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Python introductions

Thanks to all contributors:

Alison Pamment, Sam Pepler, Ag Stephens, Stephen Pascoe, Matt Pryor, Anabelle Guillory, Graham Parton, Esther Conway, Wendy Garland, Alan Iwi and Matt Pritchard.

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BEFORE WE START (1)

We cannot teach you Python in a day...

...but hopefully we can show you that it is:

- Human-readable (relatively)
- Useful (even if you only know a bit)
- Flexible (you can use it in many places/ways)

BEFORE WE START (2)

Teaching materials courtesy of:

http://www.software-carpentry.org/

Overview

- Introduction – why we recommend Python
- Basics and control flow
- Lists, tuples and slicing
- Input/output
- Strings and text processing
- Functions, libraries and scripts
- Error handling and logging
- Sets, dictionaries and OOP

What is Python?

- A simple interpreted language
- Very human-readable with clean syntax
- Making it a very good “learn to programme” language

Why do we recommend Python?

- It is **open source** and **free**
- It is **cross-platform** (including Windows)
- It can be used for simple scripting through to writing full-blown complex applications
- Many libraries/tools to tackle all kinds of problems
- In the environmental science community it continues to grow in popularity...so **we can share code**!

Python version?

Python has multiple personalities!

- **Python 3** – new; differ

  But not used much yet b

- **Python 2.6+** – establis

  Used extensively in our community.

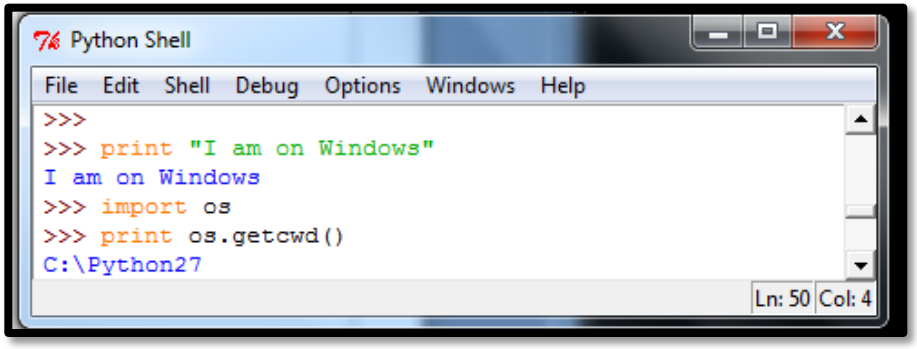
  Used in this course!

But what changes?

E.g. print changes from a statement to a function...

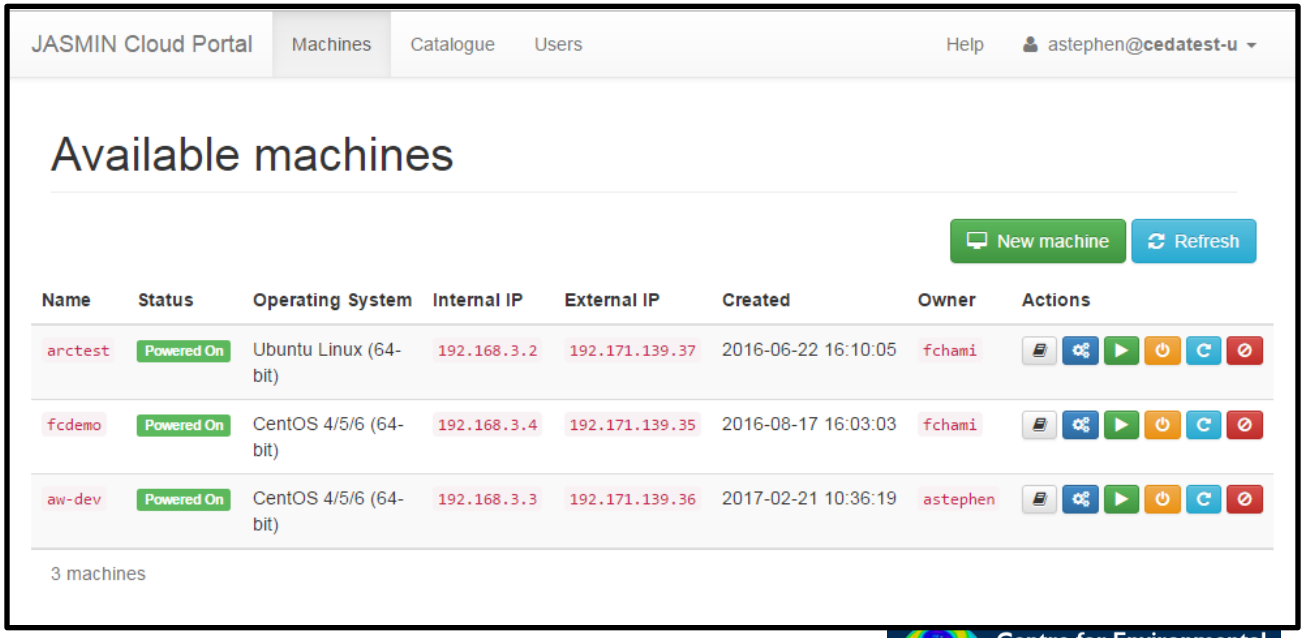
>>> **print "hello"** # in Python 2.* to...
>>> **print ("hello")** # in Python 3.*

What can you do with python?



Interactive "shell": allows quick learning/testing/use.

Web-programming: frameworks make this easy.



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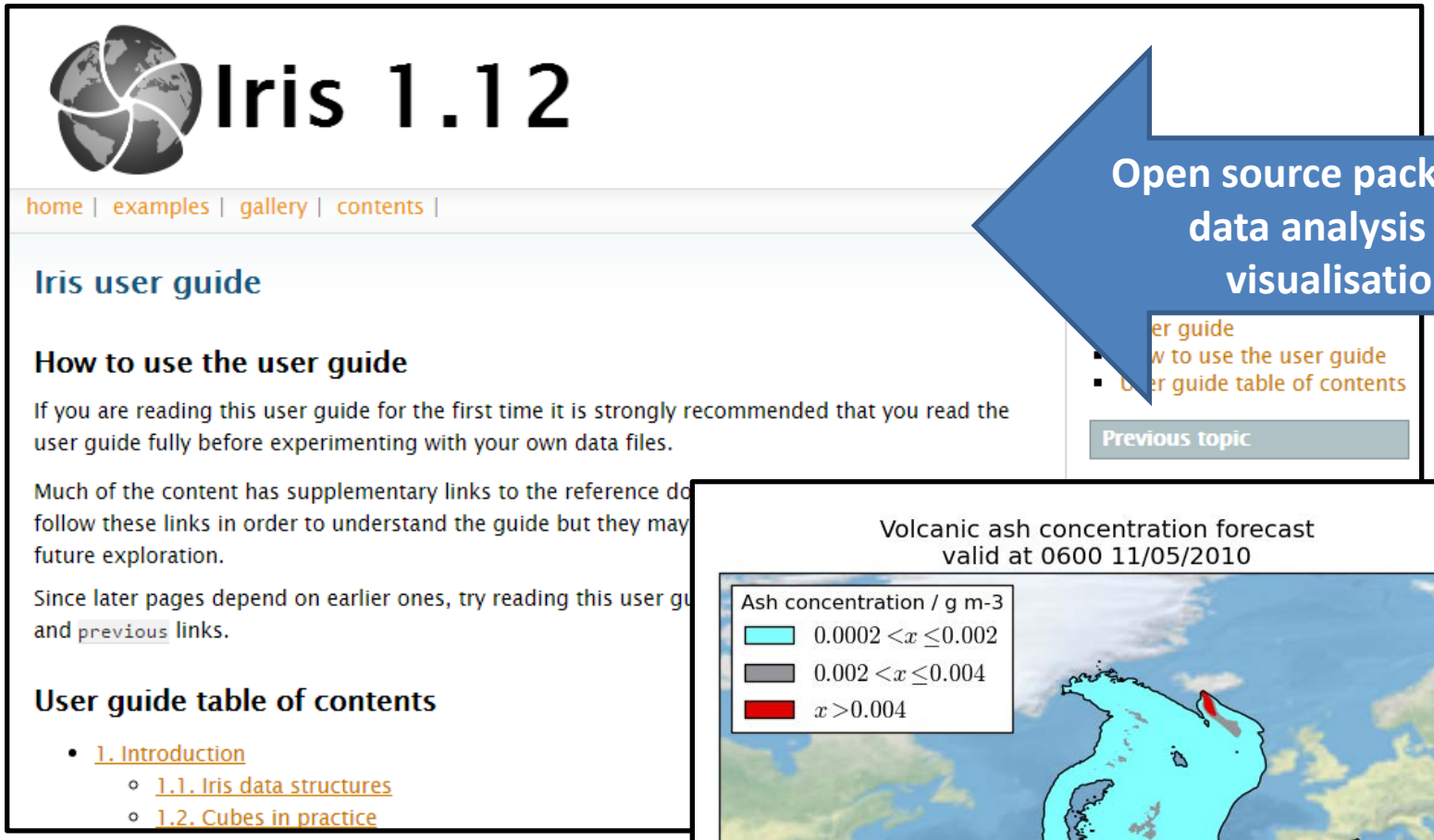
What can you do with python?



Open source packages for data analysis and visualisation.

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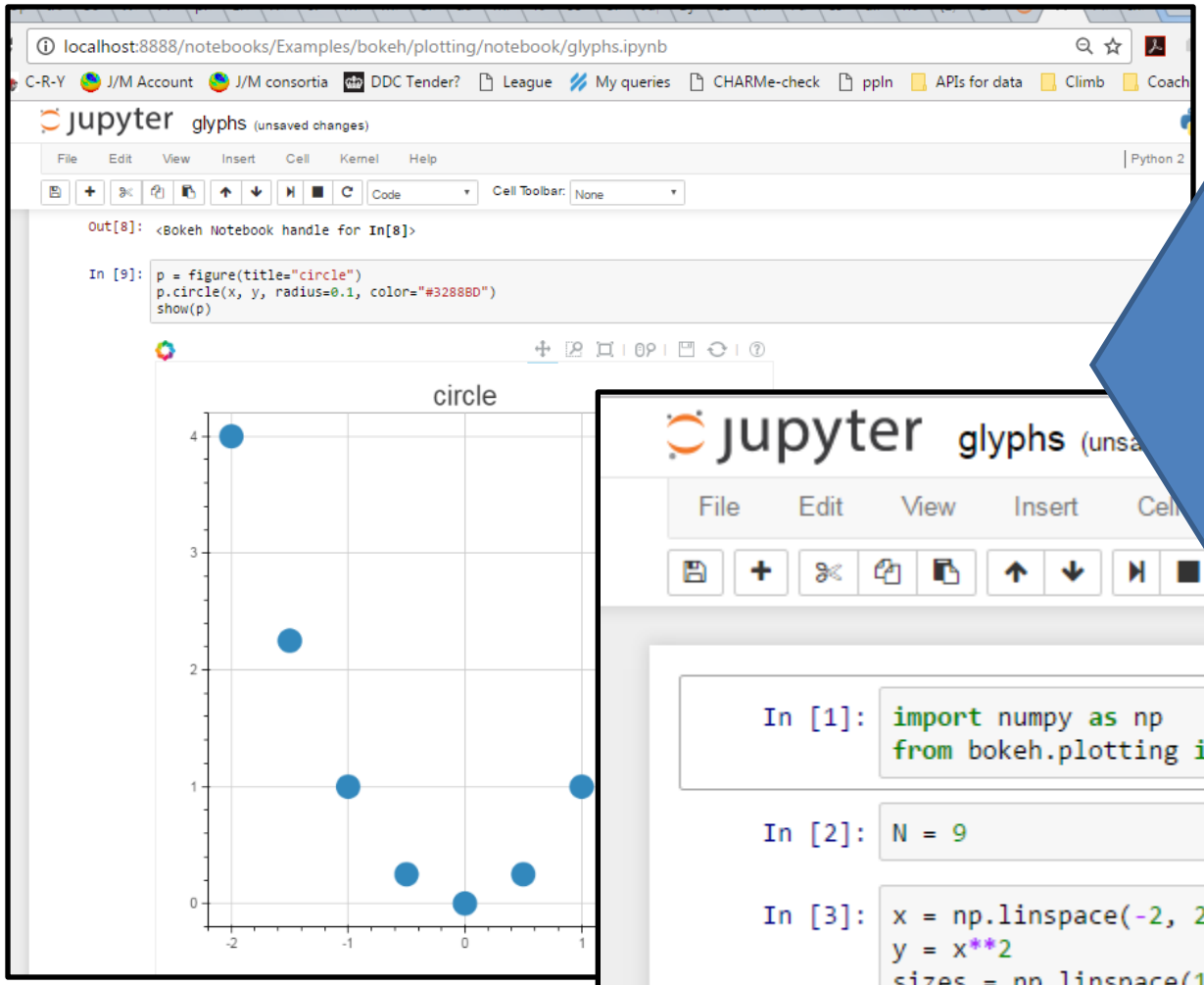
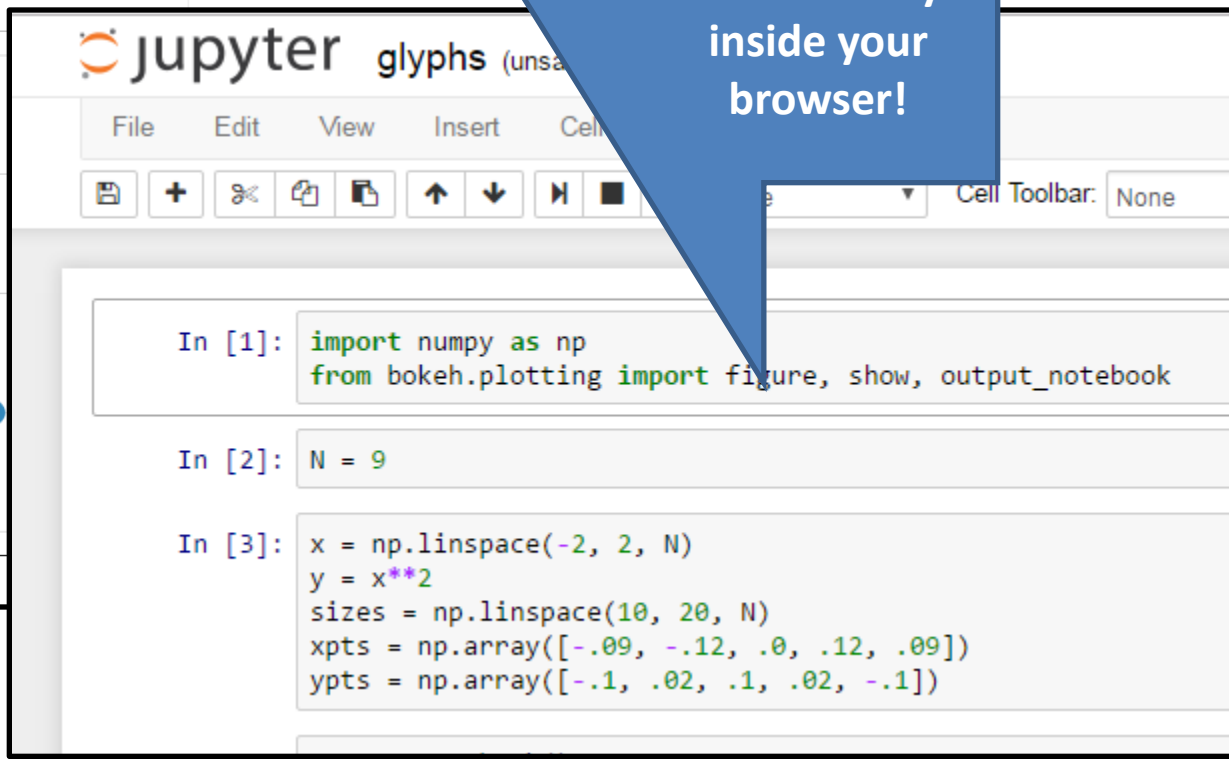
What can you do with python?





Jupyter Notebooks run interactively inside your browser!

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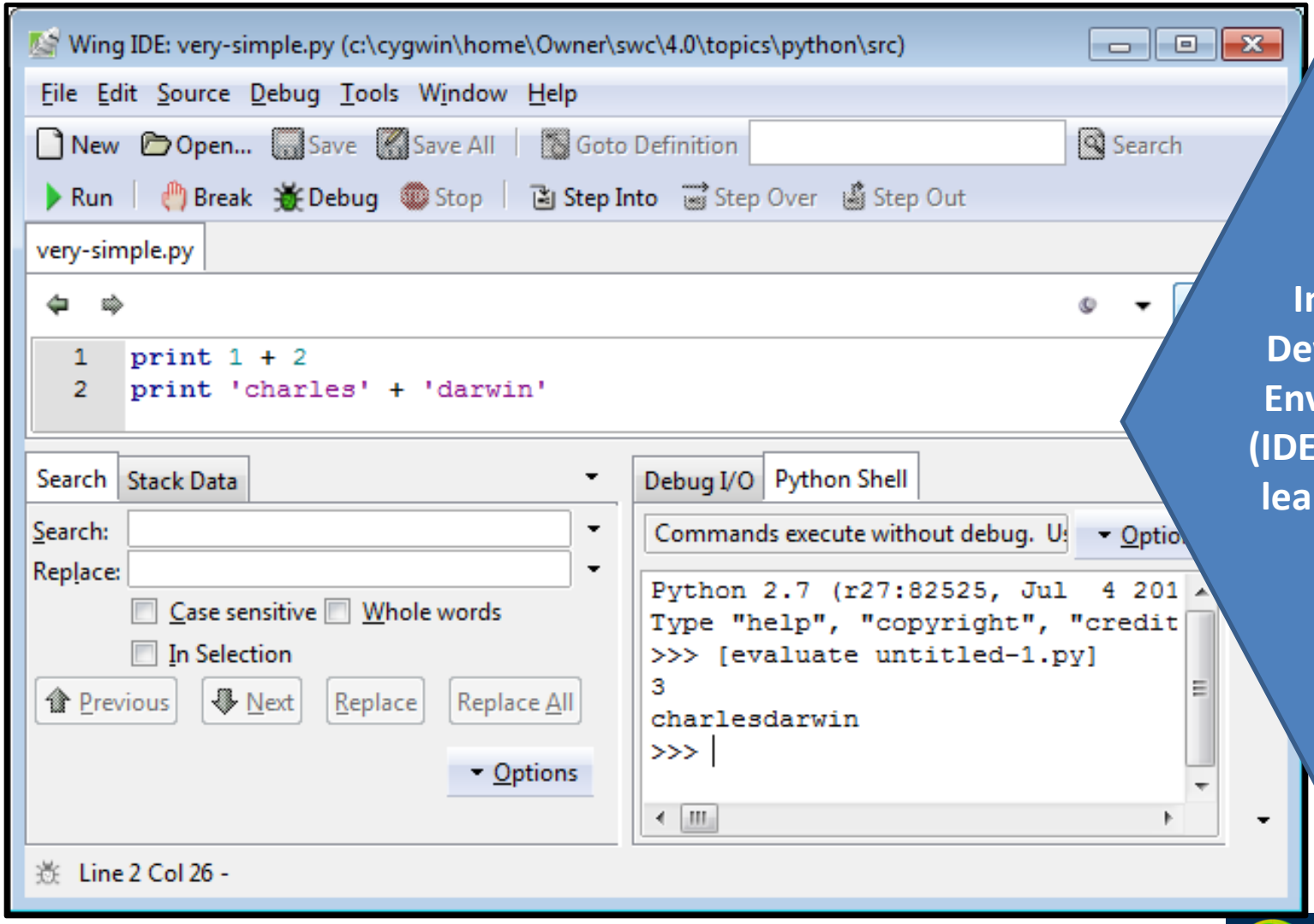
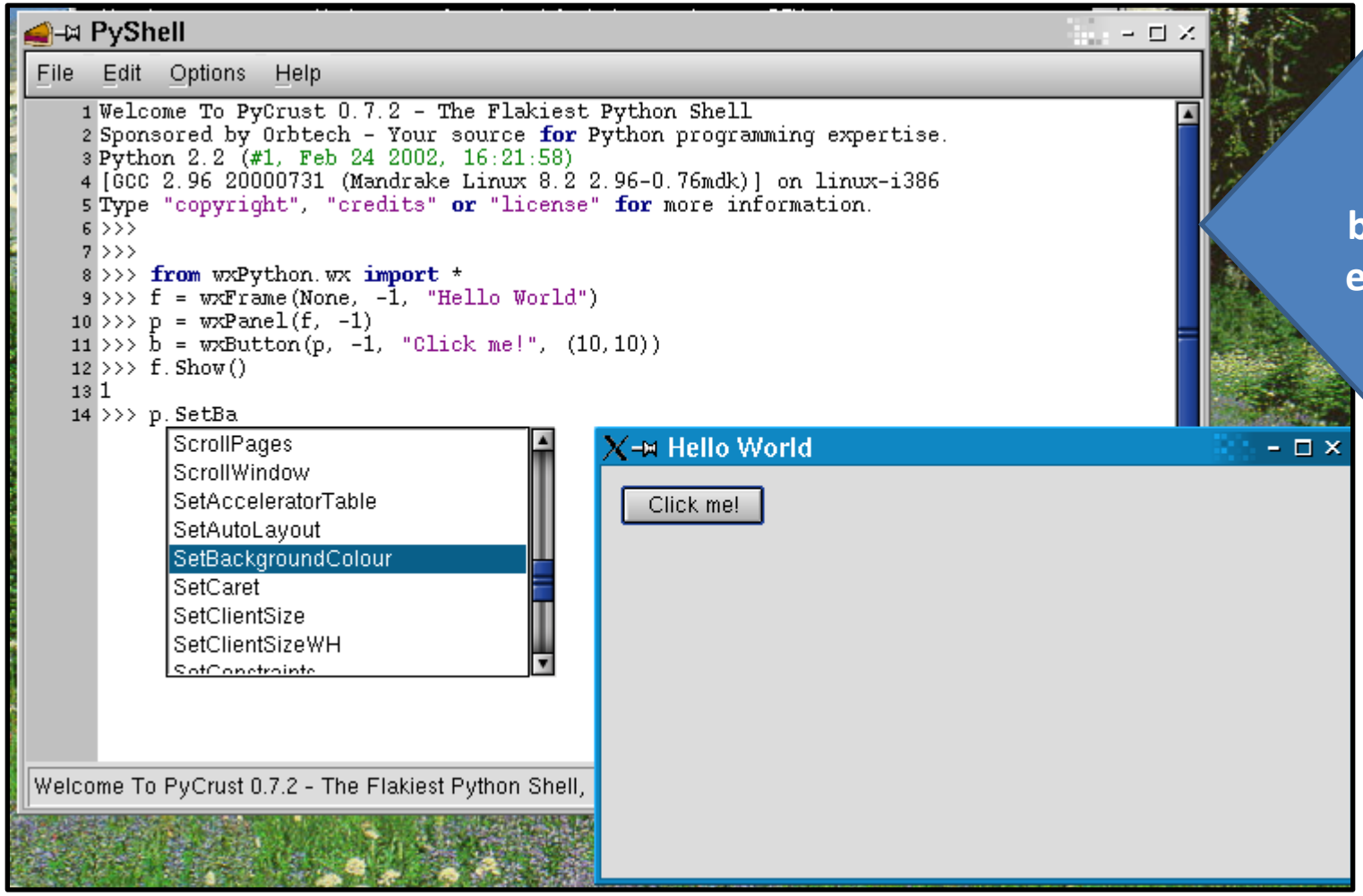
What can you do with python?



Integrated Development Environments (IDEs): help you learn/manage coding.

What can you do with python?



Tools for building GUIs: e.g. wxpython

Let’s get to work...