EECS 1015: LAB #3 – If-statements and loops
Assigned: September 28, 2020
Due date: Oct 17, 2020 (extra time is given because Oct 10-16 is reading week)

#Important reminder for your third lab

1) You must submit your lab via web-submit.

2) Please make sure you correctly submit your file(s).

3) Please follow the instructions carefully – read the lab carefully to understand everything you need to do; this lab has multiple parts.

1. GOALS/OUTCOMES FOR LAB

- To practice if-statements and while/for loops
- To continue practicing with string input and string processing
- To write your own Python code

2. LAB 3 – TASK/INSTRUCTIONS

Task 0: [This will be the same for all labs]: Start you code with comments that include this lab ID, your full name, email address, and student id as follows:

```
# Lab 3
# Author: Michael S. Brown
# Email: msb99898@aol.com
# Student ID: 10233030
```

This lab has four tasks. Please read each carefully. You can also watch the accompanying video linked here:

https://www.eecs.yorku.ca/~mbrown/EECS1015_Lab3.mp4

See the four tasks on the next pages.

Task 1 [Ticket Price]

Goal: This task is to compute the ticket price for a person based on their age and their status as a student.

The user should input two piece of information:

(1) Their age as an integer

(2) If they are a student or not, either "Y" or "N"

You need to compute the type of ticket and amount they need to pay. The possible outcomes are:
Type 'CHILD', Price 0.50 - if their age is less than or equal to 12.
Type 'STUDENT', Price 1.00 - if they answer "Y" to the student question
Type 'SENIOR', Price 0.50 - if their age is greater than or equal to 65.
Type 'ADULT', Price 1.50 - if none of the thing above are true.

Note, you should compute the lowest fare based on the input. For example, a person who is a 'CHILD' or 'SENIOR' but is also a 'STUDENT' should only pay 0.50 and not the students rate of 1.00.

See output for several examples (user input is in red)

```
---TASK 1: Determine Fare---
What is your age?: 5
Are you a student (Y/N)?: Y
Fare Type 'CHILD' - Price: $0.50

---TASK 1: Determine Fare---
What is your age?: 30
Are you a student (Y/N)?: Y
Fare Type 'STUDENT' - Price: $1.00

---TASK 1: Determine Fare---
What is your age?: 66
Are you a student (Y/N)?: N
Fare Type 'SENIOR' - Price: $0.50

---TASK 1: Determine Fare---
What is your age?: 21
Are you a student (Y/N)?: N
Fare Type 'ADULT' - Price: $1.50
```

Your output should look like that shown here. Also see accompanying video.

Example video for the lab: **https://www.eecs.yorku.ca/~mbrown/EECS1015_Lab3.mp4**

Task 2 [Print each item in string and reverse the string.]

Goal: The user should input string. You will print out each character one by one. You will also print out the string in reverse order.

See output for several examples (user input is in red)

```
--- Task 2: Print String Characters and Reverse --
Input a string: This is a test.
str[0] = 'T'
str[1] = 'h'
str[2] = 'i'
str[3] = 's'
str[4] = ' '
str[5] = 'i'
str[6] = 's'
str[7] = ' '
str[8] = 'a'
str[9] = ' '
str[10] = 't'
str[11] = 'e'
str[12] = 's'
str[13] = 't'
str[14] = '.'
Reversed: '.tset a si sihT'

--- Task 2: Print String Characters and Reverse --
Input a string: EECS1015 Lab3
str[0] = 'E'
str[1] = 'E'
str[2] = 'C'
str[3] = 'S'
str[4] = '1'
str[5] = '0'
str[6] = '1'
str[7] = '5'
str[8] = ' '
str[9] = 'L'
str[10] = 'a'
str[11] = 'b'
str[12] = '3'
Reversed: '3baL 5101SCEE'
```

Your output should look like that shown here. Also see accompanying video.

Example video for the lab: **https://www.eecs.yorku.ca/~mbrown/EECS1015_Lab3.mp4**

Task 3 [Finding the maximum value in a list of inputs

Goal: The goal is to find the maximum value from a sequence of positive numbers. You should ask the user to input a sequence of positive numbers (it is OK if they repeat numbers). The end of the sequence is determined when the user enters a negative number. You should print out the maximum number from the sequence.

See output for several examples (user input is in red)

```
--- Task 3: The Maximum ----
Keep entering positive numbers.
To quit, input enter a negative number.
Enter a number: 10
Enter a number: 15
Enter a number: 11
Enter a number: 0
Enter a number: 88
Enter a number: 15
Enter a number: 33
Enter a number: 8
Enter a number: -1
Largest number entered   88

--- Task 3: The Maximum ----
Keep entering positive numbers.
To quit, input enter a negative number.
Enter a number: 1039
Enter a number: 2029
Enter a number: 3333
Enter a number: 40
Enter a number: 109
Enter a number: 5555
Enter a number: -1
Largest number entered   5555
```

Your output should look like that shown here. Also see accompanying video.

Example video for the lab: **https://www.eecs.yorku.ca/~mbrown/EECS1015_Lab3.mp4**

Task 4: String triangle

Goal: Input a string. Based on the inputted string, print out a triangle as shown below. Note that case where string only is a single character (last example).

See output for several examples (user input is in red)

```
--- Task 4: String triangle ---
Type in a string: EECS1015
E
EE
EEC
EECS
EECS1
EECS10
EECS101
EECS1015
EECS101
EECS10
EECS1
EECS
EEC
EE
E

--- Task 4: String triangle ---
Type in a string: ******
*
**
***
****
*****
******
*****
****
***
**
*

--- Task 4: String triangle ---
Type in a string: ^^
^
^^
^

--- Task 4: String triangle ---
Type in a string: X
X
```

Example video for the lab: **https://www.eecs.yorku.ca/~mbrown/EECS1015_Lab3.mp4**

3. GRADING SCHEME (Maximum number of points possible 10)

This lab is more challenging than lab 2. However, the notes and trinkets examples are all sufficient to help you do this lab. To get full marks you need to make sure you follow the instructions correctly. The following will be our grading scheme for the Lab components specified in Section 2 of this document.

Task 0: (0 points, but deduction if you skip this part)

- File name **must** be "lab3.py" (all lowercase, no spaces)
- The Python comments at the beginning of your program **must** include your name, email, and York student id (this is important for grading)
- *If your file name is incorrect, your or do not put in the required information we will deduct -5 points (Why are we so harsh? Because if you don't put in your name and student id it can be very difficult for the TAs to determine whose submission this is.)*

Task 1-4: (2.5 points each)

- Each task should prompt the user correctly and compute the required output correctly.
- Please watch the accompanying video.

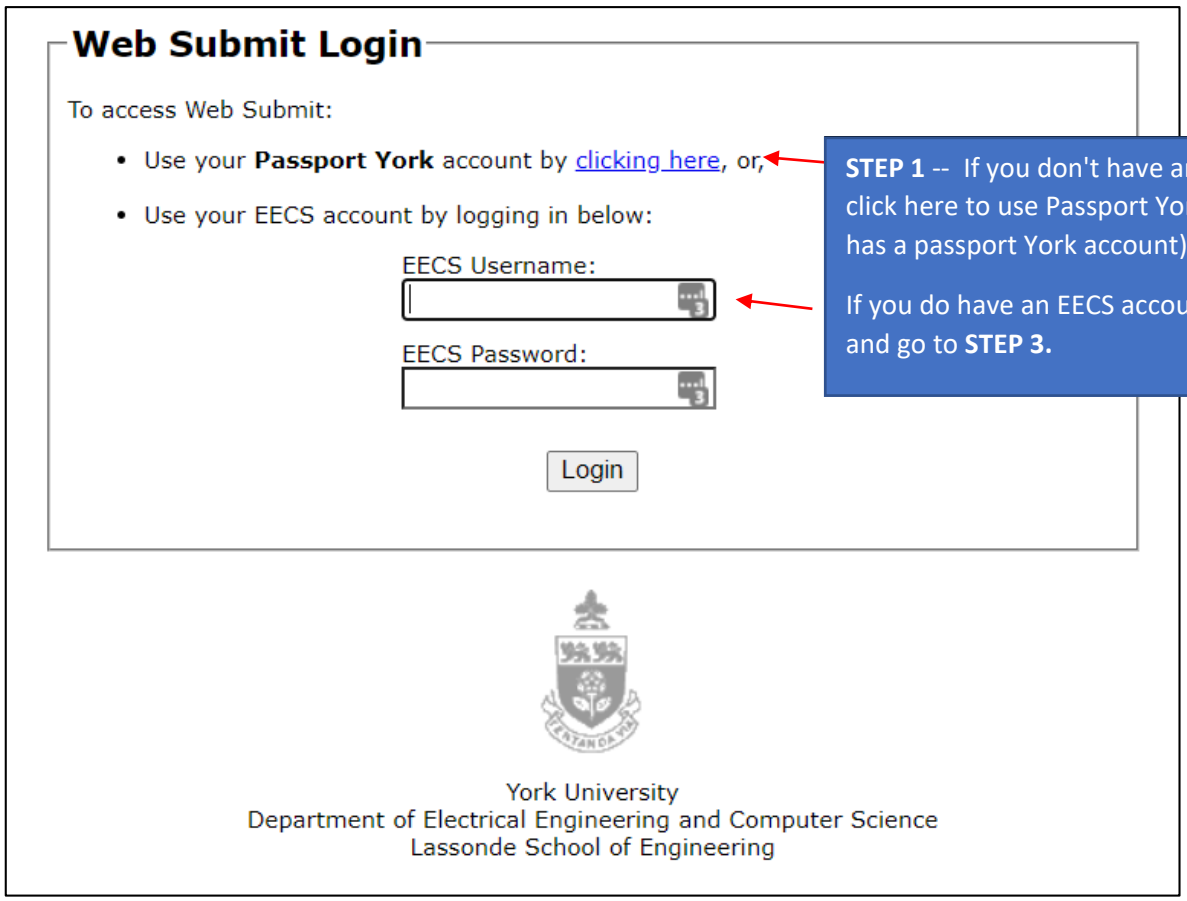
-No submission – 0 points
-Any submission 1 week after the due date 50% off the total marks
-Any submission 2 weeks after the due date will not be marked and treated as no submission.

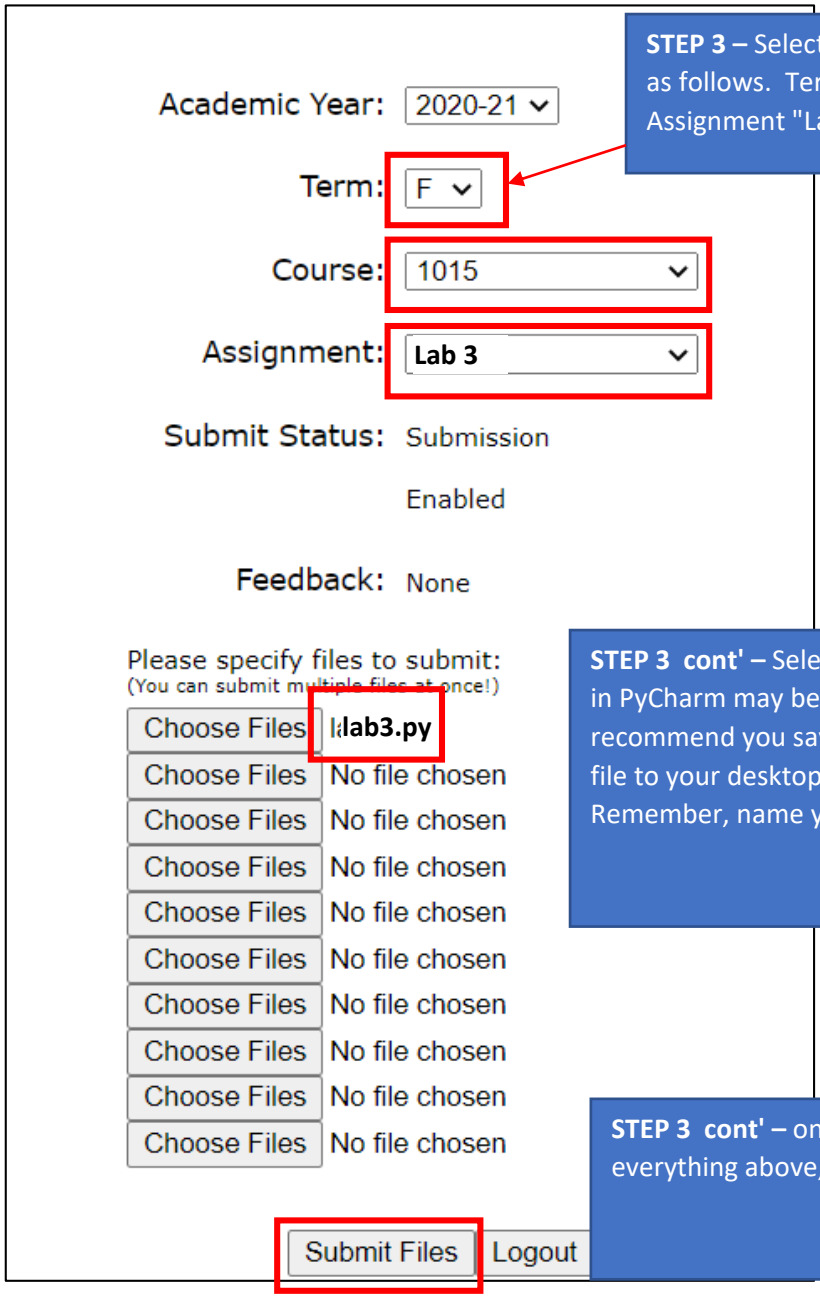
See pages below on how to submit your lab code.
MAKE SURE TO SELECT **Lab3** with websubmit

4. SUBMISSIONS (EECS web-submit)

You will submit your lab using the EECS web submit.

Click on the follow URL: https://webapp.eecs.yorku.ca/submit

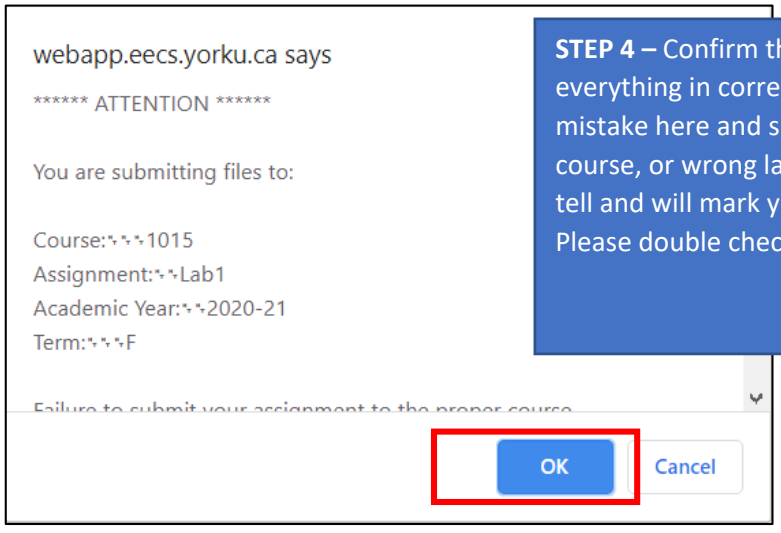




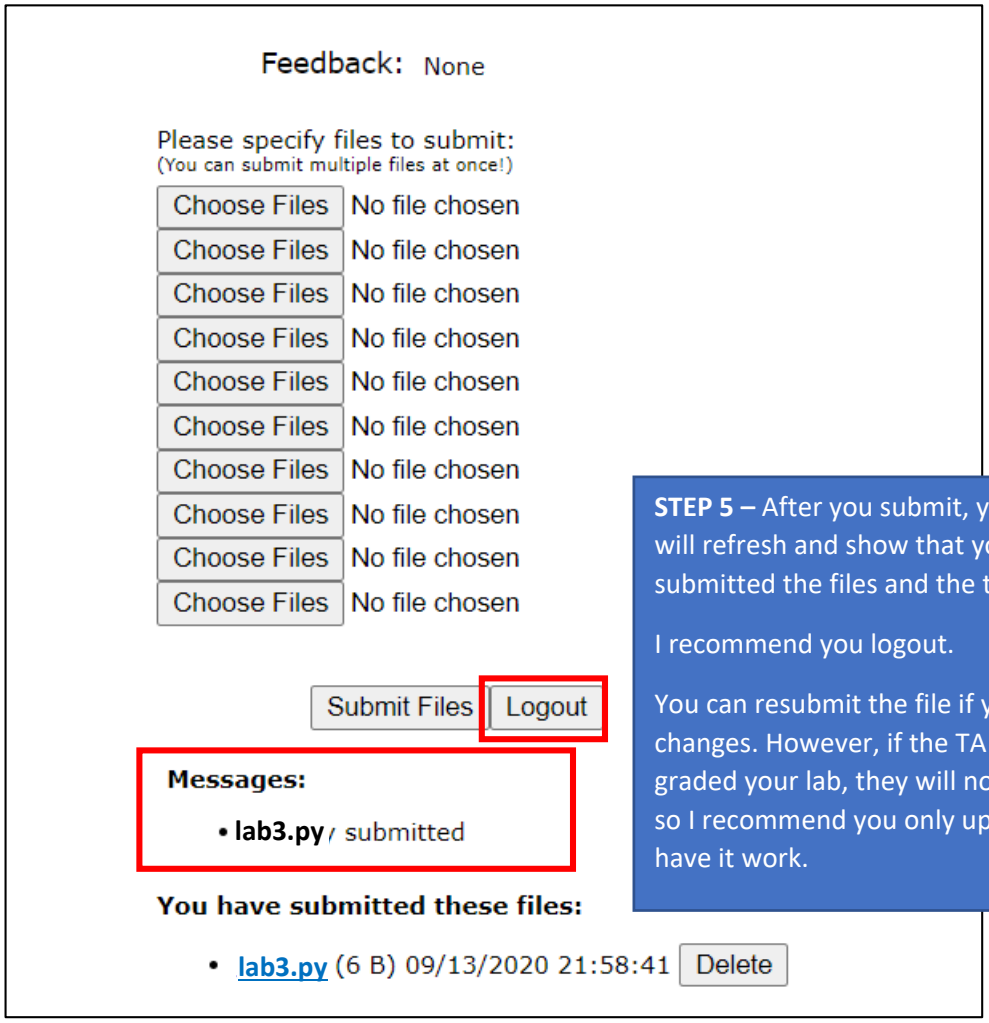
STEP 3 – Select the correct menu option as follows. Term "F", Course "1015", Assignment "Lab3".

STEP 3 cont' – Select your file. The location in PyCharm may be complicated. I recommend you save your PyCharm Python file to your desktop and select from there. Remember, name your file **lab3.py**.

STEP 3 cont' – once you have entered everything above, click "Submit Files".



STEP 4 – Confirm that you have entered everything in correctly. If you make a mistake here and submit to the wrong course, or wrong lab, we won't be able to tell and will mark your lab as not submitted. Please double check before clicking OK.



For more details on websubmit, see EECS department instructions:

https://wiki.eecs.yorku.ca/dept/tdb/services:submit:websubmit