Ashoka Summer School

Introduction

Outline

- Introduction
- Adopt Python
- Jupyter

Who are we ?

Jérémy Richard - jeremy.richard@sciencespo.fr

Sysadmin engineer

Joined Sciences Po in 2012

Building IT infrastructures for various laboratories of the scientific department

- CDSP - Center For Socio-Political Data
- Medialab

Who are we ?

Alexandre Chevallier - alexandre.chevallier@sciencespo.fr

Lead Developer

Joined Sciences Po in 2014

Develop tools/applications for differents projects:

- ELIPSS project
- Bequali
- CDSP data

Who are we ?

- CDSP - Center for Socio-Political Data
- CNRS and Sciences Po mixed unit for social science researchers
- Helps the researchers with theirs data
- Has big projects like :
  - ELIPSS (Digital panel for quantitative surveys)
  - beQuali (Archive & share qualitatives studies)
  - Vizlab (Visualization for french election data)

And why we are here ?

Dispelling a few myths

- Myth 01: I have to go to university to learn how to code.
- Myth 02: I need to be a genius to code

Share IT knowledge

Helping you to decide if our techs are good for your use

Adopt Python - Brief

- Invented by Guido van Rossum, in the Netherlands early 90s
- Python is a general purpose open source programming language
- Often used as a scripting role
- It could be also called a interpreted language (≠ compiled language)
- Swissknife language

Adopt Python - Scope

Science

- Calculation and statistics
- Data visualization

System information

- Scripting
- Deployed on most of Unix systems

Software development

- Web applications
- Testing scripts

Education

- Teaching programming

Adopt Python - Why use it ?

Object-oriented

Native indentation restriction

- Very clear readable syntax

Powerful

- Very high level data types
- Other language interoperation (e.g. C/C++)
- Python Package Index (pip)

Community support

Open-Source, Portable and Free

Adopt Python - Data Structures

- List → [1, 2, 3, 4, 5, “hello”] : Ordered series of values
  - add data list.append(1)
- Dictionary → { “key” : “value”, “hello” : 1 } : Key/Value data structure
  - add data dict[‘key’] = ‘value’
- Tuple → (1, 2, 3, 4, “hello”) : Like list but immutable

Jupyter - Python libraries we use

Web Scraping: BeautifulSoup

- HTML/XML Parser
- Built on top of popular Python parsers like lxml and html5lib
- Designed for quick turnaround projects

Data Visualization: Pandas

- Similar to R, MATLAB, SAS
- Built on top of Numpy, Scipy and Matplotlib
- Handle the vast majority of typical use cases in finance, statistics, social science, and many areas of engineering

Jupyter - Brief

Web platform for Data Science

Support for over 40 programming languages

IPython is an interactive shell for Python

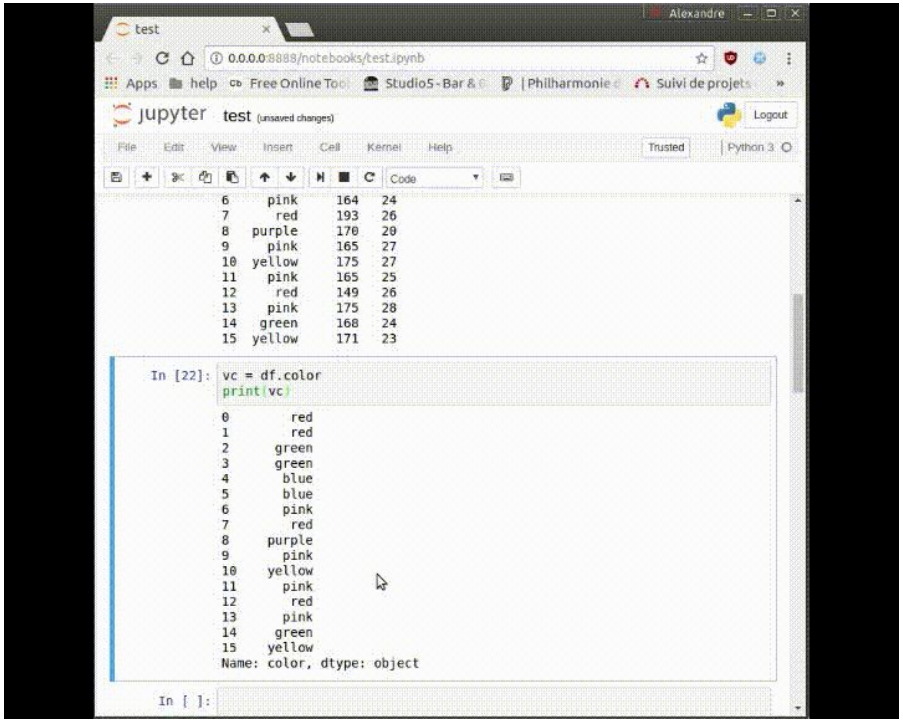
Create and share notebooks that contains:

- live code
- equations
- visualizations
- text

Jupyter - Notebooks

Interactive way to learn,
experiment and share your work

Run in every recent web browser



Jupyter - Notebook file format