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OLD: Practice Exam 1 (Spring 2024)

This is a preview of the draft version of the quiz

Honorlock Chrome Extension

This assessment requires Google Chrome and the Honorlock Chrome Extension.

Extension Required

Add the Honorlock extension to continue

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Get Started

Honorlock Chrome Extension

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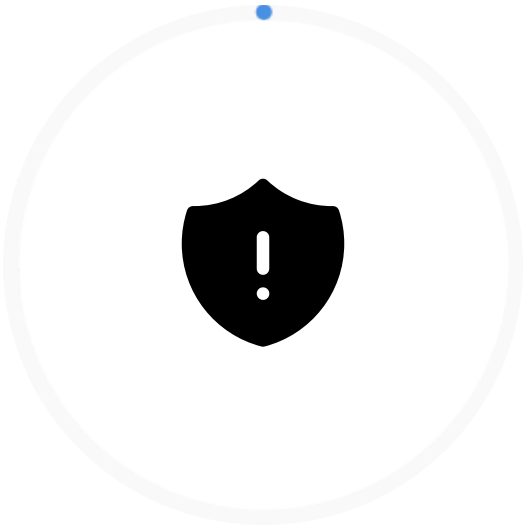

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Get Started

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Quiz Type	Practice Quiz
Points	12.5
Shuffle Answers	No
Time Limit	40 Minutes
Multiple Attempts	Yes
Score to Keep	Highest
Attempts	Unlimited
View Responses	Always
Show Correct Answers	After Feb 29 at 10:26pm
One Question at a Time	No

Due	For	Available from	Until
-	Everyone	-	-

Preview

Submitted Oct 8 at 1:56pm

NOTE: This exam has been edited due to two incorrect questions from the semester in which it was given. You can expect the exam for this semester to be slightly longer.

Question 1
0.5 / 0.5 pts

Which of the following translates Python code into machine code for a given instruction set?

- CPU
- Virtual machine

Correct!

- Interpreter
- Operating system
- Version control system

Question 2

1 / 1 pts

Image 1:

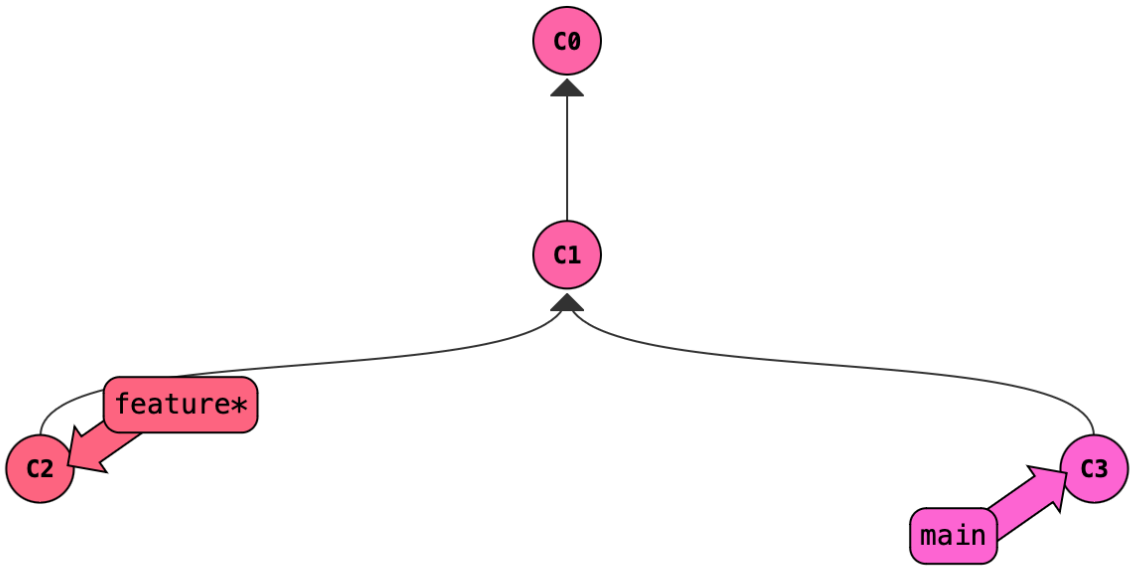
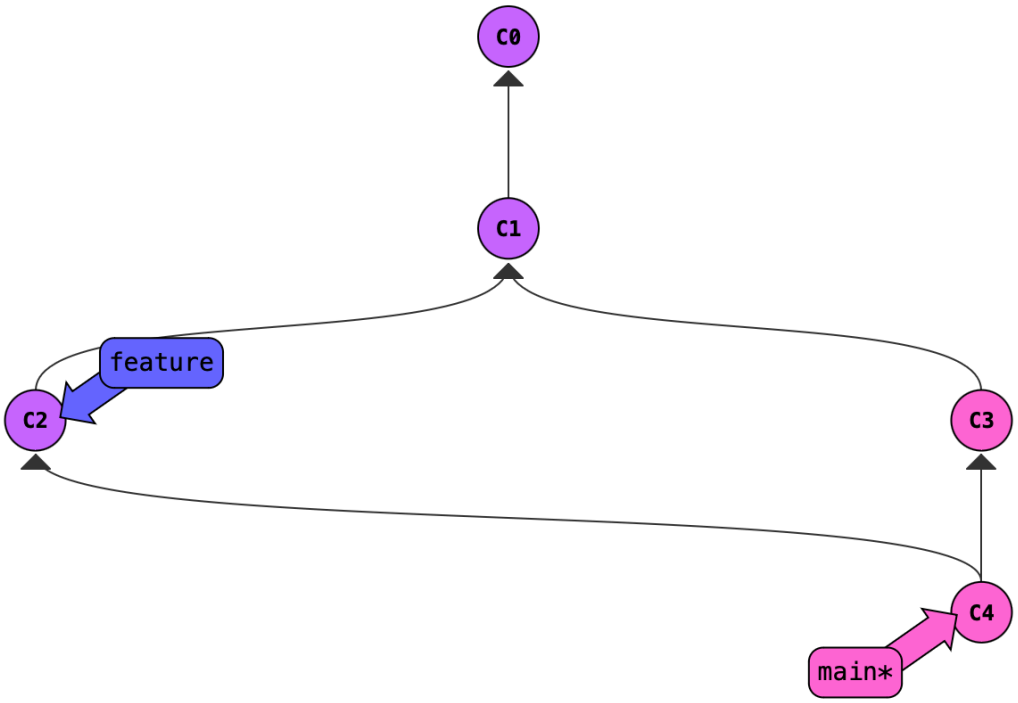


Image 2:



Suppose you have the git setup pictured in **Image 1** (two branches named *feature* and *main* with different commits and *HEAD* pointing to *feature*). Which git command(s) would produce the setup shown in **Image 2**? (Assume commands on separate lines are entered sequentially).

Hint: Please note where the head is currently pointing to.

Correct!

- git checkout main
- git merge feature
- git merge feature
- git checkout main
- git checkout main
- git pull

Question 3
1 / 1 pts

Let n be an integer. What is the time complexity of the following code snippet?

```
nums = []
for i in range(n):
```

```
    nums.insert(0, i)
```

- $O(1)$
- $O(n)$
- $O(\log n)$

Correct!

- $O(n^2)$

Question 4

1 / 1 pts

True or False, if a function $f(n)$ is in $O(\frac{1}{2}n^2)$ then $f(n)$ must be in $O(n \log n)$?

- True

Correct!

- False

Question 5

1 / 1 pts

What does the following code print?

```
class Badger:
    name = “Mr. Badger”
    def __init__(self, weight):
        self.name = “Bucky”
        self.weight = weight

new_badger = Badger(15)
print(new_badger.name)
```

- new_badger.name

Correct!

- Bucky
- 15
- Mr. Badger

Question 6

1 / 1 pts

What does the following code print?

```
class TA:
    def __init__(self, name, favorite_numbers):
        self.name = name
        self.favorite_numbers = favorite_numbers
    def __len__(self):
        return len(self.favorite_numbers)//2

favorite_ta = TA("Elliot", [2,7,1,8])
print(len(favorite_ta))
```

Correct!

- (•) 2
- ( ) 4
- ( ) 1
- ( ) 7

Question 7

0.5 / 0.5 pts

True or False, in order to call sorted on a list of custom objects, you must implement the __eq__ method.

- ( ) True

Correct!

- (•) False

Question 8

1 / 1 pts

What is the output of the following code?

```
def foo(a, b):
    while True:
```

```
    yield a * b
    a += 1
    b = a - 2

gen = foo(2, 3)
print(next(gen))
print(next(gen))
print(next(gen))
```

Correct!

- 6
  3
- 8
  3
  8
- 15
  3
  8
- 6
  6
  0
- 8

Question 9
1 / 1 pts

```
class Rectangle:
  def __init__(self, width, height):
    self.width = width
```

```
        self.height = height
        self.area = width * height
    def calculate_area(self):
        return self.height * self.width


class Square(Rectangle):
    def __init__(self, side_length):
    # Missing line
```

Suppose we wish to call the parent class constructor of Square from within the constructor of Square. What should we replace "# missing line" with?

Correct!

- super().__init__(side_length, side_length)
- super().__init__(side_length)
- Rectangle(side_length)
- Rectangle(side_length, side_length)

Question 10
1 / 1 pts

What is the output of the following code?

```
def foo(n):
    if n <= 1:
        return 1
    else:
        return foo(n-1) + foo(n-2)


print(foo(5))
```

- 13

- 5
- 15

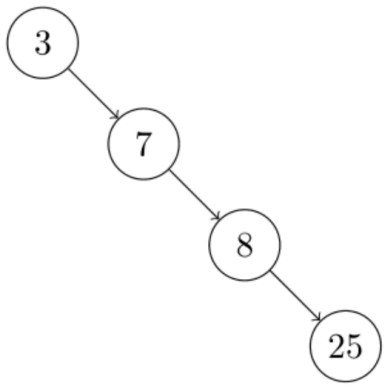
Correct!

- 8

Question 11

0.5 / 0.5 pts

Is this a valid BST?



Correct!

- Yes
- No

Question 12

0.5 / 0.5 pts

Which data structure would best help us efficiently implement **breadth-first search** in a graph?

- dictionary

Correct!

- deque
- list
- data frame

Question 13

0.5 / 0.5 pts

What is the output of the following code?

```
from collections import deque

todo = deque(["B", "A", "D", "C"])

todo.append("E")
```

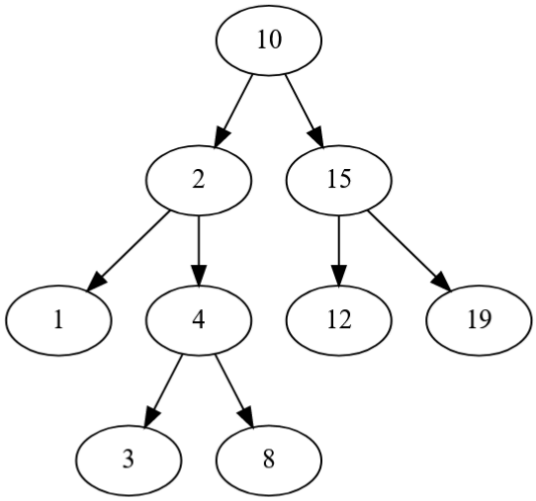
```
x = todo.popleft()

print(x)
```

Correct!

- (selected) B
- E

Question 14

1 / 1 pts



Consider the above BST with root node **10.** In what order will the nodes be visited if we start from node **10** (the root node) and perform a ***breadth-first search*** for node **12**?

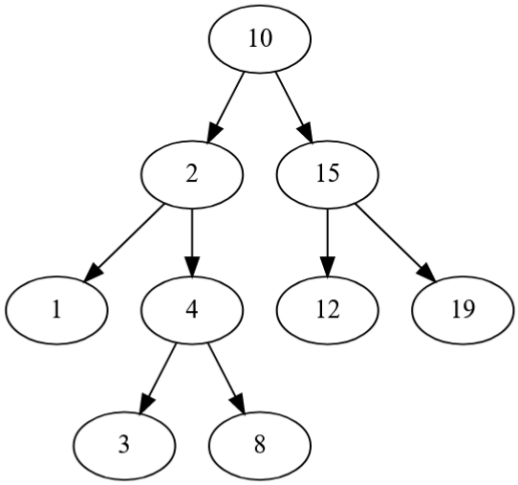
- 10, 2, 15, 12

Correct!

- (selected) 10, 2, 15, 1, 4, 12
- 10, 2, 4, 12
- 10, 2, 1, 4, 12

Question 15

1 / 1 pts



Consider the above BST with root node **10.** In what order will the nodes be visited if we start from node **10** (the root node) and perform a ***depth-first search*** for node **4**?

- 10, 2, 15, 4

Correct!

- 10, 2, 1, 4
- 10, 2, 15, 12, 19, 1, 4
- 10, 15, 12, 4