Lecture 12 - Files and Reading Files

First - Searching Strings

How to find one string inside another.

```
 1: s = "We The People, In order for form a more perfect union"
 2:
 3: pos = s.index("The")
 4: print ( "index of 'The' = {}".format(pos) )
 5:
 6: pos = s.index("more")
 7: print ( "index of 'more' = {}".format(pos) )
 8:
 9: try:
10:     pos = s.index("xyz")
11:     print ( "index of 'xyz' = {}".format(pos) )
12: except:
13:     print ( "not found" )
14:
```

This introduces “exception” handling.

Search in a list

```
 1:
 2: ll = [ "abc", "def", "ghi" ]
 3: lookFor = "def"
 4:
 5: found = False
 6: i = 0
 7: while i < len(ll):
 8:     if lookFor == ll[i]:
 9:         print ( "Found at {}".format(i) )
10:         found = True
11:         break
12:     i = i + 1
13: if not found :
14:     print ( "Not Found" )
15:
```

Files - what are they

Two types: text and binary

Binary tend to be in some proprietary format.

Text tend to have a “format” that you can use and write programs with.

Lot’s of text formats:

1. Our Python Programs
2. Other Programs
3. “markdown”
4. “html”
5. “css”
6. “js”

What about common binary image formats

1. Images (.png, .jpg)
2. Some images are not binary (.svg)
3. Movies (.mp4, .mkv)

Where are they:

1. On your local computer.
2. On a remote computer. (dropbox, onedrive)

How are they organized.

1. A hierarchy - Directory Tree
2. By Name

Reading a File

First we need a file to read:

```
This is
a short
file of
text
```

Files are composed of “lines”. Each line has an end of line marker.

```
 1: #!/Users/philip/opt/anaconda3/bin/python
 2:
 3: def readFile(fn):
 4:     f = open(fn,"r",encoding="utf8")
 5:     if f == None:
 6:         print ( f"Invalid file {fn} - failed to open" )
 7:         return
 8:
 9:     line_no = 0
10:     while True:
11:         line_no = line_no + 1
12:         line = f.readline()
13:         if not line:
14:             break
15:         print("Line {}: {}".format(line_no, line.strip()))
16:
17:     f.close()
18:
19: readFile ( "sample.txt" )
```

Writing a File

Create and write to a file

```
1:
2: f = open("sample.out.txt", "w")
3: f.write("some data")
4: f.write("some more")
5: f.close()
```

You can also just add to an existing file.

```
1: f = open("sample.out.txt", "a")
2: f.write("Yes data")
3: f.write("Yes more data")
4: f.close()
```

What are Dropbox, OneDrive