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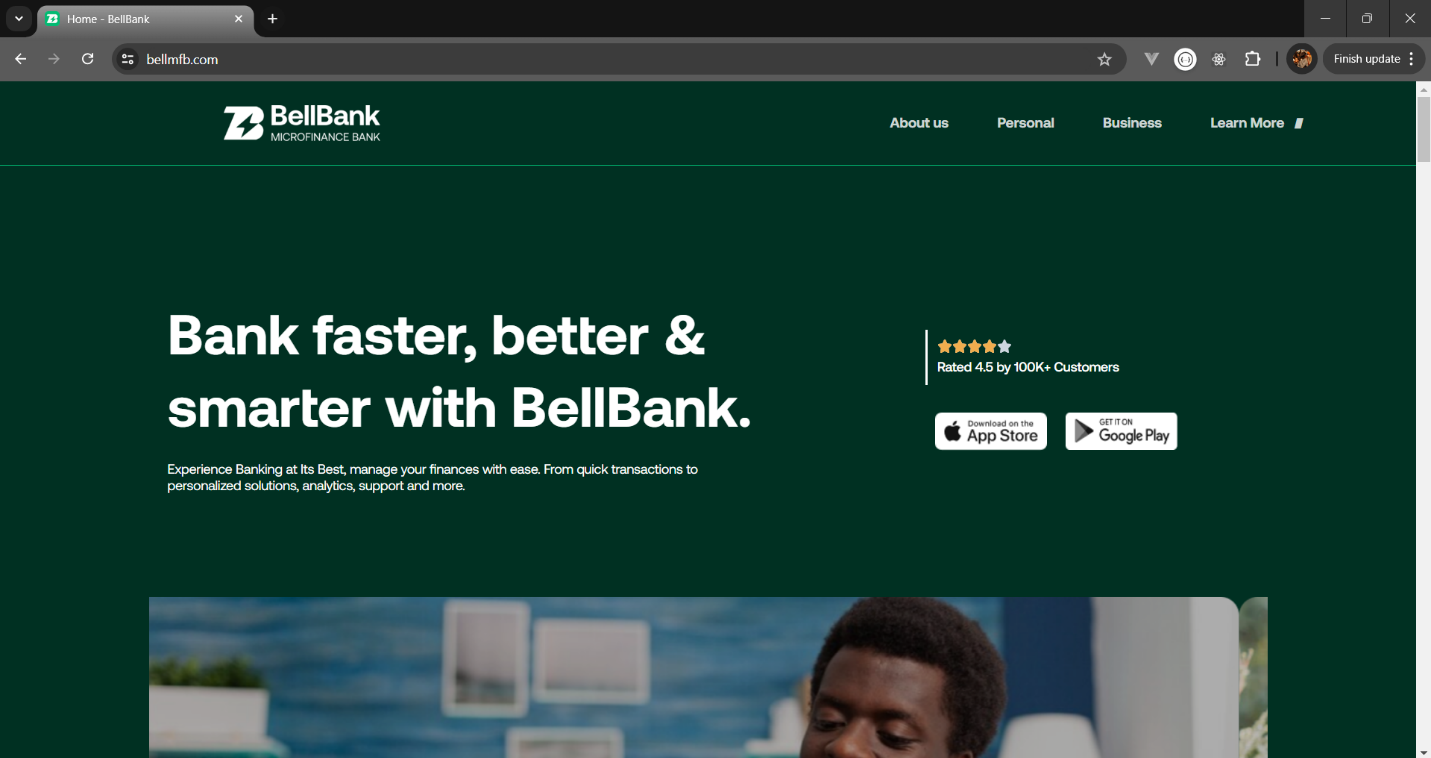
# Chapter One: Introduction to Web Development

## The Internet

The *Internet* is the backbone of the Web, the technical infrastructure that makes the Web possible. The Internet is a large network of computers which communicate all together. The various technologies that support the Internet have evolved over time, but the way it works hasn't changed that much: Internet is a way to connect computers all together and ensure that, whatever happens, they find a way to stay connected.

## [Web page](https://developer.mozilla.org/en-US/docs/Learn/Common_questions/Web_mechanics/Pages_sites_servers_and_search_engines#web_page_2)

A *web page* is a simple document displayable by a browser. Web Pages are what make up a website. For example, on www.bellmfb.com, you can find the home page, about us page, personal page, business page, etc. Such documents are written in the HTML language. All web pages available on the web are reachable through a unique address. To access a page, just type its address (domain name) in your browser address search bar as shown below:



www.bellmfb.com

Figure 1: BellBank Website

## [Website](https://developer.mozilla.org/en-US/docs/Learn/Common_questions/Web_mechanics/Pages_sites_servers_and_search_engines#website_2)

A *Website* is a collection of related web pages located under a single domain name. When you combine the home page, about us page, personal page, business page, etc. and store them under a single domain name www.bellmfb.com. A website is a collection of linked web pages that share a unique domain name. Each web page of a given website provides links, most of the time in the form of clickable portions of text, that allow the user to move from one page of the website to another. To access a website, type its domain name in your browser search bar, and the browser will display the website’s main web page, or homepage as shown in the figure 1 above.

## [Web server](https://developer.mozilla.org/en-US/docs/Learn/Common_questions/Web_mechanics/Pages_sites_servers_and_search_engines#web_server_2)

A *web server* is a computer hosting one or more *websites*. “Hosting” means that all the *web pages* and their supporting files are available on that computer. The *web server* will send any *web page* from the *website* it is hosting to any user’s browser when the user sends a request.

## Domain Name

*Domain names* are a key part of the Internet infrastructure. They provide a human-readable address for any *web server* available on the Internet. Any Internet-connected computer can be reached through a public IP Address, either an IPv4 address (e.g. *104.21.35.168*) or an IPv6 address (*2606:4700:3037::6815:23a8*). Computers can handle such addresses easily, but people have a hard time finding out who is running the server or what service the website offers. IP addresses are hard to remember and might change over time. To solve all those problems, we use human-readable addresses called *domain names* for example [www.bellmfb.com](http://www.bellmfb.com).

**Footnote**: *You cannot “buy a domain name”, instead, you pay for the right to use a domain name for one or more years. You can renew your right, and your renewal has priority over other people’s applications. But you never own the domain name.*

# Chapter Two: HTML and CSS

## Introduction to HTML and CSS

HTML stands for Hyper Text Markup Language. HTML is a *markup language* that defines the structure of your content. HTML consists of a series of elements, which you use to enclose, or wrap, different parts of the content to make it appear a certain way, or act a certain way.



Figure 2: Basic HTML structure

CSS stands for Cascading Style Sheets. CSS is used to styles web content. CSS describes how HTML elements are to be displayed on the screen, paper or in other media.

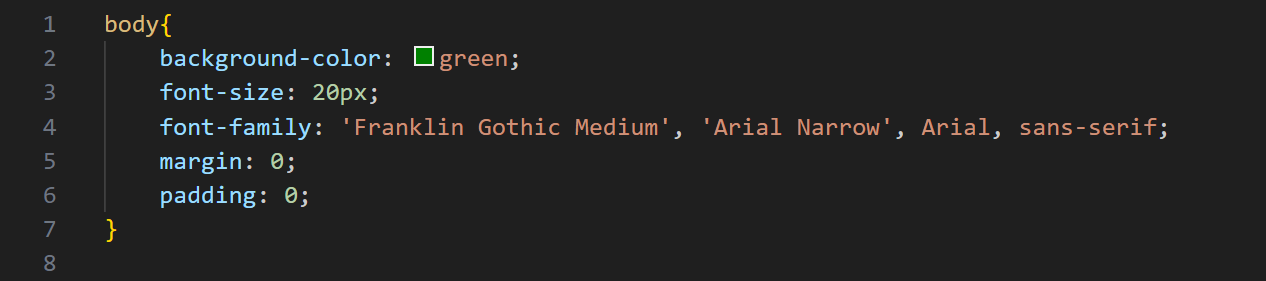


Figure 3: Basic CSS Structure

**Footnote**: *You save an HTML file with the extension of either .html or .htm but use .html as most developers use that. You save a CSS file with the extension of .css*

## HTML Element

An HTML element is an individual component of an HTML document. It represents semantics, or meaning. For example, the title element represents the title of the document as shown in *figure 2* above.

An HTML element is defined by a start tag, some content, and an end tag.

Start tag

End tag

Contents

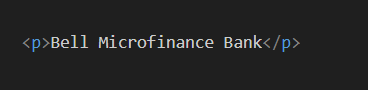


Figure 4: HTML Element

**Note:** Not all HTML element require the start tag and the end tag or close. They have no content and called **empty elements** example like *img, br, hr, etc.*



Figure 5: Empty element

HTML elements can be nested (this means that elements can contain other elements). All HTML documents consist of nested HTML elements. In fig. below, the *title* element is nested inside the *head* element and the *head* element is nested inside the *html* element.



Figure 6: Nesting HTML Elements

### Exercise

1. HTML elements are used to style the website.
2. True
3. False
4. You don’t have to nest your HTML element.
5. Agree
6. Neutral
7. Disagree
8. You can nest the *title* element within the *body* element.
9. Yes
10. No
11. HTML elements can have attributes.
12. True
13. False
14. Choice the correct syntax and most appropriate syntax
15. *<img src=”myphoto.png” alt=”my-photo”></img>*
16. *<img src=”myphoto.png”></img>*
17. *<img src=”myphoto.png”>*
18. *<img src=”myphoto.png” alt=”my-photo”></img>*

**Footnote**:

1. *HTML elements are not case sensitive <P> means the same as <p>. The HTML standard does not require lowercase tags, but W3C recommends lowercase in HTML.*
2. *Never skip the end tag of an HTML element. Some HTML elements will display correctly, even if you forget the end tag. However, never rely on this! Unexpected results and errors may occur.*

## HTML Attributes

All HTML elements can have attributes. Attributes provide additional information about elements. Attributes are always specified in the start tag.



Figure 7: HTML Attribute

The *<img>* tag is used to embed an image in an HTML page. The *src* attribute specifies the path to the image to be displayed. We will learn more about images in HTML later, smile!

The *alt* attribute for the *<img>* tag specifies an alternate text for an image, if the image for some reason cannot be displayed. This can be due to slow connection, or an error in the *src* attribute, or if the user uses a screen reader.

## HTML Head Element

The *<head>* element is a container for metadata (data about data) and is placed between the *<html>* tag and the *<body>* tag.

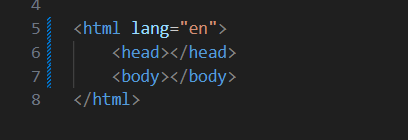


Figure 8: Head Element

HTML metadata is data about the HTML document. Metadata is not displayed. Metadata typically define the document title, character set, styles, scripts, and other meta information.

### HTML Title Element

The *<title>* element defines the title of the document. The title must be text-only, and it is shown in the browser’s title bar or in the page’s tab as shown in the figure below. The *<title>* element is required in HTML documents. The content of a page title is very important for search engine optimization (SEO). The page title is used by search engine algorithms to decide the order when listing pages in search results.

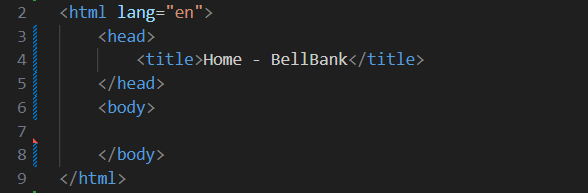


Figure 9: Title element

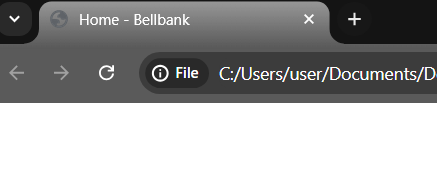


Figure 10: Title element II

### HTML Favicon

A favicon is a small image displayed next to the page title in the browser tab. You can use any image you like as your favicon.

To add a favicon to your page, use the *<link>* element with HTML attributes of *rel, type* and *href* as shown below.

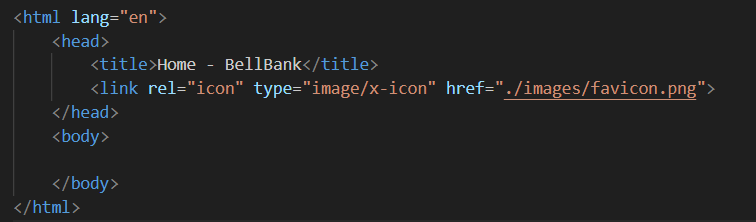


Figure 11: HTML Favicon

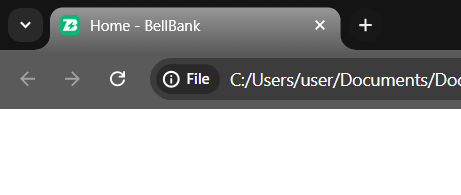


Figure 12: HTML Favicon II

### HTML Meta Element

The *<meta>* element is typically used to specify the character set, viewport settings, author, keywords and description.

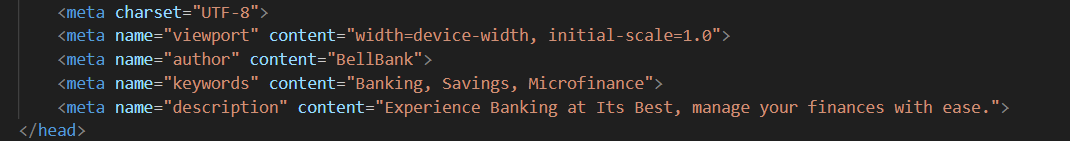


Figure 13: HTML Meta

The metadata will not be displayed on the page, but is used by browsers (how to display content or reload page), by search engines (keywords), and other web services.

### HTML Style Element

The *<style>* element is used to define style information for a single HTML page or in internal css style. You can style a web page either using in-line CSS, internal CSS and external CSS. We will learn more about these methods of styling later.

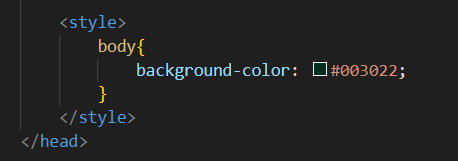


Figure 14: HTML Style

**Footnote**:

*When you add the <style> element, you first write the CSS property you want to apply to the element then a colon then the CSS value then you terminate it by using a semi-colon. We will learn more about CSS later in this book*.

### HTML Link Element

The *<link>* element defines the relationship between the current document and an external resource. The*<link>* tag is most often used to link to external style sheets.

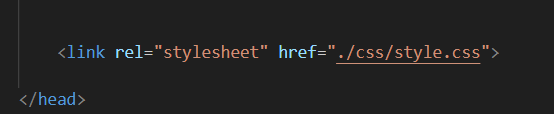


Figure 15: HTML Link

### HTML Script Element

The *<script>* element is used to JavaScript to an HTML web page. We will learn deep about JavaScript later in this book.

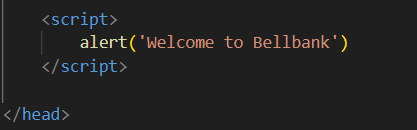


Figure 16: HTML Script

### Exercise

1. The *<base>* element is an HTML element.
2. True
3. False
4. You can add only one CSS property to an HTML element.
5. Yes
6. No
7. Search Engine Optimization (SEO) is important when creating a web page.
8. Agree
9. Disagree

## HTML Body Element

The *<body>* tag defines the document’s body. The *<body>* element contains all the contents of an HTML document, such as headings, paragraphs, images, hyperlinks, tables, lists, etc.

### Basic sections of a document

Webpages can and will look pretty different from one another, but they all tend to share similar standard components, unless the page is displaying a fullscreen video or game, is part of some kind of art project, or is just badly structured:

### **H**eader **Element <header>**

The *<header>* element in HTML represents a container for introductory or navigational content, usually located at the top of a webpage or section. This element is often used for branding, primary navigation, and other elements like the site logo, search bar, or introductory text. This usually stays the same from one webpage to another.

### [**N**avigation **B**ar **Element <nav>**](https://developer.mozilla.org/en-US/docs/Learn/HTML/Introduction_to_HTML/Document_and_website_structure#navigation_bar)

The *<nav>* element in HTML is used to define a block of navigation links on a webpage. It helps to semantically organize the links that guide users to different sections of a site or related web pages, making it easier for both users and search engines to understand the structure and navigation options of a website. Having inconsistent navigation on your website will just lead to confused, frustrated users and poor user experience.

### Main Content Element <main>

The *<main>* element in HTML is used to designate the primary content of a webpage, containing information that is directly related to the main purpose of the page. It’s designed to hold the content unique to that page, excluding repetitive elements like headers, footers and navigation bars that are common across multiple pages. This is the one part of the website that definitely will vary from page to page.

### Section Element <section>

The *<section>* element in HTML is used to define a distinct area or block within a webpage that groups together related content. It provides a way to structure content semantically, making it easier for both users and search engines to understand the context of each part of a webpage.

### Sidebar Element <aside>

The *<aside>* element in HTML often contains supplemental information, such as sidebars, quotes, ads, or other related content, but isn’t crucial to the main subject of the page. Some peripheral info, links, quotes, ads, etc.

### Footer Element <footer>

The *<footer>* element in HTML is used to define the footer section of a webpage or a section within it. This section generally contains metadata or related information, like copyright notices, contact details, links to privacy policies, or author information. It’s typically located at the bottom of the page or section and serves as a concluding element. The footer is also sometimes used for SEO purposes, by providing links for quick access to popular content.

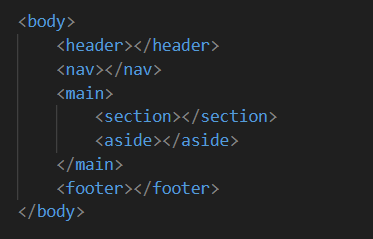
****

Figure 17: HTML5 Semantics Standard

**Footnote**:

There can only be one <body> element in an HTML document.

### Styling HTML with CSS

We have started learning about HTML and have covered some of its elements. Now, let’s begin learning about CSS and how to add it to an HTML document. CSS can be added to an HTML document in three ways: inline CSS, internal CSS, and external CSS.

### Inline CSS

An inline CSS is used to apply a unique style to a single HTML element. An inline CSS uses the *style* attribute of an HTML element. The following example below sets the font-size of the element to 24px, and text-color to white:

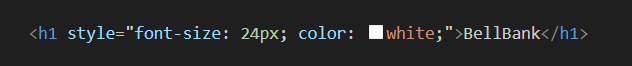


Figure 18: Inline CSS

### Internal CSS

An internal CSS is used to define a style for a single HTML page. An internal CSS is defined in the *<head>* section of an HTML page, within a *<style>* element. The following example below sets the font-size of ALL the <p> elements (on that page) to 12px, and the font-family of **ALL** the *<p>* elements to Arial, if Arial is not installed on the system; it will set the font-family to Helvetica, if Helvetica not found then it will be set to sans-serif.

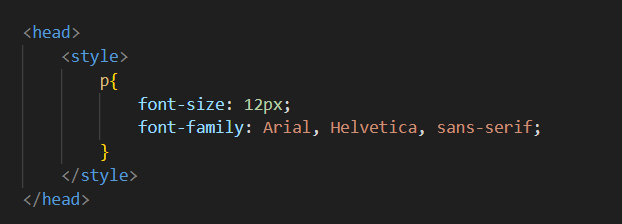


Figure 19: Internal CSS

### External CSS

An external style sheet is used to define the style for many HTML pages. To use an external style sheet, add a link to it in the *<head>* section of each HTML page.

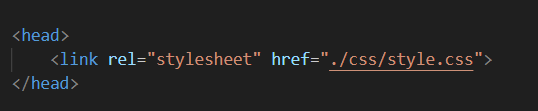


Figure 20: External CSS

The external style sheet can be written in any text editor like Visual Studio Code (VSCode), Sublime, notepad++, etc. The file must not contain any HTML code, and must be saved with a .css extension.

**Footnote**:

**Summary**

* When you want to style a particular HTML element on a page; the Inline CSS is the best approach to use.
* When you want to style a particular Web Page on your Website; the Internal CSS is the best approach to use.
* When you want to style the entire website; the External CSS is the best approach to use.
* With an external style sheet, you can change the look of an entire web site, by changing one file.

**Recommendation**

When you want to style an HTML element, a web page or the entire website; the best approach is to use the External Styling, because it makes your code much easier to maintain and it is the standard most developers used.

### HTML Image Element <img>

# References

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