

Expressions, types, variables, & errors

Plus Wing IDE & Comments

Wing IDE

- ▶ A very brief introduction to Wing IDE
 - ▶ IDE = Integrated Development Environment



Expressions

- ▶ Command that returns a value

```
>>> 2 + 2
```

```
4
```

```
>>> abs(-2)
```

```
2
```

- ▶ Standard order of operations

```
>>> 3 + 5 * 2
```

```
13
```



Types

- ▶ All values have types
 - ▶ Integer: -1, 0, 1, 2, 3, 4, 5...
 - ▶ Float: -12.3, 0.001, 3.14159, 5.0
 - ▶ String: 'Hellooo Newman'
 - ▶ List: [1, 2, 3, 4, 5]
 - ▶ Set
 - ▶ Dictionary
 - ▶ Array



Types

- ▶ Types are important, because they tell the program how to act

```
>>> 'Brad' + 'Pitt'
```

```
BradPitt
```

```
>>> 75 + 2
```

```
77
```



Types

- ▶ Types are important, but they can also be confusing

```
>>> 15.0 / 2
```

```
7.5
```

```
>>> 15 / 2
```

```
7
```

- ▶ Old school: Any combination of two integers is an integer
- ▶ New school:

```
>>> from __future__ import division
```



Variables & Assignment

- ▶ A variable is a name that has a value associated with it

```
>>> tail_length_mm = 27
```

```
>>> tail_length_mm
```

```
27
```

- ▶ Works just like the value

```
>>> 10 + tail_length_mm * 2
```

```
64
```

- ▶ Won't change unless you assign a new value to it directly
-



Combined operators

```
>>> number_of_bases
```

```
248
```

```
>>> number_of_bases = number_of_bases + 1
```

```
>>> number_of_bases
```

```
249
```

```
>>> number_of_bases += 1
```

```
>>> number_of_bases
```

```
250
```

```
>>> number_of_bases /= 2
```

```
>>> number_of_bases
```

```
125
```



Errors

```
>>> print "The temperature today is:" + 75 + 2
```



Errors

```
>>> print "The temperature today is: " + 75 + 2
```

Traceback (most recent call last):

File "<string>", line 1, in <fragment>

invalid syntax: <string>, line 1, pos 7



Where did it go wrong

What went wrong



Errors

```
>>> print "The temperature today is: " + 75 + 2
```

```
Traceback (most recent call last):
```

```
File "<string>", line 1, in <fragment>
```

```
invalid syntax: <string>, line 1, pos 7
```



Where did it go wrong

What went wrong

```
>>> body_mass_g
```

```
Traceback (most recent call last):
```

```
File "<string>", line 1, in <fragment>
```

```
NameError: name 'body_mass_g' is not defined
```



Wing IDE

- ▶ A somewhat less brief introduction to Wing IDE
- ▶ Comments
 - ▶ Anything following `#` is ignored by Python

