Objectives

- More Files
- Exam Review

Review: Files

- Conceptually, a file is a **sequence** of data stored in memory
- To use a file in a Python script, create an object of type `file`
  - ➤ `file` is a *data type*   **constructor** - "constructs" a file object
  - ➤ `<varname> = file(<filename>,<mode>)`
    - • `<filename>` : string
    - • `<mode>`: string, either "r" for read or "w" for write
  - ➤ Ex: `dataFile = file( "years.dat", "r")`

Review: Reading from a File

- Examples of reading from a file using file methods   Typically use .dat or .txt file extension for these types of data/text files
  - ➤ Show file: data/years.dat
- file_read.py (using `read()`)
  - ➤ How is what Python printed different than the file's content?
  - ➤ How to fix?
- file_read2.py (using `readline()`)

Review: Reading from a File

- Recall that a file is a **sequence** of data

- Can use a `for` loop to iterate through a file

A line (of type **str**) from the file   file object

```
for line in dataFile:
    print line
```

  - ➤ Read as: for each line in the file, do something

Writing to a File

- Create a file object in write mode:
  - ➤ `myFile = file("years.txt", "w")`

- Example: create a file from user input
  - ➤ file_write.py

  - ➤ What happens if execute the program again with different user input?

Handling Numeric Data

- We have been dealing with reading and writing strings so far
  - ➤ Read from a file: get a string
  - ➤ Write to file: use a string
- What do we need to do to read **numbers** from a file?

- How can we write numbers to a file?

Handling Numeric Data

- We have been dealing with reading and writing strings so far
  - ➢ Read from a file: get a string
  - ➢ Write to file: use a string
- What do we need to do to read **numbers** from a file?
  - ➢ Cast as a numeric type, e.g., `int` or `float`
- How can we write numbers to a file?
  - ➢ Cast number as a `str`

Problem: Temperature Data

- **Given**: data file that contains the daily high temperatures for last year for one location
  - ➢ Data file contains one temperature per line
  - ➢ Example: data/florida.dat
- **Problem**: What is the average high temperature (to 2 decimal places) for the location?

- **Rule of Thumb**: Always look at data file before processing it

Problem: Create a Summary Report

- **Given**: a file containing students names and their years (freshman, sophomore, junior, or senior) for this class
- **Problem**: create a report (in a file) that says the year and how many students from that year are in this class.
  - ➢ Again, we want to ignore comments in the file
- Do we need to start this program from scratch? Have code we can use or repackage?   writeSumFile.py

This Week

- Tuesday: lab
- Wednesday: no class—STUDY!
- Friday: exam

- No broader issue

Exam Review