

Reading from Files II

```
file = open("filename.txt", "r")
for line in file:
    line = line.rstrip()
    # do something with line
file.close()
```

Reading one
string per line

```
-----
file = open("filename.txt", "r")
for line in file:
    line = line.rstrip()
    num = int(line)
    # do something with num
file.close()
```

Reading one int
per line

- Re-open your code from the last class that read in a text file of integers and printed their total sum.
- Change the program to print the differences between pairs of consecutive numbers. Hint: use the sliding window technique.
- Change the program to print a "moving average" of the most recent three numbers in the file. (This means print the average of the numbers on lines 1, 2, and 3; then 2, 3, and 4; then 3, 4, and 5, etc)
 - Use the sliding window technique, but use *two* sliding variables to hold the previous number, as well as the number from two lines ago.
- **Challenge:** Change your program to print out the largest and smallest numbers in the file.

- Problem that re-occurs often in CS:
- Finding the largest item in a set of things where you can only look at each thing once.



- Pseudocode for finding the largest number in a collection of numbers:
- **largest** = [smallest possible number that you could ever see]
- loop over each number:
 - if the current number > **largest**, then
largest = current number
- after this loop, **largest** will have the largest number in it!

Split function

Splits a string into multiple string variables based on a separator:

```
var1, var2, ... = var.split("sep")
```

The diagram illustrates the syntax of the split function. It shows the code `var1, var2, ... = var.split("sep")` at the top. Below this, three blue boxes provide explanations. The first box, labeled 'new string variables separated by commas', has two arrows pointing to `var1` and `var2` in the code. The second box, labeled 'existing string variable to split', has an arrow pointing to `var`. The third box, labeled 'the separator that appears between string pieces', has an arrow pointing to `"sep"`.

new string variables separated by commas

existing string variable to split

the separator that appears between string pieces

Reading multiple strings per line

```
file = open("filename.txt", "r")
for line in file:
    line = line.rstrip()
    var1, var2, ... = var.split("sep")
    # do something with var1, var2, etc.
```

- Copy the `people.txt` file from the class website (code written in class -> today's date) to your Python directory. Open the file and notice how it is organized: every line has a person's first name, last name, and year of birth separated by commas.
- Write a program to print the year the oldest person was born, and the year the youngest person was born.
- Edit your program to print the *names* of the oldest and youngest person.
- Make a new program to print the first and last names of the person who comes first alphabetically (by last name), and last alphabetically.