CSCI 1411: Fundamentals of Computing
Lab 8
Due Date: 8:30 AM October 13, 2020

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Goals:

- To understand how to write user-defined functions
- To understand details of function calls and parameter passing in Python

Development Environment: IDLE

Deliverables:

1. This lab handout with 6 screen shots (2 for part I, 2 for part II and 2 for part III).
2. Your Python code for Part II of this lab. Name the file using the following format: yourlastnameFirstnameLab08b.py
   Example: If your name is Jamal Jones then you will name the file as follows: JonesJamalLab08b.py
3. Your Python code for Part III of this lab. Name the file using the following format: yourlastnameFirstnameLab08c.py
   Example: If your name is Jamal Jones then you will name the file as follows: JonesJamalLab08c.py

How to take a **screen shot**:

- For a Windows 10: Use Snipping Tool to copy and CTRL + V to paste screen shot.
- For Mac: Shift + Command + 4 to copy and CTRL + V to paste screen shot.

Part I – Skill Practice (10 Points)

- Start IDLE
- Create a new file.
- Type the following code in the file. …. **Do not cut and paste.** You will learn more by typing it in.
- Remember to update the first 3 lines with your own first name, last name and the date of the lab.
- In this part, we have provided three functions.
  - The first function is an example of how we can pass parameter and return a value. This first function converts the Fahrenheit temperature into Celsius temperature and returns the Celsius temperature.
  - The second function is an example how we can pass a List data type as a parameter. This function demonstrates that if you pass a list as a parameter, this will change the list in the calling function.
  - The third function is the main function. This function invokes the first two functions.

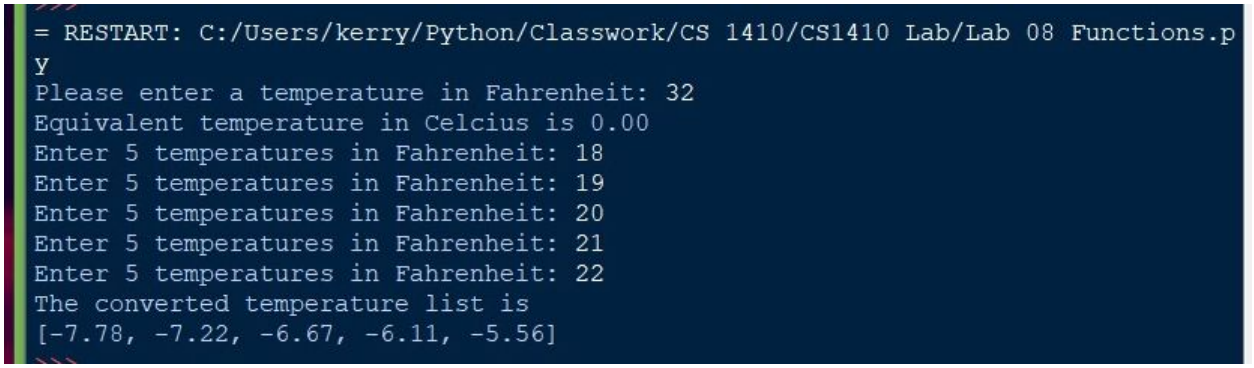
```
# Your first name
# Your last name
# Date: The current date
# Description: This program shows techniques of defining function,
# parameter passing    and function invocation.


# fahrenToCel function
# parameter: A temperature value in Fahrenheit
# returns equivalent temperature in Celsius
def fahrenToCel(fahren):
    result = (fahren - 32) * (5.0 / 9.0)
    return result

# fahrenToCelList function
# parameter: a list of temperature values in Fahrenheit
# coverts the list to equivalent temperatures in Celsius
# If you pass a list as an argument, this will change the value
# in calling function
def fahrenToCelList(fahrenList):
    for i in range(len(fahrenList)):
        fahren = fahrenList[i]
        celsius = (fahren - 32) * (5.0 / 9.0)
        fahrenList[i] = round(celsius,2)

# main function
def main():
    fval = float(input("Please enter the temperature in Fahrenheit: "))
    # call the function fahrenToCel
    cval = fahrenToCel(fval)
    print("Equivalent temperature in Celcius is {0:0.2f} ".format(cval))

    fahrenheitList = []
    # Take 5 temperature values as inputs and store them in fahrenheitList
    for i in range(5):
        fahren = float(input("Enter temperature in Fahrenheit: "))
        fahrenheitList.append(fahren)

    # call the function fahrenToCelList
    fahrenToCelList(fahrenheitList)
    print("The converted temperature list")
    print(fahrenheitList)
```

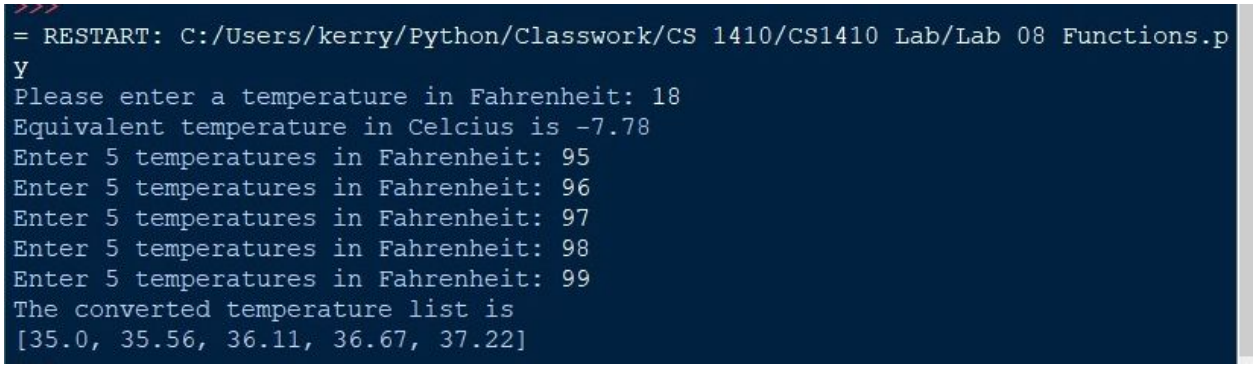
- Save the file as “YourLastNameYourFirstNameLab08a.py”
- Click Run -> Run Module
- If you get any syntax error, try to correct the syntax error.

- If no syntax error, this will redirect you to the output screen.
- Type main()
- Output will look like the following:

```
>>> main()
Please enter the temperature in Fahrenheite: 98
Equivalent temperature in Celcius is 36.67
Enter temperature in Fahrenheit: 67
Enter temperature in Fahrenheit: 76
Enter temperature in Fahrenheit: 78
Enter temperature in Fahrenheit: 89
Enter temperature in Fahrenheit: 96
The converted temperature list
[19.44, 24.44, 25.56, 31.67, 35.56]
```

- **Take two screenshots of your outputs for 2 different inputs and attach them here.**





Part II – Convert the Date format (8 Points)

- In this part of the lab, you will convert the date format from "mm/dd/yyyy" to "month day, year". For example, date format "01/23/2020" will be converted to January 23, 2020.
- Write a Python function called ***dateConvert*** that will take a date in "mm/dd/yyyy" format as parameter. Your function will convert the date in "mm/dd/yyyy" format and return the date in "month day, year" format.
- Write a main function that will do the following
  - Ask user for a date input in "mm/dd/yyyy" format.
  - Call the function ***dateConvert***

    - ***dateConvert*** that will take a date in "mm/dd/yyyy" format as parameter. Your function will convert the date in "month day, year" format and return the date in "month day, year" format.
    - Your program will print the date in converted format.
- Save the python program as "lasnameFirstnameLab08b.py"
- The sample input and output will look like the following:
    - Sample input/output 1

```
>>> main()
Enter date: 05/12/2020
May 12, 2020
>>>
```

- Sample input/output 2:

```
>>> main()
Enter date: 12/25/2020
December 25, 2020
```

- **Please capture 2 screenshots of your outputs for 2 different inputs and paste them here.**

```
============= RESTART: C:/Users/kerry/Desktop/GipKerryLab08bredo.py
Enter a date in mm/dd/yyyy format: 01/22/1992
The converted date is:  Jan.22,1992
>>>
```

```
============= RESTART: C:/Users/kerry/Desktop/GipKerryLab08bredo.py
Enter a date in mm/dd/yyyy format: 04/21/1988
The converted date is:  Apr.21,1988
>>>
```

Part III – Double the values of a list (7 Points)

- In this part of the lab, you will double the values of a List.
- Write a python function ***findDoubles*** that will take a List as a parameter. Your function will double the values of the list.
- Write a main function that will do the following:
  - Ask user for 5 numbers and store them in a List
  - Call ***findDoubles*** function
  - ***findDoubles*** function will take a List as a parameter. This function will double the values of the list.
  - Print the result.
- Save the python program as "lasnameFirstnameLab08c.py"
- The sample input and output will look like the following:
  - Sample input/output 1

```
>>> main()
Please enter a number: 3
Please enter a number: 4
Please enter a number: 5
Please enter a number: 6
Please enter a number: 7
[6, 8, 10, 12, 14]
```

- **Capture 2 screenshots of your outputs for 2 different inputs and paste it here**

```
>>>
============== RESTART: C:\Users\kerry\Desktop\GipKerryLab08c.py ==
Please enter 5 numbers: 1
Please enter 5 numbers: 2
Please enter 5 numbers: 3
Please enter 5 numbers: 4
Please enter 5 numbers: 5
The doubled numbers list is:  [2, 4, 6, 8, 10]
```

```
============== RESTART: C:\Users\kerry\Desktop\GipKerryLab08c.py =
Please enter 5 numbers: 6
Please enter 5 numbers: 7
Please enter 5 numbers: 8
Please enter 5 numbers: 9
Please enter 5 numbers: 10
The doubled numbers list is:  [12, 14, 16, 18, 20]
```

- **Upload this lab handout with required screen shots and your code files (for part 2 and 3) to Canvas to submit the lab**.