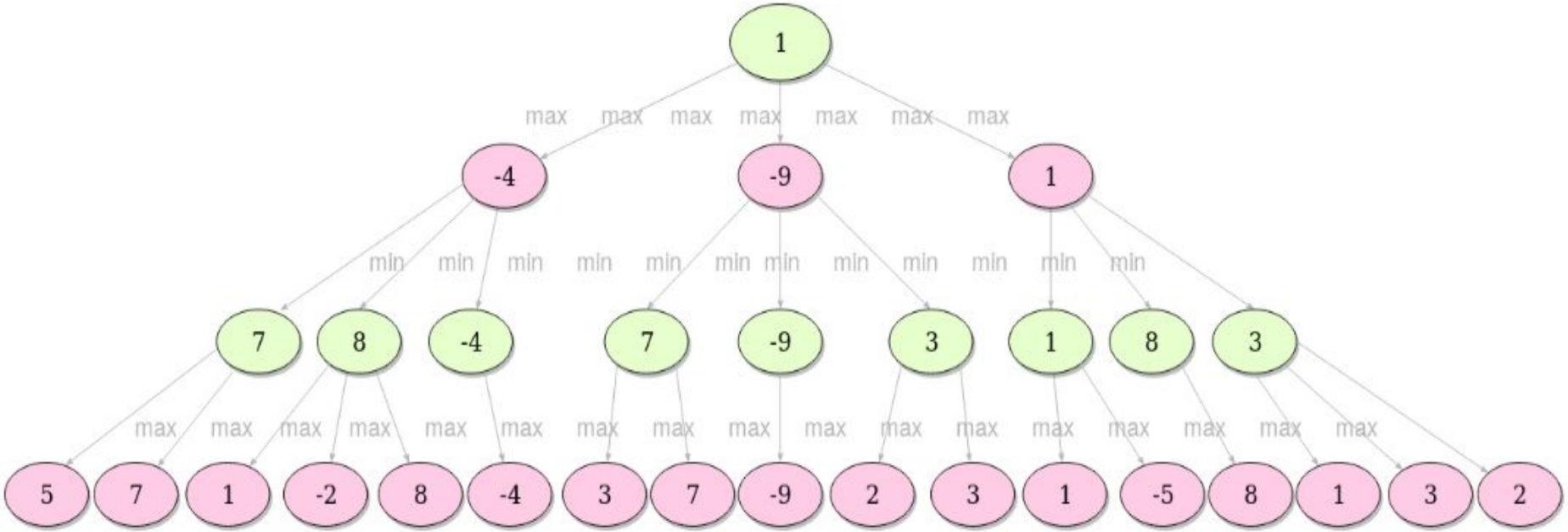


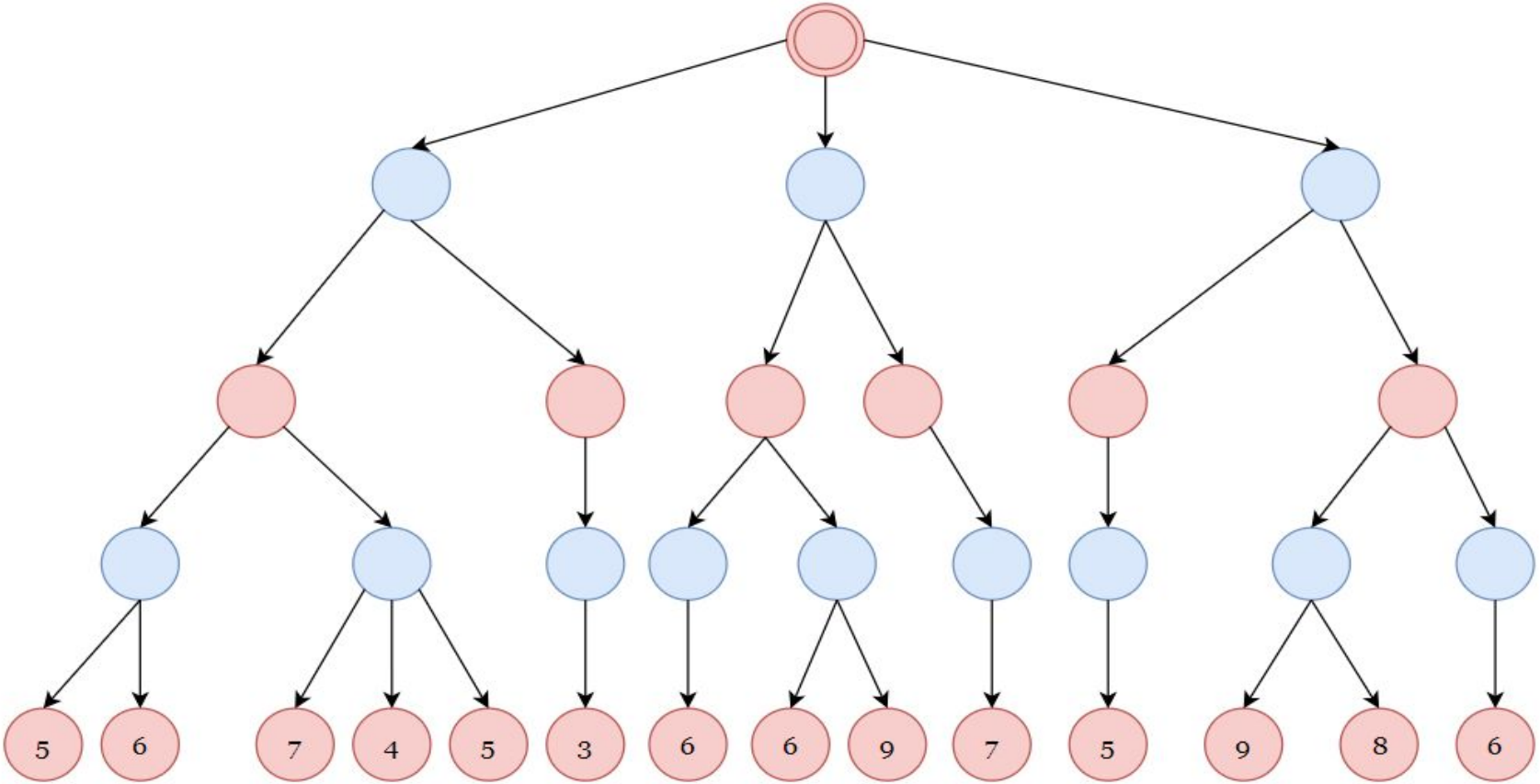
Min Max Examples



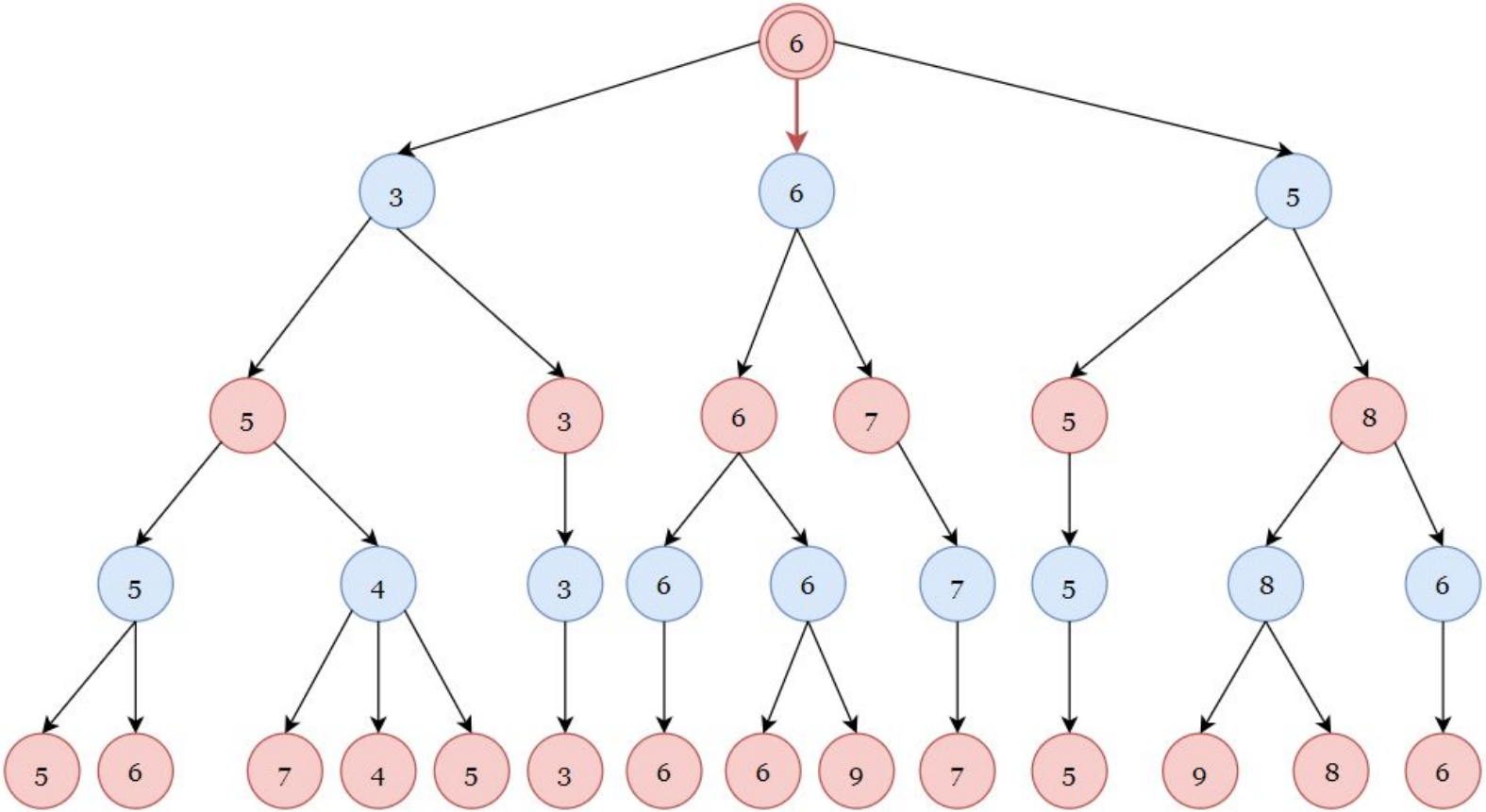
Min Max Examples



Min Max Examples



Min Max Examples



Min Max Examples