

ENGL 516X:
Methods of Formal Linguistic Analysis
Semester: Spring '18

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Class outline

- ▶ Assignment 2 discussion
- ▶ Strings in Python - overview
- ▶ Formatting strings
- ▶ Assignment 3 Description
- ▶ Practice Exercises

Assignment 2 discussion

Question 1

- Note: my description was: "I will provide you a starter snippet, which asks for two numeric inputs from user. Your task is to edit what I gave you, and make it work."

```
num1 = input("Enter a number: ")
num2 = input("Enter another number: ")
#Write your logic to test whether num1 and num2 are numbers below:
is_num1_numeric = num1.isnumeric()
is_num2_numeric = num2.isnumeric()
if is_num1_numeric and is_num2_numeric:
#write a line to print the sum of num1 and num2.
    print(int(num1) + int(num2))
```

Question 2

(I asked to save this as a python file)

```
str = input("Enter a string: ")
if str.isalpha():
    print(str + "es")
else:
    print("please enter a proper string")
```

Question 3

(I asked to save this as a python file)

```
num = input("Enter a number: ")
if num.isnumeric():
    if int(num)%2 == 0:
        print("even")
    else:
        print("odd")
else:
    print("Enter a number!")
```

Question 4

- ▶ put parantheses around 1-2
- ▶ `"PYTHON".isupper(), "PYTHON".lower()`
- ▶ `6**2` or `6*6`; `6**3` or `6*6*6` (You can also use math module in Python, but I was looking for simpler solutions).
- ▶ `len("python")`

note: These assignments are deliberately made easier than classwork (**something** should be easy to do!)

Programs from last class

- ▶ Program with multiple functions
- ▶ Program to print multiplication tables

- see the posted solutions in the forum for Thursday. My solutions are also uploaded on Canvas.

If you go through and understand what happened, and write a program like that yourself without looking at the solution, you are good (for now!).

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course = "ENGL 516"  
letter1 = course[0]  
letter2 = course[1]  
letterX = course[1.9]  
letterY = course[10]  
letter11 = course[-1]  
letter11= course[-5]  
letter11 = course[-15]
```

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Strings in Python are immutable

- ▶ What does it mean? - It means that you cannot change individual characters in an existing string.
- ▶ i.e., if there is a string variable assignment: `course = "ENGL 516"`, writing: `letter1 = course[0]` is valid, but writing `course[0] = "a"` is not.

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- ▶ (But, checking if `course[0]` is "a" in some boolean expression like: `course[0] == "a"` is valid!)
- ▶ This is also valid:

```
s = "python"  
s = "valid"
```

(What will `s` have? where did the immutability go?)
- ▶ You can create a new string which is an altered version of the original string. (e.g., `t = s[0]+"acation"`)

Traversing through a string

```
course = "ENGL 516"  
index = 0  
while index < len(course):  
    letter = course[index]  
    print(letter)  
    index = index + 1
```

Short exercise: Write the for loop equivalent of this while loop.

Traversing through a string: For Loop

- ▶ One way:

```
course = "ENGL 516"  
for i in range(0,len(course)):  
    letter = course[i]  
    print(letter)
```

- ▶ Another way:

```
course = "ENGL 516"  
for i in course:  
    print(i)
```


Exercise on String traversal

from textbook

Write a while loop that starts at the last character in the string and works its way backwards to the first character in the string, printing each letter on a separate line, except backwards.

For example, if I have a string ENGLISH, your program should print:

H
S
I
L
G
N
E

Exercise on String traversal:Solution

```
i = len(some_string)
while i>0:
    print(some_string[i-1])
    i = i-1
```

Another exercise on String traversal

from textbook

Write a function that takes two arguments: a string and a character, and returns the number of times the character occurs in this string as the result. Here is a skeleton for the function definition:

```
def countChar(someString, someChar):  
    count = 0  
    for anyChar in someString:  
        #Write your 2 lines of code here.  
    return count  
  
stringInput = input("Enter a string: ")  
charInput = input("Enter a char: ")  
print("The number of times ", charInput, "occured in", stringInput,  
      "is",countChar(stringInput,charInput))
```

String "Slicing"

- ▶ Slice is a partial segment from a string, of any length.

```
str="Python programming"
```

```
print(string[7:10])
```

- this gives me "pro"

- ▶ The operator [n:m] returns the part of the string starting from the nth character and up to (but not including) the mth character.

String "Slicing": Practice

Try these things on the console, and note the output.

1. `string="Python programming"`
2. `print(string[5:])`
3. `print(string[:3])`
4. `print(string[9:9])`
5. `print(string[:])`
6. `print(string[9:3])`
7. `print(string[-1])`
8. `print(string[::-1])`

Built-in functions for strings

called "Methods"

Go back to python console, and type the following and observe the result.

- ▶ `example="Some Example String"`
- ▶ `print(example.upper())`
- ▶ `print(example.lower())`
- ▶ `print(example.startswith("S"))`
- ▶ `print(example.endswith("S"))`
- ▶ `print(example.isdigit())`
- ▶ `print(example.find("e"))`
- ▶ `print(example.find("e",5))`
- ▶ `print(example.find("tri"))`

Assignment 3 Description

- ▶ Topics: Strings, Loops
- ▶ Deadline: 17th Feb 2018
- ▶ 10% of your final grade
- ▶ 3 questions (2.5, 2.5, 5)
- ▶ Questions described in the document on Canvas

Next Class

- ▶ Topics: String manipulations continued, and Regular expressions
- ▶ Readings: Chapter 11 in the text book.
- ▶ Mandatory exercise(s): Submit Assignment 1 by this midnight!
- ▶ Optional: Exercise 5 at the end of Chapter 6 in the textbook.
- ▶ Remainder: Assignment 2 has to be submitted by 25th February.
- ▶ Assignment 3 is already uploaded, if you want to start early.