

Name : _____
Section TA: _____

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- **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.
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 - 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.
- **TIME:** Don't get bogged down by any one question. If you get stuck, move on to the next problem and come back once you have completed all of the other problems. This exam has 4 questions on 10 pages including the title page. Please check to make sure all pages are included. You will have 50 minutes to complete this 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. I have also read and understand the requirements outlined above.

Signature: _____

Question	Points	Score
1. Vocabulary	9	
2. Multiple Choice	17	
3. GUI drawing	14	
4. Weather Jacket	11	
Total:	51	

1. (9 points)

For each of the following vocabulary terms, write a concise 1-2 sentence definition. Be brief, and to the point.

- (a) [3 pts] argument

Solution: argument - A value provided to a function when the function is called. This value is assigned to the corresponding parameter in the function.

- (b) [3 pts] class

Solution: A user-defined compound type. A class can also be thought of as a template for the objects that are instances of it.
Looking for: Compound Data Type , can specify functions and group data, used to instantiate objects.

- (c) [3 pts] object

Solution: A compound data type that is often used to model a thing or concept in the real world. It bundles together the data and the operations that are relevant for that kind of data. Instance and object are used interchangeably. (An object whose type is of some class.)
Looking for: Compound Data Type, Includes data & operations/functions/methods.

2. (17 points)

For each of the following multiple choice questions, indicate the most correct answer! Indicate your selected answer by circling it.

- (a) [1 pt] What is the correct method that is used to hide a tk window?
- A. `.withdraw()`
 - B. `.hide()`
 - C. `.destroy()`
 - D. You can't hide a tk window

- (b) [1 pt] What is the name of the option used in the constructor to associate a radiobutton with a Tkinter variable in order to keep track of which radiobutton is pressed?
A. value B. StringVar C. variable D. None of these
- (c) [1 pt] Which method allows you to alter a widget's options after it has been created?
A. alter B. configure C. changeOptions D. config
- (d) [1 pt] Which side does pack default to when given no parameters?
A. TOP B. BOTTOM C. LEFT D. RIGHT E. CENTER
- (e) [1 pt] When an entry box has state set to DISABLED, the user cannot alter the text it contains, but the program can by using the insert method.
A. True **B. False**

- (f) [2 pts] Examine the following code then answer the following questions about it:

```
candyList = ["Reese's Pieces", "M&Ms", "Candy Corn", "Skittles"]
newCandyList = []
for candyList[0] in candyList:
    newCandyList.append(candyList[0])
```

What is newCandyList after the code is ran?

- A. ["Skittles", "M&Ms", "Candy Corn", "Skittles"]
B. ["Skittles", "Candy Corn", "M&Ms", "Reese's Pieces"]
C. ["Reese's Pieces", "Reese's Pieces", "Reese's Pieces", "Reese's Pieces"]
D. ["Reese's Pieces", "M&Ms", "Candy Corn", "Skittles"]

What is candyList after the code is ran?

- A. ["Skittles", "M&Ms", "Candy Corn", "Skittles"]
B. ["Skittles", "Candy Corn", "M&Ms", "Reese's Pieces"]
C. ["Reese's Pieces", "Reese's Pieces", "Reese's Pieces", "Reese's Pieces"]
D. ["Reese's Pieces", "M&Ms", "Candy Corn", "Skittles"]

- (g) [1 pt] Which of the following is NOT a valid constructor option for a frame widget?
A. background **B. text** C. padx D. cursor E. fg

- (h) [1 pt] Given the following code, where will the label be placed in the rootWin?

```
from tkinter import*
rootWin = Tk()
l=Label(rootWin,text="Pumpkin Pie")
l.grid(row=10,column=31)
rootWin.mainloop()
```

- A. The top left corner**
B. The bottom right corner
C. Somewhere in the middle according to the specified row/column numbers
D. It will not be shown in the rootWin because you can't skip rows or columns

(i) [1 pt] Which of the following regex expressions will match entirely:

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A. $\backslash D+\backslash d\{2\}?$

B. $\backslash D+\backslash d\{2\}?\backslash D$

C. $[A-Z]+\backslash S\backslash s(\backslash d\{2\}\backslash s)?$

D. $([A-Za-z]+\backslash S\backslash s(\backslash d\{2\}\backslash s)?)+$

- (j) [2 pts] Examine the following code which defines a class and then creates an instance of the object, then answer the following questions about it:

```
class Costume:
    numberOfCostumes = 0

    def __init__(self, type):
        self.type = type

    def printType(self):
        print("I am wearing a {} costume".format(self.type))

ghost = Costume("Ghost")
```

Look at the following pieces of code and the statement that describes what they do. Select the one that is true.

- A. `ghost.numberOfCostumes = 1` updates the **class** variable `numberOfCostumes`
- B. `ghost.type = 1` updates the instance variable `type`**
- C. `Costume.numberOfCostumes = 1` updates the **instance** variable `numberOfCostumes`
- D. instance and class variables are the same thing
- E. All of the above
- F. None of the above

Which line of code below correctly calls the `printType` method?

- A. `ghost.printType(ghost)`
- B. `ghost.printType()`**
- C. `self.printType(ghost)`
- D. `ghost.printType(self)`
- E. `Costume.printType(self.ghost)`

- (k) [1 pt] Given this string: `var = "hello2316students!CS2316issofun!"`

Which of the following does **not** return TWO matches?

- A. `re.findall("2316", var)`
- B. `re.findall("2316?", var)`
- C. `re.findall("(2316){1}", var)`
- D. `re.findall("[2316]", var)`**
- E. `re.findall("[2316]+", var)`

- (l) [1 pt] Which of the following input does **not** match this regular expression:
`(\d\d+\d)*\.\.[a-z]{2}`
- A. 12321.booo
 - B. ..ek
 - C. 9687.ra**
 - D. 555.ahh
 - E. None of the above
- (m) [1 pt] Given the following code:
- ```
request = urllib.request.urlopen("http://www.google.com"):
```
- A. `print( request )` will output the HTML
  - B. `print( html(request) )` will output the HTML
  - C. `print( request.read() )` will output the HTML**
  - D. `print( str(request) )` will output the HTML
- (n) [1 pt] For a csv writer object, which is **NOT** a valid method to write data to a file?
- A. `writerow`
  - B. `write`**
  - C. `writerows`
  - D. All options are correct.
- (o) [1 pt] Examine this code:
- (1) `import csv`
  - (2) `file = open("sample.txt", "w")`
  - (3) `file2 = open("sample.txt", "r")`
  - (4) `Writer = csv.writer(file, delimiter = " ", quotechar = ",")`
  - (5) `writer.writerow(["yellow","jackets"])`
  - (6) `file.close()`
  - (7) `reader = csv.reader(file2)`
- If the above code is executed, which line will cause an error?
- A. line (3)
  - B. line (4)
  - C. line (5)**
  - D. line (7)
  - E. None of these lines

## 3. (14 points)

Given the following code, draw the GUI that is produced TWICE. Draw it once as it first appears. Below that, draw the GUI a second time after the button is pressed **three (3) times**. Include the window with any decorations. Indicate colors, shading, or state with arrows and labels.

```

from tkinter import *
class Starbucks:
 def __init__(self,root):
 frame1=Frame(root)
 frame1.pack()
 Label(frame1,text="Button Clicked").grid(row=0,column=0)
 self.intV=IntVar()
 self.lineEntry=Entry(frame1,textvariable=self.intV)
 self.lineEntry.grid(row=0,column=1)
 Label(frame1,text="Order Type").grid(row=0,column=2)
 self.entry=Entry(frame1,bg="white")
 self.entry.grid(row=0,column=3)
 self.entry.config(text='...')
 Label(frame1,text="Order Type").grid(row=1,column=0)
 a=['Coffee','Specialty','Food']
 self.coffeeV=IntVar()
 for i in range(len(a)):
 rb=Radiobutton(frame1,text=a[i],variable=self.coffeeV,value=2-i)
 rb.grid(row=1,column=i+1,sticky=W)
 Button(root,width=60,text='Collect',command=self.doIt).pack()

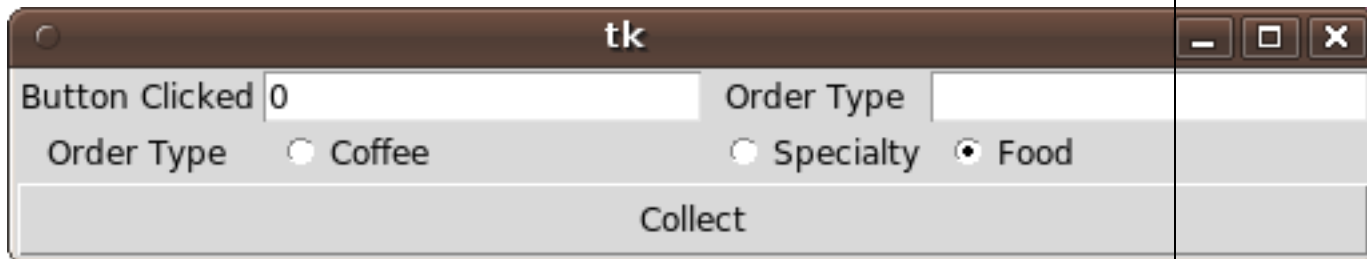
 def doIt(self):
 if self.coffeeV.get()==2:
 self.intV.set(self.intV.get()+1)
 self.entry.insert(0,'Food')
 self.coffeeV.set(self.coffeeV.get()+1)
 elif self.coffeeV.get()==1:
 self.intV.set(self.intV.get()+1)
 self.entry.insert(0,'Specialty')
 self.coffeeV.set(self.coffeeV.get()+1)
 elif self.coffeeV.get()==0:
 self.intV.set(self.intV.get()+1)
 self.entry.insert(0,'Coffee')
 self.coffeeV.set(self.coffeeV.get()+1)

rootWin=Tk()
app=Starbucks(rootWin)
rootWin.mainloop()

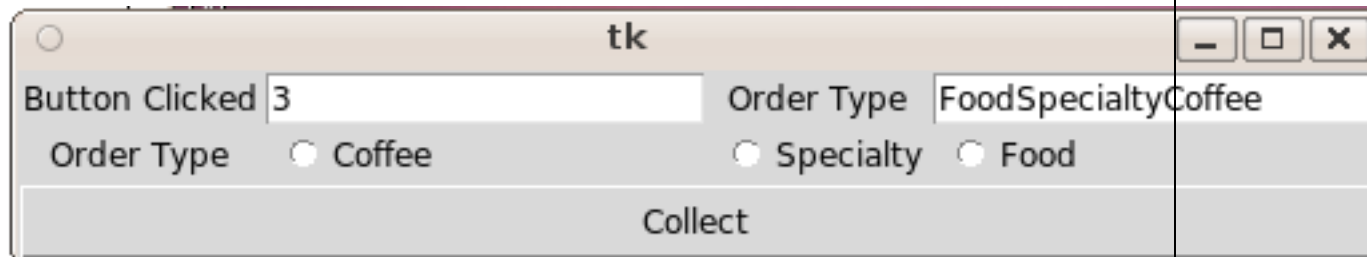
```

**Solution:**

As appears:



After 3 Button Presses:

**Grading:**

Before button press:

- +1 window correctly drawn with decorations
- +1 window title (tk)
- +1 Button clicked Entry has a 0 in it
- +1 Order Type entry is empty
- +1 Food radio button selected
- +1 Coffee radio button NOT selected
- +1 Collect Button exists at the very bottom.
- +1 Collect button is width of whole window.
- +1 Left side of Coffee radio button aligned with entry above it.
- +1 Left side of Food radio button aligned with entry above it.

After button press:

- +2 "FoodSpecialtyCoffee" in the entry (+1 if you have something else but not blank)
- +1 ButtonClicked entry has a 3.
- +1 No radio buttons are selected.
- 1 for any other changes.

This page intentionally left blank. You may use it for scratch paper or your answer to question 3. If you place an answer on this page, box it, indicate which problem it is for by number, and BE SURE TO WRITE "Answer on page 7" at the problem location!



4. (11 points)

The hypothetical website <http://www.whatstheweatherlike.com> has a simple HTML structure that displays the current temperature in the following form:

```
<html>
<head> <title> Today's Weather </title> </head>
<body>
<p> Today's weather is: </p>
<p id="current_temp"> 76 </p>
<p id="message"> Have a great day! </p>
</body></html>
```

Write a function called `getWeather` which accepts no parameters. Your function will go to that URL (hard code the url in your code) and download the webpage. Find the current temperature, print it, and then print "Don't forget a jacket!" if the temperature is below 70 degrees or "Beautiful weather!" if the temperature is 70 degrees or higher.

Example run:

```
>>> getWeather()
68
"Don't forget a jacket!"
```

**Solution:**

```
import urllib.request
from re import findall
def getWeather():
 request = urllib.request.urlopen("http://www.whatstheweatherlike.com")
 html = request.read()
 text = str(html)
 tempList = findall("\d{1,3}", text)
 tempStr = tempList[0]
 tempInt = int(tempStr)
 print(tempInt)
 if tempInt < 70:
 print("Don't forget a jacket!")
 else:
 print("Beautiful weather!")
```

Grading: +1 valid function header  
+1 imports urllib.request

+1 correct urlopen  
+1 response.read()  
+1 casts response to string  
+3 correctly isolates the temp (find or regex or combo)  
+1 correctly converts to int or float  
+1 correctly makes decision  
+1 correct printout.