

functions

June 14, 2021

1 Functions

1.1 basic functions

```
[3]: def printme( str ):
      "This prints a passed string into this function"
      print (str)
      return

      # Now you can call printme function
      printme("This is my first function call")
      printme("This is my second function call")
```

This is my first function call
This is my second function call

```
[4]: def changeme( mylist ):
      "This changes a passed list into this function"
      print ("Values inside the function before change: ", mylist)

      mylist[2]=50
      print ("Values inside the function after change: ", mylist)
      return

      # Now you can call changeme function
      mylist = [10,20,30]
      changeme( mylist )
      print ("Values outside the function: ", mylist)
```

Values inside the function before change: [10, 20, 30]
Values inside the function after change: [10, 20, 50]
Values outside the function: [10, 20, 50]

1.2 Regular Expressions

```
[6]: fhand = open('Emails.txt')
      for line in fhand:
          line = line.rstrip()
          if not '@uct.ac.za' in line :
```

```
continue
print (line)
```

```
-----
FileNotFoundError                                Traceback (most recent call last)
<ipython-input-6-0a938bb3c97e> in <module>
----> 1 fhand = open('Emails.txt')
      2 for line in fhand:
      3     line = line.rstrip()
      4     if not '@uct.ac.za' in line :
      5         continue

FileNotFoundError: [Errno 2] No such file or directory: 'Emails.txt'
```

```
[ ]: print("\nSearching Through a File\n")
fhand = open('Emails.txt')
for line in fhand:
    line = line.rstrip()
    if line.startswith('From:') :
        print (line)
```

```
[ ]: # ext starting with a capital X followed by any character repeated zero or more
      ↪times and ending with a colon (:).
```

```
[ ]: import re
print ("\nRegular Expressions\n'^X.*:' \n") hand =
open('Data.txt')
for line in hand:
    line = line.rstrip()
    y = re.findall('^X.*:',line)
    print (y)
```

```
[8]: #Extracting Numerical Values and Specific Characters
import re
print ("\n Matching and Extracting Data \n")
x = 'My 2 favorite numbers are 19 and 42'
y = re.findall('[0-9]+',x)
print (y)
```

Matching and Extracting Data

```
['2', '19', '42']
```

```
[10]: #Python finds a string starting with F and containing any number of characters
      ↪up to a colon and then stops when it reaches the end of the line.
import re
```

```
print ("\nGreedy Matching \n")
x = 'From: Using the : character'
y = re.findall('^F.+:', x)
print (y)
```

Greedy Matching

['From: Using the :']

```
[11]: # In the second example, re.findall('^F.+?:', x) asks Python to retrieve
      ↪ characters starting with an F and ending with the first occurrence of a
      ↪ delimiter, which is a colon regardless of whether it reached the end of the
      ↪ line or not.

print ("\nNon-Greedy Matching \n")
x = 'From: Using the : character'
y = re.findall('^F.+?:', x)
print (y)
```

Non-Greedy Matching

['From:']

1.3 The Use of Methods vs. Regular Expressions

```
[13]: import re
print ("\nFine-Tuning String Extraction \n")
mystr="From ossama.embarak@hct.ac.ae Sat Jun 5 08:14:16 2018"
Extract = re.findall('\S+@\S+',mystr)
print (Extract)
E_xtracted = re.findall('^From.*? (\S+@\S+)',mystr)
print (E_xtracted)
print (E_xtracted[0])
```

Fine-Tuning String Extraction

['ossama.embarak@hct.ac.ae']
 ['ossama.embarak@hct.ac.ae']
 ossama.embarak@hct.ac.ae

```
[14]: mystr="From ossama.embarak@hct.ac.ae Sat Jun 5 08:14:16 2018"
atpos = mystr.find('@')
sppos = mystr.find(' ',atpos) # find white space starting from atpos
host = mystr[atpos+1 : sppos]
print (host)
```

```
usernamepos = mystr.find(' ')
username = mystr[usernamepos+1 : atpos]
print (username)
```

hct.ac.ae
ossama.embarak

```
[15]: print ("\n The Regex Version\n")
import re
mystr="From ossama.embarak@hct.ac.ae Sat Jun 5 08:14:16 2018"
Extract = re.findall('@([^\s]*)',mystr)
print (Extract)
Extract = re.findall('^From .*@([^\s]*)',mystr)
print (Extract)
```

The Regex Version

['hct.ac.ae']
['hct.ac.ae']

```
[16]: print ("\nScape character \n")
mystr = 'We just received $10.00 for cookies and $20.23 for juice'
Extract = re.findall('\$[0-9.]+',mystr)
print (Extract)
```

Scape character

['\$10.00', '\$20.23']

[]: