Appendix A. Installation: Installing Python

Doris, I've got great news: the latest Python installers are a breeze to work with.

First things first: let's get Python installed on your computer.
Whether you're running on *Windows*, *Mac OS X*, or *Linux*, Python's got you covered. How you install it on each of these platforms is specific to how things work on each of these operating systems (we know...a shocker, eh?), and the Python community works hard to provide installers that target all the popular systems. In this short appendix, you'll be guided through installing Python on your computer.

Install Python 3 on Windows

Unless you (or someone else) has installed the Python interpreter onto your Windows PC, it is unlikely to be preinstalled. Even if it is, let's install the latest and greatest version of Python 3 into your *Windows* computer now.

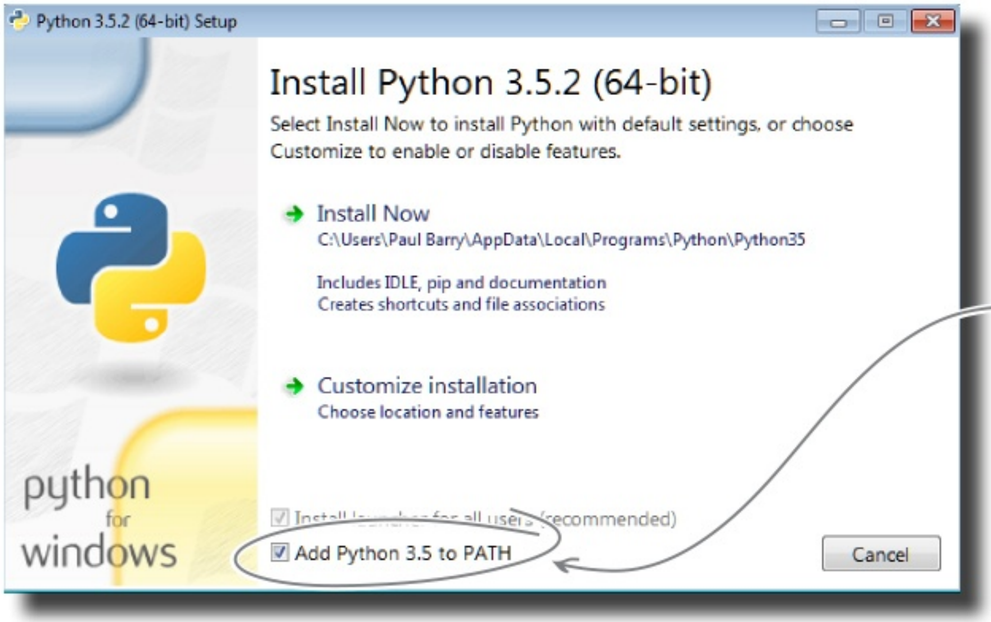
If you already have a version of Python 3 installed, it'll be upgraded. If you have Python 2 installed, Python 3 will install alongside it (but won't interfere with your Python 2 in any way). And if you don't have any version of Python yet, well, you soon will!

DOWNLOAD, THEN INSTALL

Point your browser to *www.python.org*, and then click the *Downloads* tab.

Two large buttons will appear, offering the choice of the latest version of Python 3 or Python 2. *Click on the Python 3 button*. Go ahead and save the file for download when prompted. After a little while, the download will complete. Locate the downloaded file in your *Downloads* folder (or wherever you saved it), then double-click on the file to start the install.

A standard *Windows* installation process begins. By and large, you can click on *Next* at each of the prompts, except for this one (shown below), where you'll want to pause to make a configuration change to ensure *Add Python 3.5 to Path* is selected; this ensures *Windows* can find the interpreter whenever it needs to:



Python 3.5.2 (64-bit) Setup

Install Python 3.5.2 (64-bit)

Select Install Now to install Python with default settings, or choose Customize to enable or disable features.

Install Now
C:\Users\Paul Barry\AppData\Local\Programs\Python\Python35
Includes IDLE, pip and documentation
Creates shortcuts and file associations
Customize installation
Choose location and features
python for windows
Cancel

☑ Install launcher for all users (recommended)

☑ Add Python 3.5 to PATH

Note: As this book hurtles toward its date with the printing press, the next version of Python 3 (release 3.6) is due out. As this won't be until the end of 2016 (a mere handful of weeks *after* this book publishes), we're showing 3.5 in these screenshots. Don't worry about matching the version we have here. Go ahead and download/install the latest.

The version number you're installing is likely different from this. Don't worry, yours is the latest version and installs in the same way.

This is really important: be sure to turn on this option before clicking on "Install Now" at this dialog.

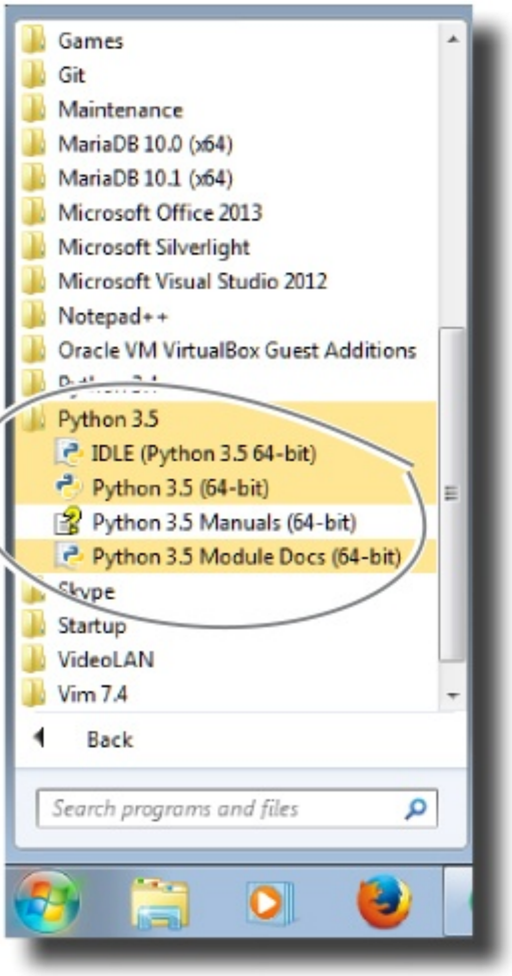
Check Python 3 on Windows

Now that the Python interpreter is installed on your *Windows* machine, let's run a few checks to confirm all is OK.

For starters, you should have a new group on your *Start* menu under *All Programs*. We've included what it looks like on one of the *Head First Labs' Windows 7* machines. Yours should look similar. If it doesn't, you may need to redo the installation. Windows 8 users (or higher) should also have a new group similar to this.

Let's examine the items in the Python 3.5 group from the bottom up.

The Python installer adds a new group to your All Programs list.



The *Python 3.5 Modules Docs* option provides access to all of the documentation included with all of the installed modules that are available within your Python system. You'll be learning lots about modules as you work through this book, so you don't need to worry about doing anything with this option right now.

The *Python 3.5 Manuals* option opens the entire set of Python language documentation in the standard *Windows* help utility. This material is a copy of the Python 3 documentation available on the Web.

The *Python 3.5* option fires up a text-based interactive command prompt, >>>, which is used to experiment with code as you write it. We'll have more to say about the >>> prompt starting from Chapter 1. If you have clicked on this option to try it out and are now at a loss as to what to do, type `quit()` to escape back to *Windows*.

The final option, *IDLE (Python 3.5)*, runs the Python integrated development environment, which is called *IDLE*. This is a very simple IDE that provides access to Python's >>> prompt, a passable text editor, the Python debugger, and the Python documentation. We'll be using *IDLE* a lot in this book, starting in Chapter 1.

IT’S PYTHON 3 ON WINDOWS, SORT OF...

Python’s heritage is on Unix and Unix-like systems, and this can sometimes come through when you’re working in *Windows*. For instance, some software that is assumed to exist by Python isn’t always available by default on *Windows*, so to get the most out of Python, programmers on *Windows* often have to install a few extra bits and pieces. Let’s take a moment to install one such bonus piece to demonstrate how these missing bits can be added when needed.

Add to Python 3 on Windows

Sometimes programmers using the *Windows* version of Python feel like they are being short-changed: some of the features assumed (by Python) on those other platforms are “missing” from *Windows*.

Thankfully, some enterprising programmers have written third-party modules that can be installed *into* Python, thus providing the missing functionality. Installing any of these modules involves only a little bit of work at the *Windows* command prompt.

GEEK BITS

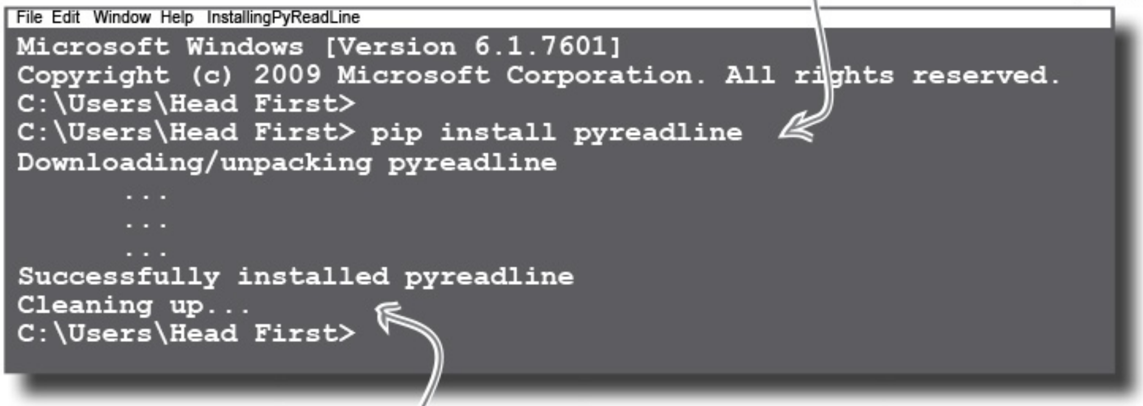
The `readline` library implements a set of functions that provide interactive text- editing facilities (typically at command lines). The `pyreadline` module provides a Python interface to `readline`.

As an example, let’s add Python’s implementation of the popular `readline` functionality to your *Windows* version of Python. The `pyreadline` module provides a Python version of `readline`, effectively plugging this particular hole in any default *Windows* installation.

Open up a *Windows* command prompt and follow along. Here, we’re going to use a software installation tool (included in Python 3.5) to install the `pyreadline` module. The tool is called `pip`, short for “Python Index Project,” named after the work that spawned `pip`’s creation.

At the *Windows* command prompt, type ***`pip install pyreadline`***:

This is what you need to type into the command prompt.



```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.
C:\Users\Head First>
C:\Users\Head First> pip install pyreadline
Downloading/unpacking pyreadline
       ...
       ...
       ...
Successfully installed pyreadline
Cleaning up...
C:\Users\Head First>
```

You'll see lots of messages here.

If you see this message, all is OK.

Make sure you are connected to the Internet before issuing this command.

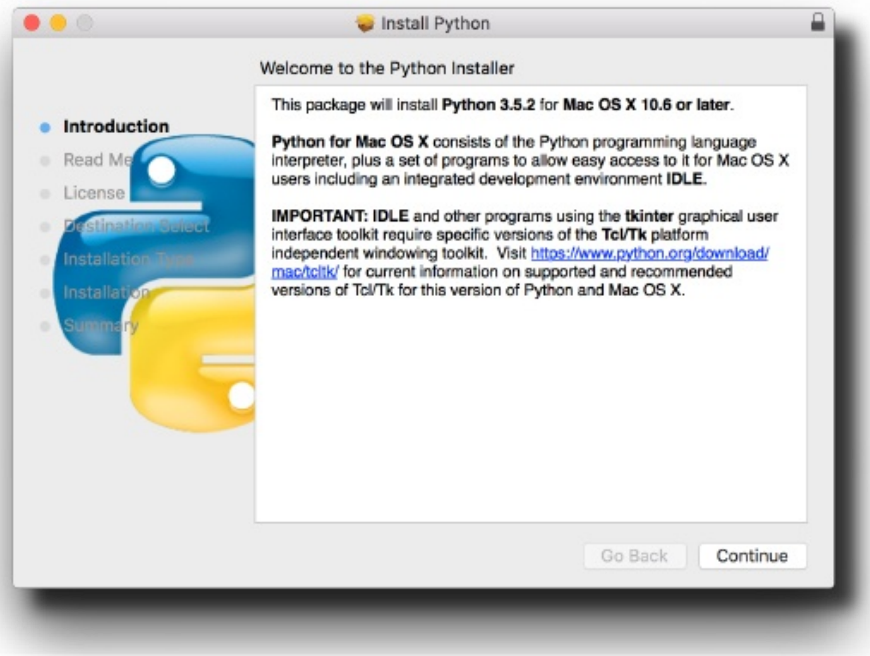
And with that, `pyreadline` is installed and ready to go on *Windows*.

You can now flip back to Chapter 1 to get started with some sample Python code.

Install Python 3 on Mac OS X (macOS)

Python 2 comes preinstalled on *Mac OS X* by default. But this is no use to us, as we want to use Python 3 instead. Thankfully, when you visit the Python website (*http://www.python.org*), it is smart enough to work out that you're using a Mac. Hover your mouse over the *Download* tab, then click the 3.5.x button to download the Mac installer for Python. Select the latest version of Python 3, download its package, and then install in the usual "Mac way."

A standard Mac OS X installation program for Python 3.5.2 and above. If you have a more recent release than what we're showing here, that's fine—install away!



Welcome to the Python Installer

This package will install **Python 3.5.2** for **Mac OS X 10.6 or later**.

Python for Mac OS X consists of the Python programming language interpreter, plus a set of programs to allow easy access to it for Mac OS X users including an integrated development environment **IDLE**.

IMPORTANT: IDLE and other programs using the **tkinter** graphical user interface toolkit require specific versions of the **Tcl/Tk** platform independent windowing toolkit. Visit https://www.python.org/download/mac/tcltk/ for current information on supported and recommended versions of Tcl/Tk for this version of Python and Mac OS X.

Just keep clicking until it's installed.

USING A PACKAGE MANAGER

On Macs, it is also possible to use one of the popular open source *package managers*, namely *Homebrew* or *MacPorts*. If you have never used either of these package managers, feel free to skip this little section and jump over to the top of the next page. If, however, you are already using either of these package managers, here are the commands you need to install Python 3 on your Mac from inside a terminal window:

- On *Homebrew*, type `brew install python3`.
- On *MacPorts* type `port install python3`.

And that's it: you're golden. Python 3 is ready for action on *Mac OS X*—let's take a look at what gets installed.

Check and Configure Python 3 on Mac OS X

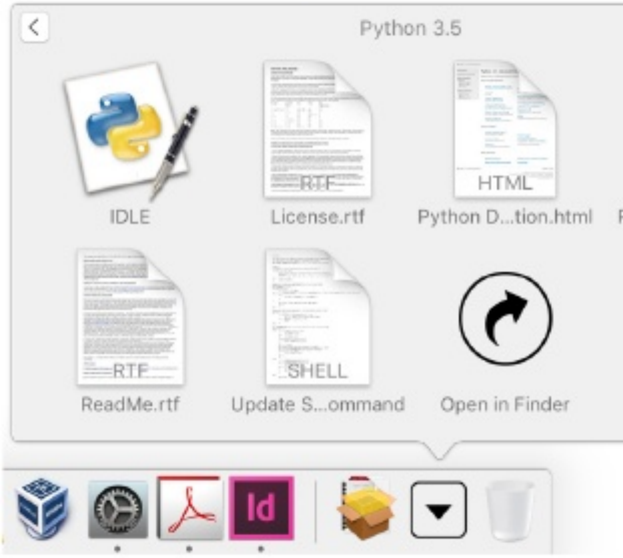
To see if the install succeeded on *Mac OS X*, click on the *Applications* icon on your dock, then look for the *Python 3* folder.

Click on the *Python 3* folder and you'll see a bunch of icons (below).

THE PYTHON 3 FOLDER ON MAC OS X

The first option, *IDLE*, is by far the most useful, and it is how you will interact with Python 3 most of the time while learning the language. Choosing this option opens Python's integrated development environment called *IDLE*. This is a very simple IDE that provides access to Python's >>> interactive prompt, a passable text editor, the Python debugger, and the Python documentation. We'll be using *IDLE* a lot in this book.

The Python 3 folder from within the Applications folder on Mac OS X.



In the Dock, click the Applications icon, and then select the Python 3 folder.

The *Python Documentation.html* option opens a local copy of Python's entire documentation in HTML within your default browser (without requiring you to be online).

The *Python Launcher* option is automatically run by *Mac OS X* whenever you double-click on an executable file containing Python code. Although this may be useful for some, at *Head First Labs* we rarely use it, but it's still nice to know it's there if we ever do need it.

The last option, *Update Shell Profile.command*, updates the configuration files on *Mac OS X* to ensure the location of the Python interpreter and its associated utilities are correctly added to your operating system's path. You can click on this option now to run this command, then forget about ever having to run it again—once is enough.

YOU’RE READY TO RUN ON MAC OS X

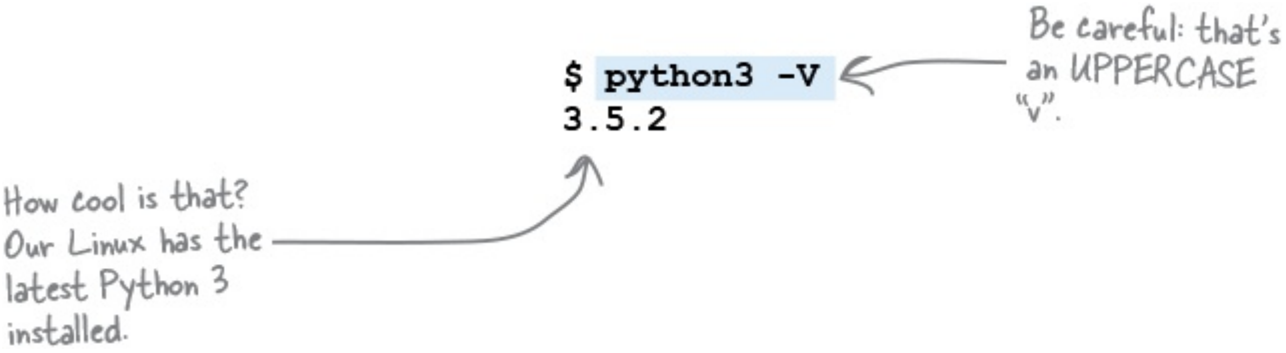
And with that, you’re all set on *Mac OS X*.

You can now skip back to Chapter 1 and get started.

Install Python 3 on Linux

If you are running a recent distribution of your favorite *Linux*, the *really great news* is that you most likely have Python 2 *and* Python 3 already installed.

Here’s a quick way to ask the Python interpreter to fess up its currently installed version number; open up a command line and type:



```
$ python3 -V
3.5.2
```

Be careful: that’s an UPPERCASE “V”.

How cool is that? Our Linux has the latest Python 3 installed.

If, after you issue this command, *Linux* complains that it can’t find `python3`, you need to install a copy. How you do this depends on the *Linux* distribution you are running.

If your *Linux* is one based on the popular *Debian* or *Ubuntu* distribution (as is the one we use at *Head First Labs*), you can use the `apt-get` utility to install Python 3. Here’s the command to use:

```
  $ sudo apt-get install python3 idle3
```

If you are running a *yum*-based or *rpm*-based distribution, use the equivalent command for those systems. Or fire up your favorite *Linux* GUI and use your distribution’s GUI-based package manager to select `python3`*and* `idle3` for installation. On many *Linux* systems, the *Synaptic Package Manager* is a popular choice here, as are any number of GUI-based software installers.

After installing Python 3, use the command from the top of this page to check that all is OK.

Be sure to select the “python3” and “idle3” packages for installation on Linux.

No matter which distribution you use, the `python3` command gives you access to the Python interpreter at the command line, whereas the `idle3` command gives you access to the GUI-based integrated development environment called *IDLE*. This is a very simple IDE that provides access to Python's `>>>` interactive prompt, a passable text editor, the Python debugger, and the Python documentation.

We'll be using the `>>>` prompt and *IDLE* a lot in this book, starting in Chapter 1, which you can flip back to now.