Min - Max Algorithm

Q. Write an algorithm to find minimum and maximum element from given array. Draw min - max tree from the given array and also write its complexity

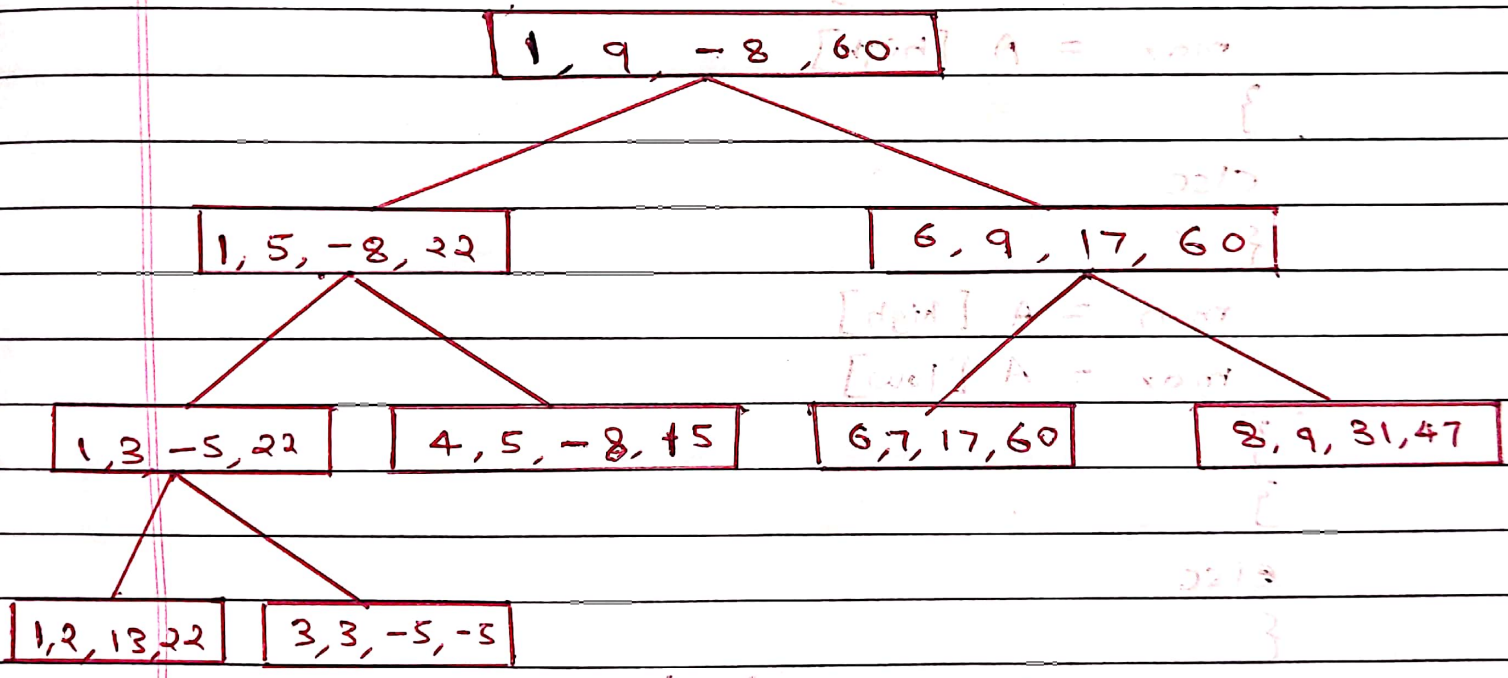
22, 13, -5, -8, 15, 60, 17, 31, 47

Sol^:

Index	1	2	3	4	5	6	7	8	9
Array	22	13	-5	-8	15	60	17	31	47

low, high, min, max

By using, Mid = (Low + High) / 2



Algorithm :

Array Name

```
Min_Max ( A, min, max, low, high)
{
 if (low = = high)     then
 {
   min = max = A [low]
 }
  else
 {
  if (A [low] < A [high])   then
 {
  min  = A [low]
  max  = A [high]
 }
 else
 {
  min = A [high]
  max = A [low]
 }
 }
 else
 {
  mid = (low + high) / 2
  min_max  ( A , low, mid, min, max)
  min_Max ( A, mid + 1, high, min, Max)
 }
 }
 }
```

Complexity : $\log_2 n$

Q. For the following sequence of integers generate min-max Tree.

14, -5, 30, 120, 55, 19, 10, -4, 125, 120, 11

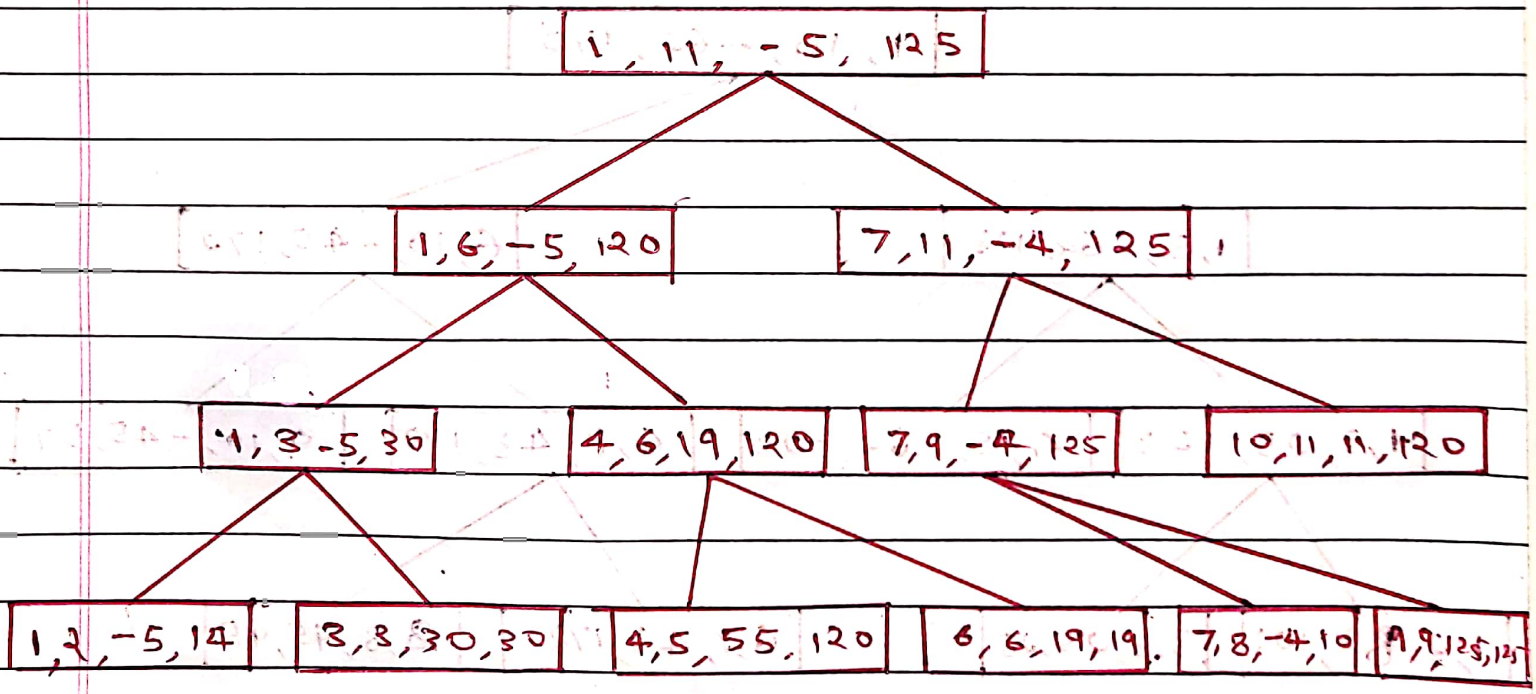
Soln:

Index	1	2	3	4	5	6	7	8	9	10	11
Array	14	-5	30	120	55	19	10	-4	125	120	11

low, high, min, max

Min Max Tree :

By using, mid = (low + high) / 2



Complexity : $\log_2 n$

Q. Write algorithm for finding minimum and maximum element from array.

Draw min-max tree and write its complexity

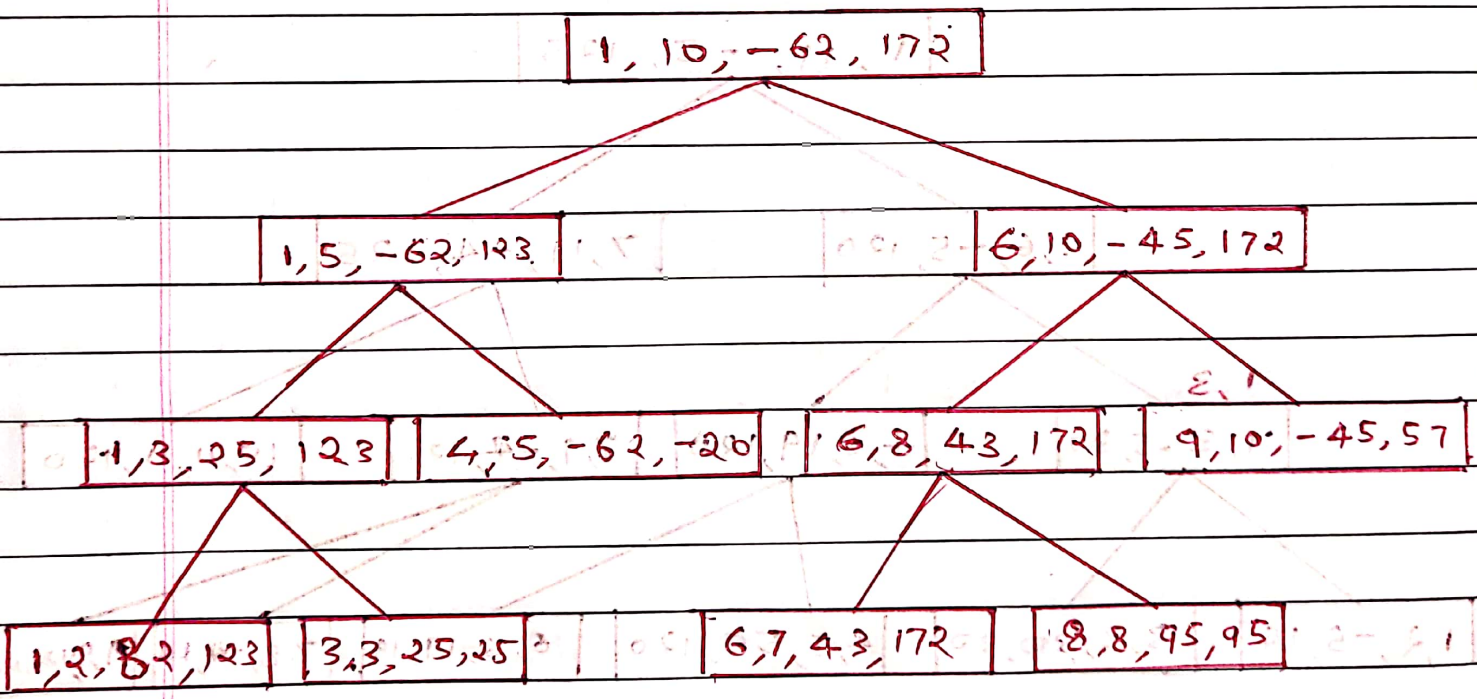
123, 82, 25, -20, -62, 43, 172, 95, 57, -45

Soln:

Index	1	2	3	4	5	6	7	8	9	10
Array	123	82	25	-20	-62	43	172	95	57	-45

low, high, min, max

By using, Mid = (low + high) / 2



Complexity: $\log_2 n$