

CSCI 1411: Fundamentals of Computing
Lab 3
Due Date: September 15, 2023

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Goals:

This lab will cover the following topics:

- Use of simple input/output commands
- Use of simple operators +, -, /, *

Development Environment: IDLE.

Deliverables:

- 1) This completed document with required screen shots.
- 2) Python file created for the second part of the lab. Name the file using the following format: `lastnameLab03Part2.py`.

How to take a **screen shot**:

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

Part I – Skills Practice

- Start Idle: In the computer lab you can use Cortana to search for IDLE app. This will open IDLE window.
- Click on FILE → New File on the top of the IDLE window.
- A new window should pop up.
- In that new window, type in the code below ... **Do not cut and paste.** You will learn more by typing it in.
- Save the file using following format: `lastnameLab03Part1.py`.

Notes:

- 1) Everything following a # is a comment and will be ignored by Python.
- 2) Everything that is not a comment is case sensitive, meaning that upper and lower case matters!
- 3) Click on Option → Show Line Numbers to display line numbers.
- 4) Make sure that you always include your name, class, due date, description, and status at the top of your file.

```

# Name:
# Class: CSCI 1411-00X
# Due Date:
# Description: This is part 1 of lab 3. It reads in a temperature in
# degree Fahrenheit and converts it to degree Celsius.
# It also queries the user for their name and display a message.
# Status: Runs as expected.

def main():
    # first, ask the user for their first and last names
    firstName = input ("Enter your first name ")
    lastName = input ("Enter your last name ")

    # now ask them for the temperature they wish to convert
    fahrenheit = (int)(input ("What is the temperature in Fahrenheit? "))

    # next we convert using the standard F to C formula
    celsius = (fahrenheit-32)*(5/9)

    # finally, print out the conversion
    print ('Hello', firstName, lastName)
    print (fahrenheit, 'degree Fahrenheit is ', celsius, 'degrees Celsius')

```

- Click on Run->Module. (You will be asked you to save the file. Name this file YourlastnameFirstnameLab02a.py)
- Running the module should take you back to the initial IDLE window.
- To run your program type in main()
- If there are any errors in your code, then you will get error message(s) as shown in the following screen shot:

```

>>> main()
Enter your first name Salim
Enter your last name Lakhani
What is the temperature in Fahrenheit? 32
Hello Salim Lakhani
Traceback (most recent call last):
  File "<pyshell#4>", line 1, in <module>
    main()
  File "/Users/lakhanis/Desktop/Labs/Lab_03_Variables_Input_Output/Sample_Solutio
n/lakhaniLab03Part1.py", line 18, in main
    print (fahrenheit, 'degree Fahrenheit is ', Celsius, 'degrees Celsius')
NameError: name 'Celsius' is not defined. Did you mean: 'celsius'?
>>> |

```

- In this error, you can see it is complaining about line 18. At line 18 in this example, the variable Celsius was used instead of celsius. Python is telling us that this variable is not known! When you get errors try to fix them. Sometimes the actual error is just above or below the stated line. Unless you have obvious issues, try to fix one thing at a time. Rerun your code after fixing each error.

- If you get dozens of errors, you may want to check the top few lines to make sure that they are written correctly.
- Once you get all the errors out, run your module/program again.
- Enter your First and Last Name when program prompt you for them
- Enter 90 when program prompt you for temperature.
- Program will display your name and temperature in degree Celsius.
- Now take a screen shot of the result.
 - Expand the run window by grabbing the edge and pulling up (until you see everything from the RESTART statement to the final >>> printed in the window. You must include the screen shot to get credit for this part of the lab.
 - Insert that screenshot in the box below:

| Screen Shot 1 |
|--|
| <pre>main() Enter your first name: Brandon Enter your last name: Perez Provide a temperature in Fahrenheit: 90 Hi Brandon Perez 90 degrees Fahrenheit is 32.22222222222222 degrees Celsius.</pre> |

- Run your program using the degree Fahrenheit given in the table below and write the corresponding temperature in degree Celsius.

| Table 1 | |
|-------------------|----------------|
| Degree Fahrenheit | Degree Celsius |
| 0 | -17.777... |
| 32 | 0 |
| 212 | 100 |

- Select File → Close to close your module.

Part II – Converting a range of temperatures

- For Part II you are going to apply what you learned in Part I of this lab. Feel free to refer to Part I if you need help with starting a new project, naming your python file or running it.
- This part of the lab is similar to the part I, except instead of converting a single temperature, you will convert all the temperatures from the initial value entered to the initial value entered plus 10 degrees. For example, if the user enters 32 degrees, you will print out the conversion to celsius for 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, and 42 degrees.
- These are the steps that you should take:
 - Create a new file.
 - Ask for the user's First Name and Last Name just like in the part I.
 - Ask for the initial temperature in Fahrenheit.
 - Print hello message.
 - Print the conversion for each of the temperatures. HINT: you will have the same set of statements multiple times, just increasing the value of the temperature each time!
 - Sample I/O:

```
>>> = RESTART: C:\Users\ibrahadi\Desktop\f23\csci1411\labs\lab3\Sample_Solution\lakhaniLab03Part2.py
Enter your first name: Adil
Enter your last name: Ibrahim
What is the temperature in Fahrenheit? 32
Hello Adil Ibrahim
32 degree Fahrenheit is 0.0 degrees Celsius
33 degree Fahrenheit is 0.5555555555555556 degrees Celsius
34 degree Fahrenheit is 1.1111111111111112 degrees Celsius
35 degree Fahrenheit is 1.6666666666666667 degrees Celsius
36 degree Fahrenheit is 2.2222222222222223 degrees Celsius
37 degree Fahrenheit is 2.7777777777777777 degrees Celsius
38 degree Fahrenheit is 3.3333333333333335 degrees Celsius
39 degree Fahrenheit is 3.888888888888889 degrees Celsius
40 degree Fahrenheit is 4.4444444444444445 degrees Celsius
41 degree Fahrenheit is 5.0 degrees Celsius
42 degree Fahrenheit is 5.5555555555555555 degrees Celsius
>>>
```

- Every program should have the following comment block at the top. Make sure to fill in your name, class with section number, due date, brief description of your program, and status of your program:

```
#
# Name:
# Class: CSCI 1411-00X
# Due Date:
# Description:
# Status:
```

- Run the module. Save the file using the format lastnameFirstnameLab03Part2.py.
- Correct any errors
- Run the module again
- Now take a screen shot of the result.
 - Expand the run window by grabbing the edge and pulling up (until you see everything from the RESTART statement to the final >>> printed in the window. You must include the screen shot to get credit for this part of the lab.
 - Insert that screenshot in the box below:

| Screen Shot 2 |
|--|
| <pre> main() Enter your first name: Brandon Enter your last name: Perez Provide a temperature in Fahrenheit: 32 Hi Brandon Perez 32 degrees Fahrenheit is 0.0 degrees Celsius. 33 degrees Fahrenheit is 0.5555555555555556 degrees Celsius. 34 degrees Fahrenheit is 1.1111111111111112 degrees Celsius. 35 degrees Fahrenheit is 1.6666666666666667 degrees Celsius. 36 degrees Fahrenheit is 2.2222222222222223 degrees Celsius. 37 degrees Fahrenheit is 2.7777777777777777 degrees Celsius. 38 degrees Fahrenheit is 3.3333333333333335 degrees Celsius. 39 degrees Fahrenheit is 3.8888888888888889 degrees Celsius. 40 degrees Fahrenheit is 4.4444444444444445 degrees Celsius. 41 degrees Fahrenheit is 5.0 degrees Celsius. 42 degrees Fahrenheit is 5.5555555555555555 degrees Celsius. </pre> |

- Now you need to find the code to hand in. Click on File → SaveAs in IDLE. This will show you where the file is being saved. Remember the location and the filename.
- Upload this lab handout with required screen shots and your code file to Canvas to submit the lab.

Rubric for Lab 3:

| Criteria | Rating |
|----------------------------|--|
| Part I (Screen shot 1) | Screen shot included – 5 points No screen shot included – 0 points |
| Part I (Table 1) | Fill in the degree Celsius for the corresponding degree Fahrenheit – 5 points Did not fill in the degree Celsius for the corresponding degree Fahrenheit – 0 points |
| Part II (Screen shot 2) | Screen shot included – 5 points No screen shot included – 0 points |
| Part II (Python Code) | Runs as expected – 25 points Runs as expected but display 10 random temperatures – 10 points Runs as expected but does not display all 10 temperature – 5 points Does not run or Python file is not included – 0 points |
| Total Points | 40 |