



A computer program is a set of instructions that causes a computer to perform some kind of action. It isn't the physical parts of a computer—like the wires, microchips, cards, hard drive, and such—but the hidden stuff running on that hardware. A computer program, which I'll usually refer to as just a *program*, is the set of commands that tell that dumb hardware what to do. *Software* is a collection of computer programs.

Without computer programs, almost every device you use daily would either stop working or be much less useful than it is now. Computer programs, in one form or another, control not only your personal computer but also video game systems, cell phones, and the GPS units in cars. Software also controls less obvious items like LCD TVs and their remote controllers, as well as some of the newest radios, DVD players, ovens, and some fridges. Even car engines, traffic lights, street lamps, train signals, electronic billboards, and elevators are controlled by programs.

Programs are a bit like thoughts. If you didn't have thoughts, you would probably just sit on the floor, staring vacantly and drooling down the front of your shirt. Your thought "get up off the floor" is an instruction, or command, that tells your body to stand up. In the same way, computer programs tell computers what to do.

If you know how to write computer programs, you can do all sorts of useful things. Sure, you may not be able to write programs to control cars, traffic lights, or your fridge (well, at least not at first), but you could create web pages, write your own games, or even make a program to help with your homework.

A FEW WORDS ABOUT LANGUAGE

Like humans, computers use multiple languages to communicate—in this case, programming languages. A *programming language* is simply a particular way to talk to a computer—a way to use instructions that both humans and the computer can understand.

There are programming languages named after people (like Ada and Pascal), those named using simple acronyms (like BASIC and FORTRAN), and even a few named after TV shows, like Python. Yes, the Python programming language was named after the *Monty Python's Flying Circus* TV show, not after python the snake.

NOTE

Monty Python's Flying Circus *was an alternative British comedy show first broadcast in the 1970s, and it remains hugely popular today among a certain audience. The show had sketches like "The Ministry of Silly Walks," "The Fish-Slapping Dance," and "The Cheese Shop" (which didn't sell any cheese).*

A number of things about the Python programming language make it extremely useful for beginners. Most importantly, you can use Python to write simple, efficient programs really quickly. Python doesn't use quite as many complicated symbols as other programming languages, which makes it easier to read and a lot friendlier for beginners. (That isn't to say Python doesn't use symbols—they're just not used quite as heavily as in many other languages.)

INSTALLING PYTHON

Installing Python is fairly straightforward. Here, we'll go over the steps for installing it on Windows 7, Mac OS X, and Ubuntu. When installing Python, you'll also set up a shortcut for the IDLE program, which is the *Integrated DeveLopment Environment* that lets you write programs for Python. If Python has already been installed on your computer, jump ahead to “Once You've Installed Python” on page 10.

INSTALLING PYTHON ON WINDOWS 7

To install Python for Microsoft Windows 7, point a web browser to <http://www.python.org/> and download the latest Windows installer for Python 3. Look for a section in the menu titled **Quick Links**, as shown here:



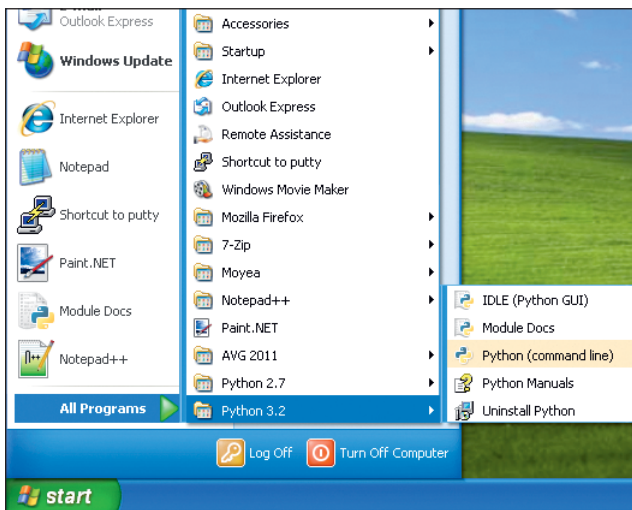
NOTE

The exact version of Python that you download is not important, as long as it starts with the number 3.

After you download the Windows installer, double-click its icon, and then follow the instructions to install Python in the default location, as follows:

1. Select **Install for All Users**, and then click **Next**.
2. Leave the default directory unchanged, but note the name of the installation directory (probably *C:\Python31* or *C:\Python32*). Click **Next**.
3. Ignore the Customize Python section of the installation, and click **Next**.

At the end of this process, you should have a Python 3 entry in your Start menu:

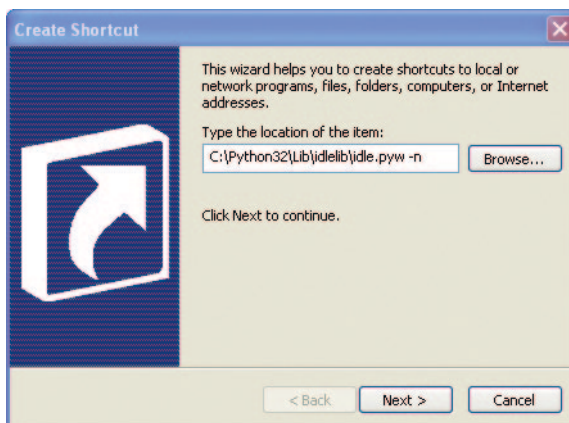


Next, follow these steps to add a Python 3 shortcut to your desktop:

1. Right-click your desktop, and select **New** ► **Shortcut** from the pop-up menu.
2. Enter the following in the box where it says **Type the location of the item** (make sure that the directory you enter is the same as the one you noted earlier):

```
c:\Python32\Lib\idlelib\idle.pyw -n
```

Your dialog should look like this:



3. Click **Next** to move to the next dialog.
4. Enter the name as *IDLE*, and click **Finish** to create the shortcut.

Now you can skip to “Once You’ve Installed Python” on page 10 to get started with Python.

INSTALLING PYTHON ON MAC OS X

If you’re using a Mac, you should find a version of Python pre-installed, but it’s probably an older version of the language. To be sure that you’re running the newest version, point your browser to <http://www.python.org/getit/> to download the latest installer for the Mac.

There are two different installers. The one you should download depends on which version of Mac OS X you have installed. (To find out, click the **Apple** icon in the top menu bar, and choose **About this Mac**.) Pick an installer as follows:

- If you’re running a Mac OS X version between 10.3 and 10.6, download the 32-bit version of Python 3 for i386/PPC.
- If you’re running Mac OS X version 10.6 or higher, download the 64-bit/32-bit version of Python 3 for x86-64.