**ECE 1111: Engineering Computation I**

**Homework No. 2: Simple Data Manipulation**

**Goal:** Demonstrate that you can use Google search effectively to solve simple Python programming problems. In this assignment, you will learn how to read simple files from within a program. Solutions to the problems below can be easily found on the Internet.

**Description:** The tasks are:

1. Write a Python program named p01.py that initializes each element of a $5x5$ matrix to a value of $1.0$. In the same program, initialize the elements of a second matrix to a value of $10.0$. Demonstrate that you can add, subtract, and multiply these two matrices. Print your results to the terminal (stdout).

Your program should run this way:

python p01.py

Extra credit will be given if you demonstrate something really cool!

1. Write a Python program, named p02.py, that reads a spreadsheet from a file and prints its values to stdout. Use this file as an example:

https://isip.piconepress.com/courses/temple/ece\_1111/resources/data/spreadsheets/x0.xlsx

Your program should run this way:

p02.py <any filename>

For example,

p02.py x0.xlsx

To do this assignment, you should import the pandas library. There is a standard function call that will import a spreadsheet into what is called a data frame. Use vibe coding tools (Claude.AI) to learn more.

1. Convert x0.xlsx to a csv file. Write a Python program, p03.py, that reads this file and prints the matrix to stdout. Your program should run this way:

p03.py x0.csv

Again, you can use vibe coding tools to learn how to read a text file into a matrix data type.

Submit these three programs in your homework directory:

ece-000:/data/courses/ece\_1111/current/homework/hw\_02/<lastname\_firstname>/

using the names p01.py, p02,py and p03.py. Your code MUST BE commented and formatted following the conventions shown here:

www.isip.piconepress.com/courses/temple/ece\_1111/resources/code\_formatting/python