

2) (PDF) Summer Intern: ...

The Complete Android ...

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Seminar Report on And...

Student Corner

Online Python Compiler

https://www.tutorialspoint.com/execute\_python\_online.php

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codingground

SIMPLY EASY CODING

Execute Python Online (Python v2.7.13)

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ExecuteSharemain.pySTDIN

```
1 def mergeSort(nlist):
2     print("Splitting ",nlist)
3     if len(nlist)>1:
4         mid = len(nlist)//2
5         lefthalf = nlist[:mid]
6         righthalf = nlist[mid:]
7
8         mergeSort(lefthalf)
9         mergeSort(righthalf)
10        i=j=k=0
11        while i < len(lefthalf) and j < len(righthalf):
12            if lefthalf[i] < righthalf[j]:
13                nlist[k]=lefthalf[i]
14                i=i+1
15            else:
16                nlist[k]=righthalf[j]
17                j=j+1
18                k=k+1
19
20        while i < len(lefthalf):
21            nlist[k]=lefthalf[i]
22            i=i+1
23            k=k+1
24
25        while j < len(righthalf):
26            nlist[k]=righthalf[j]
27            j=j+1
28            k=k+1
29        print("Merging ",nlist)
30
31 nlist = [14,46,43,27,57,41,45,21,70]
32 mergeSort(nlist)
33 print(nlist)
```

\$python main.py

('Splitting ', [14, 46, 43, 27, 57, 41, 45, 21, 70])
('Splitting ', [14, 46, 43, 27])
('Splitting ', [14, 46])
('Splitting ', [14])
('Merging ', [14])
('Splitting ', [46])
('Merging ', [46])
('Merging ', [14, 46])
('Splitting ', [43, 27])
('Splitting ', [43])
('Merging ', [43])
('Splitting ', [27])
('Merging ', [27])
('Merging ', [27, 43])
('Merging ', [14, 27, 43, 46])
('Splitting ', [57, 41, 45, 21, 70])
('Splitting ', [57, 41])
('Splitting ', [57])
('Merging ', [57])
('Splitting ', [41])
('Merging ', [41])
('Merging ', [41, 57])
('Splitting ', [45, 21, 70])
('Splitting ', [45])
('Merging ', [45])
('Splitting ', [21, 70])
('Splitting ', [21])
('Merging ', [21])
('Merging ', [21, 70])
('Splitting ', [70])
('Merging ', [70])
('Merging ', [21, 70])
('Merging ', [21, 45, 70])
('Merging ', [21, 41, 45, 57, 70])
('Merging ', [14, 21, 27, 41, 43, 45, 46, 57, 70])
[14, 21, 27, 41, 43, 45, 46, 57, 70]

Activate Windows  
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|Time complexity of Merge Sort is  $O(n \log n)$  in all 3 cases (worst, average and best) as merge sort always divides the array into two halves and take linear time to merge two halves.