Section 6: File I/O

CSE 160: Data Programming Autumn 2026

This worksheet is yours to work on and keep. Once completed, **tear off the last page of this packet and hand it in** at the end of section to receive 1 practice point for participating today.

Recap

In lecture this week, we learned about **File I/O**, which allows us to read data from files and write data to them using Python.

We use `open(filename, mode)` to open a file. The mode determines what we can do with it: `"r"` reads the file (default), `"w"` writes to the file and overwrites existing contents, and `"a"` adds to the end without erasing anything.

To read a file, we can use `f.read()` to get the entire contents as one string, or

```
for line in f:
```

to go through the file one line at a time.

To write to a file, we use `f.write(s)`, where `s` must be a string. Unlike `print()`, `write()` does not automatically add a newline, so we must include `"\n"` ourselves if we want text on separate lines.

Finally, we use `f.close()` when we are done working with a file. Alternatively, `with open(filename, mode) as f:` automatically closes the file when we leave the `with` block.

Warm-Up Problem

What are the contents of `secret.txt` after this code runs?

```
f = open("secret.txt", "w")
f.write("Thanksgiving ")
f.write("is in\n")
f.write("November")
f.close()
f.write("26th")
f.open("secret.txt", "a")
f.write("next next week\n")
f.close()
```

Problem 1

Write a function called `count_lines(filename)` that reads the file and returns the total number of lines in the file.

For example, if you had a file `birds.txt` that contains:

```
Raven
Crow
Penguin
Flamaingo
```

The returned value of `count_lines("birds.txt")` would be 4

Problem 2

Write a function called `blank_lines(filename)` that returns the number of empty lines in the file.

For example, if you had a file `periodic_table.txt` with the contents:

```
1 Hydrogen
2 Helium
3
4 Lithium
5
6 Beryllium
7
8
9 Boron
```

The function call `blank_lines("periodic_table.txt")` should return 4

Problem 3

Part A. Write a function called `write_list(lst, filename)` that writes each string in `lst` to the file on its own line. You can replace the existing contents of the file (if applicable).

For example, `write_list(["Reign", "Kraken", "Storm", "Mariners"], "sports.txt")` would make `sports.txt` contain:

```
Reign
Kraken
Storm
Mariners
```

Part B. What would you change to your answer in part A if you did NOT want to erase the contents that were previously in the file?

Problem 4

The file `rocks.txt` contains the following text:

```
Sedimentary
Metamorphic
Igneous
```

Part A. What does the code below print?

```
f = open("rocks.txt")
contents = f.read()
print(len(contents))
for rock in f:
     print(rock)
f.close()
```

Part B. What does the code below print?

```
f = open("rocks.txt")
for rock in f:
     print(rock)
f.close()
```

TEAR OFF THIS PAGE AND HAND IN AT THE END OF SECTION

Section 6 Exit Ticket

CSE 160: Data Programming Autumn 2026

Once completed, **tear off this page and hand it in** at the end of section to receive 1 practice point for participating today. Section exit tickets are graded on *completion*.

Full Name:	
UW Email:	
Section TA(s):	

Samaira calls her `lab_report` function, but her data doesn't get written to a file. What could be wrong, and how could she fix it?

```
def lab_report(filename, data):
    f = open(filename)
    for number in data:
         f.write(str(number) + "\n")
```

[Optional] Share with your TA: How are you feeling about Quest 2?