

Jupyter Notebooks

- `notebooks.azure.com` or
- `"pip install --user jupyter"` (to install locally)
- use the custom command prompt we made
- navigate to folder where your files are
- `"jupyter notebook"` (to run)

Python Basics

- `print` - basic output command
- `input` - basic input command

Variables

- a memory location that is given a name

to hold a particular bit of data - names can't

begin with #, @, \$, !,

- names can't have spaces
- keep variables names short and concise
- names are in the format: first_name
- letter case is important
- must give the variable a value before you can use it. (e.g. name = "john")

String Concatenation

`variable + variable` : only works if both are strings

`variable , variable` : only works in "print" and adds an extra space

`string.format(variable, variable)` :
"string" is specially formatted string that holds "{}" markers

`string % variable, variable` : old Python 2 method

`f"{variable}{variable}"` : new Python 3 method

`print("text" * 3)` : repeats the "text"

Comments

- '#' starts a comment

- can consist of any normal text
- 'rule of thumb' - a comment every 3-5 lines - short comments can go either at the end of a line or on its own line
- long comments must go on their own line
- try and keep entire line less than 80 chars

Math (in Python)

$+$, $-$, $*$: addition, subtraction, multiplication

- e.g. $1 + 2$, $3 * 5$, $2 - 1$,

$1 * -5$, $-3 - 6$ $/$, $//$, $\%$:

division

"/" : decimal division

"//" : integer division (use only with
integers)

"%" : remainder (modulo
division) ** : exponents

- e.g. $3 ** 2 = 9$

BEDMAS

B - Brackets

E - Exponents

D - Division

M - Multiplication

A - Addition

S - Subtraction

$$\text{e.g. } 1 + (2 - 3) * 4 + 6 / 7 + (5 * 2) \\ = 7.85? \quad 1 + (2 - 3) * 4 + 6 / 7 + (5 * 2)$$

$$1 + (-1) * 4 + 6 / 7 + (10)$$

$$1 + (-1) * 4 + .857142857 + 10$$

$$1 + (-4) + .857142857 + 10$$

$$7.857142857$$

$$a^2 = b^2 + c^2$$

$$a = \sqrt{b^2 + c^2}$$

im

po

rt

m

at

h

b

=

3

、

c = 4 a =

math.sqrt(b ** 2 +

c ** 2)

Data Type Conversions

`int()` - converts from string to

integer `float()` - converts from

string to decimal `str()` - converts

from a number to a string

Print / String (revisited)

- printing on multiple lines

- using multiple print statements

```
print("Hello")
```

```
print("World")
```


- using a single print statement

```
print("Hello\nWorld")
```

- using multiple print statements on the same line

```
print("Hello",  
end=") # end has 2  
single quotes  
print("World")
```