

Handout for Session 5

1. Review of while and for loops

```
[1]: for i in range(10):  
      print(i,end=' ')
```

0 1 2 3 4 5 6 7 8 9

```
[2]: i=0  
      while i<10:  
          print(i,end=' ')  
          i+=1
```

0 1 2 3 4 5 6 7 8 9

Q1: Modify each of the above code so as to print the numbers 9 through 0 in reverse order. (There are multiple ways of doing this.)

Q2: Modify each of the above code so as to print all the even numbers between 0 to 10 (inclusive) in ascending order. (There are multiple ways of doing this.)

2. Working with Strings

```
[7]: s='Python for Business Analytics'
```

```
[8]: s[0]
```

'P'

```
[9]: s[1]
```

'y'

```
[10]: s[-1]
```

's'

```
[11]: s[-2]
```

'c'

```
[12]: len(s)
```

29

```
[13]: s[0:5]
```

'Pytho'

```
[14]: s[:5]
```

'Pytho'

```
[15]: s[7:10]
```

'for'

```
[16]: s[3:3]
```

```
''
```

Q3-a): Write a command that checks if the first letter is equal to "#".

Q3-b): Write a command that checks if the string s begins with "Python".

Q3-c): Write a command that obtains the substring "Business" via positive indexing.

Q3-d): Write a command that obtains the substring "Analytics" via negative indexing.

```
[21]: s+' Session 5!'
```

```
'Python for Business Analytics Session 5!'
```

```
[22]: t=s+'\nSession 5!'
      print(t)
```

```
Python for Business Analytics
Session 5!
```

```
[23]: 'for' in s
```

```
True
```

```
[24]: s.startswith('Python')
```

```
True
```

```
[25]: s.lower()
```

```
'python for business analytics'
```

```
[26]: s.upper()
```

```
'PYTHON FOR BUSINESS ANALYTICS'
```

```
[27]: s.find('t')
```

```
2
```

```
[28]: s.rfind('t')
```

```
25
```

```
[29]: s.find('for')
```

```
7
```

```
[30]: line='From pengshi@marshall.usc.edu Tue Jan 22 11:00:00 2019'
```

Q4-a): Write a command to check if the string line begins with from (case insensitive).

Q4-b): Write a command to check if the string line contains "usc.edu".

Q4-c): Write a command to obtain the position of the character @.

Q4-d): Write code to extract the substring between "From " and the "@" character. The code should work also on the following string without any change.

```
[35]: line='From john.doe@usc.edu Tue Jan 22 12:20:00 2019'
```

3. Working with Files

Download the mbox-short.txt file from Blackboard->Datasets->Mailbox data, and save it in the current directory. (You can find the current directory by executing pwd in any cell.)

```
[36]: file=open('mbox-short.txt','r')
      count=0
      for line in file:
          line=line.rstrip()
          print(line)
          if count>5:
              break
          count+=1
```

```
From stephen.marquard@uct.ac.za Sat Jan  5 09:14:16 2008
Return-Path: <postmaster@collab.sakaiproject.org>
Received: from murder (mail.umich.edu [141.211.14.90])
        by frankenstein.mail.umich.edu (Cyrus v2.3.8) with LMTPA;
        Sat, 05 Jan 2008 09:14:16 -0500
X-Sieve: CMU Sieve 2.3
Received: from murder ([unix socket])
```

Q5: Write a program that uses a for loop to read through the whole file line by line, and display all the lines that start with "From:" and print the total number of such lines at the end.

[37]:

```
From: stephen.marquard@uct.ac.za
From: louis@media.berkeley.edu
From: zqian@umich.edu
From: rjlowe@iupui.edu
From: zqian@umich.edu
From: rjlowe@iupui.edu
From: cwen@iupui.edu
From: cwen@iupui.edu
From: gsilver@umich.edu
From: gsilver@umich.edu
From: zqian@umich.edu
From: gsilver@umich.edu
From: wagnermr@iupui.edu
From: zqian@umich.edu
From: antranig@caret.cam.ac.uk
From: gopal.ramasammycook@gmail.com
From: david.horwitz@uct.ac.za
From: david.horwitz@uct.ac.za
From: david.horwitz@uct.ac.za
From: stephen.marquard@uct.ac.za
From: louis@media.berkeley.edu
From: louis@media.berkeley.edu
From: ray@media.berkeley.edu
From: cwen@iupui.edu
```

From: cwen@iupui.edu
From: cwen@iupui.edu
27

Q6: Write a program that counts the total number of lines containing occurrences of @ in the file.

[38]:

336

Q7: Write a program that counts the total number of emails coming from an address from the domain ...@umich.edu, display all such addresses, and calculate the average length of such email addresses.

[1]:

zqian@umich.edu
zqian@umich.edu
gsilver@umich.edu
gsilver@umich.edu
zqian@umich.edu
gsilver@umich.edu
zqian@umich.edu
Count: 7
Average prefix length: 6.86