CS 1315 Exam 3, Version A
Fall 2015

ANSWER KEY

Section: _____

TA Name: _____

Question	Points	Score	Grading TA
Section and TA	2		
1	7		
2	6		
3	6		
4	6		
5	11		
6	6		
7	4		
8	10		
Total:	58		

Honor Pledge

"In accordance with the Georgia Tech Honor Code, I have neither given nor received unauthorized aid on this test."

_____

Sign your name on the line above

1. *(7pts)*

You are making a Georgia Tech website, and you are almost finished. Fill in the blanks to complete your html code for the site.

<html>
    <head>
        #create a title for the document
        <title >Georgia Tech< /title >
    </head>
    <body>
        <h1>The Georgia Institute of Technology</h1>
        #create a paragraph
        < p >Georgia Tech is consistently ranked among the best universities in the United States and the world. For over a decade, Georgia Tech has remained in the top ten public universities in the United States, and is currently listed as the smartest public college in the United States. </p>
        </br>
        #create an image
        <img src = "buzz.jpg">
        #create a hyperlink with an image
        < a href = "http://www.gatech.edu"> <img src = "gatechLogo.jpg" >< /a >
    </body>
#the html code has been completed
</html>

2. (*6pts*)
Trace through the function below. What will be printed when the following test case is called?

```
def testTime(filepath, filename):
  file  = open(filepath + filename, 'r')
  lines = file.readlines()
  file.close()
  sentence = filename + ": "
  for line in lines:
    line = line.strip("\n")
    sentence = sentence + line + ", "
  print sentence[0:len(sentence)-2]
```

filepath is the path to where the file is located
filename = "Ingredients.txt"

Contents of the Text File are:
Bisquick
milk
eggs
sugar
baking powder
vanilla

Test Case

```
>>> path = setMediaPath()
>>> testTime(path, "Ingredients.txt")
```

Ingredients: Bisquick, milk, eggs, sugar, baking powder, vanilla

3. (*6 pts*)

In one of your classes, your teacher just gave you a list of data of all different types (strings, floats, and integers). You are going to separate the types and put each type in its own string.

```
def dataParser(dataList):
  stringstr = "Strings"   #label the string of strings "Strings:"
  floatstr="Floats:"
  integerstr="Integers:"
  for value in dataList:        #look at each item in the list
    if type(value) == float:          #look at specific value from list
      floatstr = floatstr + " " + str(value)
    elif type(value) == int:     #check to see if value is an integer
      integerstr = integerstr + " " +  str(value)
    else:
      stringstr = stringstr + " " +  value   #adding value if a string
  print stringstr
  print floatstr
  print integerstr
```

Test Case:

```
>>>dataParser([3, 4.0, "cs1315", "woohoo", 5, 6.9, 3.3])
Strings: cs1315 woohoo
Floats: 4.0 6.9 3.3
Integers: 3 5
```

4. (*6pts*)

What will the following HTML code produce?

```html
<html>
      <table>

              <tr>
                      <td>Exam</td>
                      <td>Data</td>
                      <td>Grade</td>
              </tr>

              <tr>
                      <td>Exam One</td>
                      <td>October 18th</td>
                      <td>B</td>
              </tr>

              <tr>
                      <td>Exam Two</td>
                      <td>October 16th</td>
                      <td>C</td>
              </tr>

              <tr>
                      <td>Exam Three</td>
                      <td>November 16th</td>
                      <td>A</td>
              </tr>

      </table>
</html>
```

Exam	Date	Grade
Exam One	October 18th	B
Exam Two	October 16th	C
Exam Three	November 16th	A

5. *(11 pts)*

You just downloaded your favorite quote from the internet. Something weird happened with the website though and all of the spaces in the quotes are replaced with "%". You have no idea what to do! Then you remembered that you can just write a function that reads the .txt file that you just downloaded and replace all the "%" characters with a space and prints it out. Write this function.

Example:
Your quote.txt file:
Striving%for%success%without%hard%work%is%like%trying%to%harvest%where%you%haven't%planted.

>>>file = pickAFile() # i picked quote.txt
>>>changeChar(file)
Striving for success without hard work is like trying to harvest where you haven't planted.

```python
def quote(txt):
    file = open(txt, "r")
    contents = file.read()
    file.close()
    empty = ""
    for letter in contents:
        if letter == "%":
            letter = " "
        empty = empty + letter
    print empty
```

6. (*6 pts*)

You are so excited about the weekend that you are counting down the days. Write a function called weekend that takes in one parameter, an integer, to start counting down from. Print out each number until you reach one and then print, "It's the Weekend!" YOU MUST USE RECURSION.

Test Case:
```
>>> weekend(4)
4
3
2
1
It's the Weekend!
```

```python
def weekend(num):
    if num == 0:
        print "It's the Weekend!"
    else:
        print num
        return weekend(num-1)
```

7. (*4 pts*)

Match the following algorithms for searching and sorting to their corresponding Big O's.

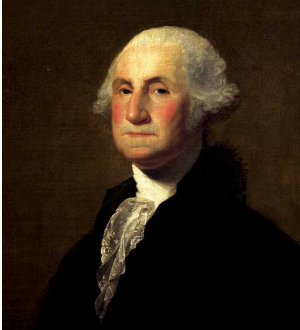| **Big O's**	**Algorithms**
C. O(nlog(n))	a. Binary Searching
B. O(n)	b. Linear Searching
D. O(n²)	c. Merge Sort
A. O(log(n))	d. Bubble Sort

8. (*10 pts*)

Match the follow edited pictures to the code that creates the edited image. The original image is below. When writing the function name below the picture write, funcOne(), funcTwo(), funcThree(), or funcFour().
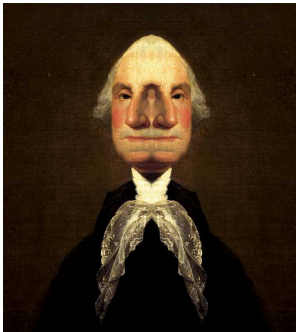
Original Images:

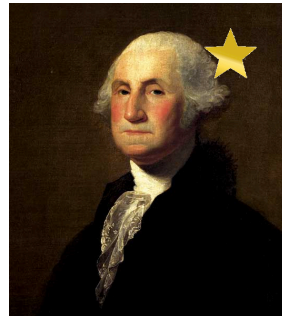George   Star
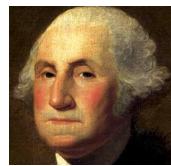

Edited Images:

A.

Function: funcOne()

B.

Function: funcFour()

C.

Function: funcTwo()

D.

Function: funcThree()

Functions:

```
def funcOne(pic):                                      #funcOne()
  w = getWidth(pic)
  h = getHeight(pic)
  for x in range(w/2):
    for y in range(h):
      srcpix = getPixelAt(pic, x, y)
      color = getColor(srcpix)
      destpix = getPixelAt(pic, w - x -1, y)
      setColor(destpix, color)
  show(pic)


def funcTwo(pic):                                      #funcTwo()
  w = getWidth(pic)
  h = getHeight(pic)
  canvas = makeEmptyPicture(w, h)
  for x in range(w):
    for y in range(h):
      srcpix = getPixelAt(pic, x, y)
      color = getColor(srcpix)
      destpix = getPixelAt(canvas, x, h - y - 1)
      setColor(destpix, color)
  show(canvas)


def funcThree(pic, startx, stopx, starty, stopy):      #funcThree()
  neww = stopx - startx
  newh = stopy - starty
  canvas = makeEmptyPicture(neww, newh)
  for x in range(neww):
    for y in range(newh):
      srcpix = getPixelAt(pic, x + startx, y + starty)
      color = getColor(srcpix)
      destpix = getPixelAt(canvas, x, y)
      setColor(destpix, color)
  show(canvas)


def funcFour(back, fore, startx, starty):              #funcFour()
  w = getWidth(fore)
  h = getHeight(fore)
  for x in range(w):
    for y in range(h):
      pix = getPixelAt(fore, x, y)
      color = getColor(pix)
      destpix = getPixelAt(back, x + startx, y + starty)
      if distance(color, white) > 10:
        setColor(destpix, color)
  show(back)
```