

NAME:
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CIRCLE COURSE SECTION: MW 11-1 TTh 1-3 TTh 4-6 TTh 6-8

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Lehman College, CUNY
CMP 230 Exam 2, Version 1, Spring 2012

1. What will the following code print:

```
capitals = "Abuja+Freetown+Rabat+Cairo+Accra"
s = capitals.split("+")
print(s)
a = s[0]
b = s[1].lower()
c = s[2].lower()
print(a,b,c)
d = s[3].lower()
e = d[2:]
f = s[4]
print("{0} is part of {1}".format(e,d))
last = a[0] + b[0] + c[0] + e[0] + d[0] + f[0]
print(last)
```

2. Write a **function** that takes as a parameter a list of strings and returns a list containing the last letter of each of the strings.
3. What will the following program print:

```
def first():
    print("one person")
def repeat():
    print("They are", end=" ")
def second(s):
    print(s)
    repeat()
    print("three together")
    return(s.find("a"))
def test():
    repeat()
    first()
    repeat()
    m = "two alone"
    x = second(m)
    repeat()
    print(x, "each other")
test()
```

4. Fill in the missing function definitions for this program:

```
def main():
    welcome()          #Prints "Hello, world" to the screen
    x,y = userInput()  #Asks user for 2 inputs and returns numbers entered
    d = calculate(x,y) #Returns the difference of the parameters
    displayResults(x,y,d) #Prints the two inputs, and d
main()
```

(That is, write the functions `welcome()`, `userInput()`, `calculate()` and `displayResults()`.)

5. What is printed when the function is invoked on the inputs below:

```
def baggageFees(numBags, weight):
    if numBags <= 0 or weight <= 0:
        print("Enter positive numbers only!")
    elif weight < 100:
        print("You may have up to 2 bags with total weight 100 or less")
    elif numBags > 2:
        print("There is an extra charge of $50 per bag")
    else:
        print("Too much weight or baggage. Please see agent.")
```

- (a) baggageFees(2,99.5)
- (b) baggageFees(5,200)
- (c) baggageFees(1,100.5)

6. Write a **function** that takes as a parameter the zone and returns the Long Island Railroad fare. If the zone is 2 or smaller, the fare is 7.25. If the zone is 3, the fare is 8.75. If the zone is greater than or equal to 4 and less than or equal to 6, the fare is 10.00. If the zone is greater than or equal to 7 and less than or equal to 8, the fare is 11.50. If the zone is 9, the fare is 13.50. If the zone is greater than or equal to 10, the fare is 20.00.

7. What will the following code print:

```
nums = [10,2,12,8,15,9,18,8,10,7]
m = 20
M = 0
for i in nums:
    if i < m:
        m = i
    elif i > M:
        M = i
print(m,M)
```

8. Write a **function** that takes as a parameter a list of numbers and returns the number of the items that are multiples of 3.

9. Given the following program and input file, what is printed:

```
def main():
    infile = open("in.txt", "r")
    for line in infile.readlines():
        print(line)
        if line[0] == "a":
            print(line.upper())
    infile.close()
main()
```

in.txt

You must write,
and read,
as if your life
depended on it.

10. Write a **program** that reads in a text file, `infile.txt`, and writes out the contents to another file, `outfile.txt`, in all upper case.

Useful String Methods: (from p 140 of textbook)

Function	Meaning
<code>s.capitalize()</code>	Copy of <code>s</code> with only the first character capitalized.
<code>s.center(width)</code>	Copy of <code>s</code> is centered in a field of given width.
<code>s.count(sub)</code>	Count the number of occurrences of <code>sub</code> in <code>s</code> .
<code>s.find(sub)</code>	Find the first position where <code>sub</code> occurs in <code>s</code> .
<code>s.join(list)</code>	Concatenate <code>list</code> into a string using <code>s</code> as a separator.
<code>s.ljust(width)</code>	Like <code>center</code> , but <code>s</code> is left-justified.
<code>s.lower()</code>	Copy of <code>s</code> with all characters converted to lowercase.
<code>s.lstrip()</code>	Copy of <code>s</code> with leading whitespace removed.
<code>s.replace(oldsub,newsub)</code>	Replace all occurrences of <code>oldsub</code> in <code>s</code> with <code>newsub</code> .
<code>s.rfind(sub)</code>	Like <code>find</code> , but returns rightmost position.
<code>s.rjust(sub)</code>	Like <code>center</code> , but <code>s</code> is right-justified.
<code>s.rstrip()</code>	Copy of <code>s</code> with trailing whitespace removed.
<code>s.split()</code>	Split <code>s</code> into a list of substrings.
<code>s.title()</code>	Copy of <code>s</code> with first character of each word capitalized.
<code>s.upper()</code>	Copy of <code>s</code> with all characters converted to uppercase.

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Lehman College, CUNY
CMP 230 Exam 2, Version 2, Spring 2012

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1. What will the following code print:

```
provinces = "Alberta/Quebec/New Brunswick/New Foundland"
s = provinces.split("/")
print(s)
a = s[0]
b = s[1].upper()
c = s[2].upper()
d = s[3].upper()
print(a,b,c,d)
e = a[0]
f = b[-1]
g = c[0]
h = d[-1]
last = f + e + g + e + h + e
print("North is {0}.".format(last))
```

2. Write a function that takes as a parameter a list of strings and returns a list containing the lengths of each of the strings.
3. What will the following program print:

```
def first():
    print("Version 2")
def second(s):
    print(s)
    nextOne()
    print("To talk of many things")
    return(s.count("m"))
def nextOne():
    print("the Walrus said")
def test():
    first()
    m = "the time has come"
    x = second(m)
    print(x)
test()
```

4. Fill in the missing function definitions for this program:

```
def main():
    welcome()           #Prints "Greetings!" to the screen
    x,y = userInput()  #Asks user for 2 inputs and returns numbers entered
    d = calculate(x,y) #Returns the sum of the parameters
    displayResults(x,y,d) #Prints the two inputs and result
main()
```

(That is, write the functions `welcome()`, `userInput()`, `calculate()` and `displayResults()`.)

5. What is printed when the function is invoked on the inputs below:

```
def costPerUnit(number,crateSize):
    if number <= 0 or crateSize <= 0:
        print("Enter positive numbers only!")
    elif number < crateSize:
        print("Your cost is $5/unit")
    elif crateSize <= number <= 10*crateSize:
        print("You save by $1/unit by buying by more than a crate")
    else:
        print("Please contact us for extra discounts for large purchases")
```

- (a) `costPerUnit(17,100)`
- (b) `costPerUnit(25,-10)`
- (c) `costPerUnit(3000,10)`

6. Write a **function** that takes as a parameter the zone and returns the Metro North fare. If the zone is 1, the fare is 6.75. If the zone is 2, the fare is 7.50. If the zone is greater than or equal to 3 and less than or equal to 6, the fare is 11.00. If the zone is greater than or equal to 7 and less than or equal to 8, the fare is 18.75. If the zone is greater than or equal to 9 and less than or equal to 11, the fare is 22.25. If the zone is greater than or equal to 12, the fare is 25.00.

7. What will the following code print:

```
s = "A year, ten years from now, I'll remember this; not why,"
countPunc = 0
countSp = 0
for c in s:
    if c == "." or c == ',' or c == ";":
        countPunc = countPunc + 1
    elif c == ' ':
        countSp = countSp + 1
print(countPunc, countSp)
```

8. Write a **function** that takes as a parameter a list of numbers and returns the number of the items that are multiples of 4.

9. Given the following program and input file, what is printed:

<pre>def main(): infile = open("in.txt", "r") for w in infile.readlines(): n = eval(w) if n%10 == 2: print(n) infile.close() main()</pre>	<pre>in.txt 2 4 5 2012 28 222 10 230</pre>
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10. Write a **program** that reads in a text file, `infile.txt` and writes out the contents to another file, `outfile.txt`, all in lower case.

Useful String Methods: (from p 140 of textbook)

Function	Meaning
<code>s.capitalize()</code>	Copy of <code>s</code> with only the first character capitalized.
<code>s.center(width)</code>	Copy of <code>s</code> is centered in a field of given width.
<code>s.count(sub)</code>	Count the number of occurrences of <code>sub</code> in <code>s</code> .
<code>s.find(sub)</code>	Find the first position where <code>sub</code> occurs in <code>s</code> .
<code>s.join(list)</code>	Concatenate <code>list</code> into a string using <code>s</code> as a separator.
<code>s.ljust(width)</code>	Like <code>center</code> , but <code>s</code> is left-justified.
<code>s.lower()</code>	Copy of <code>s</code> with all characters converted to lowercase.
<code>s.lstrip()</code>	Copy of <code>s</code> with leading whitespace removed.
<code>s.replace(oldsub,newsub)</code>	Replace all occurrences of <code>oldsub</code> in <code>s</code> with <code>newsub</code> .
<code>s.rfind(sub)</code>	Like <code>find</code> , but returns rightmost position.
<code>s.rjust(sub)</code>	Like <code>center</code> , but <code>s</code> is right-justified.
<code>s.rstrip()</code>	Copy of <code>s</code> with trailing whitespace removed.
<code>s.split()</code>	Split <code>s</code> into a list of substrings.
<code>s.title()</code>	Copy of <code>s</code> with first character of each word capitalized.
<code>s.upper()</code>	Copy of <code>s</code> with all characters converted to uppercase.

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Lehman College, CUNY
CMP 230 Exam 2, Version 3, Spring 2012

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1. What will the following code print:

```
towns = "Santo Domingo!Santiago!Puerto Plata!Higüey"  
s = towns.split("!")  
print(s)  
a = s[0]  
b = s[1].upper()  
c = s[2].upper()  
d = s[3].upper()  
print(a,b,c,d)  
e = a.split(" ")  
f = e[1]  
g = f[0]  
h = c[3]  
print("Where are you from in the {0}.{1}.?".format(g,h))
```

2. Write a function that takes as a parameter a list of strings and returns a list containing the second letter of each string in the list.
3. What will the following program print:

```
def first(m):  
    print(m, end=" ")  
    return(m.find(" "))  
def repeat():  
    print("The words are", end=" ")  
def second():  
    repeat()  
    print("purposes.")  
    repeat()  
def test():  
    print("And now: it is easy to forget")  
    x = first("what I came")  
    print(x, "...")  
    second()  
    print("maps")  
test()
```

4. Fill in the missing function definitions for this program:

```
def main():  
    welcome()           #Prints "Hola!" to the screen  
    x,y = userInput()  #Asks user for 2 numbers and returns them  
    d = calculate(x,y) #Returns the the product of the inputted numbers  
    displayResults(x,y,d) #Prints the two inputs, on separate lines  
main()
```

(That is, write the functions `welcome()`, `userInput()`, `calculate()` and `displayResults()`.)

5. What is printed when the function is invoked on the inputs below:

```
def tollCharge(axles,balance):
    if axles <= 0 or balance <= 0:
        print("Enter positive numbers only!")
    elif axles*10 < balance:
        print("You owe money!")
    elif axles*10 == balance:
        print("Thank you for exact change!")
    else:
        print("You have change!")
```

- (a) tollCharge(1,10)
- (b) tollCharge(2,-10)
- (c) tollCharge(3,30)

6. Write a **function** that takes as a parameter the zone and returns the Long Island Railroad fare. If the zone is 2 or smaller, the fare is 7.25. If the zone is 3, the fare is 8.75. If the zone is greater than or equal to 4 and less than or equal to 6, the fare is 10.00. If the zone is greater than or equal to 7 and less than or equal to 8, the fare is 11.50. If the zone is 9, the fare is 13.50. If the zone is greater than or equal to 10, the fare is 20.00.

7. What will the following code print:

```
nums = [11,2,10,8,15,9,18,8,10,7]
m = 0
M = 0
for i in nums:
    if i < 10:
        m = m + 1
    elif i > 10:
        M = M + 1
print(m,M)
```

8. Write a **function** that takes as a parameter a list of numbers and returns the number of the items that are multiples of 5.

9. Given the following program and input file, what is printed:

```
def main():
    infile = open("in.txt", "r")
    for line in infile.readlines():
        print(line)
        if line[0] == "w":
            print(line.upper())
    infile.close()
main()
```

in.txt

Lying is done
with words
and also
with silence.

10. Write a **program** that reads in a text file, `infile.txt` and writes out the first letter of each line to another file, `outfile.txt`.

Useful String Methods: (from p 140 of textbook)

Function	Meaning
<code>s.capitalize()</code>	Copy of <code>s</code> with only the first character capitalized.
<code>s.center(width)</code>	Copy of <code>s</code> is centered in a field of given width.
<code>s.count(sub)</code>	Count the number of occurrences of <code>sub</code> in <code>s</code> .
<code>s.find(sub)</code>	Find the first position where <code>sub</code> occurs in <code>s</code> .
<code>s.join(list)</code>	Concatenate <code>list</code> into a string using <code>s</code> as a separator.
<code>s.ljust(width)</code>	Like <code>center</code> , but <code>s</code> is left-justified.
<code>s.lower()</code>	Copy of <code>s</code> with all characters converted to lowercase.
<code>s.lstrip()</code>	Copy of <code>s</code> with leading whitespace removed.
<code>s.replace(oldsub,newsub)</code>	Replace all occurrences of <code>oldsub</code> in <code>s</code> with <code>newsub</code> .
<code>s.rfind(sub)</code>	Like <code>find</code> , but returns rightmost position.
<code>s.rjust(sub)</code>	Like <code>center</code> , but <code>s</code> is right-justified.
<code>s.rstrip()</code>	Copy of <code>s</code> with trailing whitespace removed.
<code>s.split()</code>	Split <code>s</code> into a list of substrings.
<code>s.title()</code>	Copy of <code>s</code> with first character of each word capitalized.
<code>s.upper()</code>	Copy of <code>s</code> with all characters converted to uppercase.

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Lehman College, CUNY
CMP 230 Exam 2, Version 4, Spring 2012

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1. What will the following code print:

```
cities = "San Francisco~Berkeley~San Diego~Los Angeles"
s = cities.split("~")
print(s)
a = s[0].upper()
b = s[1]
c = s[2].upper()
d = s[3].upper()
print(a,b,c,d)
e = d.split(" ")
f = e[0]
g = f[0]
h = a[1]
print("I love {0}.{1}!".format(g,h))
```

2. Write a function that takes as a parameter a list of strings and returns a list containing the third letter of each string in the list.
3. What will the following program print:

```
def first(m):
    repeat()
    print(m, "alike come on")
    return(m.count(" "))
def repeat():
    print("weather", end=" ")
def second(x):
    return(2*x)
def test():
    repeat()
    print("abroad\n and", end=" ")
    x = first("in the heart")
    print("Regardless of prediction")
    print(second(x))
test()
```

4. Fill in the missing function definitions for this program:

```
def main():
    welcome()           #Prints "Welcome!" to the screen
    x,y = userInput()  #Asks user for 2 inputs and returns the numbers entered
    d = calculate(x,y) #Returns the maximum of the two numbers
    displayResults(d)  #Prints the result
main()
```

(That is, write the functions `welcome()`, `userInput()`, `calculate()` and `displayResults()`.)

5. What is printed when the function is invoked on the inputs below:

```
def printFine(speed,lowLimit,highLimit):
    if speed < lowLimit:
        print("Thank you for driving safely!")
    elif lowLimit < speed < highLimit:
        print("Your fine is $50")
    else:
        print("Your fine is $1000")
```

- (a) printFine(50,40,60)
- (b) printFine(50,55,75)
- (c) printFine(100,55,75)

6. Write a **function** that takes as a parameter the zone and returns the New Jersey Transit fare to New York City. If the zone is 2 or smaller, the fare is 3.20. If the zone is 3, the fare is 4.25. If the zone is greater than or equal to 4 and less than or equal to 6, the fare is 7.50. If the zone is greater than or equal to 7 and less than or equal to 8, the fare is 10.00. If the zone is 9, the fare is 11.00. If the zone is greater than or equal to 10, the fare is 15.25.

7. What will the following code print:

```
nums = [11,2,10,8,22,9,18,8,20,81]
count2 = 0
count8 = 0
for i in nums:
    if i%10 == 2:
        count2 = count2 + 1
    elif i%10 == 8:
        count8 = count8 + 1
print(count2,count8)
```

8. Write a **function** that takes as a parameter a list of numbers and returns the number of the items that are multiples of 7.
9. Given the following program and input file, what is printed:

```
def main():
    infile = open("in.txt", "r")
    for line in infile.readlines():
        print(line)
        if line[0] == "o":
            print(line.upper())
    infile.close()
main()
```

in.txt

The moment of change
is the
only poem.

10. Write a **program** that reads in a text file, `infile.txt`, and writes out the first word of each line to another file, `outfile.txt`.

Useful String Methods: (from p 140 of textbook)

Function	Meaning
<code>s.capitalize()</code>	Copy of <code>s</code> with only the first character capitalized.
<code>s.center(width)</code>	Copy of <code>s</code> is centered in a field of given width.
<code>s.count(sub)</code>	Count the number of occurrences of <code>sub</code> in <code>s</code> .
<code>s.find(sub)</code>	Find the first position where <code>sub</code> occurs in <code>s</code> .
<code>s.join(list)</code>	Concatenate <code>list</code> into a string using <code>s</code> as a separator.
<code>s.ljust(width)</code>	Like <code>center</code> , but <code>s</code> is left-justified.
<code>s.lower()</code>	Copy of <code>s</code> with all characters converted to lowercase.
<code>s.lstrip()</code>	Copy of <code>s</code> with leading whitespace removed.
<code>s.replace(oldsub,newsub)</code>	Replace all occurrences of <code>oldsub</code> in <code>s</code> with <code>newsub</code> .
<code>s.rfind(sub)</code>	Like <code>find</code> , but returns rightmost position.
<code>s.rjust(sub)</code>	Like <code>center</code> , but <code>s</code> is right-justified.
<code>s.rstrip()</code>	Copy of <code>s</code> with trailing whitespace removed.
<code>s.split()</code>	Split <code>s</code> into a list of substrings.
<code>s.title()</code>	Copy of <code>s</code> with first character of each word capitalized.
<code>s.upper()</code>	Copy of <code>s</code> with all characters converted to uppercase.