Getting started with Python

brought to you by Ryerson WITM in collaboration with WICs and WIE

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Workshop - October 7, 2016

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Helping businesses and countries digitize

- Director @ Savoir-faire Linux
- Ryerson Alumnus: Computer Science undergrad, MBA
- Using Free Software since 1999
- Board Officer @ ICTC, Director @ Prepr

Workshop Participants

Present Yourselves...

- Studies, Majors
- Businesses & Hobbies
- What you're in for
- Your definition of Python

Introducing Python

A Xmas "hobby"

"Over six years
ago, in December 1989, I was looking
for a "hobby" programming project that
would keep me occupied during the week
around Christmas. My office ... would be
closed, but I had a home computer, and
not much else on my hands. I decided to
write an interpreter for the new scripting
language I had been thinking about
lately: a descendant of ABC that would
appeal to Unix/C hackers. I chose Python
as a working title for the project, being
in a slightly irreverent mood (and a big
fan of Monty Python's Flying Circus)."

- van Rossum, Guido (1996).
"Foreword for "Programming Python" (1st ed.)".

Figure: CC-BY-SA Doc Searls

Introducing Python

What is Python good for?

- Easy to read (and Learn)
- Multi-paradigm: structured, OOP, functional...
- Flexible: dynamic binding, garbage collector, late binding...
- Many libraries available (maths, physics, natural language processing...)
- Beautiful and Fun to use

Introducing Python

Python is the career-seeker's best friend

- Study using data from the job site Indeed
- What languages do professionals use? Which ones are most in demand?
- Also see the TIOBE Index
- and the IEEE ranking (July 2016) (try all rankings)

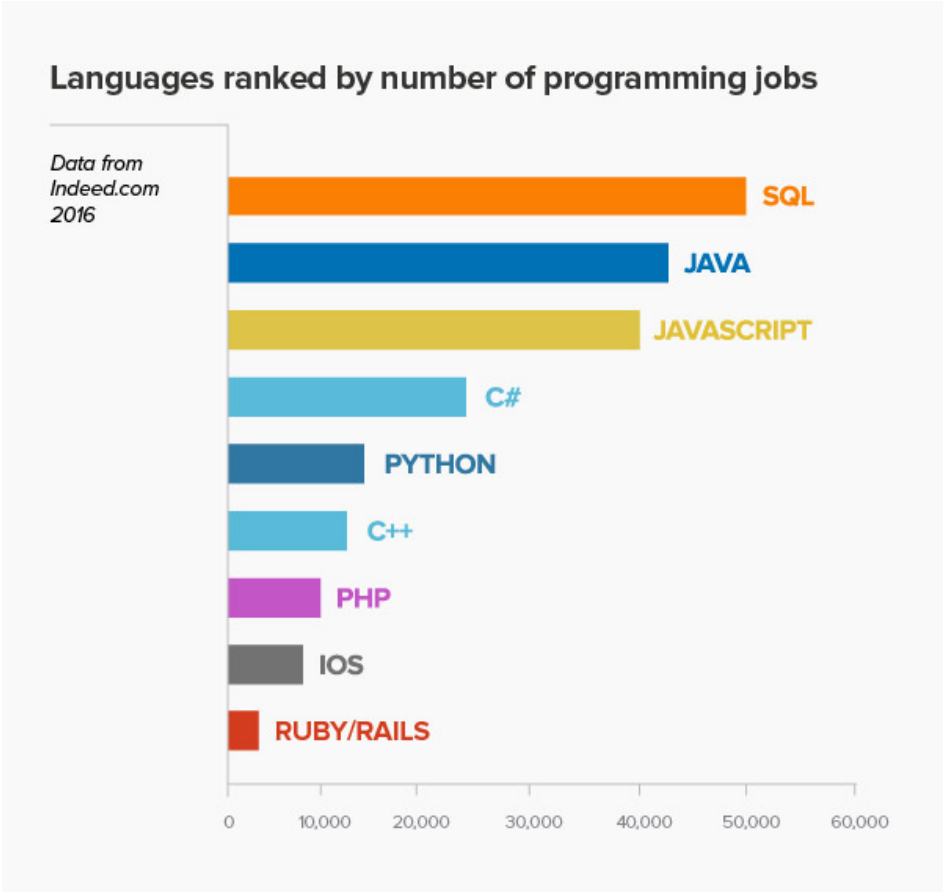

Figure: Coding Dojo (Jan 2016)

Introducing Python

By industry

- Data Science and Physics e.g. Anaconda bundles Python, R, and scientific libraries
- ERP e.g. Odoo is programmed (and extensible) in Python
- Data Center automation e.g. Ansible
- Web e.g. Flask, Pyramid, and Django (but the most popular language is still PHP) and more frameworks
- Games e.g. Pygame
- More in images see `https://youtu.be/-67hh86N42Q`
- and see `https://www.python.org/about/apps/`

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Computer Basics

Concepts to keep in mind

- OS: operating system (Windows, Mac, Linux...)
- IDE: Integrated Development Environment (e.g. Eclipse, Spyder)
- Console (to write) vs. IDE (to click): use the best tool for the job
- Your goal (e.g. do some stats, plot graphics, program a game)

Installing core Python on Linux

The geeky choice

run this:

```
$ sudo apt-get install python
```

or, in case you require a specific version such as 3.5, run this:

```
$sudo apt-get install python3.5
```

Voilà!

Anaconda

A good starting point for Data Scientists

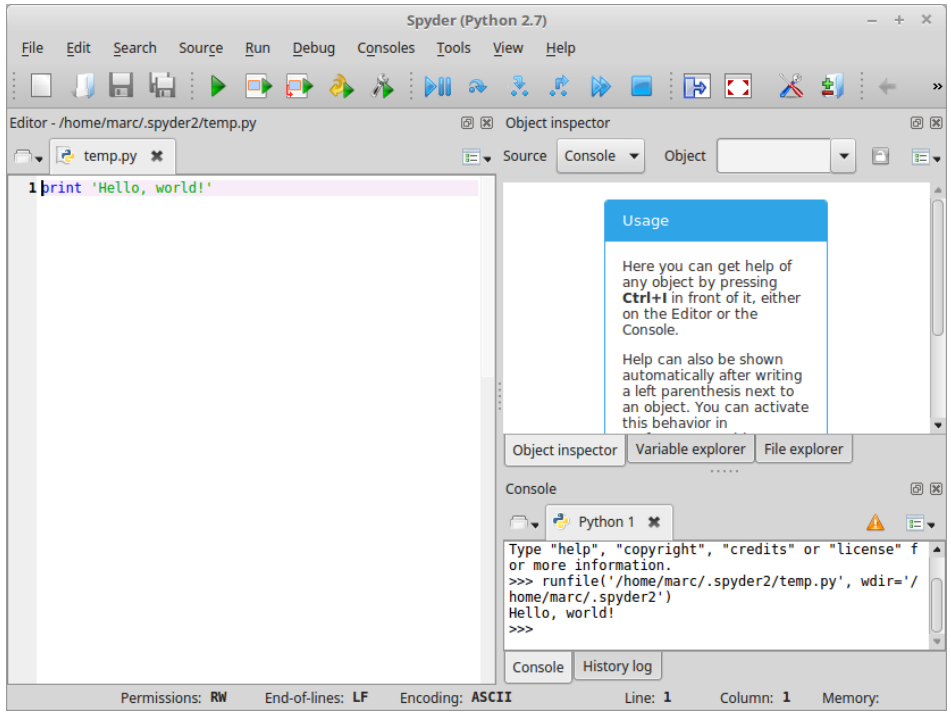
"Anaconda is the leading open data science platform powered by Python. The open source version of Anaconda is a high performance distribution of Python and R and includes over 100 of the most popular Python, R and Scala packages for data science.
Additionally, you'll have access to over 720 packages that can easily be installed with conda, our renowned package, dependency and environment manager, that is included in Anaconda. "

- It comes with the Spyder IDE
- Download Anaconda for your OS at `https://www.continuum.io/downloads`
- Also check this article for links to videos and other learning resources. `http://www.kdnuggets.com/2016/04/datacamp-learning-python-data-analysis-data-science.html`

The Spyder IDE

The Scientific PYthon Development EnviRonment

- Offers a full IDE (visual editing, debugging, etc)
- Plus popular Python libraries such as NumPy (linear algebra), SciPy (signal and image processing) or matplotlib (interactive 2D/3D plotting)
- Install on Linux: `sudo apt-get install spyder`
- Other platform see `https://pythonhosted.org/spyder/`



Testing your Installation

Type your first line of Python and run it

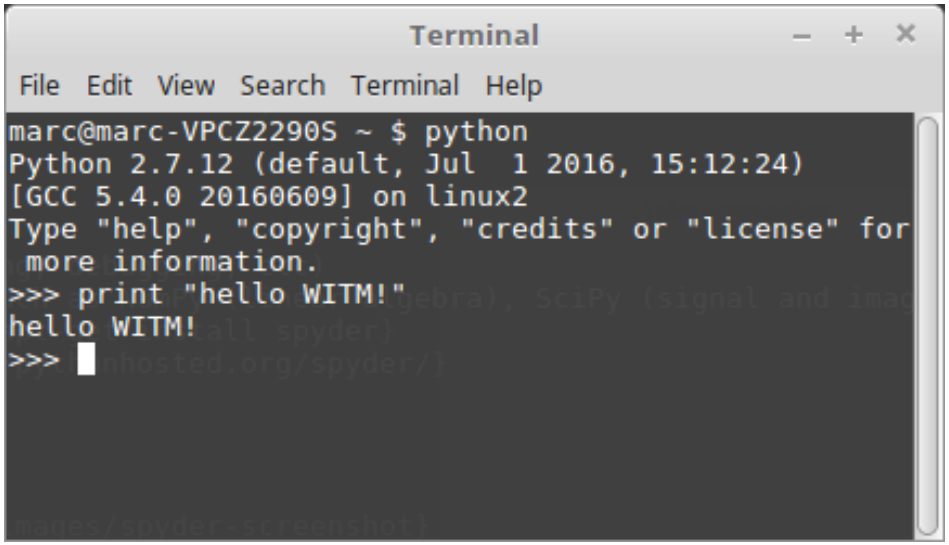


Figure: If you installed in console

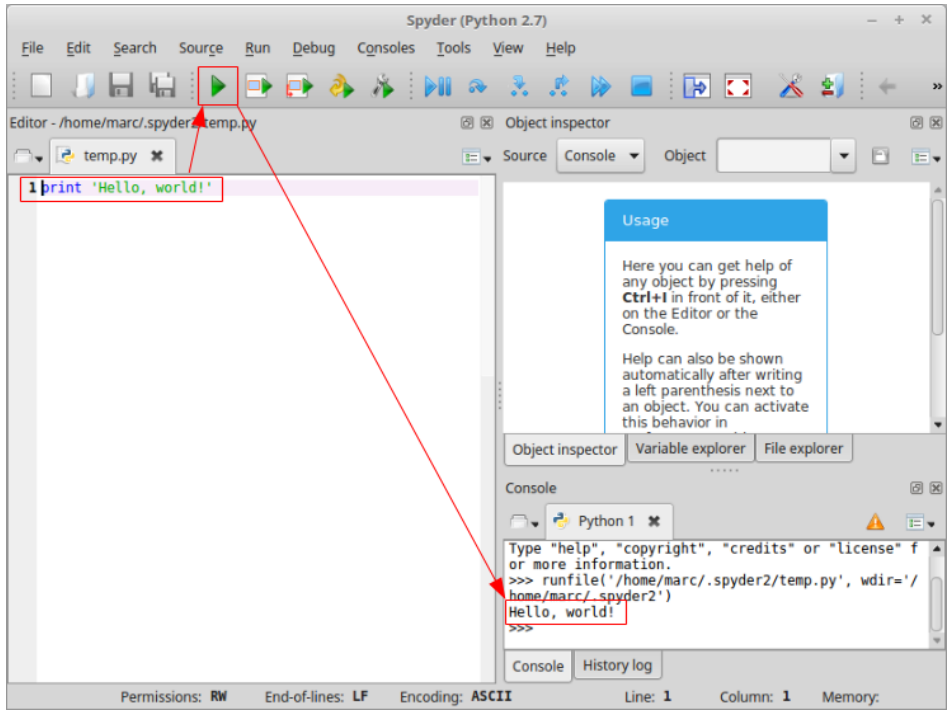


Figure: If you use an IDE

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How do you Learn a Language?

Dancing with Python

- Babies don't learn to talk at school!
- Read code, then read more code, then read more
- Write code, then write some more, then go and write more...
- Practice leads to perfection

Resources to Learn Python

Excellent free books and videos out there

- How to Think Like a Computer Scientist (2nd ed)
- Safari Books Online from O'Reilly (free with a Toronto Public Library card)
- Check `https://python.org`

Final Words of Advice

To get really good at anything in life

- Set high expectations for yourself
- Love what you do
- Never stop until you get there

The End

Happy programming with Python!