

CS 114 Tutorial 6

Oct 24 2025

Goals for this Week:

- ❑ Submit assignment 03 (due tonight 5:30)
- ❑ Look at assignment 04 (releases tonight)
- ❑ Understand how to open different files
- ❑ Know how to use text and CSV files
- ❑ Understand how to read files and write to files

```
!wget https://student.cs.uwaterloo.ca/~cs114/src/Students.csv
```

Create a function that counts the number of words in a text file. Test your function by writing your own text files in jupyter (do this manually not through code).

Def count_words(filename: str) → int

The csv file students.csv contains the names and ages of students. Write a function oldest_student that takes the file and returns the name of the oldest student.

Def oldest_student(input_file: str) → str

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String Methods

```
line = "Hello, world!"  
print(line.split(","))
```

What does this code print?

- A. ["Hello, world!"]
- B. ["Hello", " world!"]
- C. "Hello", " world!"
- D. ["Hello world!"]



Iterable vs Sequence

```
with open(filename) as myFile:
```

myFile is an iterable not a sequence. Which of the following next steps is possible on this iterable file handle called myFile?

- A. You can call len() on the file handle to determine the file size.
- B. You must turn it into a list before you can loop through it
- C. The file must be entirely loaded into memory before you can read the first line.
- D. You can iterate over the file handle using a for loop.



Writing Files

When you open a file, why should you avoid using the “w” mode unless necessary?

- A. It makes files unreadable
- B. It slows down your code
- C. It overwrites existing content
- D. It only works on text files
- E. There is no reason to avoid it



CSV Files

```
import csv

def file_test(filename: str) -> None:
    with open(filename) as myFile:
        csvRdr = csv.DictReader(myFile)
        for line in csvRdr:
            print(line)

file_test("nino34.csv")
```

What is the type of line?

- A. list[str] B. dict[str, str] C. dict[str, Any] D. list[dict[str, str]]



Text Files

```
three = 3

with open("outputFile.txt", "w") as ofh:
    ofh.write(f"I am {three}\nyears from graduating")
```

What will first line in outputFile.txt be?

- A. I am 3
- B. I am 3 \nyears from graduating
- C. I am three
- D. I am three years from graduating

```
!wget https://student.cs.uwaterloo.ca/~cs114/src/City_Data.csv
```

Write a function that reads a CSV file containing daily temperature data and writes a new CSV file that includes only the rows for a given city.

Example input file:

```
Date, City, TempC
2025-01-01, Waterloo, -5.3
2025-01-02, Toronto, -2.0
2025-01-03, Waterloo, -8.5
2025-01-04, Ottawa, -10.1
```

```
filter_city("temps.csv", "waterloo.csv", "Waterloo")
```

Output file:

```
Date, City, TempC
2025-01-01, Waterloo, -5.3
2025-01-03, Waterloo, -8.5
```

```
def filter_city(input_file: str, output_file: str, city_name: str) → None:
```