

Python Course

Strings and Files

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Matin KarimPour



Strings

A string is a sequence of characters.



python :)

```
fruit = 'banana'
letter = fruit[1]
print(letter)
# a
letter = fruit[1.5]
# TypeError: string indices must be
integers
```

String Indexes

b	a	n	a	n	a
[0]	[1]	[2]	[3]	[4]	[5]

Getting the length of a string using len



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```
fruit = 'banana'  
len(fruit)  
# 6
```

```
length = len(fruit)  
last = fruit[length]  
# IndexError: string index out of range
```

```
last = fruit[length-1]  
print(last)  
# a
```



python :)

```
index = 0
while index < len(fruit):
    letter = fruit[index]
    print(letter)
    index = index + 1
```



python :)

```
for char in fruit:  
    print(char)
```

String slices

A segment of a string is called a slice.



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```
sample_string = "Python Course"
```

```
len(sample_string)
```

```
# 13
```

```
sample_string[0:6]
```

```
# 'Python'
```

```
sample_string[7:13]
```

```
# 'Course'
```

```
sample_string[:6]
```

```
# 'Python'
```

```
sample_string[7:]
```

```
# 'Course'
```

Strings are immutable



python :)

```
greeting = 'Hello, world!'
greeting[0] = 'J'
# TypeError: 'str' object does not
# support item assignment
```

```
greeting = 'Hello, world!'
new_greeting = 'J' + greeting[1:]
print(new_greeting)
# Jello, world!
```


The in operator



python :)

```
'a' in 'banana'  
# True
```

```
'seed' in 'banana'  
# False
```

String methods

Strings are an example of Python objects. An object contains both data (the actual string itself) and methods, which are effectively functions that are built into the object and are available to any instance of the object.

Python has a function called `dir` which lists the methods available for an object. The `type` function shows the type of an object and the `dir` function shows the available methods.



python :)

```
stuff = 'Hello world'
type(stuff)
# <class 'str'>
dir(stuff)
"""
['capitalize', 'casefold', 'center',
'count', 'encode',
'endswith', 'expandtabs', 'find',
'format', 'format_map',
'index', 'isalnum', 'isalpha',
'isdecimal', 'isdigit',
'identifier', 'islower',
'isnumeric', 'isprintable',
'isspace', 'istitle', 'isupper',
'join', 'ljust', 'lower',
'lstrip', 'maketrans', 'partition',
'replace', 'rfind',
'rindex', 'rjust', 'rpartition',
'rsplit', 'rstrip',
'split', 'splitlines', 'startswith',
'strip', 'swapcase',
'title', 'translate', 'upper',
'zfill']
"""
help(str.capitalize)
```

Parsing strings



python :)

```
data = 'From stephen.marquard@uct.ac.za  
Sat Jan 5 09:14:16 2008'
```

```
atpos = data.find('@')  
print(atpos)  
# 21
```

```
sppos = data.find(' ',atpos)  
print(sppos)  
# 31
```

```
host = data[atpos+1:sppos]  
print(host)  
# uct.ac.za
```

Files

Reading files



python :)

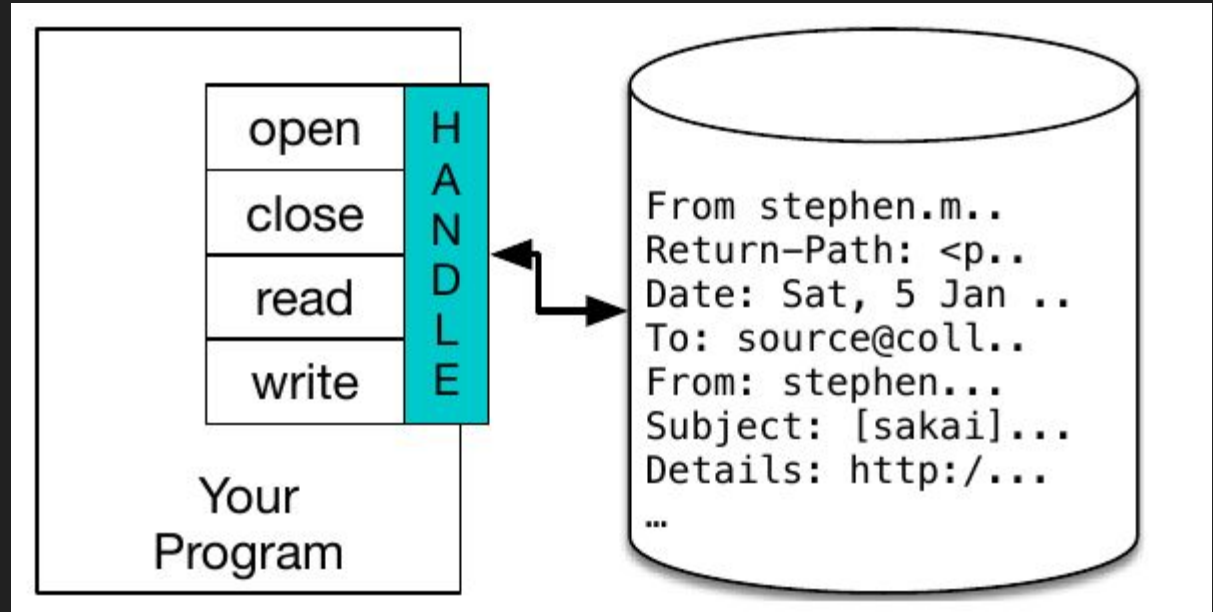
```
fhand = open('mbox-short.txt')
print(fhand)
# <_io.TextIOWrapper name='mbox-
short.txt' mode='r' encoding='UTF-8'>

count = 0
for line in fhand:
    count = count + 1
print('Line Count:', count)

inp = fhand.read()
print(len(inp))
# 94626

print(inp[:20])
# From stephen.marquar
```

A File Handle



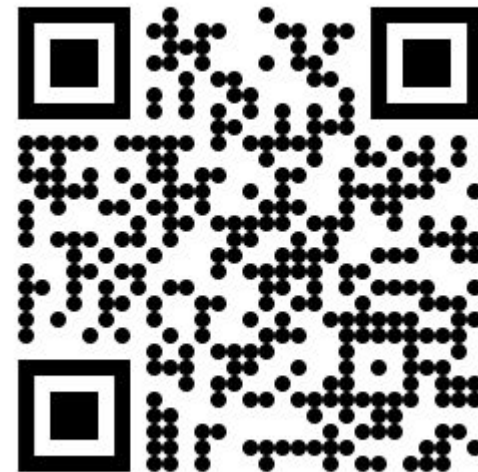
Searching through a file



python :)

```
fhand = open('mbox-short.txt')
for line in fhand:
    line = line.rstrip()
    if line.startswith('From:'):
        print(line)
```

Any Questions?



Writing files



python :)

```
fout = open('output.txt', 'w')  
print(fout)  
# <_io.TextIOWrapper name='output.txt'  
mode='w' encoding='cp1252'>  
  
line1 = "This here's the wattle,\n"  
fout.write(line1)  
fout.close()
```