# *Introduction to Programming (ITAS 185)*

# *Lab 8 – Python Libraries*

Date due: **Friday, December 1, by 14:00**

**Learning Objectives**

Upon successful completion of this lab exercise, the student will be able to:

* Use Python exceptions to do work

**To be handed in:**

1. The ***username185L09*** folder should be zipped and uploaded to the ITAS Portal. ***Username*** isyour logon username (mine would be allan.mcdonald).

**To start:**

1. Create a folder called ***username*185L09** that you will use for ALL the files in the lab. Copy the unzipped part\_b folder to the folder created.
2. Open this **FOLDER** in VS Code. Make sure you open the folder and not just the files.

To Do

**Part A – Input Exceptions**

1. Create a file called guess.py and import and use math.random to select a number from 1 to 100 (inclusive).
2. Prompt the user to enter a number from 1 to 100.
3. Tell the user if they are higher or lower than the number.
4. Repeat until the user guesses the number correctly.
5. Use exceptions to ensure that the user enters an integer (ValueError). Display an appropriate error message if they do not.
6. Use an exception to ensure that the user does not enter a number greater than 100. Raise an exception and catch the error if they enter a number greater than 100 (use an error Class GreaterThan100 you create).
7. Use an exception to ensure that the user does not enter a number less than 1. Raise an exception and catch the error if they enter a number less than 1 (use an error Class called LessThanOne you create).
8. Use an exception to exit gracefully if the user presses Ctrl-C (KeyboardInterrupt exception).
9. Once the user guesses the number correctly, select a new random number and start over. Continue until Ctrl-C is pressed.

**Part B – Files and Letters**

1. This is a copy and addition to part B3 of Lab 5. Feel free to start with that if you wish.
2. Create a file called users\_choice.py that prompts the user for a letter.
   1. Use exceptions to ensure that the user has entered a single letter (create your own exception to test the length entered)
   2. Use an exception to make sure that the value entered was a letter (you can import and use the ascii\_lowercase value in the string module)
   3. If there is an exception display a message and prompt for the letter again.
3. Once the letter is entered, prompt the user to enter the name of the file. I have provided 4 files to use. Count the number of times the letter entered is found in the file specified. The case must be case insensitive.
   1. Use an exception to catch if the user enters a file that does not exist (FileNotFoundError) and prompt the user to enter a new file name.
4. Count and display the number of the letter chosen by the user with a nice message.
5. If you wish you can loop until the user presses Ctrl-C as in part A, but you do not have to.

**To submit**

When you have completed the lab exercise, call me over to mark it. Then, create a single zip file called username185L09.zip and copy the file to the Moodle page for the course.