Lab 2.0
Logic and Control

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Goals

The goal of this lab is to practice using Python 3. Specifically, you will practice:

- Review of Input, Output, and Casting
- Boolean Logic
- Control Flow
- Loops

Instructions

All work is due at the **end of your lab** and must be submitted to Brightspace in the proper place. Unless otherwise instructed, submissions must be python files (e.g. files that end with *.py*). Any other format, even if it is plain text, will **not** be graded. Messy or otherwise unreadable code will lose points. Lab submissions can be all in the same file, but please label with comments to which task code belongs. IMPORTANT: Any code that is commented out will not be graded. **RUN YOUR CODE TO MAKE SURE IT WORKS!!!**

Task 1 - Review

Convert the following to Python code.

1 Ask the user for two numbers (one at a time). Add them together. Print the resulting sum.

2 What is the result of the following casts (assuming they were printed). If the result is a floating point number, make sure you show the decimal place even if it is followed by zeros. Put your answer in a comment:

- int(5.999)
- float(1//2)
- int(1.2) - int(True)
- float(str(1.5))
- float(7+bool(7.2))

Task 2 - if-elif-else Blocks

Write Python code to solve each of these subtasks. You will need to use if-elif-else blocks and other tools. It is not necessary to declare and define the variables *x, y and z*, but for the sake of testing, it might be

helpful to declare them and assign them values (which values you select don't matter...I'm only interested in the if-elif-else solutions).

- Write an if-block that test whether *x* is greater than 1. If it is greater than 1, it should be set to 1.
- Print *Yes* if the value of *x* is greater than 10 and less than 20. Else print *No*.
- Print *Correct* if the value of *y* is equal to *z*. Else, print *Incorrect* if *y* is equal to *x*. Otherwise print *Inconclusive*.
- Write an if-elif-else block which will print *True* if **only one** of the three variables, *x, y or z*, is equal to zero. Otherwise print False. You may use as many ifs, elifs and elses as you need.

Task 3 - While Loops

Convert the following to Python code.

- Write a *while* loop that prints the numbers from 1 to 10 inclusive. Each iteration of the while loop should only print one number.
- Write a *while* loop that repeatedly asks the user for a single character. If the user types a lowercase *q*, the loop quits.
- Write a *for* loop that counts down from 10 to 1 inclusive.

Task 4 - Reading Code

Please state in a comment which messages will be printed for the following sections of code. It may print more than one message. First, read the code and try without the use of the Python interpreter to come up with an answer. Once you have an answer, put the code into a .py file and run it to verify your answers.

A

```
cash = 1.5
if int(cash)*2.0 != int(cash*2.0):
    print("The devil is in the details.")
```

B

```
temp = 40
if temp < 40:
    print("It is cold.")
elif temp < 70:
    print("It is mild.")
elif temp < 90:
    print("It is hot.")
else:
    print("It is unbearable.")
```

C

I wrote the following code to add all the numbers from 1 and 10. The correct result is 55; however, this code contains two mistakes which cause it to give an incorrect result. Identify them and suggest a corrected version. When correcting the code, try to correct the existing code rather than completely rewrite a new solution.

```
i = 1
total = 0
while i != 10:
    i = i + 1
    total = total + i
print(total)
```