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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 function

Week 6 Quiz

The due date for submitting this assignment has passed.

Due on 2020-03-11, 23:59 IST.

As per our records you have not submitted this assignment.

All questions carry equal weightage. All Python code is assumed to be executed using Python3. You may submit as many times as you like within the deadline. Your final submission will be graded.

Note:

- If the question asks about a value of type string, remember to enclose your answer in single or double quotes.
- If the question asks about a value of type list, remember to enclose your answer in square brackets and use commas to separate list items.

1) Suppose u and v both denote sets in Python. Under what condition can we guarantee that $u - (v - u) == u$? **2.5 points**

- ☐ The sets u and v should be disjoint.
- ☐ The set u should be a subset of the set v
- ☐ The set v should be a subset of the set u
- ☐ This is true for any u and v .

No, the answer is incorrect.

Score: 0

Feedback:

$v - u$ has no elements from u , so $u - (v - u)$ removes nothing from u and is hence always equal to u .

Accepted Answers:

This is true for any u and v .

2) Suppose u and v both denote sets in Python. and $u \cap v \neq u \cup v$. What can we conclude about u and v ? **2.5 points**

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
()

☐ Quiz: Week 6
Quiz

- ☐ The sets u and v should overlap.
- ☐ The set v should be a subset of the set u .
- ☐ The set u should be a subset of the set v .
- ☐ This is true for any u and v .

No, the answer is incorrect.
Score: 0

Feedback:

If the two sets were disjoint, we would have $u \cap v == u \cap v$. Since the two expressions are not equal, it must be that the sets overlap.

Accepted Answers:

The sets u and v should overlap.

3) Which of the following *does not* correspond to a min-heap on the list of values **2.5 points**
[19,97,83,45,72,55,31,28,31,29].

- ☐ [19, 28, 72, 31, 29, 83, 97, 55, 45, 31]
- ☐ [19, 31, 28, 45, 31, 97, 29, 72, 55, 83]
- ☐ [19, 28, 29, 31, 31, 45, 55, 72, 83, 97]
- ☐ [19, 28, 29, 31, 45, 83, 97, 55, 72, 31]

No, the answer is incorrect.
Score: 0

Feedback:

In [19, 28, 29, 31, 45, 83, 97, 55, 72, 31], value 45 has left child 31.

Accepted Answers:

[19, 28, 29, 31, 45, 83, 97, 55, 72, 31]

4) Consider the min-heap [19, 28, 31, 31, 29, 83, 55, 97, 45, 72]. Suppose we apply **2.5 points**
the operation `delete_min()` to this min-heap. The resulting min-heap is:

- ☐ [28, 29, 31, 31, 97, 83, 55, 72, 45]
- ☐ [28, 29, 31, 31, 72, 83, 55, 97, 45]
- ☐ [28, 29, 31, 31, 83, 72, 55, 97, 45]
- ☐ [28, 29, 31, 31, 55, 83, 72, 97, 45]

No, the answer is incorrect.
Score: 0

Feedback:

Execute `delete_min` and check.

Accepted Answers:

[28, 29, 31, 31, 72, 83, 55, 97, 45]

(assessment?
name=105)

**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

()