Lecture: 4-1

Prerequisites for this lecture are: 3-1 and 3-2.

John Romero Programming Proverbs

- 4. "Great tools help make great games. Spend as much time on tools as possible."
- John Romero, "The Early Days of Id Software John Romero @ WeAreDevelopers Conference 2017"

Python scopes

- a declaration occurs when an object is created
- by default usage is confined to the current scope

Python scopes



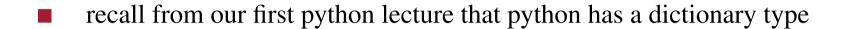
- notice how the scope changes with indentation
- \$ python3 myfunc.py
 4
 42

Accessing global variables from a function



a common error is to forget the global keyword in a function

Python dictionaries



\$ python3 py13.py
10

Python dictionaries

- dictionaries can be altered
 - by adding new entries
 - by changing values
 - by removing entries
- we can test for the presence of an entry within the dictionary

Python dictionaries

```
$ python3 py14.py
10
1
{"spam": 2, "ham": 1, "bacon": 1, "eggs": 12}
```

Dictionary initialisation

- we can create an empty dictionary by:
- $d = \{\}$
- we can add to a dictionary by:
- d["foobar"] = 4

Dictionary modification

we can remove an entry via:

del d["eggs"]

Dictionary modification

we can test whether an item exists in the dictionary