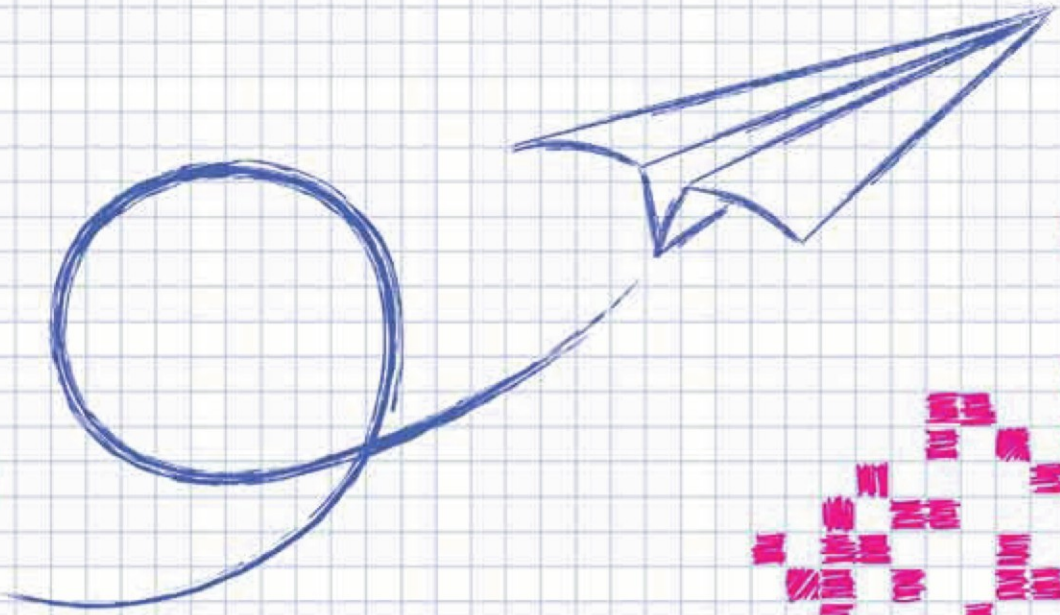


Getting Started

Building Websites



by Alexander Dawson



Getting StartED Building Websites

Alexander Dawson





GETTING STARTED BUILDING WEBSITES

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*For the long-suffering professionals who work tirelessly to make the Web a better place,
especially those individuals who continue to strive for a more accessible and standards-
compliant Internet.*



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About the Author



Alexander Dawson is a freelance website designer and recreational software developer specializing in web standards, accessibility, and user-experience design. When he is not busy running his own one-man consultancy firm HiTechy (www.hitechy.com), he spends much of his time assisting others in the field and those who are just starting out as a mentor on the SitePoint forums. His aim in life is to share his knowledge so that others can be energized rather than intimidated by the constant flow of new technology.



About the Technical Reviewer

Kristian Besley is a Flash and web developer currently working in education and specializing in games/interactivity and dynamically driven content using Flash, PHP, and .NET (not all at the same time, obviously!). He also lectures in interactive media.

Kristian has produced freelance work for numerous clients including the BBC, Heinemann, and BBC Cymru. He has written a number of books for friends of ED, such as working on the Foundation Flash series, *Flash MX Video* (ISBN-13: 978-1-59059-172-7), *Flash ActionScript for Flash 8* (ISBN-13: 978-1-59059-618-0), and *Learn Design with Flash MX* (ISBN-13: 978-1-59059-157-4). He was also a proud contributor to the amazing *Flash Math Creativity* books and has written for *Computer Arts* magazine.

Kristian currently resides with his family in Swansea, Wales and is a fluent Welsh speaker.



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Before we get started, it's only fair that I should give thanks to the many people who have given me support and assistance, or have just inspired me, on this journey of writing a book for those starting out in building websites.

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Next, I need to give a shout out to my friends on the SitePoint forums. Without your longstanding presence of helping others with technical questions about web design and development, the Web would be a much darker place. Giving your free time to help anyone who joins the community really does make a difference.

I also need to shout out to all my friends on the koach.com network and elsewhere (like MSN Messenger) who have put up with (or are secretly cheering at) my absence for the months I spent writing this book.

Finally, I need to give thanks to anyone who decided to give this book a read. It covers a wide range of subjects, so I hope that no matter your interests, some information in it will help you better understand the web design process. If this book helps a single person, it will have been worth the effort I put into writing it.



Introduction

So you want to build your very own website? That's awesome! By picking up this book you have taken the first step in making your wish come true. A lot of stigma exists about the difficulty of building websites, but you can take comfort in the fact that almost anyone with a computer and access to the Internet can produce a website! It might take you a while to get through this book, because it goes into more depth than some other beginner books to equip you better for all possible scenarios. Hopefully, once you finish this book, you will want to learn more about the subjects discussed, but if I can offer you a single piece of advice before starting on your quest it is "stay calm and don't panic." After all, creating a website can be a lot of fun!

Your Expectations

You probably have a number of expectations for this book based on what you want to learn. Basic details of what you should expect are provided within each chapter of this book, but the following general rules apply and state exactly what kind of experience you should get as you begin reading. From this book, you *should* expect

- A comprehensive guide to website design and development
- Easy-to-follow steps provided whenever possible and always in a logical format
- Advanced subjects covered in simple terms to reduce confusion

You *should not* expect the following from this book:

- This book is *not* a reference manual, and you will find no detailed language tutorials. For that, you should look to related titles like *Getting StartED with CSS* by David Powers (ISBN-13: 978-1-4302-2543-0) or *Getting StartED with JavaScript* by Terry McNavage (ISBN-13: 978-1-4302-7219-9).
- This is not a quick-start guide, as quality and depth are more important than speed.
- This book will not dive straight into coding but underlines what you need to know first.

Book Conventions

This book is a great resource if you are building a website for the first time, and it uses some cool methods to structure the content to make things easier to read. The following conventions have been used to try to break down some of the stuffy subjects into easy-to-swallow segments. The book also makes use of screenshots and examples throughout to help you see how technologies interact, visualize your web designs easier, and generally show you how to organize all the bits and pieces in your design without leaving you puzzled. As a general rule, when you see “Try It Yourself” sections, you should take the opportunity to pause reading and follow the instructions to achieve a goal that will assist you in your development process. These sections provide important exercises for this book. When you find a “See for Yourself” section, you can look at the example, play around with it, or even adapt the provided code or information when making your own website. In short, these are the examples in this book:

- **Try It Yourself:** Step-by-step tutorials you *should* follow to achieve a goal
- **See for Yourself:** Examples that you can use or adapt for your website

The following sidebars are also included for your use:

- **LinkED:** Useful website addresses related to the subject
- **Explained:** A basic explanation for something being talked about
- **NotED:** Details that more-advanced readers may find interesting

And here are some other useful sections you’ll find:

- **Tips and Tricks:** These sections explain things to take into account that could affect your website.
- **Questions and Answers:** These sections offer simple answers to questions you may have.
- **Chapter Checklist:** Measure your progress by marking off your achievements.

You are about to embark on a journey of learning, creativity, and hands-on skills that will test your mind to the limits. At times, you might wonder if you can swallow all of the information available, but just keep picturing the finish line and remember that learning never has an expiration date. Everyone has a own unique way of learning, and you can decide for yourself when you feel that you are ready to take in some new information. Before we get into the meaty

aspects of web design (that is, creating something), the following section has been included to give you a crash course in understanding how the Web works, in case you don't already know.

Understanding Some Basics of the Web

Can you picture a world without the Internet? There would be no access to the mighty Google, no information stored inside Wikipedia, and no ability to instantly contact people through e-mail, social networking, and instant messaging. We, as members of a modern society, depend on the Internet for everything from making new friends from all over the world right up to delivering high-quality savings on the kinds of goods we once bought at a premium in brick-and-mortar stores. Some businesses are entirely run through the Internet without having a physical presence! When producing websites, you should have a basic understanding of the history and technology that goes into keeping the Web running to give you perspective on the bigger picture.

What Is the Internet?

The Internet and the World Wide Web are different things. The **Internet** is made up of hardware (think of your computer) and has lots of cables streaming out of the back leading in different directions keeping in constant communication with other machines that are hooked up to the Web. The Internet supports everything that you choose to run on it. The **World Wide Web**, on the other hand, is the software and goes through a series of processes to send and receive information, which is controlled by the behavior of the people who use it. Because we are going to build a website, rather than focus on all the behind-the-scenes stuff (which the majority of us leave to the people who keep our websites running), we will focus entirely on the World Wide Web.

Explained

For future reference, the World Wide Web may be referred to as the Web or WWW, which is where you get the `www` at the start of a website address.



Information is transferred around the Web using a variety of methods; each method of transferring information has its own specific purpose and is commonly referred to as a **protocol**. You don't need to know the technical lingo, but you already make use of these protocols on a regular basis (see Figure 1). Whenever you go to your favorite website, you make use of the

Hypertext Transfer Protocol (HTTP), which basically means that you request information and a website sends it to you. If you upload your design onto the Web, you use the File Transfer Protocol (FTP), which lets you take stuff from your computer and place it online. Finally, if you buy something off the Web, the website will keep everything secret from prying eyes using HTTPS (the “S” stands for “secure”).

When these are in use you can see them working their magic. If you have a web browser window open, just take a look at the address bar. You will notice (perhaps for the first time) that before the `://www`, which shows your website address, there will be an acronym like `http`, `https`, or `ftp` listed before it, which indicates the protocol your web browser is using. Fairly simple, right?

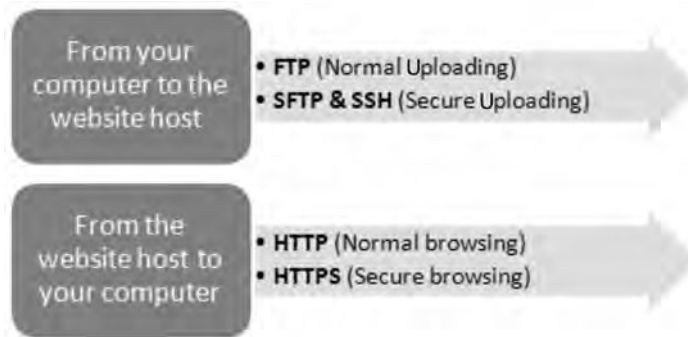


Figure 1. This diagram explains the direction in which several protocols send information.

The place where your site will be hosted is, not surprisingly, called the **host** or the **server** (that is, the machine that serves information to your computer). Likewise, the computer that accesses the website through a web browser is called a **client** (like being a customer of the Internet). Information is sent, upon request, down your telephone line into your computer so that the web browser can look at it and start making use of it. Figure 2 how the computers interact with each other, much like two people having a conversation on a telephone; information is exchanged by your computer and the place where the stuff you want to look at is hosted. Things get really interesting (as we will look at next) when browsers spice up the conversation and make elements appear on your screen!

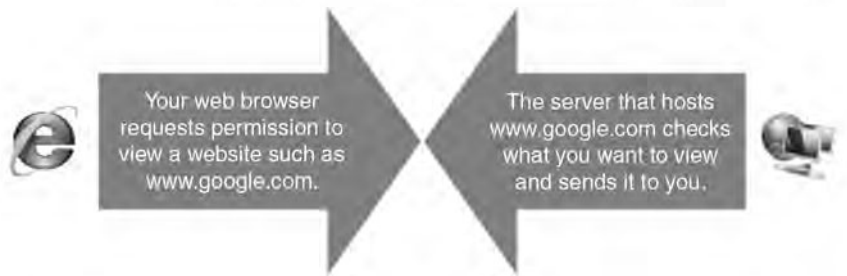


Figure 2. This basic model shows a representation of your computer (left) and the place that hosts your site (right).

Websites and Browsers

A **website** is a collection of documents, images, and other digital media that have been written specially for the Web so that they are suitable for viewing within a browser. All websites are summoned through a website address, which will direct the end user to the place where the site itself is held. Websites are made up of pages that are joined up by **hyperlinks**. You click these links to navigate from one page to another as you browse the site. You have probably use hyperlinks hundreds of times without really thinking about it. Links can either refer you to another page within the same site or link to another external website. For example, you could have a link in your website to one of your favorite places on the Web or some cool product on Amazon.

ExplainED

Website addresses exist because they are easier to remember than IP addresses. The IP address is the “real” address that computers use for a website and is just a series of numbers. The friends of ED home page has the IP address 66.211.109.45, but remembering www.friendsofed.com is much easier than remembering that seemingly random series of numbers, right?



You have almost certainly used a web browser before, whether it is Internet Explorer, Mozilla Firefox, Opera, Apple Safari, Google Chrome, or one of the many other website browsers that have appeared. The **web browser** is the piece of software you use to visit websites, and browsers normally have a wide range of tools and support for the different technologies on the Web. Without a browser, the Internet certainly would not be as rich and contextual as it is

today. There are many different kinds of web browsers (as discussed later in the book), you will find that the vast majority of your visitors will make use of one of desktop browsers named previously or a mobile browser on a cell phones or portable device.

Browsers take text documents that have been specially formatted for the Web and use that formatting information to decide how the page will appear visually. Here's a simple way to view this in action: Go to any website of your choice (just pick one at random). Right-click the screen when the page loads, and select the View Source menu option to see what is going on behind the scenes (see Figure 3). What you will see is a page of code.



Figure 3. Right-click a website, and select View Source, so you can see how the document is formatted!

Code is defined as the elements of the document that explain and decide how the page should appear. When we talk about web development, most code is referred to as **markup** because it marks elements of a page to have special formatting applied to them. When you first look inside a website's source code, you will probably think it looks pretty alien and confusing (see Figure 4). With all those weird bits and pieces placed throughout the document, the code probably makes no sense to you at all. However, when you get used to seeing this information, you will notice that everything has a purpose (which we will discuss later).

Now that you know what a website is and how everything gets shuffled between your computer, the browser, and the place that holds the documents online, we will look at what exactly makes a perfect website. After all, you don't want to make your site look horrible; you want it to look exactly how you may have pictured it in your imagination!

```

<body class="" onload="">

<ul id="navbar">
  <li id="articles"><a href="http://www.alistapart.com/articles/"
title="Articles">Articles</a></li>
  <li id="topics"><a href="http://www.alistapart.com/topics/"
title="Topics">Topics</a></li>
  <li id="about"><a href="http://www.alistapart.com/about/"
title="About">About</a></li>
  <li id="contact"><a href="http://www.alistapart.com/contact/"
title="Contact">Contact</a></li>
  <li id="contribute"><a href="http://www.alistapart.com/contribute/"
title="Contribute">Contribute</a></li>
  <li id="feed"><a href="http://www.alistapart.com/feed/" title="Feed">Feed</a></li>
</ul>

```

Figure 4. This code may look confusing, but it explains to the browser how everything is laid out.

The Ten-Step Guide to Zen Creativity

The steps involved in creating what could, perhaps, be the ideal homepage are quite simple and straightforward. However, creating websites is a skillful and artistic process because it takes practice, time, and effort. You need to not only learn to adopt these skills but to be able to implement them in such a way that your website will have longevity over the years to come. To help you understand the book's method of teaching, I have devised what I call the ten-step guide to Zen creativity, a series of ten words written in order that define the very essence of what producing the perfect website requires. The questions provided for each element in the "Try It Yourself" sections are to help look at other people's websites (and eventually your own) to see where they went wrong or where they did well. If you want to apply these steps to your own website, you can refer to this section once yours is completed.

The ten steps are as follows:

1. Capability
2. Productivity
3. Simplicity
4. Desirability
5. Functionality
6. Compatibility
7. Flexibility
8. Accessibility
9. Usability
10. Expandability

The following poem is easy way to remember them:

I'm capable of being productive, simple, and desirable too.

I function on multiple levels, compatible all the way through.

I can flex to my users demands, being accessed and used just right.

And when I'm updated and expanded, I make for a very good site!

Capability

What makes an individual capable of creating a website, or what makes a browser capable of showing that website correctly and easily? The answer is as simple: standards, rules, and history. Without a basic understanding of what goes into making a website, neither the creator of the site nor the creator of the browser can ever hope to make things look and feel as intended. The pinnacle of most sciences is experimentation and education, and producing for the Web is no exception to this rule. By learning about a wide range of subjects, you gain a very powerful insight into the way things work, what mistakes have been made in the past, and how to avoid falling into those traps. An endless wealth of knowledge is available to someone wishing to make a website, and understanding the standards that exist will allow you to become more experienced as an individual and able to match the professionals.

Try It Yourself: Checking for Capability

- Do you understand how the web browser makes a site appear the way it does?
- Have you learned enough about the different languages to decide which to use?
- Are you keeping your knowledge up to date beyond just what this book offers?
- Do you feel comfortable at the end of each chapter with what you have learned?
- Are you aware that you can get support for most of your questions online for free?

Productivity

The last things anyone hoping to build a website wants to come across are sudden lacks of ideas or motivation to put plans into action. Many people would like to just jump straight into the process and get down to making a website,

but problems soon arise if they do not know where they want to go with their projects. To give you the best possible start before you actually get down to coding, a few chapters in this book talk about what you need to do before you physically start putting the website together. You may want to get busy right away, but knowing what you are building is important before you put your site together. This book takes that approach because you do not want to end up with a “build now, think later” philosophy that come back to bite you when you try to get your ideas into the design. Nothing beats having a good plan of action that you can use as a reference (or starting) point in your project. It will give you the added benefit that you can track your progress and reduce the chances you will forget something important. After all, what kind of architect would build a house without knowing how many rooms or floors the building requires?

Try It Yourself: Checking for Productivity

- Have you decided what kind of site you would like to build throughout this book?
- Are you aware of other websites that are competing against yours for visitors?
- Do you know and are you equipped to deal with your visitors’ requirements?
- Have you spent any time considering how you want your site’s pages laid out?
- What ideas do you have, and are they written down so you don’t forget them?

Simplicity

Nobody likes mess, and nobody likes tasks that are overcomplicated or frustrating. Simplicity is the key to avoiding trouble when building a website. Now, I do not mean that your designs themselves should be minimalistic, far from it. When you start building, your intention should be to keep to the bare minimum the amount of effort you require to achieve the effect you want. For example, if you have two equal designs and one is half the size and requires less effort to produce, why would you want to do more work and more maintenance for the website than absolutely necessary? Later in this book, you will learn how to manage everything you build, and by doing so, you may actually avoid some of the more annoying quirks that can occur when large amounts your design and the stuff that goes into making it become hard to maintain.

Try It Yourself: Checking for Simplicity

- Do you know how to reduce errors on your site by validating your pages?
- Can you decide which languages for the Web will meet your website's needs?
- Are you able to separate the layers of your design to improve maintainability?
- Do you know which elements of a language will best explain its contents?
- Do you understand enough about your chosen languages to do a good job?

Desirability

Everyone (secretly) loves a beautiful website. It is entirely possible to go over the top trying to make your design outstandingly sleek, but even some minimalistic websites can achieve the element of beauty that will make other people jealous. Getting your website looking good is a key factor, but the look certainly should not be the only reason people visit your site.

The key to any website's success is its inner value, made up of services, content, and products you offer through it. After all, the majority of people do not visit a site with the intention of ranking it on "Hot or Not." They visit your website to learn more about what you have to offer them and read the contents of your website that enticed them there in the first place.

You may, therefore, ask why desirability is so important if it cannot attract visitors. Well, the simple answer is that a well-structured and good-looking design may help increase the enjoyment someone gets out of viewing and browsing your site, which can be essential to gaining regular visitors for the websites you build. However, you should be extremely careful to remember that you cannot please everybody. You should try as hard as you can to make your website the kind of place where people will feel at home, but there will always be a small group of people who just cannot be satisfied. Sometimes, you just have to let go of the criticism you get to avoid being sucked in by obscure requests and feature ideas that might drive away other visitors. After all, some individuals (and potential visitors) unfortunately enjoy being rude to website owners.

Try It Yourself: Checking for Desirability

- Does your website look pretty to you, your friends, and people who visit?
- Have you received any complements about how good your design looks?
- Are you always making minor tweaks to ensure things stay looking fresh?
- Do you feel there are areas where your design could improve over time?
- Have you given any thought to how your site looks to people who are color blind?

Functionality

Most websites fall into one of two categories: **static** sites contain no flashy interactive behavior, and **dynamic** sites let visitors do more than just click and be sent to a page by offering special effects, customized content, and much more. Static websites serve their purpose as a baseline for what visitors should expect when taking their first trips to your website (and we will start off building a static website). However, you should not underestimate the value of extending the functionality of your website when you are given the opportunity, such as in the discussion of scripting basics later in this book.

Functionality can come in many forms and be implemented through many technologies (as you will find out later on in this book), but remember that functionality must fit the purpose of the website. Any additions to the interface that will interfere with the user experience or draw attention away from the purpose of your site should be left out of the final design. The key to being functional is to be consistent, so you should use your best judgment to decide what should be put in or left out, which means you will spend a fair amount of time making decisions.

Try It Yourself: Checking for Functionality

- Does your website actually need interactive elements like a member system?
- What kind of interactivity do you think would be really useful to your visitors?
- Have you thought about what might happen if functionality is unavailable?
- Are you willing to use existing software to simplify adding site functionality?

- What methods does your website provide to let visitors get in touch with you?

Compatibility

Don't you just hate it when things start breaking without notice? I certainly do! When building your website, you will find that many factors can influence how your design comes out. Unfortunately, no easy fix can resolve the problems that different browsers, users, and needs will bring you in the long run, but you can learn to cope with problems by minimizing the chances of anything going wrong in the first place. That way, when something does go wrong, you can clean up the mess with as little hassle as possible. Cleaning up messes is the one step that most people would love to be able to do without, but the advantage of ensuring compatibility does mean you will find yourself able to better appreciate your finished website. More importantly, you will be able to deal with potential problems that may occur in the future with minimum effort.

Try It Yourself: Checking for Compatibility

- What happens when someone encounters an error on one of your pages?
- Does your website work on browsers like Firefox, Chrome, Safari, and Opera?
- Are you aware of the browser wars and how they affect building websites?
- Are all of your website's pages written correctly, and do they remain free of errors?

Do you know how to check, fix, and resolve any problems with your website?

Flexibility

This step in the process does have a lot in common with the previous one (compatibility), but some genuine differences should be taken into consideration. To define flexibility, the important thing is to simply ask yourself the question, "Do I feel lucky?" It may be cliché, but the question is a valid one. Flexibility in every sense of the word defines the website's ability to degrade with grace. Degrading gracefully means that if a certain technology is not available, rather than all of your hard work falling apart in front of your users' eyes or simply locking out those users, the site simply stubs its toe, grumbles a little, and carries on. Think of the process as giving your website and visitors a bit of dignity: the site may not display all the frills and

excitement of the full thing and may take a less-picturesque route, but the important thing is that it continues to work!

Try It Yourself: Checking for Flexibility

- Have you ensured that plug-in reliant elements, like Flash animations, have alternatives?
- If style, scripting, or images are disabled, will your website still work properly?
- Does your website take into account people who use older browser versions?
- What happens to your website if someone looks at your site on a cell phone?

Can anyone using your website find any problems with the way it works?

Accessibility

The perfect website is hard to achieve, but the perfect visitor is impossible to find partly because everyone is different (in every respect of the word). Users have different requirements, needs, expectations, and abilities. All of this adds up to a complex situation that many people feel uncomfortable trying to address. The process of making your site accessible deals explicitly with taking care of your visitors who may have some impairment that could hinder their ability to browse your website. As you will find out later in this book, it's shocking just how many people are affected by these issues. When creating a website, there are so many things to take into account that it can make your head spin, but with a little practice and some understanding of what is relevant, you can make your site easy to use for almost anybody.

Try It Yourself: Checking for Accessibility

- Are you aware of the various types of disabilities that affect users of your website?
- What steps have you taken so disabled people can browse your site?
- Do you know anyone with a disability who may be able to test your site?
- Is there a method where people can get in touch with any issues they find?
- Have you checked the site does not use frames or other damaging features?

Usability

When you visit websites, do you sometimes wonder why their creators made them so difficult to use? This concern has existed for many years and plagues the World Wide Web to this very day. Usability is an incredibly important step to take in your learning experience. Every individual expects something different from an experience, but you need to consider what will be most convenient to the largest majority of your visitors. Understanding how people make decisions and learning about conventions will allow you to be empathetic toward the people who you are trying to attract to your website and hopefully provide a website that has common and recognizable functions so people can navigate effectively.

The key to effective usability is to make everything appear where people expect it to appear and always use the terminology that people expect. For example, you would not call a contacts page a “communication resource center”—well, you wouldn’t if you wanted people to actually contact you. People need to be able to use as little brainpower as possible, because split-second decisions determine whether someone will stay on or leave your site.

Try It Yourself: Checking for Usability

- Is your website easy to navigate? Can users quickly find relevant content or features?
- Have you ensured the design does not interfere with usability?
- Do you provide your visitors with multiple ways of navigating your website?
- Exactly how (upon reflection) do you think the website could be easier to use?
- Have you conducted a usability study to see if there are any navigation issues?

Expandability

Finishing the design and coding will not be the end of the process. Your website will be an ongoing process of adding new content, making new sections, and trying to get as many new visitors as possible. The success of a website is defined literally by the amount of people who enjoy visiting your website on a consistent basis, and therefore you are always in a battle against your fellow competitors to get more people looking at what you offer and making them want to visit your website instead. Expansion, therefore, comes in two forms: The first is to improve both the design and content of your website on a regular basis fixing any bugs and adding new functionality all of the time. The second form covers the art of marketing and

search engine optimization, which deals with not only expanding your sites focus but also the amount of visitors you get, especially when a website with no visitors is pretty much considered nonexistent!

Try It Yourself: Checking for Expandability

- Are you aware of social networking and ways you can market your website?
- Does your website appear in search engines with a moderately high position?
- What plans do you have for the future to improve the website you have made?
- Have you received any feedback about users' wishes for future versions of the site?
- Are there any other ways you could market your website to get more visitors?

ExplainED


Remember that these questions are only intended to get you thinking about completed websites. You are making your very first website, so these questions will be really useful to consider after the site is complete, especially if you intend on revisiting any parts of the book to see if you missed anything useful.



Summary

This ends my quick overview of the elements that go into making an ideal website. You will learn the specifics of these steps throughout this book, but the overview you have just read can act as a measuring stick for the principles you should keep trying to apply as best as you can when you begin coding. By answering these checklist questions as you go through the process of building your website, you should be able to rate your website to see how effective and how close to possible perfection it really is! Therefore, you may want to return to this section at the end of your website creation process to see if there are any areas you could improve on in the future, as these questions should certainly help you see if you put everything into practice effectively.

Are you ready to start building your very first website? If the answer is yes, let's get started!



Chapter 1

What Kind of Website Should I Make?

Before you can sit down and start publishing your website, you need to have an idea in your mind of what you want to achieve. Many different types of sites exist out there, and each has its own reason for being. Some sites are personal and have the sole aim of providing solutions to common problems or sharing experiences with the world. Other sites are business oriented, with an emphasis on making money by providing goods and services. Before learning the code that will physically bring your design together, you need to flex your creative muscles and come up with the ideas, layout, and functionality that you want to include in the final product. Even if you are not the most creative person, you can define your project's aims and goals quite easily with the aid of various development models and inspirational resources (don't worry, it's not as complicated as it sounds).

In this chapter, you will learn about the following topics:

- How to mold your initial idea into something potentially useful
- Where to find and draw inspiration for your design and site features
- The basics of *information architecture* and producing a design

Who Are You?

The first step in understanding what kind of site you want to produce is to gain an insight into the reasoning and motivation behind your choices. When you undertake any project that involves creativity, each decision you make will impact a series of factors that you need to consider. This section of the book is not philosophy 101, and it certainly does not deal with the big questions of the universe, but it does focus on the way you see yourself and others to help you determine why you should choose a particular method over another.