

step 1: ftpscan

- produce a program to handle all the arguments
- arguments are:
 - -c which counts the number of times a file is accessed
 - -h which displays a simple help line
- two arguments at present
 - could write the argument handling code ourself
 - better solution is to use getopt why?

Arguments for ftpscan

- initially let us write the usage and imports:

```
#!/usr/bin/python
import sys, getopt
def Usage ():
    print "ftp [-c] [-h]"
    sys.exit(0)
```

Arguments for ftpscan

- now lets collect the arguments:

```
try:
    optlist, list = getopt.getopt(sys.argv[1:],
                                  ':ch')
except getopt.GetoptError:
    Usage()
    sys.exit(2)
```

Arguments for ftpscan

- now we process the arguments:

```
for opt in optlist:
    print opt
    if opt[0] == '-h':
        Usage()
    if opt[0] == '-c':
        print "c option found"
```

Arguments for ftpscan

- remember that `getopt` consists of two elements:
 - the first is a list of (option, value) pairs
 - the second is the list of program arguments left after the option list was stripped

- consider:

```
>>> import getopt
>>> args = '-a -b -cfoo -d bar a1 a2'.split()
>>> args
['-a', '-b', '-cfoo', '-d', 'bar', 'a1', 'a2']
>>> optlist, args = getopt.getopt(args, 'abc:d:')
>>> optlist
[('-a', ''), ('-b', ''), ('-c', 'foo'), \
 ('-d', 'bar')]
>>> args
['a1', 'a2']
```

Long arguments

- using long option names is equally easy (although these are not needed for ftpscan!)

- ```
>>> s = '--condition=foo --testing --output-file \
 abc.def -x a1 a2'
>>> args = s.split()
>>> args
['--condition=foo', '--testing', '--output-file',
 'abc.def', '-x', 'a1', 'a2']
>>> optlist, args = getopt.getopt(args, 'x', [
... 'condition=', 'output-file=', 'testing'])
>>> optlist
[('--condition', 'foo'), ('--testing', ''),
 ('--output-file', 'abc.def'), ('-x', '')]
>>> args
['a1', 'a2']
```

## Step 2: ftpscan

- make the python program read the ftp log file a line at a time

- ```
#!/usr/bin/python

from sys import argv

def scanner(name, function):
    file = open(name, 'r')
    line = file.readline()
    while line:
        function(line)
        line = file.readline()
    file.close()

def processLine(line):
    print line

filename = 'ftplot.data'
scanner(filename, processLine)
```

- you will also need to download this test data file [ftplot.data](#) (ftplot.data).

Step 2: ftpscan

- notice that this snippet of code is extremely useful :-)
- it provides a scanner function which scans a file
 - it reads the file a line at a time and
 - then calls the *function* to operate on each line
- currently it calls *processLine*
 - which simply prints the line

ftpscan: step 3

- now alter the program to cut the line into *date*, *client machine*, *file*
 - display these component strings
 - think `split`
- here is a line (which is broken into several to fit the slide):

```
Mon Nov 18 17:38:24 2002 1 \
g410-helpdesk.isd.glam.ac.uk 51200 \
/user/ftp/pub/m2/osi/lab1.tar b _ o a \
IEUser@ ftp 0 * c
```

ftpscan: step 3

- using `split` write some code which prints the *date*, *client machine*, *file*

ftpscan: step 3

```
#!/usr/bin/python

import string

def processLine(line):
    words=string.split(line)
    print "date = ", words[:5]
    print "machine = ", words[-7]
    print "file = ", words[-5]

processLine("Mon Nov 18 17:38:24 2002 1 \
g410-helpdesk.isd.glam.ac.uk \
51200 \
/user/ftp/pub/m2/osi/lab1.tar \
b _ o a")
```