Program 13
Alpha Beta pruning algorithm for gaming

AIM :
To Create a python program to implement min max algorithm for gaming

PROGRAM :

```
import math

def minimax (curDepth, nodeIndex,
                        maxTurn, scores,
                        targetDepth):

        if (curDepth == targetDepth):
                return scores[nodeIndex]

        if (maxTurn):
                return max(minimax(curDepth + 1, nodeIndex * 2,
                                        False, scores, targetDepth),
                                minimax(curDepth + 1, nodeIndex * 2 + 1,
                                        False, scores, targetDepth))

        else:
                return min(minimax(curDepth + 1, nodeIndex * 2,
                                        True, scores, targetDepth),
                                minimax(curDepth + 1, nodeIndex * 2 + 1,
                                        True, scores, targetDepth))

scores = [3, 5, 2, 9, 12, 5, 23, 23]

treeDepth = math.log(len(scores), 2)

print("The optimal value is : ", end = "")
print(minimax(0, 0, True, scores, treeDepth))
```

OUTPUT:

```
The optimal value is : 12
```

RESULT:
The Program has successfully been executed.