



10.4. Iterating over lines in a file

We will now use this file as input in a program that will do some data processing. In the program, we will examine each line of the file and print it with some additional text. Because `readlines()` returns a list of lines of text, we can use the `for` loop to iterate through each line of the file.

A **line** of a file is defined to be a sequence of characters up to and including a special character called the **newline** character. If you evaluate a string that contains a newline character you will see the character represented as `\n`. If you print a string that contains a newline you will not see the `\n`, you will just see its effects (a carriage return).

As the `for` loop iterates through each line of the file the loop variable will contain the current line of the file as a string of characters. The general pattern for processing each line of a text file is as follows:

```
for line in myFile.readlines():
    statement1
    statement2
    ...
```

To process all of our olympics data, we will use a `for` loop to iterate over the lines of the file. Using the `split` method, we can break each line into a list containing all the fields of interest about the athlete. We can then take the values corresponding to name, team and event to construct a simple sentence.

Save & Run Original - 1 of 1

```
1 olympicsfile = open("olympics.txt", "r")
2
3 for aline in olympicsfile.readlines():
4     values = aline.split(",")
5     print(values[0], "is from", values[3], "and is on the roster for", values[4])
6
7 olympicsfile.close()
8
```

Name is from Team and is on the roster for Event
A Dijiang is from China and is on the roster for Basketball
A Lamusi is from China and is on the roster for Judo
Gunnar Nielsen Aaby is from Denmark and is on the roster for Football
Edgar Lindenau Aabye is from Denmark/Sweden and is on the roster for Tug-Of-War
Christine Jacoba Aaftink is from Netherlands and is on the roster for Speed Skating
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Christine Jacoba Aaftink is from Netherlands and is on the roster for Speed Skating
Christine Jacoba Aaftink is from Netherlands and is on the roster for Speed Skating
Per Knut Aaland is from United States and is on the roster for Cross Country Skiing
Per Knut Aaland is from United States and is on the roster for Cross Country Skiing
John Aalberg is from United States and is on the roster for Cross Country Skiing
John Aalberg is from United States and is on the roster for Cross Country Skiing
"Cornelia ""Cor"" Aalton (-Strannood)" is from Netherlands and is on the roster for Athletics
"Cornelia ""Cor"" Aalton (-Strannood)" is from Netherlands and is on the roster for Athletics
Antti Sami Aalto is from Finland and is on the roster for Ice Hockey
"Einar Ferdinand ""Einari"" Aalto" is from Finland and is on the roster for Swimming
Jorma Ilmari Aalto is from Finland and is on the roster for Cross Country Skiing
Jyri Tapani Aalto is from Finland and is on the roster for Badminton
Minna Maarit Aalto is from Finland and is on the roster for Sailing
Minna Maarit Aalto is from Finland and is on the roster for Sailing
Pirjo Hannele Aalto (Mattila-) is from Finland and is on the roster for Biathlon
Timo Antero Aaltonen is from Finland and is on the roster for Athletics
Win Valdemar Aaltonen is from Finland and is on the roster for Art Competitions

Activity: 1 -- ActiveCode (ac9_5_1)

To make the code a little simpler, and to allow for more efficient processing, Python provides a built-in way to iterate through the contents of a file one line at a time, without first reading them all into a list. Some students find this confusing initially, so we don't recommend doing it this way, until you get a little more comfortable with Python. But this idiom is preferred by Python programmers, so you should be prepared to read it. And when you start dealing with big files, you may notice the efficiency gains of using it.

Save & Run Original - 1 of 1

```
1 olympicsfile = open("olympics.txt", "r")
2
3 for aline in olympicsfile:
4     values = aline.split(",")
5     print(values[0], "is from", values[3], "and is on the roster for", values[4])
6
7 olympicsfile.close()
8
```

Name is from Team and is on the roster for Event
A Dijiang is from China and is on the roster for Basketball

A Lamusi is from China and is on the roster for Judo
 Gunnar Nielsen Aaby is from Denmark and is on the roster for Football
 Edgar Lindenaau Aabye is from Denmark/Sweden and is on the roster for Tug-Of-War
 Christine Jacoba Aafink is from Netherlands and is on the roster for Speed Skating
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 Antti Sami Aalto is from Finland and is on the roster for Ice Hockey
 "Einar Ferdinand ""Einar"" Aalto" is from Finland and is on the roster for Swimming
 Jorma Ilmari Aalto is from Finland and is on the roster for Cross Country Skiing
 Jyri Tapani Aalto is from Finland and is on the roster for Badminton
 Minna Maarit Aalto is from Finland and is on the roster for Sailing
 Minna Maarit Aalto is from Finland and is on the roster for Sailing
 Pirjo Hannele Aalto (Mattiila-) is from Finland and is on the roster for Biathlon
 Timo Antero Aaltonen is from Finland and is on the roster for Athletics
 Win Valdemar Aaltonen is from Finland and is on the roster for Art Competitions

Activity: 2 -- ActiveCode (ac9_5_2)

Check your Understanding

Sad upset blue down melancholy somber bitter troubled
 Angry mad enraged irate irritable wrathful outraged infuriated
 Happy cheerful content elated joyous delighted lively glad
 Confused disoriented puzzled perplexed dazed befuddled
 Excited eager thrilled delighted
 Scared afraid fearful panicked terrified petrified startled
 Nervous anxious jittery jumpy tense uneasy apprehensive

1. Write code to find out how many lines are in the file `emotion_words.txt` as shown above. Save this value to the variable `num_lines`. Do not use the `len` method.

Save & Run

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```
1 file=open("emotion_words.txt", "r")
2 st=file.read()
3 print(st)
4 lst=st.split("\n")
5 num_lines=0
6 for lin in lst:
7     if lin > lst[-1]:
8         num_lines+=1
9
10 file.close()
11
```

Sad upset blue down melancholy somber bitter troubled
 Angry mad enraged irate irritable wrathful outraged infuriated
 Happy cheerful content elated joyous delighted lively glad
 Confused disoriented puzzled perplexed dazed befuddled
 Excited eager thrilled delighted
 Scared afraid fearful panicked terrified petrified startled
 Nervous anxious jittery jumpy tense uneasy apprehensive

Activity: 3 -- ActiveCode (ac9_5_3)

Result	Actual Value	Expected Value	Notes
Pass	7	7	Testing that <code>num_lines</code> was assigned to the correct value.
Pass	'len'	'file=...se()\n'	Testing your code (Don't worry about actual and expected values).

Expand Differences

You passed: 100.0% of the tests

You have attempted 4 of 3 activities on this page

10.3. Alternative File Reading Methods">

Alternative File Reading Methods">

Completed. Well Done!

10.5. Finding a File in your Filesystem">