

Quick reference sheet

Saving your work.

We save our work in Google Drive.

To get your file

- Log in to Google drive (<http://drive.google.com>)
 - Username: jccspython
 - Password: check with instructor
- Open the 'python-class/2014-trimester-3' folder
- Drag the 'matt-start.py' file (or one with your name) to your computer

To edit your file

- Open it on your local computer using 'TextEdit' application
- Make changes
- Save file

To save your file to Google Drive

- Open your local working folder
- Drag your file to the Google Drive '2014-trimester-3' folder

Launch python

- We are using ipython as our language, launch it by:
 - Open the 'Terminal' application
 - Type `ipython` and press return
 - This should bring you to the ipython command prompt

Python Turtle commands

```
import turtle
jane = turtle.Turtle()
jane.left(90)
jane.forward(100)
jane.right(90)
jane.color('red')
jane.forward(100)
```

```
jane.penup()
jane.goto(-200, 200)
jane.pendown()
jane.forward(100)
```

Loading and running code

- To run code in ipython from your text editor (TextEdit)
- Copy and paste the code by:
 - Copy the code to be run from TextEdit
 - At the ipython prompt, type `%paste`, which will paste the code in and run it
 - If you do not get the command prompt back, hit `return` to run the code
- Or, you can load code from a file
 - Be sure to start ipython from the directory in which you have the code (can be your home directory)
 - Load the code into python using:
 - * `%load filename.py` where `filename.py` is the name of the file containing python commands to load
 - * you may have to hit return to execute the last line of the file

Functions

- Draw a square; notice that you have to issue the same commands 4 times?
- Functions are used to create a block of code you want to use more than once
- Here is a function for adding two numbers together:

```
def add(x, y):
    sum = x + y
    return sum
```

- Once you define a function, you call it like any other python function. E.g.,
`mysum = add(5, 6)`
- Can you make a function that returns the product of the numbers?
 - Hint: you need to indent using the same characters for it to work (for example, four spaces, or one tab)
- How about the quotient?

- Activities
 - Write a function that draws a line between two points using the `turtle.goto(x, y)` command
 - Write a function that draws a square at point (x,y) with a given side length of `size`

Loops

- Often you want to run the same code multiple times. You can use a `for` loop to accomplish this:

```
import turtle
for x in range(75):
    turtle.forward(x)
    turtle.left(x)
```

- Activities
 - Write a loop that draws a square with a turtle
 - Write a square function from above using a loop (hint: there will be two steps in the loop)
 - Can you write other functions to draw various shapes?

```
def square(x):
    t = turtle.Turtle()
    for i in range(4):
        t.forward(x)
        t.left(90)
```