Coursera Course Notes - Python for Everyone (Python Data Structures)

Chapter 6 - Strings

Reading and Converting

- we can get at single character in a string using an index specified in square brackets
- index value must be an integer and starts at zero
  - ex. >>> fruit = 'banana' >>> letter = fruit[1] >>> print(letter) -> a
- index value can be an expression that is computed

Len Function

- len()
- ex. >>> fruit = 'banana' >>> x = len(fruit) >>> print(x) -> 6

Looping Through Strings

- use for loops to count is easier than a while loop (you want less code)

Slicing Strings

- we can look at any continuous section of a string using a colon operator
- the second number is one beyond the end of the slice "up to but not including"
- if second number is beyond the end of the string, it stops at the end
  - if leave off the first # or last # of the slice, it's assumed to be the beginning or end of the string respectively

Chapter 7 - Files

- a file handle open for read can be treated as a sequence of strings where each line in the file is a string in the sequence
- variable = open('....txt')
- we can use the **for** statement to iterate through a sequence (read file one line at a time)
- we can read the whole file into a single string
  - ex. fhand = open(' .txt') --> inp = fhand.read() --> print(len(inp))
- we can put an if statment in our for loop to only print lines that meet some criteria

Bad file names - use try and except, quit()

Chapter 9 - Lists

Algorithms
- a set of rule or steps u
- sed to solve a problem

Data Structures
- a particular way of organizing data in a computer

- Strings are “immutable”
- lists are “mutable”
  - can change an element of a list using the index operator
- the range function returns a list of numbers

Manipulating Lists
- can add lists together
- can be sliced

to Build a List from Scratch
- create an empty list by setting somthing = list()
- add elements using the append method
  - something.append(‘book’)

Two different ways to find the average of numbers:

```
total = 0
count = 0
while True :
    inp = input('Enter a number: ')
    if inp == 'done' : break
    value = float(inp)
    total = total + value
    count = count + 1

average = total / count
print('Average:', average)
```

```
Enter a number: 3
Enter a number: 9
Enter a number: 5
Enter a number: done
Average: 5.66666666667
```

```
numlist = list()
while True :
    inp = input('Enter a number: ')
    if inp == 'done' : break
    value = float(inp)
    numlist.append(value)

average = sum(numlist) / len(numlist)
print('Average:', average)
```

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