Name:

Problem	Points	Score
1	50	
2	50	
Total	100	
Extra Credit	25	
Extended Total	125	

Notes:

(1) The first step in this exam is to create a workspace in the following directory:

```
/data/courses/ece_1111/current/exams/ex_01
```

Your directory should be your last name all lowercase, followed by an underscore, following by your first name (e.g, "picone_joseph"). Set the permissions using "chmod u+rwx,g-rwx,o-rwx <lastname>" so only you have read and write permission to this directory. Create subdirectories within this directory: p01, p02, ... You will use these for problems 1 and 2, ... respectively. Put ALL your code in these directories. Do not touch your files after the exam is over.

- (2) For this exam you are allowed to open a terminal window on your computer, you are allowed to web surf with Google, but you cannot use online chat, ChatGPT or other interactive services. Your code must be your own original work.
- (3) You can only receive extra credit if you complete the first two problems correctly.

(50 pts) Problem No. 1 (p01):

This file:

/data/courses/ece_1111/current/exams/ex_01/picone_joseph/x.list

contains a list of filenames. Write a Python script that opens this file, iterates over the list, gets the file size in bytes for each file in the list ending in "*.txt", and sums up the sizes of the file in bytes. Your program should output the total number of bytes contained in these files.

Your output should look like this:

ece-000_[1]: p01.py /data/courses/ece_1111/current/exams/ex_01/picone_joseph/x.list
the total number of bytes = 10

for the file given. But your program should work for any list of files.

(50 pts) Problem No. 2 (p02):

Write a Unix shellscript that produces the same result as problem no. 1. Place this command in a directory p02 using the filename p02.sh. The interface should be the same:

```
ece-000_[1]: p02.sh /data/courses/ece_1111/current/exams/ex_01/picone_joseph/x.list
the total number of bytes = 10
```

Hint: Do not write bash code. Try to do this using pipes and this handy little command:

```
ece-000_[2]: echo "9" | paste -sd+ | bc
9
```

(25 pts) Reflection:

You can only complete this problem if you complete the other two problems correctly.

Note that you now have two commands, p01.py and p02.sh, that produce the same result. Explain how you would write this in C. Keep the explanation high-level. Explain the logical steps and what aspects of the programming language you would use to implement those steps.