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WHAT IS JAVASCRIPT?

Computers are incredibly powerful machines, capable of performing amazing feats like playing competitive chess, serving thousands of web pages, or making millions of complex calculations in less than a few seconds. But deep down, computers are actually pretty dumb. Computers can *only* do exactly what we humans tell them to do. We tell computers how to behave using computer programs, which are just sets of instructions for the computers to follow. Without programs, computers can't do anything at all!

MEET JAVASCRIPT

Even worse, computers can't understand English or any other spoken language. Computer programs are written in a *programming language* like JavaScript. You might not have heard of JavaScript before, but you've certainly used it. The JavaScript programming language is used to write programs that run in web pages. JavaScript can control how a web page looks or make the page respond when a viewer clicks a button or moves the mouse.

Sites like Gmail, Facebook, and Twitter use JavaScript to make it easier to send email, post comments, or browse websites. For example, when you're on Twitter reading tweets from @nostarch and you see more tweets at the bottom of the page as you scroll down, that's JavaScript in action.

You only have to visit a couple of websites to see why JavaScript is so exciting.

- JavaScript lets you play music and create amazing visual effects. For example, you can fly through an interactive music video created by HelloEnjoy for Ellie Goulding's song "Lights" (*http://lights.helloenjoy.com/*), as shown in Figure 1-1.

- JavaScript lets you build tools for others to make their own art. Patatap (*http://www.patatap.com/*) is a kind of virtual "drum machine" that creates all kinds of cool noises—and cool animations to go along with them—as shown in Figure 1-2.
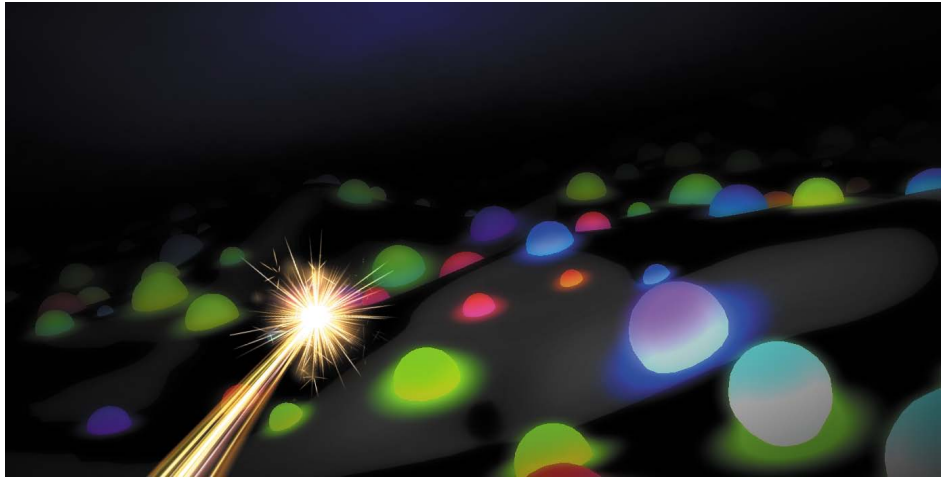
Figure 1-1: You control the flashing cursor in HelloEnjoy's "Lights" music video.
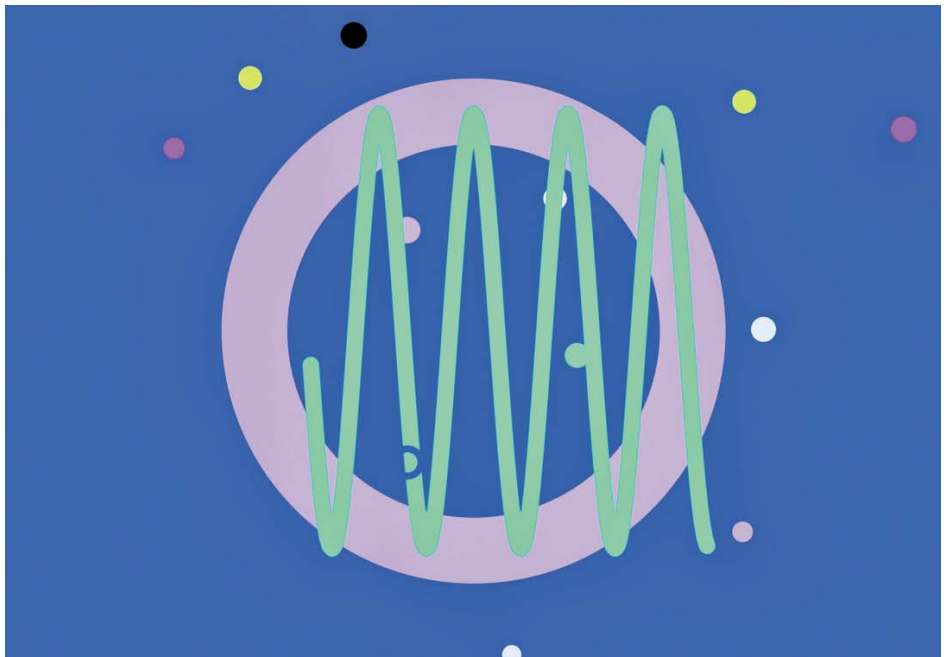

Figure 1-2: When you visit Patatap, try pressing a bunch of keys to make different noises!

- JavaScript lets you play fun games. *CubeSlam* (*https://www.cubeslam.com/*) is a 3D re-creation of the classic game Pong, which looks a little like air hockey. You can play against one of your friends or a computer-generated bear, as shown in Figure 1-3.

Figure 1-3: The CubeSlam game is programmed entirely in JavaScript!

WHY LEARN JAVASCRIPT?

JavaScript isn't the only programming language out there—in fact, there are literally hundreds of programming languages. But there are many reasons to learn JavaScript. For one, it's a lot easier (and more fun) to learn than many other programming languages. But perhaps best of all, in order to write and run JavaScript programs, all you need is a web browser like Internet Explorer, Mozilla Firefox, or Google Chrome. Every web browser comes with a JavaScript *interpreter* that understands how to read JavaScript programs.

Once you've written a JavaScript program, you can send people a link to it, and they can run it in a web browser on their computer, too! (See "Sharing Your Code Using JSFiddle" on page 297.)

WRITING SOME JAVASCRIPT

Let's write a bit of simple JavaScript in Google Chrome (*http://www.google.com/chrome/*). Install Chrome on your computer (if it's not already installed), and then open it and type `about:blank` in the address bar. Now press ENTER and you'll see a blank page, like the one in Figure 1-4.

We'll begin by coding in Chrome's JavaScript console, which is a secret way programmers can test out short JavaScript programs. On Microsoft Windows or Linux, hold down the CTRL and SHIFT keys and press J. On Mac OS, hold down the COMMAND and OPTION keys and press J.

If you've done everything correctly, you should see a blank web page and, beneath that, a blinking cursor (|) next to a right angle bracket (>), as shown in Figure 1-4. That's where you'll write JavaScript!

NOTE   *The Chrome console will color your code text; for example, the text you input will be blue, and output will be colored based on its type. In this book, we'll use similar colors for our code text wherever we're using the console.*

Address bar: This is how you visit web pages, like Facebook.com or Google.com. For now, we want an empty page, so we've navigated to about:blank and pressed ENTER.
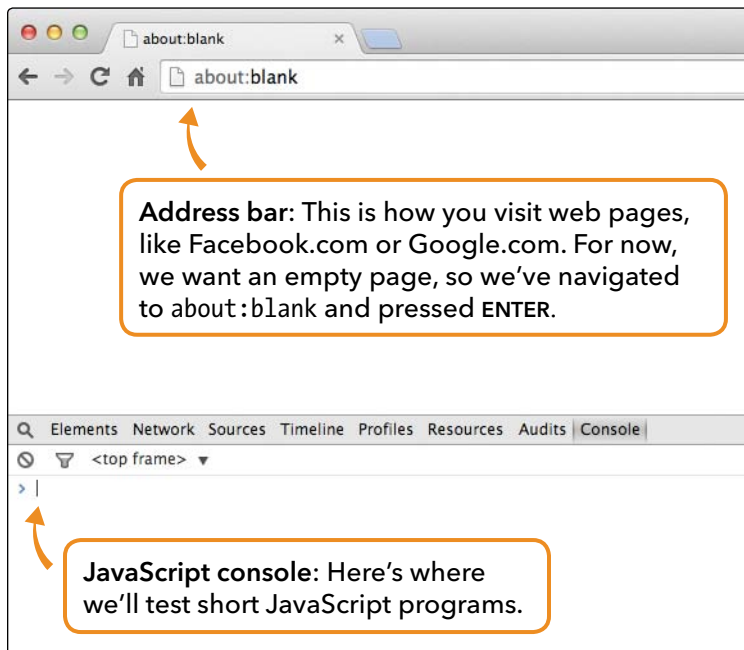
JavaScript console: Here's where we'll test short JavaScript programs.

Figure 1-4: Google Chrome's JavaScript console