

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



myfunc.py



notice how the scope changes with indentation



```
$ python3 myfunc.py  
4  
42
```

Accessing global variables from a function



`myfunc2.py`



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

Python dictionaries

- recall from our first python lecture that python has a dictionary type

-

- \$ **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



