

Web Developer/Digital Designer

Snapshot

Career Cluster(s): Business, Management & Administration; Information Technology

Interests: Design; technology; the Internet; customer service

Earnings (Yearly Average): \$73,760

Employment & Outlook: Much Faster Than Average Growth Expected

OVERVIEW

Sphere of Work

Web developers create and maintain websites. They are also responsible for the site's technical aspects, such as its performance and capacity, which are measures of a website's speed and how much traffic the site can handle. In addition, web developers may create content for the site. Digital designers develop, create, and test website or interface layout, functions, and navigation for usability. They are responsible for the look and functionality of the website or interface.

Work Environment

Web developers and digital designers typically work in office settings, whether in a corporate or home office. This work can be done remotely in most cases, so the need for a developer to be present in an office building, for



Web designer creating and planning site with sketch and design parts. Photo via iStock.com/designer491. [Used under license.]

instance, depends on the company's needs. Web developers may also operate their own business and perform work for numerous clients located in different parts of the country, or around the world.

Occupation Interest

Individuals interested in web development and design have a passion not only for the technology behind it, but for creating something unique, eye-catching, and functional. Generally speaking, websites are not only visually appealing to the user, but allow them to access services or information about a company or product. Developers must have a creative mind, artistic talent, and be skilled in computer technology to bring ideas to life.

Profile

Interests: Data, Things, People

Working Conditions: Inside

Education Needs: Varies—High School Diploma, Bachelor's Degree

Licensure/Certification: Usually Not Required

Opportunities for Experience: Internship, Part-Time Work, Volunteer Work

Interest Score: CIR

Duties and Responsibilities

- Meeting with clients or management to discuss the needs, design, and functionality of a website or interface
- Creating and testing applications, interfaces, and navigation menus for a website
- Writing code for the website, using programming languages such as HTML or XML
- Working with other team members to determine what information the site will contain
- Working with graphics and other designers to determine the website's layout
- Integrating graphics, audio, and video into the website
- Monitoring website traffic
- Creating prototypes and mockups of websites or applications
- Designing and developing graphics

A Day in the Life—Duties and Responsibilities

Most web designers work full-time. When creating a website, developers and designers must strive to make their client's vision a reality. They build specific types of websites, such as e-commerce, news, or gaming sites, to fit clients' needs. Moreover, certain types of websites may require specialized applications. For example, a gaming site should be able to manage advanced graphics, whereas an e-commerce site would need a payment-processing application. The developer decides which applications and designs will best fit the site, and the designer focuses on the look and usability of these elements across browsers or devices.

OCCUPATION SPECIALTIES

Back-end Web Developer

Back-end web developers are responsible for the overall technical construction of the website. They create the basic framework of the site and ensure that it functions as expected. Back-end web developers also establish procedures for allowing others to add new pages to the website and meet with management to discuss major changes to the site.

Front-end Web Developer

Front-end web developers create the technical features for a website's look. They develop the site's layout and integrate graphics, applications (such as a retail checkout tool), and other content. They also write web design programs in a variety of computer languages, such as HTML or JavaScript.

Web and Digital Interface Designer

Web and digital interface designers are responsible for creating the look and feel of a website or interface using photos, color, font type and size, graphics, and layout. They also are responsible for the functionality, usability, and compatibility of the website or interface.

Webmaster

Webmasters maintain and update websites. They ensure that websites operate correctly, and they test for errors such as broken links. Many webmasters respond to user comments as well.

WORK ENVIRONMENT

Immediate Physical Environment

Web designers primarily work in an office setting. They may be employed by a larger company or have their own business. Their working environment should be conducive to long periods of sitting, typing, and looking at a computer monitor. Industries typically employing web developers include: computer systems design and related services; publishing industries; management, scientific, and technical consulting services; and advertising, public relations, and related services.

Human Environment

Web developers may work alone, or as part of a team on larger or more complex projects to combine specialties. If developers work in the same office, person-to-person collaboration may be part of the project. If developers work from home, communication by email, phone, or video chat is common. Such communication is also common when dealing with clients, and routine meetings may occur in order to ensure projects remain on schedule and on target.

Technological Environment

Developers and designers need access to reliable, up-to-date computers to perform their duties effectively. Software varies by project, but may include development environment software, object or component-oriented development software, operating system software, and web platform development software.

Web developers need to have a thorough understanding of HTML programming. Many employers also want developers to understand other programming languages, such as JavaScript or SQL, and have knowledge of multimedia publishing tools, such as Flash. Throughout their career, web developers must keep up to date on new tools and computer languages.

EDUCATION, TRAINING, AND ADVANCEMENT

High School/Secondary

Educational requirements vary for web developers and digital designers, based on work setting and other factors, and can range from a high school diploma to a bachelor's degree. High school students interested in the field should take as many computer science courses as possible and consider joining extracurricular computer clubs if available. These students may also have such an interest in the field that they engage in web development and design projects on a hobby basis, and this is encouraged to build the necessary skill set.

Suggested High School Subjects

- Algebra
- Biology
- Calculus
- Chemistry
- Computer Science
- Earth or Life or Physical Science

- Economics
- English
- Entrepreneurship
- Geometry
- History
- Political Science
- Trigonometry

Related Career Pathways/Majors

Business, Management & Administration Career Cluster

- General Management Pathway

Information Technology Career Cluster

- Information Support & Services Pathway
- Programming & Software Development Pathway
- Web & Digital Communications Pathway

Transferable Skills and Abilities

Communication Skills

- Communicate effectively with coworkers to coordinate work on projects

Creativity

- Creating the appearance of a website and ensuring that it is appealing as well as functional

Customer-service Skills

- Responding politely to user questions and requests

Detail-oriented

- Focusing for long periods on writing code precisely

Mechanical Skills

- Operating complex machinery and occasionally performing routine maintenance

Problem-solving Skills

- Checking for and fixing coding errors

Postsecondary

Some employers prefer to hire web developer candidates who have a bachelor's degree in a specific field, such as computer science or programming. Employers of digital designers may prefer to hire candidates who have a bachelor's degree in a field such as web design, digital design, or graphic arts. Web developers and digital designers may not need specific education credentials if they can demonstrate their abilities through prior work experience or projects.

Related College Majors

- Computer Graphics
- Computer Networking & Telecommunications
- Digital Arts
- Digital Communications & Multimedia
- E-commerce
- Graphic Design
- Information Science

Adult Job Seekers

Adults seeking employment as web developers and designers should have a solid background in IT or computer technology and should focus on building a portfo-

lio of smaller projects. The Internet provides many forums where developers and designers can exchange work and ideas. It would be beneficial for adult job seekers to enhance their knowledge through classes on development and design. They must also be familiar with the latest tools and computer languages.

EARNINGS AND ADVANCEMENT

Earnings depend on the size of the company for which the developer or designer works, whether they are self-employed, and the size of the projects undertaken. Median annual earnings of web developers and designers were \$73,760 in 2019. The lowest 10 percent earned less than \$39,550, and the highest 10 percent earned more than \$142,080.

Web developers and designers may receive paid vacations, holidays, and sick days; life and health insurance; and retirement benefits. These are usually paid by an employer if the developer or designer does not run their own business.

Web developers and digital designers who have a bachelor's degree may advance to become project managers.

EMPLOYMENT AND OUTLOOK

Web developers and designers held 174,300 jobs in 2019. Ten percent were self-employed. Employment is expected to grow much faster than the average for all occupations through the year 2029, at a rate of 8 percent, as e-commerce continues to expand. Online purchasing is expected to grow faster than the overall retail industry. As retail firms expand their online offerings, demand for these workers will grow. In addition, a rise in the use of mobile devices to search the web will lead to increased demand for web developers and digital designers. Instead of designing a website for a desktop computer, these workers will have to create sites and interfaces that work on mobile devices with many different screen sizes, leading to more work.

Because websites can be built from anywhere in the world, some developer and designer jobs could move to countries with lower wages. However, this practice may decline because the cost of managing workers in multiple countries can offset the savings to businesses. Furthermore, web developers and digital designers must understand cultural nuances that allow webpages to communicate effec-

tively with users. US-based developers and designers are better suited to this task, curtailing the work that may be moved to other countries.

About 13,400 openings for web developers and digital designers are projected each year, on average, over the decade. Many of those openings are expected to result from the need to replace workers who transfer to different occupations or exit the labor force, such as to retire.

Job opportunities for web developers and digital designers are expected to be good. Those with knowledge of multiple programming languages and digital multimedia tools, such as Flash and Photoshop, will have the best opportunities.

Related Occupations

- Computer/Information Systems Manager
- Computer Programmer
- Computer Support Specialist
- Computer Systems Analyst
- Database Administrator
- Graphic Designer
- Information Security Analyst
- Multimedia Artist/Animator
- Software Developer

MORE INFORMATION

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Computing Research Association (CRA)

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Computing Community Consortium (CCC):

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International Web Association (IWA)

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National Center for Women & Information Technology (NCWIT)

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World Organization of Webmasters (WOW)

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