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#Ai LAB ASSIGNMENT 3


# Python3 program to demonstrate
# working of Alpha-Beta Pruning

# Initial values of Alpha and Beta
MAX, MIN = 1000, -1000

# Returns optimal value for current player
#(Initially called for root and maximizer)
def minimax(depth, nodeIndex, maximizingPlayer,
                        values, alpha, beta):

    # Terminating condition. i.e
    # leaf node is reached
    if depth == 3:
        return values[nodeIndex]

    if maximizingPlayer:

        best = MIN

        # Recur for left and right children
        for i in range(0, 2):
            val = minimax(depth + 1, nodeIndex * 2 + i,
                                    False, values, alpha, beta)
            best = max(best, val)
            alpha = max(alpha, best)

            # Alpha Beta Pruning
            if beta <= alpha:
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                    break
            return best
        else:
            best = MAX

            # Recur for left and
            # right children
            for i in range(0, 2):

                val = minimax(depth + 1, nodeIndex * 2 + i,
                                        True, values, alpha, beta)
                best = min(best, val)
                beta = min(beta, best)

                # Alpha Beta Pruning
                if beta <= alpha:
                    break

            return best

# Driver Code
if __name__ == "__main__":
    values = [3, 5, 6, 9, 1, 2, 0, -1]
    print("The optimal value is :", minimax(0, 0, True, values, MIN, MAX))
```

#OUTPUT