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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 2, Question 8

Due on 2021-03-09, 22:00 IST

Question 8

Write a Python function `maxdifference(1)` that takes a list of pairs of the form `(name,score)` as argument, where `name` is a string and `score` is an integer. Each pair is to be interpreted as the score of the named player. For instance, an input of the form `[('Kohli',73),('Ashwin',33),('Kohli',7),('Pujara',122),('Kohli',66),('Ashwin',90)]` represents three scores of 73, 66 and 7 for Kohli, two scores of 33 and 90 for Ashwin and one score of 122 for Pujara. Your function should compute the difference between the maximum and minimum score for each player and return the list of players for whom this difference is maximum. The list should be sorted in ascending order by the name of the player.

For instance, `maxdifference([('Kohli',73),('Ashwin',33),('Kohli',7),('Pujara',122),('Kohli',66),('Ashwin',90)])` should return `['Kohli']` because Kohli's difference is 66 ($73 - 7$), Ashwin's difference is 57 ($90 - 33$) and Pujara's difference is 0 ($122 - 122$).

Sample Test Cases

Input		Output
Test Case 1	<code>maxdifference([('Kohli',73),('Ashwin',33),('Kohli',7),('Purjara',22),('Pujara',88),('Ashwin',90)])</code>	<code>['Kohli']</code>
Test Case 2	<code>maxdifference([('Kohli',73),('Ashwin',33),('Kohli',82),('Kohli',7),('Pujara',100),('Pujara',25),('Pujara',35),('Ashwin',108)])</code>	<code>['Ashwin', 'Kohli', 'Pujara']</code>

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 ()

Test Case 3	<code>maxdifference([('Kohli',73)])</code>	<code>['Kohli']</code>
Test Case 4	<code>maxdifference([('Kohli',73),('Ashwin',33),('Kohli',69),('Pujara',36),('Pujara',60),('Ashwin',57)])</code>	<code>['Ashwin', 'Pujara']</code>
Test Case 5	<code>maxdifference([('Kohli',73),('Ashwin',23),('Kohli',17),('Pujara',142),('Kohli',45),('Ashwin',60)])</code>	<code>['Kohli']</code>
Test Case 6	<code>maxdifference([('Kohli',73),('Ashwin',32),('Pujara',75),('Ashwin',44),('Kohli',7),('Pujara',22),('Ashwin',98),('Kohli',68)])</code>	<code>['Ashwin', 'Kohli']</code>

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 def maxdifference(l):
2     maximum = {}
3     minimum = {}
4     for (name,score) in l:
5         try:
6             maximum[name] = max(maximum[name],score)
7             minimum[name] = min(minimum[name],score)
8         except KeyError:
9             maximum[name] = score
10            minimum[name] = score
11
12     maxdiff = -1
13     maxlist = []
14
15     for name in maximum.keys():
16         thisdiff = maximum[name] - minimum[name]
17         if thisdiff == maxdiff:
18             maxlist.append(name)
19         if thisdiff > maxdiff:
20             maxdiff = thisdiff
21             maxlist = [name]
22
23     return(sorted(maxlist))
24
25 import ast
26
27 def tolist(inp):
28     inp = ast.literal_eval(inp)
29     return (inp)
30
31 fncall = input()
32 lparen = fncall.find("(")
33 rparen = fncall.rfind(")")
34 fname = fncall[:lparen]
35 farg = fncall[lparen+1:rparen]
36
37 if fname == "maxdifference":
38     arg = tolist(farg)
39     print(maxdifference(arg))
40
```

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

- ☐ Online Test 2,
Question 1
(/noc20_cs26/progassignment?
name=160)
- ☐ Online Test 2,
Question 2
(/noc20_cs26/progassignment?
name=161)
- ☐ Online Test 2,
Question 3
(/noc20_cs26/progassignment?
name=162)
- ☐ Online Test 2,
Question 4
(/noc20_cs26/progassignment?
name=163)
- ☐ Online Test 2,
Question 5
(/noc20_cs26/progassignment?
name=164)
- ☐ Online Test 2,
Question 6
(/noc20_cs26/progassignment?
name=165)
- ☐ Online Test 2,
Question 7
(/noc20_cs26/progassignment?
name=166)
- ☐ **Online Test 2,
Question 8
(/noc20_cs26/progassignment?
name=167)**