File Input/Output

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Connecting to Files

In order to read or write to a file, we need to make a connection to it. For this we will use the following functions:

`open()` – makes the connection to a file
`close()` – releases the connection to a file

For this course, we will only read and write plain-text files, that is, those saved as collections of ASCII characters.

Connecting to Files

When we make a connection to a file, we need a variable name to associate with it. This requires that we create a variable known as a *file pointer* or *file handle*.

Example:

```
fp = open("sample.txt", "r")
```

We could be working with multiple files; each would have its own file pointer.

Connecting to Files

When we use `open()` to make a connection to a file, we need to provide it with two things:

1. the name of the file

2. the mode for accessing the file

Example:

```
fp = open("sample.txt", "r")

for line in fp :
    print line ,   # each line
                   # already has
                   # a newline
fp.close()
```

File Access Modes

mode	purpose	file to use
r	read	use existing
w	write	create new, destroy exist.
a	write to end	create new, use existing
r+	read & write	use existing
w+	read & write	create new, destroy exist.
a+	read, write to end	create new, use existing

Methods for Reading/Writing

For reading all of the lines of a file into a list, we can use

```
readlines()
```

Each line of the file will be stored as a single string, with each line of the file stored as a separate element of the list.

For writing to a file, we can use

```
write()
```

The `write()` method writes strings, so if you are trying to write numbers then you must first convert them to strings.

Working with Multiple Files

We can have multiple files open at the same time. This program copies a file:

```
inFile = open("sample.txt", "r")
outFile = open("output.txt","w")

for line in inFile :
    outFile.write( line )

inFile.close()
outFile.close()
```