Name _____

CPADS Lab Activity #6

Program #1

```
def main():
    count = 5

    for num in range(count):
        print(num)
        print(count)

main()
```

(handwritten: (0-4) → 5)

(handwritten table:)

num	count
0	5
1	
2	
3	
4	

In English, describe what the program above does. What output you think the above program will produce? Verify your prediction by typing the code into PyCharm and running the program.

(handwritten: 0 5 1 5 2 5 3 5 4 5)

Program #2

```
def main():
    total = 0
    count = 4

    for num in range(count):
        total = total * num

    print(total)

main()
```

(handwritten: (0-3))

(handwritten table:)

total	count	num
0	4	0
0		1
0		2
0		3
0		

In English, describe what the program above does. What output you think the above program will produce? Verify your prediction by typing the code into PyCharm and running the program.
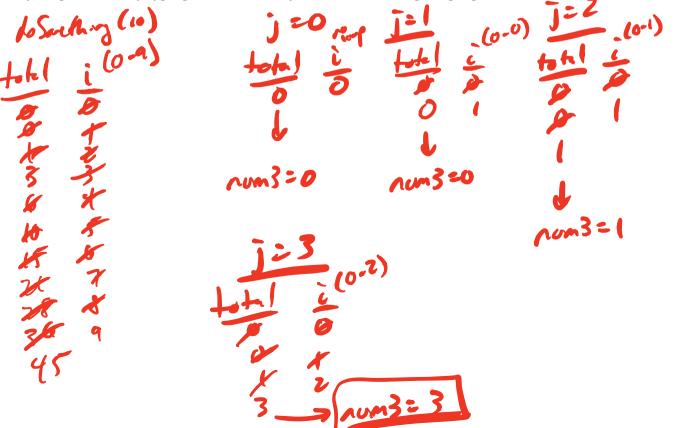
(handwritten: prints 0)

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Program #3

```python
def doSomething(val):
    total = 0
    for i in range(val):
        total = total + i
    return total


def main():
    # Define variables
    num1 = 10
    num2 = 4
    num3 = 0

    # Do computation
    result1 = doSomething(num1)
    print(result1)

    # Do another computation
    for j in range(num2):
        num3 = doSomething(j)

    # Print output
    print(num3)

main()
```

adds integers between $0 \to val-1$

45

10

prints 45

overwrites num3 each iteration

prints 3

In English, describe what the program above does. What value does the print statement output? Verify your prediction by typing the code into PyCharm and running the program.

doSomething(10)

total	i (0-9)
0	0
0	1
1	2
3	3
6	4
10	5
15	6
21	7
28	8
36	9
45	

j=0 loop

total	i
0	0

num3=0

j=1 (0-0)

total	i
0	0
0	1

num3=0

j=2 (0-1)

total	i
0	0
0	1
1	1

num3=1

j=3 (0-2)

total	i
0	0
0	1
1	2
3	

num3=3

Name _____

Sketch what output you think the following program will produce.

Program #4
```
import turtle

def doSomething(t,len,val):
    ang = 180 - 180/val
    t.pendown()
    for i in range(val):
        t.forward(len)
        t.right(ang)
        t.forward(len)

def main():
    bob = turtle.Turtle()
    bob.delay = 0.01

    # Define variables
    size = 25

    # Draw graphics
    for i in range(3):
        doSomething(bob,size,2*i+3)
        bob.penup()
        bob.forward(size*3)

    # Press enter to exit
    input('Press enter to exit')

main()
```

(handwritten annotations:) } draws stars with val points

i = 0-2
2*i+3 = 3,5,7
← forward 75

Verify your prediction by typing the code into PyCharm and running the program.

(handwritten:)
i=0   ang = 60
i=1   ang = 144
i=2   ang = 154.3