

Assignment #5

More Conditionals and Loops!!!

Due: Sunday, 10/22/17, 11:59pm

(20 pts) Career Fair: Pick two companies that you would like to visit at the career fair and describe why you are picking these two companies.

https://oregonstate.joinhandshake.com/career_fairs/2376/employers_list?logged_out_view=student_preview

Visit the career fair on Wed. 10/18, 11am-3pm at CH2M Hill, LaSells Stewart Center, and Reser Stadium, and write a description of what you thought about the event.

(80 pts) We are going to add to our calculator by making it function as a programmer or scientific calculator. The user can choose the mode, and once in that mode the user gets a few options for calculations. You may not use any built-in functions for the number conversion, such as bin()!!! You also need to handle all bad input without using exceptions. If you don't know what exceptions are, that is okay. ☺

- ✓ In programmer mode, the user can enter any unsigned decimal number to convert to binary.
 - Your binary number should not print leading zeros this time, and it should convert numbers larger than 255!!!
 - **For this number, make sure you handle bad positive integers!!!** You have to handle anything that isn't an unsigned decimal integer without using exceptions!!!
- ✓ In scientific mode, the user can choose between the following operations: +, -, *, /, and **.
 - Since all these operations are binary, then the user needs to be prompted for two operands following the operator. These operands can be integers or floating point numbers.
 - **For this operation, you need to handle all bad input** including bad operator choices and numbers!!!
- ✓ You will continue to ask the user if he/she wants to continue doing calculations or go to a different mode after each iteration.
- ✓ **Step 1: Problem Analysis. (10 pts)**
 - a. Understanding the Problem – Do you understand everything in the problem? List anything you do not fully understand.
 - b. What are the inputs, outputs, etc.?
- ✓ **Step 2: Program Design. (20 pts)**

What are the decisions that need to be made in this program? How are you going to calculate the binary number for any number > 255? Are you going to ask for the starting exponent? Are you going to calculate this starting exponent? How are you going to handle bad input?

Based on your answers above, list the **specific steps or provide a flowchart** of what is needed to create this calculator with two modes. Be very explicit!!!

✓ **Step 3: Program Implementation. (40 pts)**

This is the Python code that implements the programmer and scientific calculator.

✓ **Step 4: Program Testing. (10 pts)**

Create a test plan with the test cases (bad, good, and edge cases). What do you hope to be the expected results? You can use your Lab #3 and Assignment #4 as a starting place for the table you need to develop.

- What are the good, bad, and edge cases for ALL input in the program?
- What are the actual results from testing this data?

(10 pts) **Extra Credit**

Add functionality to the programmer calculator

Binary to Decimal conversion:

- If the user chooses binary, then the user enters a number as 1s and 0s, and the calculator returns the decimal representation.

Electronically submit your **.py file** (Python code) and **definitions/design as a .pdf** by the assignment due date, using TEACH:

https://secure.engr.oregonstate.edu:8000/teach.php?type=want_auth