

CSCI.UA.0002
Midterm Exam #2 - PRACTICE
Introduction to Computer Programming (Python)

Name: _____

NetID / Email: _____

1. Trace the output of the following programs

```
for x in range(10, 15):  
    print (x)
```

```
for x in range(10, 5):  
    print (x)
```

```
for x in range(5, 7):  
    counter = 0  
    while counter < 3:  
        print (x, ":", counter)  
        counter += 1
```

```
word = "foobar"  
print (word[0])  
print (word[2])  
print (word[0:2])  
print (word[:2])  
print (word[::2])  
print ("foo" in word)  
print (word.find("bar"))  
print (word.replace("foo", "bar"))  
print (word)
```

```
def x(y):  
    print (y)  
    y += 1  
    z(y)  
    print ("ok")
```

```
def z(y):  
    print (y)
```

```
x(5)
```

2. What will print when the following program is run?

```
c = 0
```

```
for z in range(2):
```

```
    for x in ['a','b']:
```

```
        for y in ['p','q']:
```

```
            print (z,x,y,c)  
            c+=1
```

```
print (c)
```

3. Write a ***function*** to calculate the discount on a purchase from an on-line t-shirt store.

All t-shirts on the site sell for \$20. Quantity discounts are given as follows:

<u>Quantity</u>	<u>Discount</u>
1-9	none
10-19	15%
20-49	25%
50-99	35%
100 or more	45%

Your function should accept the number of t-shirts purchased *as an argument* and *return* the total cost after the discount. Comment your function using IPO notation.

Note: you are not writing a full program for this question -you will do that in the next question. Just write the function as specified.

4. Write a program that prompts the user for a number of t-shirts that they wish to purchase from an on-line store. The user can only enter values greater than zero – anything else should cause the program to print an error and ask for another number.

Utilize the function you wrote for the previous question and generate output like the following. Note that you do not need to re-write your function here – you can simply call it as though it was already defined in this program. You should prompt your user at the end of your program to see if they would like to purchase additional t-shirts and, if so, you should run your program again.

```
How many t-shirts would you like to purchase? 10
```

```
Original cost: $ 200.00
```

```
Cost after discount: $ 170.00
```

```
Thanks for your order!
```

```
Would you like to purchase more t-shirts? (yes/no): no
```

5. Write a price-averaging program that asks the user how many products they have purchased on a recent shopping trip. You can assume they will enter a positive integer value. Next, prompt the user for the amount they paid for each product and calculate their average cost per product, formatted to two decimal points. You can assume the user will enter floating-point numbers, but you should constrain users to positive values only.

You do not need to prompt the user at the end of the program to see if they wish to continue.

Here is a sample running of this program:

```
How many products did you purchase? 3
```

```
1  How much did this product cost? 54.00
```

```
2  How much did this product cost? -100
```

```
Sorry, only positive values allowed.  Please try again.
```

```
2  How much did this product cost? 98.00
```

```
3  How much did this product cost? 87.00
```

```
Average Cost: 79.67
```

6. You have been given the following String which represents a series of 6 side die rolls:

```
rolls = "1,5,2,3,5,4,4,3,1,1,1,2,3,1,5,6,2"
```

Write a program that analyzes the rolls and computes the following:

- The total # of rolls
- The total value of all rolls (i.e. 1+5+2+3... etc)
- The average roll

Here's a sample running of your program:

```
Total # of rolls: 17  
Total value of all rolls: 49  
Average roll: 2.8823529411764706
```

Python Command Index

Core Language Elements and Functions	Module Functions
and chr def del elif else except float for format global if import in input int max min not open or ord print range return str str.lower str.upper try while	random.randint String Testing Methods isalpha() isdigit() islower() isupper() isspace() isalnum() find() String Modification Methods rstrip() lstrip() lower() upper() capitalize() title() swapcase() replace()