

File Input/Output Examples

Midterm Review

CS 8: Introduction to Computer Science, Spring 2019
Lecture #13

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Administrative

- No new homework or labs assigned this week!
- Work on your projects!
 - Due at the end of the quarter (June 2nd)
- Midterm Exam #2 is on Thursday
 - Prep material given to you

Lecture Outline

- Examples for File Input / Output
- Review

Demonstration

- **Given:** An **input file** with information on rainfall (in inches) for various geographical locations. Looks like this:

```
Akron 25.81  
Albia 37.65 ...etc...
```

- **You have to:** Create an **output file** that reads each line and outputs:

```
Akron had 25.81 inches of rain.  
Albia had 37.65 inches of rain.
```

...etc...

See [rainfall.py](#) and
[rainfall_advanced.py](#)

rainfall.txt

Akron 25.81
Albia 37.65
Algona 30.69
Allison 33.64
Alton 27.43
...etc...

readlines()

List of strings:
["Akron 25.81\n", "Albia 37.65\n", "Algona 30.69\n", "Allison 33.64\n", "Alton 27.43\n",
...etc...

*Get each string
and separate the town name
from the rainfall number*

How do I do that???

report.txt

Akron had 25.81 inches of rain
Albia had 37.65 inches of rain
...etc...

"Akron" and "25.81",
"Albia" and "37.65",
"Algona" and "30.69"
"Allison" and "33.64"
"Alton" and "27.43",
...etc...

```
# Rainfall Example
# (c) 2017 by Ziad Matni for CS8

inputFile = open("rainfall.txt","r")
outputFile = open("report.txt", "w")

outputFile.write("Here's the rainfall report from around the nation!\n")
outputFile.write("-----\n")

allLines = inputFile.readlines()

for line in allLines:
    values = line.split()
    outputFile.write(values[0]+" had "+values[1]+" inches of rain.\n")

inputFile.close()
outputFile.close()
```

```
# Rainfall Example
# WITH accumulated sum and average calculations
# (c) 2017 by Ziad Matni for CS8

inputFile = open("rainfall.txt","r")
outputFile = open("report.txt", "w")

outputFile.write("Here's the rainfall report from around the nation!\n")
outputFile.write("-----\n")

allLines = inputFile.readlines()
count = 0
sum = 0

for line in allLines:
    values = line.split()
    outputFile.write(values[0]+" had "+values[1]+" inches of rain.\n")
    count += 1
    sum += float(values[1])

average = sum/count
inputFile.close()
outputFile.close()
```

Exam Prep Questions 1

```
mer = ['Google', 73, -12, 'Apple', 'Amazon', 55, 0]
mer.append(3.1)
mer.append(mer[1])
for i in range(len(mer) - 6):
    mer.append(len(mer))
print(mer)
```


Exam Prep Questions 2

- What is the output of this Python code?

```
e = 3
for f in range(20, 30, 2):
    if f > 2*e:
        e += 3
        print(1, end="")
```

Exam Prep Questions 3

```
def func1(alist):  
    alist = alist + list(range(4))  
    m = max(alist) - min (alist)  
    n = (sum(alist)**2) // m  
    return list(range(3, n))
```

```
L = [6, -4, 1, 0]  
for x in func1(L):  
    print(x + 2, end=".")
```

Exam Prep Questions 4

The following Python code (also showing line numbers for your convenience) is supposed to read an input file that only has single “numbers” on each line, then do some calculations on those numbers, and then write the results to an output file. There are several things wrong with this code. Name FIVE things wrong with it (and explain why or what you would do to fix it with sufficient detail that fits in the spaces below):

```
1:      link = open('myInput.txt', r)
2:      zelda = open('myOutput.txt', 'write')
3:      for x in link:
4:          num1 = x / 10
5:          num2 = x % 10
6:          link.write(num1 + "<- tenth\n")
7:          zelda.write(str(num2) + "<- remainder\n")
8:      link.close()
```

YOUR TO-DOs

- ☐ **STUDY FOR THE MIDTERM!** 😊

</LECTURE>