

# 13.1 The Web Development Process

## The Web Development Process

Web development is the process of designing and developing websites. Web design and web development are two facets of the web development process. A web designer is concerned with a website's visual and aesthetic aspects, including page structure, theme, colors, navigation, and multimedia. A web developer focuses on technical aspects, like coding, frameworks, server configuration, and database management. A full-stack developer is a professional with the knowledge and skills to handle design and development aspects.

Building a website is a time-consuming and labor-intensive process. Creating a timeline can help organize and streamline workflow. The web development process follows a structured approach called the web development life cycle. The phases of this cycle are planning, design, development, testing, deployment, and maintenance. These phases are outlined below.

### Phase 1: Planning

The first phase of the web development life cycle involves gathering information about the proposed website. During this phase, the web development team works with a client to understand the proposed site's scope and identify the needs and requirements. Questions answered during this phase will include: "Why does the client want a website?", "Who will be the audience?", and "What will people be able to do on the site?".

### Phase 2: Design

Web designers use the information gathered in the previous phase to design the website during this phase. Design is typically the most prolonged phase and can take several months. Web designers will strive to create a user-centered design. User-centered Design (UCD) focuses on users and their needs. The Interaction Design Foundation defines UCD as follows: "User-centered design (UCD) is an iterative design process in which designers and other stakeholders focus on the users and their needs in each phase of the design process. UCD calls for involving users throughout the design process via a variety of research and design techniques so as to create highly usable and accessible products for them" (IxDF, 2016).

One of the first tasks performed in this phase is to create a site map of the proposed website. A site map is a graphical representation of the connections between the pages of a website displayed by their hierarchy. It serves as a "road map" for the website.

Next, web designers design the individual pages using wireframes. A wireframe is a visual representation of a web page that shows the position of each element on it. It serves as a skeletal map for the page, clearly depicting its basic structure and navigation. A wireframe can be a simple monochrome sketch or a more complex graphic design that includes sample text, colors, and images. A proper wireframe will include placeholders for semantic elements such as <header>,

<nav>, <section>, <article>, <aside>, and <footer>, as well as placeholders for text, images, and multimedia elements.

The collection of the individual wireframes is the website layout. The website layout provides everyone involved in the project with a clear understanding of how the finished site will appear and function. A good layout ensures the website is user-friendly, visually appealing, and easy to navigate. A good layout can help visitors understand the site's content and navigation system. It can also keep them engaged with the content, enhancing their overall experience with the site. A website layout consisting of simple sketches is called a low-level comprehensive page layout.

The site should be designed with accessibility in mind, including using alt text for images, providing keyboard navigation options, and ensuring that the website is compatible with screen readers for users with disabilities, which testing may also verify.

## Phase 3: Development

Once the client approves the website design, the site is ready to be built. Front-end web developers turn the website layout into a working website during this phase. These developers will use a variety of programming languages, such as HTML, CSS, and JavaScript, to build the pages. Later in the process, back-end web developers will work behind the scenes to ensure any server-side technologies, such as programming languages, server settings, and databases, will work correctly.

Usually, the first page developed is the website's home page. The intended purpose of the home page is to be the first page visitors see when reaching a site's location. The home page offers an overview of the entire website's content and provides visitors with links to different interior pages. The file name for the home page is index.html. Interior pages are the pages other than the home page that comprise the rest of the website. Interior pages should have a consistent layout and navigation system since not all users will access the website through the home page.

## Phase 4: Testing

The site is tested thoroughly during this phase to ensure it is error-free. Testing consists of three main types: functionality, usability, and performance. Functional testing examines each website feature to verify it works as intended. Usability testing ensures the site is intuitive and user-friendly. Accessibility testing is a subset of usability testing. The World Wide Web Consortium (W3C) describes accessibility as the ability of persons with disabilities to comprehend, navigate, engage with, and contribute to the web. Accessibility reduces barriers that block users with disabilities from having a full, rich online experience. Performance testing checks the website's speed and responsiveness under various conditions. Testers may also conduct compatibility testing to ensure the website functions correctly on different browsers, devices, and operating systems. The purpose of these tests is to guarantee a smooth, efficient user experience.

## Phase 5: Deployment

The website is now ready to be deployed, or to "go live." Tasks performed during this phase include setting up the server environment, configuring domain names, and transferring files from the development server to a production server.

## Phase 6: Maintenance

Once live, the website is monitored and maintained to ensure that it is performing well and remains accessible in the future, and updates may be made over time. This phase can last as long as the site exists.

## References

Interaction Design Foundation - IxDF (2016, June 5). *What is User Centered Design (UCD)?*. <https://www.interaction-design.org/literature/topics/user-centered-design>

# 13.2 Resources to Explore

## Resources to Explore

There are many tools and resources available that may be useful for web design, page layouts, CSS, HTML, hosting, and various aspects of web development. As you prepare for your assessment and career, you can explore some of the following resources or others and determine which will meet your needs.

### Design and Prototyping Tools

- [Microsoft Office tools](#): Word, PowerPoint, SharePoint
- [Adobe tools](#): Illustrator or Photoshop
- [Adobe XD](#)
- [Figma](#)
- [Balsamiq](#)
- [Linearity.io](#) (formerly Vectornator)
- [Wireframe.cc](#)
- [FluidUI](#)
- [Inkscape](#)
- [GIMP](#)
- [SketchApp \(Mac\)](#)
- [Photopea](#) (online Adobe CC)
- [JustInMind](#)
- [WebFlow](#)

### Web Accessibility

- [Web Content Accessibility Guidelines](#) (WCAG) international standard
- [W3C Essential Components of Web Accessibility](#)

### HTML Editors

- [Microsoft Visual Studio](#)

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- [Sublime Text](#)
- [Visual StudioCode](#)
- [Brackets](#)
- [HTML5UP](#)
- [Pixelarity](#)

## Web Hosting

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- [W3Schools Spaces](#): This resource provides free hosting and has templates; however, their premade templates cannot be used in assessment task submissions.
- [GitHub Pages](#): This is linked directly to your GitHub directory but may not be used to generate code for your task.
- [GitLab Pages](#): This is linked directly to your GitLab but may not be used to generate code for your task.

## Tutorials

Many tutorials on tools and techniques are available, including from WGU library resources and LinkedIn, as well as other sites such as YouTube and from the providers of specific products themselves. You may wish to explore the following resources:

- [Pluralsight.com](#): This site has many helpful video tutorial courses; you may check out this [Hands On Responsive Design](#) course to become familiar with the use of CSS for multiple devices. (Sign in with your WGU SSO.)
- [WGU faculty links](#): Find the latest recorded sessions of the *Practical HTML & CSS* cohort series, the *Hands-On with JavaScript* cohort series, and other helpful resources.
- [W3Schools](#): This site offers various tutorials covering all aspects of web development. Check out the following tutorials:
  - [W3Schools HTML Tutorial](#)
  - [W3Schools CSS Tutorial](#)
  - [W3Schools Bootstrap Tutorial](#)
- [CSS Diner](#): This site has interactive exercises to practice with different types of CSS selectors.
- [LearnLayout.com](#): These guided tutorials of CSS layout-specific concepts provide examples that are most helpful for the different positioning schemes, box models, and floating.

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