

The Hard Way Is Easier

With the help of this book, you will do the incredibly simple things that all programmers do to learn a programming language:

- 1 Go through each exercise.
- 2 Type in each file *exactly*.
- 3 Make it run.

That's it. This will be *very* difficult at first, but stick with it. If you go through this book and do each exercise for one or two hours a night, you will have a good foundation for moving on to another book about Python to continue your studies. This book won't turn you into a programmer overnight, but it will get you started on the path to learning how to code.

This book's job is to teach you the three most essential skills that a beginning

programmer needs to know: reading and writing, attention to detail, and spotting differences.

Reading and Writing

If you have a problem typing, you will have a problem learning to code, and especially if you have a problem typing the fairly odd characters in source code. Without this simple skill you will be unable to learn even the most basic things about how software works.

Typing the code samples and getting them to run will help you learn the names of the symbols, get familiar with typing them, and get you reading the language.

Attention to Detail

The one skill that separates bad programmers from good programmers is attention to detail. In fact, it's what separates the good from the bad in any profession. You must pay attention to the tiniest details of your work or you will miss important elements of what you create. In programming, this is how you end up with bugs and difficult-to-use systems.

By going through this book, and copying each example *exactly*, you will be training your brain to focus on the details of what you are doing, as you are doing it.

Spotting Differences

A very important skill (that most programmers develop over time) is the ability to visually notice differences between things. An experienced programmer can take two pieces of code that are slightly different and immediately start pointing out the differences. Programmers have invented tools to make this

even easier, but we won't be using any of these. You first have to train your brain the hard way, then use the tools.

While you do these exercises, typing each one in, you will be making mistakes. It's inevitable; even seasoned programmers would make a few. Your job is to compare what you have written to what's required and fix all the differences. By doing so, you will train yourself to notice mistakes, bugs, and other problems.

Ask, Don't Stare

If you write code, you will write bugs. A "bug" means a defect, error, or problem with the code you've written. The legends say that this comes from an actual moth that flew into one of the first computers causing it to malfunction. Fixing it required "de-bugging" the computer. In the world of software, there are a *lot* of bugs. So many.

Like that first moth, your bugs will be hidden somewhere in the code, and you have to go find them. You can't just sit at your computer screen staring at the words you've written hoping that the answer jumps out at you. There is no more additional information you can get doing that, and you need additional information. You need to get up and go find the moth.

To do that you have to interrogate your code and ask it what is going on or look at the problem from a different view. In this book I'll frequently tell you to "stop staring and ask". I'll show you how to make your code tell you everything it can about what's going on and how to turn this into possible solutions. I'll also give you ways to see your code in different ways, so you can get more information and insight.

Do Not Copy-Paste

You must *type* each of these exercises in, manually. If you copy and paste, you might as well not even do them. The point of these exercises is to train your hands, your brain, and your mind in how to read, write, and see code. If you copy-paste, you are cheating yourself out of the effectiveness of the lessons.

Using the Included Videos

The *Python 3* edition of `Learn Python The Hard Way` has an extensive set of videos demonstrating how the code works and, most importantly, how to *break* it. The videos are the perfect place to demonstrate many common errors by breaking the Python code on purpose and showing you how to fix it. I'll also be walking through the code using debugging and interrogation tricks and techniques. The videos are where I show you how to "stop staring and ask" the code what's wrong.

A Note on Practice and Persistence

While you are studying programming, I'm studying how to play guitar. I practice it every day for at least two hours a day. I play scales, chords, and arpeggios for an hour and then learn music theory, ear training, songs, and anything else I can. Some days I study guitar and music for eight hours because I feel like it and it's fun. To me repetitive practice is natural and just how to learn something. I know that to get good at anything you have to practice every day, even if I suck that day (which is often) or it's difficult. Keep trying, and eventually it'll be easier and fun.

Between the time that I wrote *Learn Python The Hard Way* and *Learn Ruby The Hard Way* I discovered drawing and painting. I fell in love with making visual art at the age of 39 and have been spending every day studying it in much the same way that I studied guitar, music, and programming. I collected books of instructional material, did what the books said, painted every day, and focused on enjoying the process of learning. I am by no means an "artist," or even that good, but I can now say that I can draw and paint. The same method I'm teaching you in this book applied to my adventures in art. If you break the problem down into small exercises and lessons, and do them every day, you can learn to do almost anything. If you focus on slowly improving and enjoying the learning process, then you will benefit no matter how good you are at it.

As you study this book, and continue with programming, remember that anything worth doing is difficult at first. Maybe you are the kind of person who is afraid of failure, so you give up at the first sign of difficulty. Maybe you never learned self-discipline, so you can't do anything that's "boring." Maybe you were told that you are "gifted," so you never attempt anything that might make you seem stupid or not a prodigy. Maybe you are competitive and unfairly compare yourself to someone like me who's been programming for more than 20 years.

Whatever your reason for wanting to quit, *keep at it*. Force yourself. If you run into a Study Drill you can't do, or a lesson you just do not understand, then skip it and come back to it later. Just keep going because with programming there's this very odd thing that happens. At first, you will not understand anything. It'll be weird, just like with learning any human language. You will struggle with words and not know what symbols are what, and it'll all be very confusing. Then one day *BANG---*your brain will snap and you will suddenly "get it." If you keep doing the exercises and keep trying to understand them, you will get it. You might not be a master coder, but you will at least understand how programming works.

If you give up, you won't ever reach this point. You will hit the first confusing thing (which is everything at first) and then stop. If you keep trying, keep typing it in, keep trying to understand it and reading about it, you will eventually get it. If you go through this whole book, and you still do not understand how to code, at least you gave it a shot. You can say you tried your best and a little more, and it didn't work out, but at least you tried. You can be proud of that.

Buy The Python 3 Edition!

When you buy Learn Python 3 The Hard Way, you'll receive the Python 3 Edition PDF, special access to a paid HTML version, and **12 hours** of 1080p video, one video for each exercise. All files are DRM free and you can download them to your computer for offline viewing. **Digital Download Only! You do not get a physical book.**

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