Working with Files

CSCI 101

The File Object

A **file object** is a data type we use to read and write to files. We can create a file object using the `open` function.

`open(filename, mode)` will open the file with name `filename` in mode `mode`, and return a file object corresponding to it.

Here is an example:

```
f = open("myfile", "r")
```

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- `"r+"` will open for read and write

Reading Files

Calling `f.read()` on a file object `f` will read the entire file and return a string with the contents.

Try it: type “`This is my short story.`” into a file named `story.txt` using your text editor with a short story in it, then try and read it from the interactive interpreter:

```
>>> f = open("story.txt", "r")
>>> f.read()
"This is my short story.\n"
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What happens if we call `f.read()` again?

We will be at end of file, and subsequent calls to read will return an empty string.

Reading a File Line-by-Line

Iterating over a file object will iterate over each line.

```python
f = open("story.txt", "r")
for line in f:
    words = line.split()
    for word in words:
        print(word)
```

Writing to Files

When a file object f was opened in either write or append mode, f.write(some_string) will write the string some_string to the file.

Try it: Write another story, but this time from the interactive interpreter.

```
>>> f = open("story2.txt", "w")
>>> f.write("There once was a student...\n")
```

Closing Files

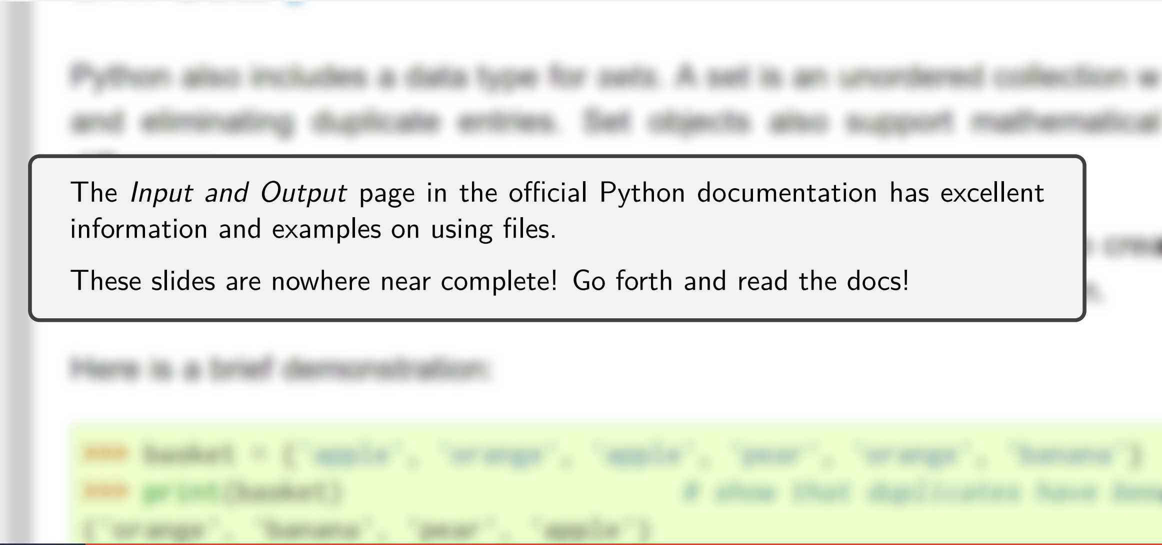
When you are finished with a file, you should close it with `f.close()`. Doing so will free up system resources and allow other processes on your system to work with that file.

```
f = open("my_file.txt", "r")
contents = f.read()
f.close()       # don't forget to close
```

Saving Phonebook Program

Now that you have the knowledge of File I/O, you can create a phone book program which saves and loads from a file. Try to modify our original program, and if you need help, the solution is on the workshop website.

Don’t forget the documentation!



The *Input and Output* page in the official Python documentation has excellent information and examples on using files.

These slides are nowhere near complete! Go forth and read the docs!