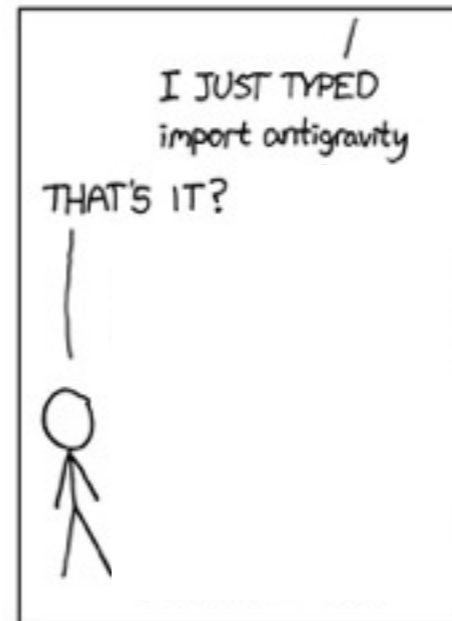
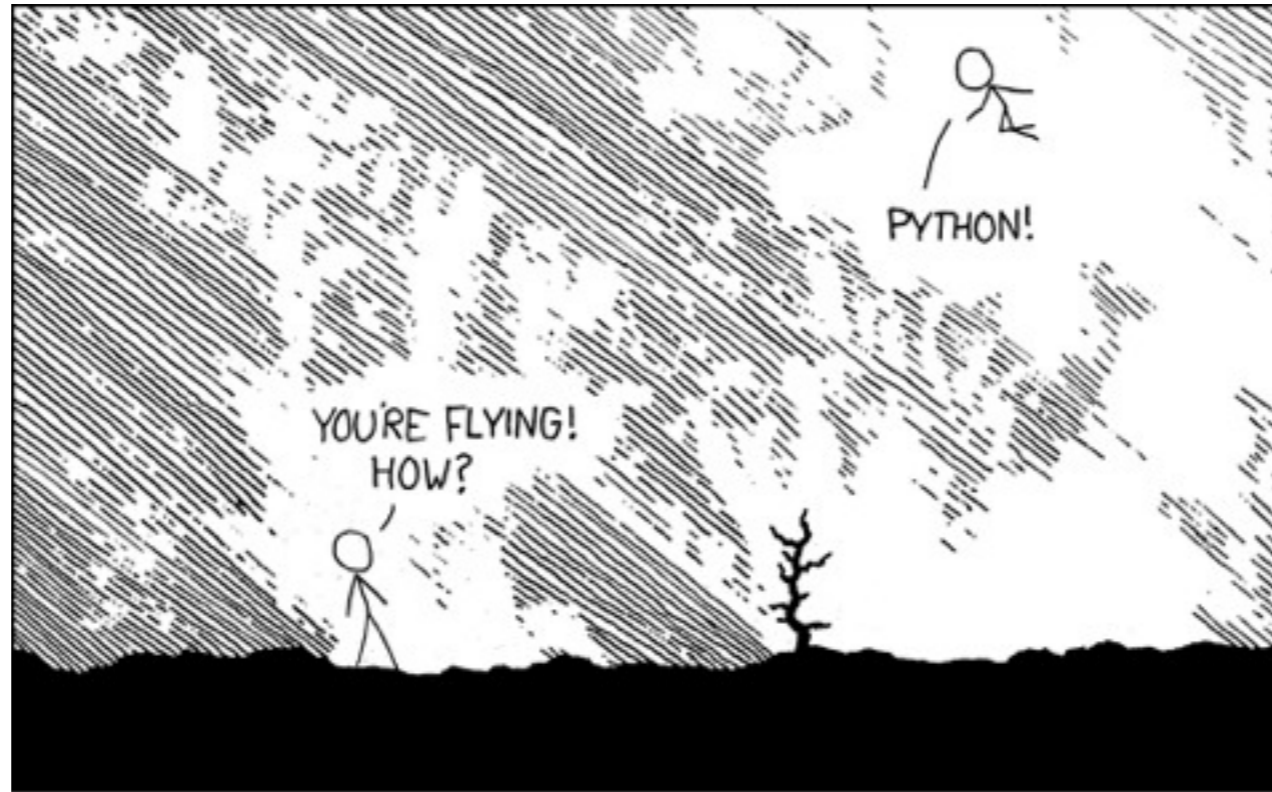


# Creative Computing

Introduction to Python, turtle graphics



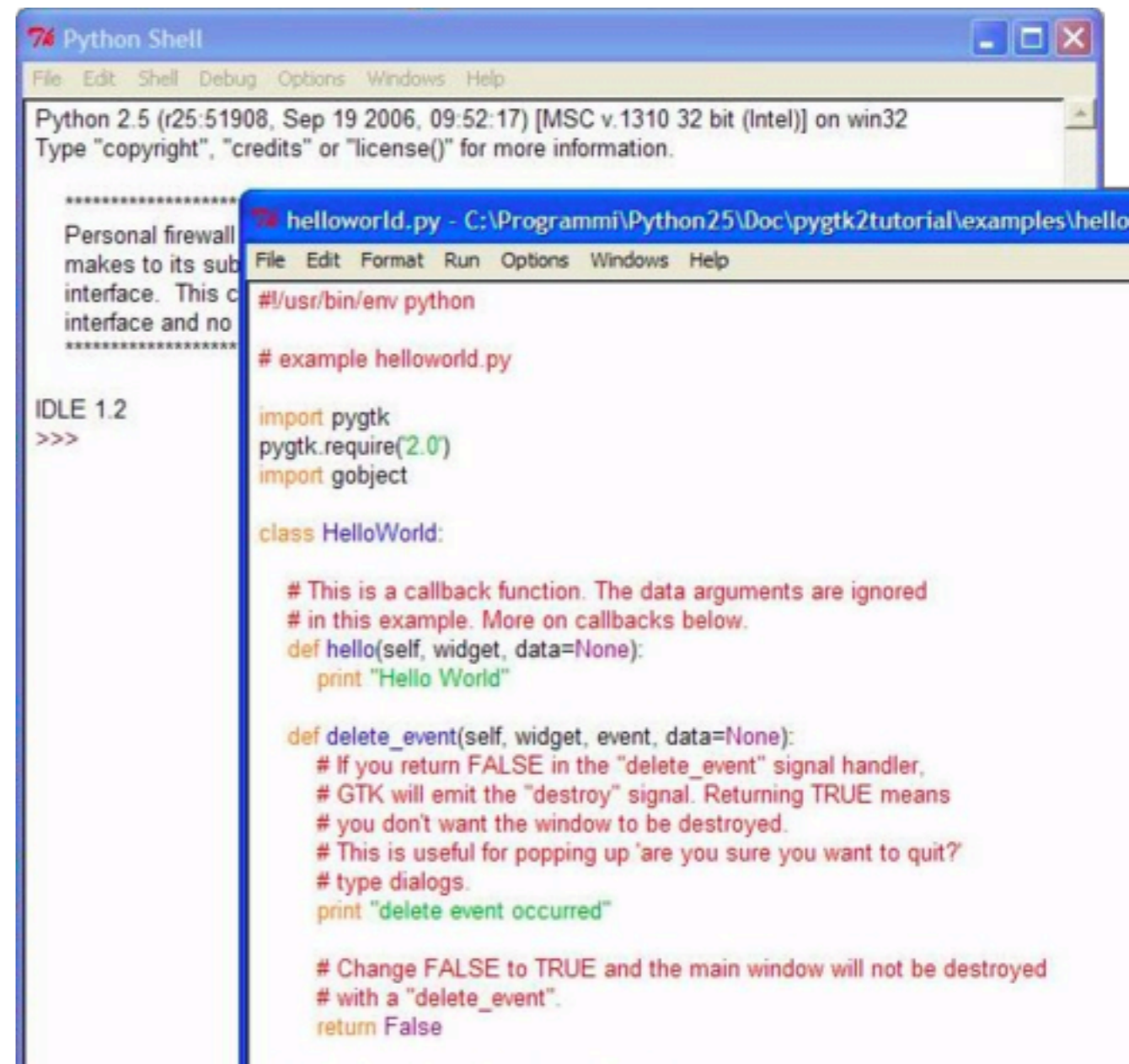


- Named after Monty Python
- Simple, general-purpose language
- Modern
- Web-enabled
- Used by many companies
  - Google



# IDLE

- Integrated development environment
- Syntax highlighting
- Calls interpreter



The screenshot shows two overlapping windows from the Python IDLE environment. The top window is the 'Python Shell' with a menu bar (File, Edit, Shell, Debug, Options, Windows, Help) and a text area containing the Python 2.5 version information and a prompt '>>>'. The bottom window is an editor titled 'helloworld.py' with a menu bar (File, Edit, Format, Run, Options, Windows, Help) and a text area containing Python code for a 'Hello World' application. The code includes imports for 'pygtk' and 'gobject', a class definition for 'HelloWorld', and two methods: 'hello' and 'delete\_event'. The code is syntax-highlighted with colors: red for comments, blue for class names, green for strings, and black for other code elements.

```
Python Shell
File Edit Shell Debug Options Windows Help
Python 2.5 (r25:51908, Sep 19 2006, 09:52:17) [MSC v.1310 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.

>>>

Personal firewall
makes to its sub
interface. This c
interface and no
*****

IDLE 1.2
>>>
```

```
helloworld.py - C:\Programmi\Python25\Doc\pygtk2tutorial\examples\hello
File Edit Format Run Options Windows Help
#!/usr/bin/env python
# example helloworld.py

import pygtk
pygtk.require(2.0)
import gobject

class HelloWorld:

    # This is a callback function. The data arguments are ignored
    # in this example. More on callbacks below.
    def hello(self, widget, data=None):
        print "Hello World"

    def delete_event(self, widget, event, data=None):
        # If you return FALSE in the "delete_event" signal handler,
        # GTK will emit the "destroy" signal. Returning TRUE means
        # you don't want the window to be destroyed.
        # This is useful for popping up 'are you sure you want to quit?'
        # type dialogs.
        print "delete event occurred"

        # Change FALSE to TRUE and the main window will not be destroyed
        # with a "delete_event".
        return False
```

# Turtle graphics

- A library for drawing 2D graphics
- A good way to start playing with programming concepts
- The top of our programs will have to say

```
from turtle import *
```

- The bottom of our programs will say

```
mainloop()
```

# Functions

- Functions are reusable groups of commands
- They have a name
- We have to call them to use them
- Some come with Python and we can write our own

# Turtle functions

- <http://docs.python.org/library/turtle.html>
  - forward() | fd()
  - backward() | bk() | back()
  - right() | rt()
  - left() | lt()
  - goto() | setpos() | setposition()
  - stamp()
  - speed()
  - pendown() | pd() | down()
  - penup() | pu() | up()
  - pensize() | width()
  - color()
  - begin\_fill()
  - end\_fill()
  - clear()
  - write()
  - showturtle() | st()
  - hideturtle() | ht()
  - shape()
  - register\_shape() | addshape()

# Your own functions

- Add commands to the Python language
- Statements part of the function must be indented!
- Must call function

```
def <name>():  
    statements
```

# Your turn

- Draw a house using turtle graphics
- Divide it into functions (ex: roof(), door())
- Try to embellish it: windows, etc.