

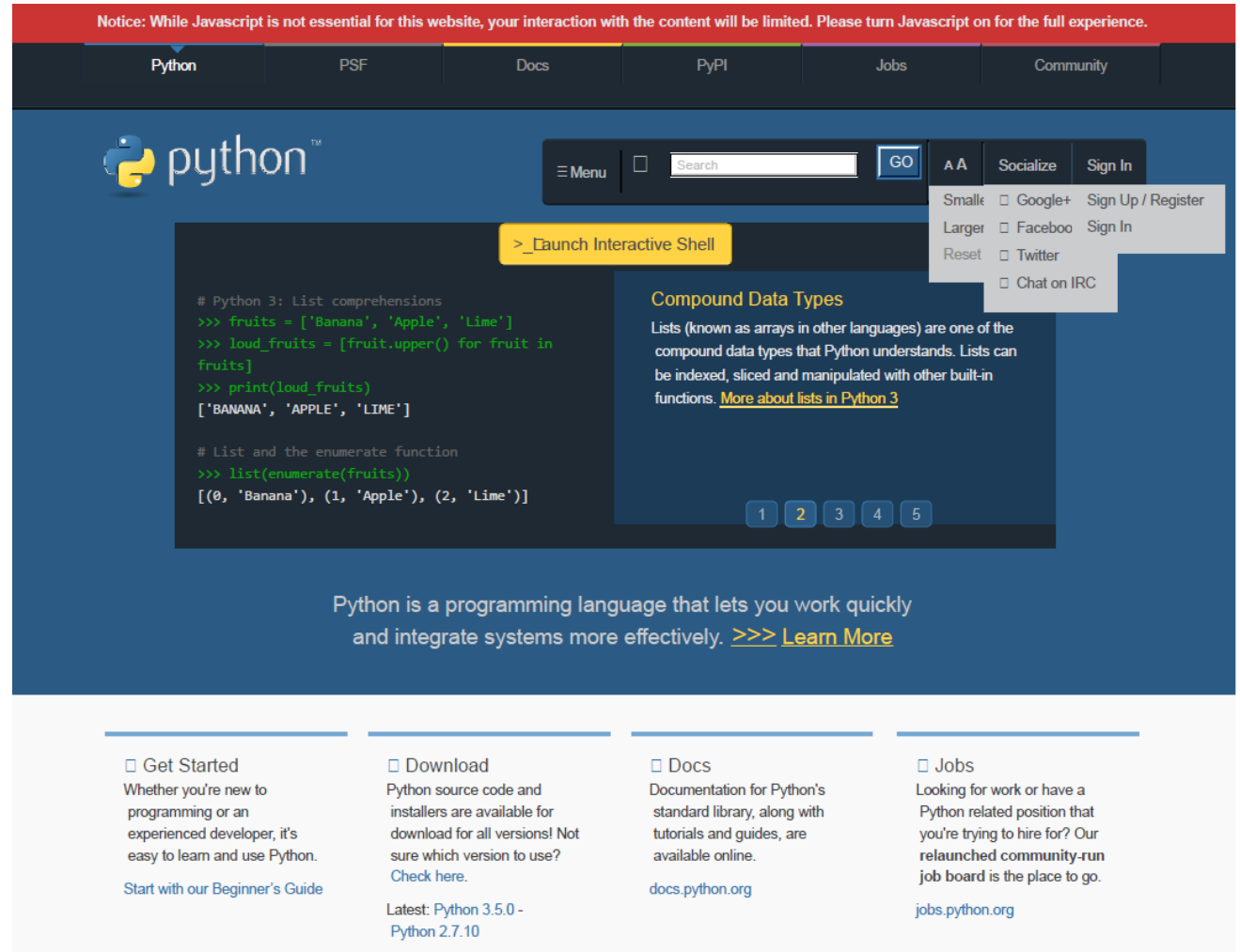
Short Introduction to Python, pandas and Anaconda

Python

<https://www.python.org/>

Python is a open-source high-level programming language. The goal is to have an easy understandable syntax but also be efficient.

Users: Google, youtube



The screenshot shows the Python.org homepage. At the top, a red banner reads: "Notice: While Javascript is not essential for this website, your interaction with the content will be limited. Please turn Javascript on for the full experience." Below this is a dark blue navigation bar with links: Python, PSF, Docs, PyPI, Jobs, and Community. The main content area has a dark blue background. On the left, there's a code snippet titled "# Python 3: List comprehensions" showing how to create a list of uppercase fruits. To the right of the code is a yellow button that says "> Launch Interactive Shell". Further right is a section titled "Compound Data Types" with text explaining lists and a link to "More about lists in Python 3". Below the code and text are five numbered tabs (1-5). At the bottom of the page, there's a light blue footer with four columns of links: "Get Started", "Download", "Docs", and "Jobs".

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> Launch Interactive Shell

```
# Python 3: List comprehensions
>>> fruits = ['Banana', 'Apple', 'Lime']
>>> loud_fruits = [fruit.upper() for fruit in fruits]
>>> print(loud_fruits)
['BANANA', 'APPLE', 'LIME']

# List and the enumerate function
>>> list(enumerate(fruits))
[(0, 'Banana'), (1, 'Apple'), (2, 'Lime')]
```

Compound Data Types

Lists (known as arrays in other languages) are one of the compound data types that Python understands. Lists can be indexed, sliced and manipulated with other built-in functions. [More about lists in Python 3](#)

1 2 3 4 5

Python is a programming language that lets you work quickly and integrate systems more effectively. >>> [Learn More](#)

Get Started
Whether you're new to programming or an experienced developer, it's easy to learn and use Python.
[Start with our Beginner's Guide](#)

Download
Python source code and installers are available for download for all versions! Not sure which version to use?
[Check here.](#)
Latest: Python 3.5.0 - Python 2.7.10

Docs
Documentation for Python's standard library, along with tutorials and guides, are available online.
docs.python.org

Jobs
Looking for work or have a Python related position that you're trying to hire for? Our relaunched community-run job board is the place to go.
jobs.python.org

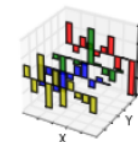
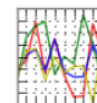
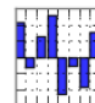
pandas

<http://pandas.pydata.org/>

pandas is a specialised
Python Data Analysis
Library

pandas

$$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$$



[overview](#) // [get pandas](#) // [documentation](#) // [community](#) // [talks](#)

Python Data Analysis Library

pandas is an open source, BSD-licensed library providing high-performance, easy-to-use data structures and data analysis tools for the [Python](#) programming language.

0.17.0 Final (October 9, 2015)

This is a major release from 0.16.2 and includes a small number of API changes, several new features, enhancements, and performance improvements along with a large number of bug fixes. We recommend that all users upgrade to this version.

Highlights include:

- Release the Global Interpreter Lock (GIL) on some cython operations, see [here](#)
- Plotting methods are now available as attributes of the `.plot` accessor, see [here](#)

VERSIONS

Release

0.17.0 - October 2015

[download](#) // [docs](#) // [pdf](#)

Development

0.17.1 - November 2015

[github](#) // [docs](#)

Previous Releases

0.16.2 - [download](#) // [docs](#) // [pdf](#)
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0.16.0 - [download](#) // [docs](#) // [pdf](#)
0.15.2 - [download](#) // [docs](#) // [pdf](#)
0.15.1 - [download](#) // [docs](#) // [pdf](#)
0.15.0 - [download](#) // [docs](#) // [pdf](#)
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0.14.0 - [download](#) // [docs](#) // [pdf](#)
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Anaconda

<http://docs.continuum.io/anaconda/index>

“Anaconda is an easy-to-install, free package manager, environment manager, Python distribution, and collection of over 150 open source packages with free community support.”

The screenshot shows the Continuum Analytics website. The header features the 'CONTINUUM ANALYTICS' logo on the left and social media icons (Google+, Twitter, LinkedIn, Facebook) and a 'View Your Cart' button on the right. A dark navigation bar below the header contains links for HOME, PRODUCTS, SERVICES, TRAINING, COMPANY, and CONTACT US. The main content area is titled 'Anaconda' and includes a brief description: 'Anaconda is an easy-to-install, free package manager, environment manager, Python distribution, and collection of over 150 open source packages with free community support. Download Anaconda now. Don't want the collection of packages? Then get miniconda and get started with this guide.' Below this, there are three sections: 'User Guide' with a list of links including 'Anaconda Install', 'Anaconda Package List', 'Anaconda FAQ', 'How to set up an IDE to use Anaconda', 'Using Virtual Machine images', 'Image list', 'Excel plug-ins for Anaconda', 'Anaconda Launcher', 'Anaconda changelog', 'Old Package Lists', 'Anaconda License', and 'Anaconda Server End User License Agreement'; 'Product specifications' with links for 'License: Anaconda is free to use and (re)distribute under the terms of the Anaconda License' and 'System requirements: Linux, OS X, or Windows, 32-bit or 64-bit, 3 GB disk space to download and install'; and 'Packages available in Anaconda' with links for 'Over 150 packages are automatically installed with Anaconda', 'Over 340 additional open source packages can be individually installed from the Anaconda repository at the command line, simply by using the "conda install" command', 'Thousands of other packages are available from Anaconda.org', 'Others can be downloaded using the "pip install" command which is included and installed with Anaconda', and 'You can also make your own custom packages using the "conda build" command, and upload them to Anaconda.org, PyPi or other repositories.' On the right side of the page, there is a 'Table Of Contents' section with a search bar and a list of links including 'Anaconda Cluster', 'Anaconda Server', 'Wakari Enterprise', 'Anaconda', 'User Guide', 'Anaconda Install', 'Anaconda Package List', 'Anaconda FAQ', 'How to set up an IDE to use Anaconda', 'Using Virtual Machine images', 'Image list', 'Excel plug-ins for Anaconda', 'Anaconda Launcher', 'Anaconda changelog', 'Old Package Lists', 'Anaconda License', 'Anaconda Server End User License Agreement', 'Product specifications', 'Packages available in Anaconda', 'Managing packages in Anaconda', 'What's new in Anaconda 2.4?', 'Older versions of Anaconda', 'Support', 'Anaconda Accelerate', 'Anaconda Launcher', 'IOPro', 'MKL-Optimizations', 'NumbaPro', 'Wakari', and 'Open Source'.

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Anaconda

Anaconda is an easy-to-install, free package manager, environment manager, Python distribution, and collection of over 150 open source packages with free community support. Download [Anaconda](#) now. Don't want the collection of packages? Then get [miniconda](#) and get started with this guide.

User Guide

- [Anaconda Install](#)
- [Anaconda Package List](#)
- [Anaconda FAQ](#)
- [How to set up an IDE to use Anaconda](#)
- [Using Virtual Machine images](#)
- [Image list](#)
- [Image list](#)
- [Excel plug-ins for Anaconda](#)
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- [Anaconda changelog](#)
- [Old Package Lists](#)
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Product specifications

- License: Anaconda is free to use and (re)distribute under the terms of the [Anaconda License](#).
- System requirements: Linux, OS X, or Windows, 32-bit or 64-bit, 3 GB disk space to download and install.

Packages available in Anaconda

- Over 150 packages are *automatically installed with Anaconda*.
- Over 340 additional open source packages can be individually installed from the Anaconda repository at the command line, simply by using the "conda install" command.
- Thousands of other packages are available from [Anaconda.org](#).
- Others can be downloaded using the "pip install" command which is included and installed with Anaconda.
- You can also make your own custom packages using the "conda build" command, and upload them to [Anaconda.org](#), [PyPi](#) or other repositories.

Google Custom Search

Table Of Contents

- [Anaconda Cluster](#)
- [Anaconda Server](#)
- [Wakari Enterprise](#)
- [Anaconda](#)
 - [User Guide](#)
 - [Anaconda Install](#)
 - [Anaconda Package List](#)
 - [Anaconda FAQ](#)
 - [How to set up an IDE to use Anaconda](#)
 - [Using Virtual Machine images](#)
 - [Image list](#)
 - [Image list](#)
 - [Excel plug-ins for Anaconda](#)
 - [Anaconda Launcher](#)
 - [Anaconda changelog](#)
 - [Old Package Lists](#)
 - [Anaconda License](#)
 - [Anaconda Server End User License Agreement](#)
 - [Product specifications](#)
 - [Packages available in Anaconda](#)
 - [Managing packages in Anaconda](#)
 - [What's new in Anaconda 2.4?](#)
 - [Older versions of Anaconda](#)
 - [Support](#)
- [Anaconda Accelerate](#)
- [Anaconda Launcher](#)
- [IOPro](#)
- [MKL-Optimizations](#)
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Some pandas function

Tutorial: <http://pandas.pydata.org/pandas-docs/stable/tutorials.html>

Tutorial only data cleansing: <https://data.library.utoronto.ca/cleaning-data-python>

```
In [1]: import pandas as pd # import pandas  
        pd.set_option('display.mpl_style', 'default') # Make the graphs a bit prettier
```

`read_csv` function for reading CSV files, default is comma-separated, otherwise use (as in R the `sep=' '` attribute in the function)

```
In [2]: tempdata = pd.read_csv('../data/TempData.csv')  
        rain = pd.read_csv('../data/RainData.csv')
```

```
In [3]: weatherdata = pd.merge(tempdata, rain)
```

```
In [4]: tempdata['AVG_TEMPERATURE'].plot() / tempdata['AVG_TEMPERATURE'].plot(kind='bar')
```