# **Lab Programs**

# Program-01:

#### Question:

Implement Alpha Beta Pruning and trace the input tree manually(by yourself) and check the answer with the obtained Program output. Include tracing steps and program result along with the code.

### Program Code:

```
max_val, mini_val=1000,-1000
def my fun alphabeta(depth,node value,maxp,v,A,B):
 if depth==3:
  return v[node_value]
 if maxp:
  best =mini_val
  for i in range(0,2):
    value=my fun alphabeta(depth+1,node value*2+i,False,v,A,B)
    best=max(best,value)
    A=max(A,best)
    if B<=A:
      break
  return best
 else:
  best=max_val
  for i in range(0,2):
    value=my_fun_alphabeta(depth+1,node_value*2+i,True,v,A,B)
   best=min(best,value)
   A=min(A,best)
   if B \le A:
      break
  return best
graph=[]
x= int(input("Enter total number of leaf node you want:"))
for i in range(x):
  y=int(input("Enter value of node"))
  graph.append(y)
depth=int(input("Depth value is:"))
node value=int(input("Enter node value:"))
print("The final optimal value is:",my_fun_alphabeta(depth,node_value,True,graph,mini_val,max_val))
```

## **Final Results:**

```
PS C:\Users\nethr\OneDrive\Desktop\Skin canser Data\ c:; cd 'c:\Users\nethr\OneDrive\Desktop\Skin canser Data'; & 'C:\Users\nethr\AppData\Local\Programs\Python\Python311\python.exe' 'c:\Users\nethr\AppData\Local\Programs\Python\Python311\python.exe' 'c:\Users\nethr\OneDrive\Desktop\Skin canser Data\'pogram4.py'
Enter total number of leaf node you want:8
Enter value of node3
Enter value of node5
Enter value of node6
Enter value of node6
Enter value of node9
Enter value of node1
Enter value of node2
Enter value of node2
Enter value of node-1
Depth value is:0
Enter node value:0
The final optimal value is: 5
PS C:\Users\nethr\OneDrive\Desktop\Skin canser Data\ []
```

```
The image part with relationship ID rid7 was not found in the file.
```

```
PS C:\Users\nethr\OneDrive\Desktop\Skin canser Data> & 'C:\Users\nethr\AppData\Local\Programs\Python\Python311\python.exe' 'c:\Users\nethr\.vscode\extensions\ms-python.python.python-2023.14.0\pythonFiles\lib\python\debugpy\adapter/../..\debugpy\launcher' '51896' '--' 'c:\Users\nethr\OneDrive\Desktop\Skin canser Data\Program4.py'
Enter total number of leaf node you want:8
Enter value of node5
Enter value of node5
Enter value of node6
Enter value of node9
Enter value of node9
Enter value of node1
Enter value of node4
Enter value of node4
Enter value of node6
Depth value is:0
Enter node value:0
Enter node value is: 5
Enter value of set of noteDrive\Desktop\Skin canser Data> [
```

#### Trace:

```
A = -1000 5
                                 XAM
                    2 (C) R = 1000
                                 MIN
                                 MAK
  At left:
         d = Max (-1000, 3)= 3. d=3, B=1000, N=3.
  At Regul: d = max (3,5)=5. d=5, B=1000 n=max (5,3)=5
At node B
  A B= new (1000,5)= 5 x=1000, B=5 n=5
             d = -1000 , B=5
At node E
                          B=5 N=6.
 d = max (-1000,6) = 6
             675 : Prane 9
At node B
   d=-1000 B= nin (5,6)=5
At node A
     d= max(-1000,5)=5 B=1000 n=5
At node c
    a=5 B=1000.
   node f
      Rehald: 2 = 5 B = 1000.
                      B= 1000.
At node C d=5, B=2.
                        · prine 9.
```