

Lab 6

Ch En 263 – Numerical Tools
Due: 25 Jan. 2024

Instructions

- Complete the exercise(s) below, and submit the following files to Learning Suite:
 - Handwritten portion: scan each page (or take a picture) and combine them into a single pdf named: `LastName_FirstName_Lab6.pdf`
 - Excel portion: submit a workbook named `LastName_FirstName_Lab6.xlsx` where each worksheet tab is named “Problem.1”, “Problem.2”, etc.
 - Python portion: submit a separate file for each problem named `LastName_FirstName_Lab6_ProblemXX.py` where XX is the problem number.
- Warning: the LS assignment will close promptly at 11:59 pm and late assignments will only receive 50% credit.

Lab Exercises

1. Do the following in an Excel Workbook.

- (a) In a tab named “Exercise.1a” Make a list of the integers 1 to 100 in a column. In a second column, compute the cumulative sum. The last value in the second column should give you the sum,

$$s = \sum_{i=1}^{100} i.$$

Copy the value of the sum to the top of the worksheet and highlight the box.

- (b) In a tab named “Exercise.1b” create a multiplication table for numbers from 1 to 10 inclusive. You should have the numbers 1 to 10 in the top row, the numbers 1 to 10 in the left most column and the multiplication table in between.

2. Do the following in a Python file.

- (a) Write a `while` loop that prints the integers from 1 to 100.
- (b) Write a `while` loop to cumulatively sum the numbers between 1 and 100 (inclusive). In other words evaluate,

$$s = \sum_{i=1}^{100} i.$$

Output the value of the sum to the console.

- (c) Write a set of two nested `for` loops where the outer loop ranges from $i \in [1, 10]$ and the inner loop ranges over $j \in [1, 10]$. Print the value of i and j at each iteration of the loop.
- (d) Use a set of two nested `for` loops to create a multiplication table for numbers from 1 to 10 inclusive. The output should look like a table with rows and columns (they don't have to be perfectly aligned):

```
1  2  3  ...
2  4  6  ...
```

Tip: `print` can be called with an optional argument: `print(x, end='')` that will print x without making a new line.