

Your (printed!) Name: _____

CS 1803 Exam 2

Grading TA / Section: _____

Monday, Oct 25th, 2010

INTEGRITY: By taking this exam, you pledge that this is your work and you have neither given nor received inappropriate help during the taking of this exam in compliance with the Academic Honor Code of Georgia Tech. Do NOT sign nor take this exam if you do not agree with the honor code.

DEVICES: If your cell phone, pager, PDA, beeper, iPod, or similar item goes off during the exam, you will lose 10 points on this exam. Turn all such devices off and put them away now. You cannot have them on your desk.

ACADEMIC MISCONDUCT will not be tolerated. You are to uphold the honor and integrity bestowed upon you by the Georgia Institute of Technology.

Keep your eyes on your own paper.

Do your best to prevent anyone else from seeing your work.

Do NOT communicate with anyone other than a proctor for ANY reason in ANY language in ANY manner.

Do NOT share ANYTHING during the exam. (This includes no sharing of pencils, paper, erasers).

Follow directions given by the proctor(s).

Stop all writing when told to stop. Failure to stop writing on this exam when told to do so is academic misconduct.

Do not use notes, books, calculators, etc during the exam.

I commit to uphold the ideals of honor and integrity by refusing to betray the trust bestowed upon me as a member of the Georgia Tech community.

Signature: _____

Question	Possible Points	Earned Points	Graded By
1: True/False	15		
2: Short Answer/ Multiple Choice	20		
3: GUI	15		
4. Code Reading	10		
5: Code Writing & File I/O	10		
6: Code Writing - Dictionaries	10		
7: Code Writing - Lists	20		
Total	100		

Question 1: True/False (15 points)

Indicate if each statement is True or False. If the statement is false, write what the true statement is.

_____ After adding an element to a grid, you should pack it as well.

_____ Tuples are mutable data types.

_____ Methods can only be called on objects that are instances of the class in which the method is written.

_____ The following 2 lines of code make two variables that have references which both point to the same object.

```
hwA = Homework()  
hwB = Homework()
```

_____ Given the following code, the final value of student1.name is "Bob"

```
student1 = Student()  
student2 = student1  
student1.name = "Bob"  
student2.name = "Fred"
```

_____ Methods in a module can be used without importing the module just by calling the method from the module name

```
Ex: csv.reader( open("myFile.csv"), delimiter = " ")
```

_____ The following code will throw an exception if the named file does not exist.

```
f = open("namedFile.txt", "w")
```

_____ The flush() method can be used to ensure that all data is written to disk.

Question 2: Short Answer (20 points)

- A. What is newList after the following code is run
- ```
myList = [3,4,5]
newList = myList*2
```
- B. Given a tkinter GUI Label named Lbl3 that has already been created, how to you change the text on Lbl3 to "Some New Stuff"? (write the line of code)
- C. Methods that belong to a class must have what as their first parameter?
- D. What does it do when you create a variable and set it equal to StringVar()?
- E. When using the grid function on a widget, what does the colspan option do?
- F. What does the method .write(text) do in the context of files?
- G. How do you make a button call a function when it is clicked?
- H. Describe how to instantiate a canvas.
- I. What is the difference in using pack() and grid() in a GUI frame?
- J. What are 3 states a tkinter GUI Entry widget can have?

### Question 3: GUI Drawing and Code Writing (15 points)

Draw the GUI that is made by running the following code *before any button is pressed*. Be very clear in your diagram and make any necessary notes to clarify your drawing. Fill in the code for the clicked method according to the instructions listed as comments in the code.

```
from tkinter import *

class DrawGUI:
 def __init__(self, root):
 self.win = Frame(root)
 self.win.pack()
 self.title = Label(self.win, text = "E-Mail Form", anchor = CENTER)
 self.title.pack()
 self.frame = Frame(self.win)
 self.frame.config(borderwidth=4, relief = RAISED)
 self.frame.pack()
 self.to = Label(self.frame, text = "To: ")
 self.to.grid(row=1,column = 0)
 self.subject = Label(self.frame, text = "Subject: ")
 self.subject.grid(row = 2, column = 0)
 self.sub = Entry(self.frame, width = 40)
 self.sub.grid(row = 2, column = 1)
 self.attach = Button(self.frame, text = "Attach A File")
 self.attach.bind("<Button-1>", self.clicked)
 self.attach.grid(row = 3, column = 0)
 self.email = Entry(self.frame, width = 40)
 self.email.grid(row = 1, column = 1)
 self.file = Entry(self.frame, width = 40, state = "readonly")
 self.file.grid(row = 3, column = 1)

 def clicked(self,event):
 #open a file dialogue so the user can pick a file

 #enter the name of the file in the entry field named "file"
 #the text should update correctly if the user clicks the button and selects a file more than once

 #make sure the entry is read-only after the text has been entered

mainwin = Tk()
sample = DrawGUI(mainwin)
mainwin.mainloop()
```

## Question 4: Code Reading (10 points)

Describe what happens when the following code is run and what happens when the user clicks on the canvas. Be specific. Draw the resulting GUI when the user has clicked 4 times (choose any 4 distinct points).

```
from tkinter import *

class QCanvas():
 initialX = 100
 initialY = 100

 def __init__(self, tkMainWin):
 self.xSize = 10
 self.ySize = 10
 frame = Frame(tkMainWin)
 frame.pack()
 self.canvas = Canvas(frame, height = 200, width = 200)
 self.canvas.pack()
 self.canvas.bind("<Button-1>", self.clicked)
 self.action()

 def clicked(self, event):
 self.initialX = event.x
 self.initialY = event.y
 self.action()

 def action(self):
 self.point1 = self.initialX - self.xSize
 self.point2 = self.initialY - self.ySize
 self.point3 = self.initialX + self.xSize
 self.point4 = self.initialY + self.ySize
 self.canvas.create_line(self.point1, self.point2, self.point3, self.point4)
 self.canvas.create_line(self.point1, self.point4, self.point3, self.point2)

mainWin = Tk()
someVar = QCanvas(mainWin)
mainWin.mainloop()
```

### **Question 5: Code Writing (10 points)**

You have a text file of all of the activities that you have to do for the next two weeks. Each line in the file is formatted the same way, as shown below.

Group/Class, Activity Name, Activity Date, Activity Time Range

Write a function named `activitySort` that takes in the name of the CSV file, reads the file, and then writes a new text file named `sortedActivities.txt`. This file should have all of your activities for the next two weeks but grouped so that all activities for the same Group/Class are listed on consecutive lines. (Hint: You can sort based upon the first item on the line). For example:

CS1803, Test2, 10/25, 3-4pm

CS1803, HW8, 10/29, 6pm

Intermurals, Final Game, 10/26, 8-10pm

### **Question 6: Code Writing (10 points)**

Georgia Tech's newspaper The Technique has decided to take a survey of which laptop brand is the most popular on Georgia Tech's campus. You have been asked to write a function named "saveData" to help manage the data. This function will accept two parameters: First, the name of the student (you may assume that the name will contain a first and last name i.e. "John Doe") as a SINGLE string and the name of their laptop brand as a SINGLE string (e.g. "Dell"). You must store this information in a dictionary where the key consists of the students name in the format: last name, first name (i.e. "Doe, John") and the value is the laptop brand string converted to lowercase (i.e. "dell"). Assume the dictionary is named laptopData and that it is a pre-existing global variable. You do not have to do any checking to see if the data is already in the dictionary. You may assume that all names have exactly two parts, a given name (first) and a family name (second) which are separated by a space.

## **Question 7: Code Writing (20 points)**

Question 7 will be completed in your Recitation with your new Pair Programming Partner. You will be given question 7 by your TA's and will have 30 minutes to work on it with your partner using your laptops. You will be able to refer to your notes and use the Internet. You must submit your assignment via T-Square before your recitation is finished. Preview: Question 7 involves reading data from a CSV file and calculating details about it (but you won't need to write a GUI!)

The rest of this sheet can be used as scratch paper...