

# Important Components of the Python Computing Environment



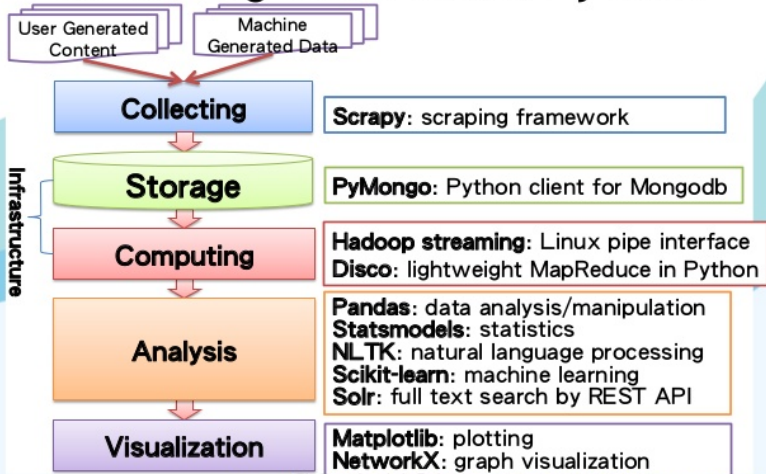
python

pandas

$$y_i = \beta x_i + \mu_i + e_i$$



# When Big Data meet Python



# Continuum Analytics Anaconda

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## Anaconda Pro Edition v. 1.0

Anaconda Pro extends the easy to use Anaconda Community Edition with enterprise features that will enhance your ability to deal with large data-files, accelerate code that works on array-based data, configure execution environments for code, as well as provide access to cutting-edge algorithms and optimizations.

In addition to all the packages that come with Anaconda CE, Anaconda Pro includes

- IOPro — fast access to data-bases and text files
- NumbaPro — fast vectorization utilizing multiple cores and GPUs
- WiseRF — a fast, multi-core implementation of the Random Forest algorithm from Wise.IO
- Python Environments — the ability to create named "Python environments" to mix and match different versions of Python, NumPy, SciPy, etc. and easily switch between them

Purchase of Anaconda Pro gives you access to a year of free updates.

[Download Anaconda Now!](#)

# Continuum Analytics Anaconda

## **Anaconda**

- ▶ Anaconda, a free product of Continuum Analytics ([www.continuum.io](http://www.continuum.io)), is a virtually complete scientific stack (i.e. distribution) for Python.
- ▶ It includes both the core Python interpreter and standard libraries as well as most modules required for data analysis.

## Continuum Analytics Anaconda

### Anaconda

- ▶ Anaconda is free to use and modules for accelerating the performance of linear algebra on Intel processors using the **Math Kernel Library** (MKL) are available (free to academic users and for a small cost to non-academic users).
- ▶ Continuum Analytics also provides other high-performance modules for reading large data files or using the GPU to further accelerate performance for an additional, modest charge.

## Installing Anaconda

Most importantly, installation is extraordinarily easy on Windows, Linux and OS X. Anaconda is also simple to update to the latest version using

```
conda update conda  
conda update anaconda
```



Wakari.io

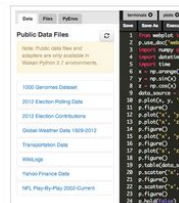
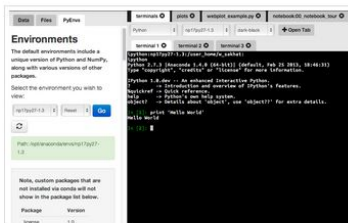
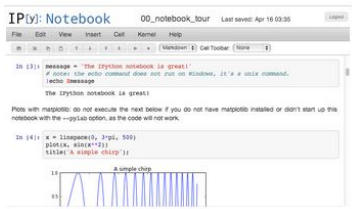
## Plans & Pricing

## Run Wakari in Your Data Center



# Wakari.io

## Web-based Python Data Analysis





## Wakari

*Wakari is a collaborative data analytics platform that includes tools to explore data, develop analytics scripts, collaborate with IPython notebooks, visualize, and share data analysis and findings. Save time and money by getting right down to business analyzing data with the fully-configured Wakari. In the cloud or on your own servers, Wakari makes accessing your compute resources and data, reproducing your process, and sharing your results easy.*

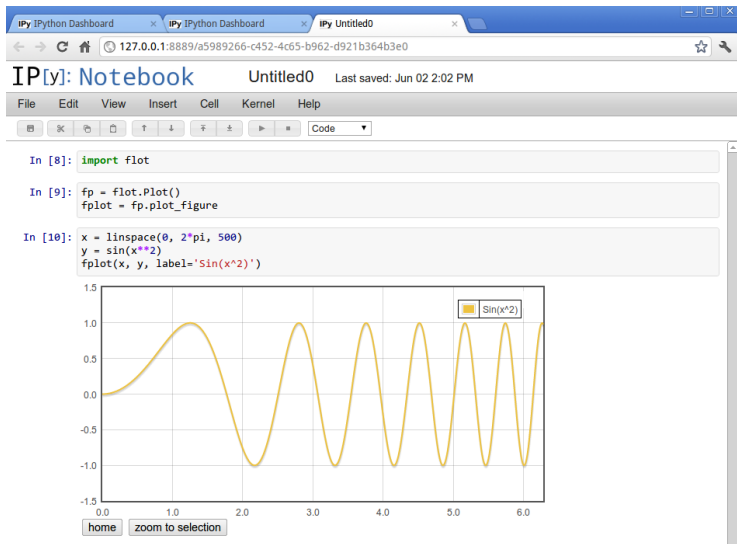
**(Source: Continuum Analytics)**

# IPython and IPython Notebooks

## **IPython / Jupyter Notebooks**

- ▶ IPython provides an interactive Python environment which enhances productivity when developing code or performing interactive data analysis.
- ▶ The IPython Notebook is a web-based interactive computational environment where you can combine code execution, text, mathematics, plots and rich media into a single document.

# IPython Notebook



## Ipython Notebook / Jupyter



## Evolved from the IPython Project

The language-agnostic parts of IPython are getting a new home in Project Jupyter

### IPython

- Interactive Python shell
- Python kernel for Jupyter
- Interactive Parallel Python

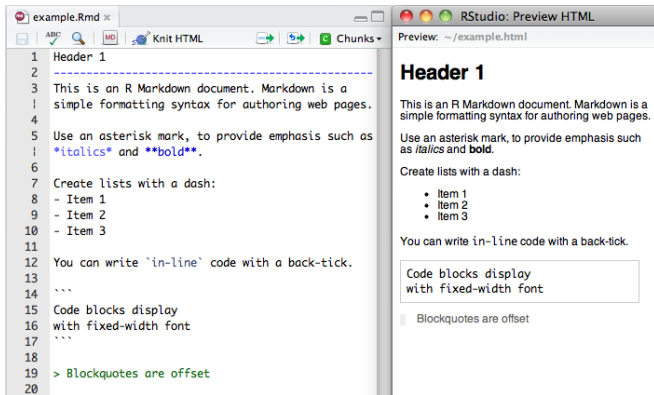
### Jupyter

- Rich REPL Protocol
- Notebook (format, environment, conversion)
- [JupyterHub](#) (multi-user notebook server)
- [More...](#)

# Markdown

Markdown is a text-to-HTML conversion tool for web writers.

Markdown allows you to write using an easy-to-read, easy-to-write plain text format, then convert it to structurally valid XHTML (or HTML).



The screenshot displays the RStudio interface with two panes. The left pane, titled 'example.Rmd', shows the source Markdown text. The right pane, titled 'RStudio: Preview HTML', shows the rendered HTML output.

**Source Markdown (example.Rmd):**

```
1 Header 1
2 -----
3 This is an R Markdown document. Markdown is a
4 simple formatting syntax for authoring web pages.
5 Use an asterisk mark, to provide emphasis such as
6 *italics* and **bold**.
7 Create lists with a dash:
8 - Item 1
9 - Item 2
10 - Item 3
11
12 You can write `in-line` code with a back-tick.
13 ```
14 Code blocks display
15 with fixed-width font
16 ```
17
18 > Blockquotes are offset
19
20
```

**Preview HTML (RStudio: Preview HTML):**

Preview: ~/example.html

## Header 1

This is an R Markdown document. Markdown is a simple formatting syntax for authoring web pages.

Use an asterisk mark, to provide emphasis such as *italics* and **bold**.

Create lists with a dash:

- Item 1
- Item 2
- Item 3

You can write in-line code with a back-tick.

```
Code blocks display
with fixed-width font
```

Blockquotes are offset