

Q4 (weeks 1-4)

⚠ This is a preview of the published version of the quiz

Started: Apr 5 at 9:27am

Quiz Instructions



Question 1

0.2 pts

The X class is a parent of the Y class; both have an `__init__` method. Both `__init__` methods are guaranteed to run when a new instance of Y is created, regardless of the code in Y's `__init__` method.

- ☐ True
- ☐ False



Question 2

0.2 pts

There may be multiple frames corresponding to the same function on the stack at the same time.

- ☐ True
- ☐ False

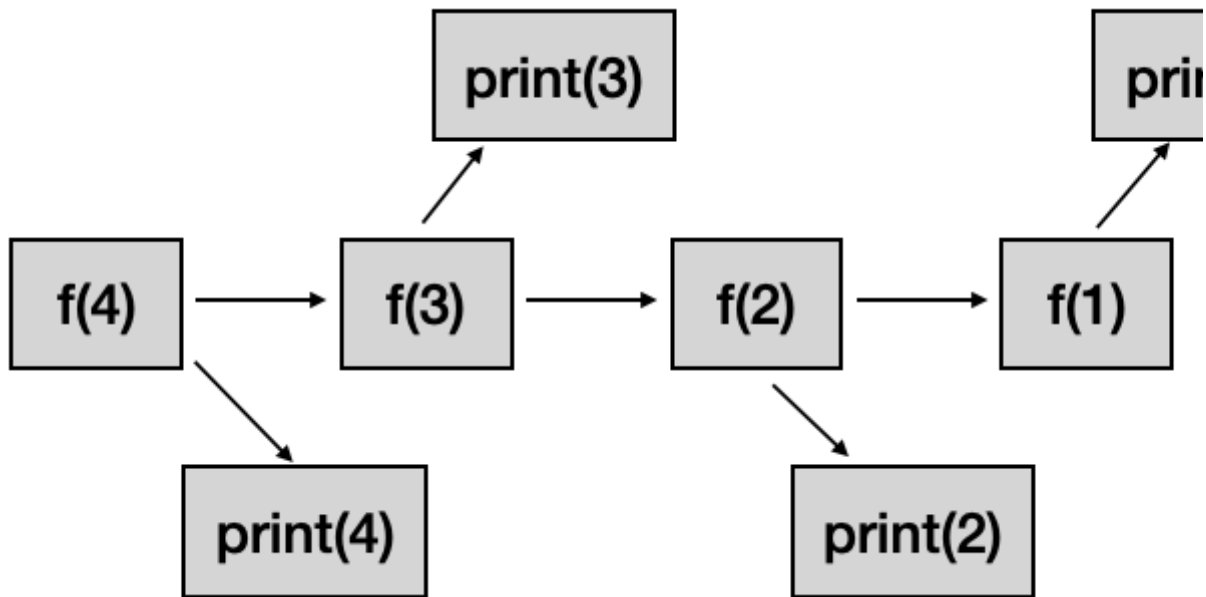


Question 3

0.2 pts

Consider the following call graph drawn as somebody is tracing through a recursive

function call, using the same technique demonstrated in the lecture:



What is the second number printed?

- ☐ 1
- ☐ 2
- ☐ 4
- ☐ 3



Question 4

0.2 pts

Which of the following statements about connectivity is true?

- ☐ the distinction between weak/strong connectivity only matters for undirected graphs, not directed graphs
- ☐ all DAGs are connected
- ☐ all strongly connected graphs are also weakly connected
- ☐ all weakly connected graphs are also strongly connected

**Question 5****0.2 pts**

Let N be the length of `nums`. The following code is $O(N^2)$. What optimization would make it be $O(N)$?

```
nums = ... # hidden

def avg(values):
    return sum(values) / len(values)

big_nums = []
total = sum(nums) # line A
count = len(nums) # line B
for x in nums:
    if x > sum(nums) / len(nums): # line C
        big_nums.append(x) # line D
```

- ☐ line C: replace "sum(nums)" with "total"
- ☐ line C: replace "sum(nums) / len(nums)" with "avg(nums)"
- ☐ Line C: replace "len(nums)" with "count"
- ☐ delete lines A and B
- ☐ line D: replace the line with "print(x)"

Not saved

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