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ajeetskbp9843@gmail.com ▾

NPTEL (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » Programming, Data Structures And Algorithms Using Python (course)



Course outline

How does an NPTEL online course work? ()

Week 1 : Introduction ()

Week 1 Quiz ()

Week 2: Basics of Python ()

Week 2 Quiz ()

Week 2 Programming Assignment ()

Week 3: Lists, inductive

Online Test 1, Question 2

Due on 2021-03-09, 12:00 IST

Question 2

Here is an implementation of quicksort, which splits the input list according to the pivot value, sorts each part and arranges the sorted parts with the pivot in between to give the final sorted sequence. There is a small error in the implementation. Provide an input list for which this version of quicksort produces an incorrect output.

```
def quicksortbad(l):
    if len(l) < 2:
        return(l)
    else:
        pivot = l[0]
        smaller = [l[j] for j in range(1,len(l)) if l[j] < pivot]
        bigger = [l[j] for j in range(1,len(l)) if l[j] > pivot]
        rearrange = quicksortbad(smaller) + [pivot] + quicksortbad(bigger)
        return(rearrange)
```

Open up the code submission box below and write your test case where you would normally paste your code. Your input should be a list of numbers.

Sample Test Cases

Test Case 1

Input

Output

True

Test Case 2

True

function definitions, sorting ()

Week 3 Programming Assignment ()

Week 4: Sorting, Tuples, Dictionaries, Passing Functions, List Comprehension ()

Week 4 Quiz ()

Week 4 Programming Assignment ()

Week 5: Exception handling, input/output, file handling, string processing ()

Week 5 Programming Assignment ()

Week 6: Backtracking, scope, data structures; stacks, queues and heaps ()

Week 6 Quiz ()

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment.

Sample solutions (Provided by instructor)

```
1 myinput=''
2 [1,1,2]
3 ''
4
5 def quicksortbad(l):
6     if len(l) < 2:
7         return(l)
8     else:
9         pivot = l[0]
10        smaller = [l[j] for j in range(1,len(l)) if l[j] < pivot]
11        bigger = [l[j] for j in range(1,len(l)) if l[j] > pivot]
12        rearrange = quicksortbad(smaller) + [pivot] + quicksortbad(bigger)
13        return(rearrange)
14
15 def quicksortgood(l):
16     if len(l) < 2:
17         return(l)
18     else:
19         pivot = l[0]
20        smaller = [l[j] for j in range(1,len(l)) if l[j] <= pivot]
21        bigger = [l[j] for j in range(1,len(l)) if l[j] > pivot]
22        rearrange = quicksortgood(smaller) + [pivot] + quicksortgood(bigger)
23        return(rearrange)
24
25 import ast
26
27 try:
28     myarg = ast.literal_eval(myinput.strip())
29 except:
30     print(False)
31 else:
32     try:
33         print(quicksortbad(myarg) != quicksortgood(myarg))
34     except:
35         print(False)
36
```

**Week 7:
Classes,
objects and
user defined
datatypes ()**

**Week 7 Quiz
()**

**Week 8:
Dynamic
programming,
wrap-up ()**

**Week 8
Programming
Assignment
()**

**Text
Transcripts ()**

Books ()

**Download
Videos ()**

**Online
Programming
Test -
Sample ()**

**Online
Programming
Test 1, 01
Dec 2020,
10:00-12:00
()**

**Online
Programming
Test 2, 01
Dec 2020,
20:00-22:00
()**

**Online
Programming
Test 1, 09
Mar 2021,
10:00-12:00
()**

☐ Online Test 1,
Question 1
(/noc20_cs26/progassignment?
name=148)

☐ **Online Test 1,
Question 2
(/noc20_cs26/progassignment?
name=149)**

☐ Online Test 1,
Question 3
(/noc20_cs26/progassignment?
name=151)

☐ Online Test 1,
Question 4
(/noc20_cs26/progassignment?
name=152)

☐ Online Test 1,
Question 5
(/noc20_cs26/progassignment?
name=155)

☐ Online Test 1,
Question 6
(/noc20_cs26/progassignment?
name=156)

☐ Online Test 1,
Question 7
(/noc20_cs26/progassignment?
name=157)

☐ Online Test 1,
Question 8
(/noc20_cs26/progassignment?
name=158)

**Online
Programming
Test 2, 09
Mar 2021,
20:00-22:00
()**