

CSCA08

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Files

- `file = open("some file name here", "r")`
- `line = file.readline()` # line is a str
- `line = file.readlines()` # line is a list of str
- Can't read a line twice
- Once EOF have to reopen

- `file.close()`
- `file = open("rar", "w") #rewrite`
- `file = open("rar", a) #append`
- `file.write("...")`

Mutability

- Dictionaries, lists, sets are mutable
- “Pass by reference”

Dictionaries

- Imagine a list where instead of indexes, you use names
- Don't do `a = {}`
 - gives you a set
- `a = dict()`

- `a = {'hi':1, 3:'wot'}`
- `a[True] = 4`
- `print(a['hi'])` #1
- `print(a[True])` #4
- `print(a[3])` #wot

Objects

- 2 ways to think about it
- A literal real life object
- A container with a bunch of stuff in it

- `class Sth:`
- `....`
- `a = Sth()`

`__init__(self,...)`

- This code is ran when you first make an object...
`a = Sth()`
- You initialize the container:
 - what fields does it have?
 - should the fields have a value yet?

- To set values, do `self.variable_name =`
- Variables and functions not intended for other people to access should start with a `_`
 - e.g. `self._fatness = 10`

- The containers also have functions
- To call any of these functions or values for code inside the object, do `self.function()` or `self.value`
- To call any of these functions or values for code outside the object, do `obj_name.function()` or `obj_name.value`

- Functions should always pass self as the first field
- That way the code can refer, again, to other functions and values inside the object!

Inheritance

- Imagine a ShoeBox
- A ShoeBox is a CardBoardBox
- So it makes sense for a ShoeBox to have cardboard, lid, bottom, etc
- Is a CardBoardBox necessarily a ShoeBox?
- Consider a PostageBox

Why Objects?

- Encapsulation (AKA data hiding)
- Modular
- Easy way of making and referencing an aggregate of data
 - “the car’s engine named boop doesn’t have the right values” vs
 - “car_engine doesn’t have right value” “which car_engine?” “in the global code” “what the”