Intro_to_web_HTML

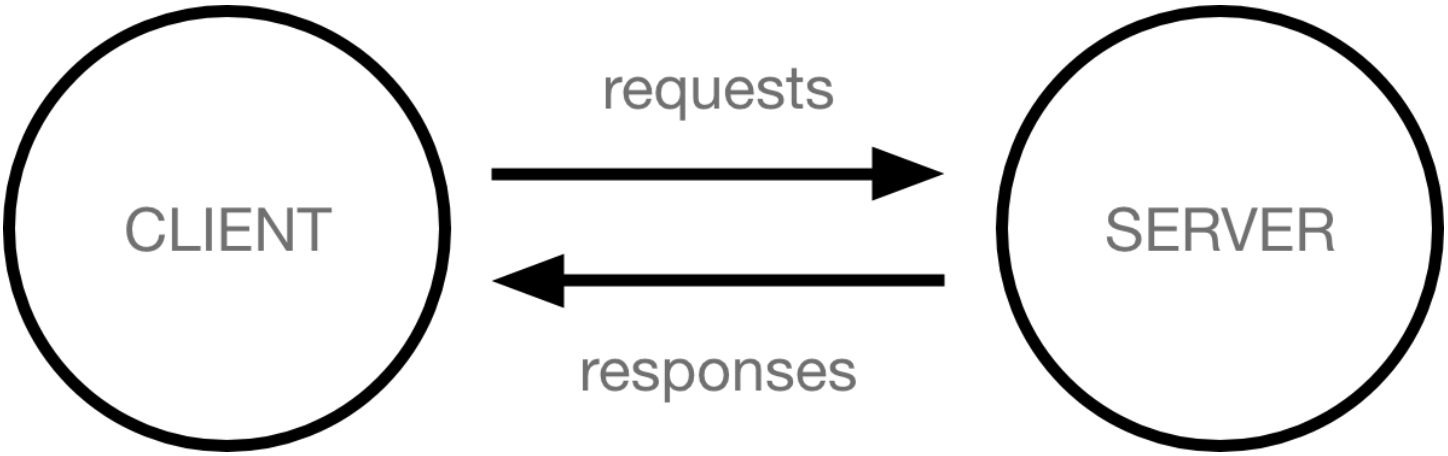
Agenda

- How internet works
- client and server,
- Installation
- Intro to Html

Question : How just by typing -> google.com we reach open google.com

Clients and servers

Computers connected to the internet are called **clients** and **servers**. A simplified diagram of how they interact might look like this:



It is also known as 2 tier architecture

What is internet : **network of network**. Let's understand it in more depth

Important terms

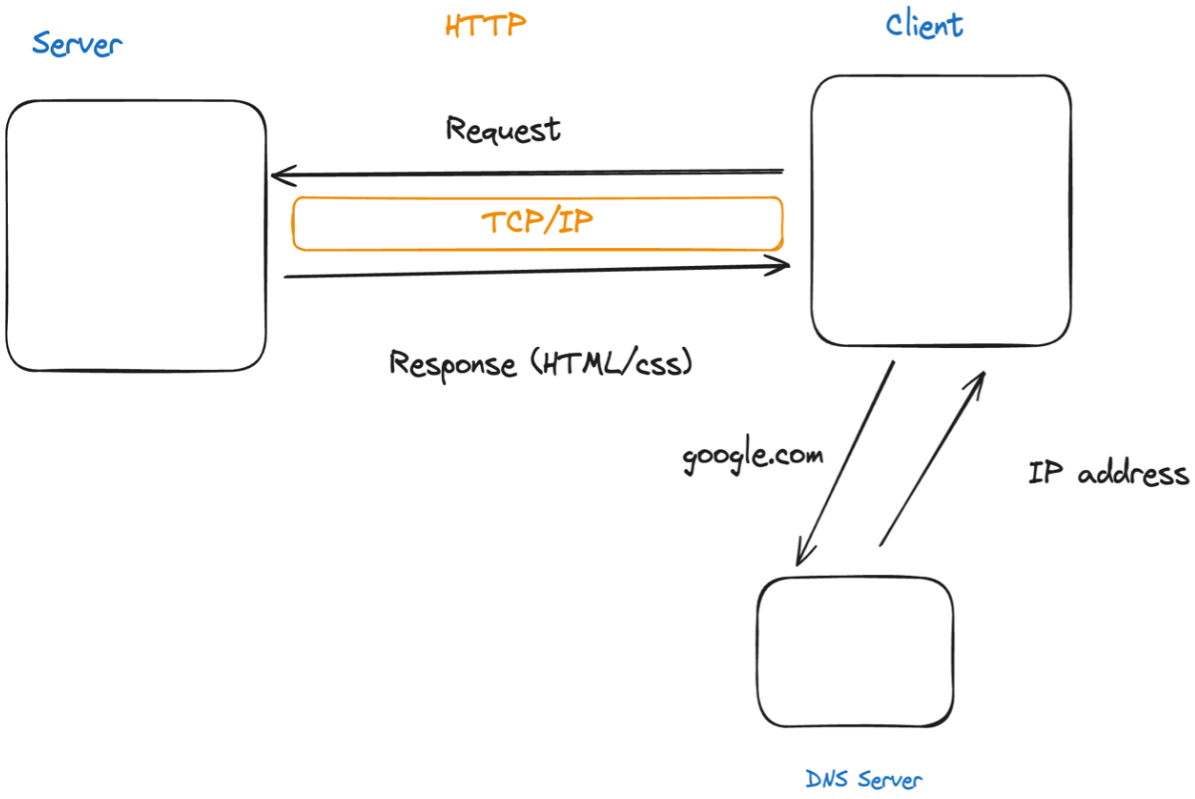
- `Client` -> are the typical web user's internet-connected devices (for example, your computer connected to your Wi-Fi, or your phone connected to your mobile network) and web-accessing software available on those devices (usually a web browser like Firefox or Chrome)
- `Servers` are computers that store webpages, sites, or apps. When a client device wants to access a webpage, a copy of the webpage is fetched from the

server onto the client machine to be displayed in the user's web browser

- `HTTP`: Hypertext Transfer Protocol is an application protocol that defines a language for clients and servers to speak to each other
- `DNS`: When you type a web address in your browser, the browser looks at the DNS to find the website's IP address before it can retrieve the website. The browser needs to find out which server the website lives on, so it can send HTTP messages to the right place
- `Internet connection`: Allows you to send and receive data on the web, *https://www.submarinecablemap.com/*
- `TCP/IP`: Transmission Control Protocol and Internet Protocol are communication protocols that define how data should travel across the internet.
- `component file` :
  - HTML/CSS and Javascript
  - Assets : image , videos and pdf , word documents

Flow

1. The browser goes to the DNS server, and finds the real address of the server that the website lives on (IP address)
2. The browser sends an HTTP request message to the server, asking it to send a copy of the website to the client .
3. If the server approves the client's request, then it starts sending the website's files to the browser .This message, and all other data sent between the client and the server, is sent across your internet connection using TCP/IP.
4. The browser assembles everything into a complete web page and displays it to you



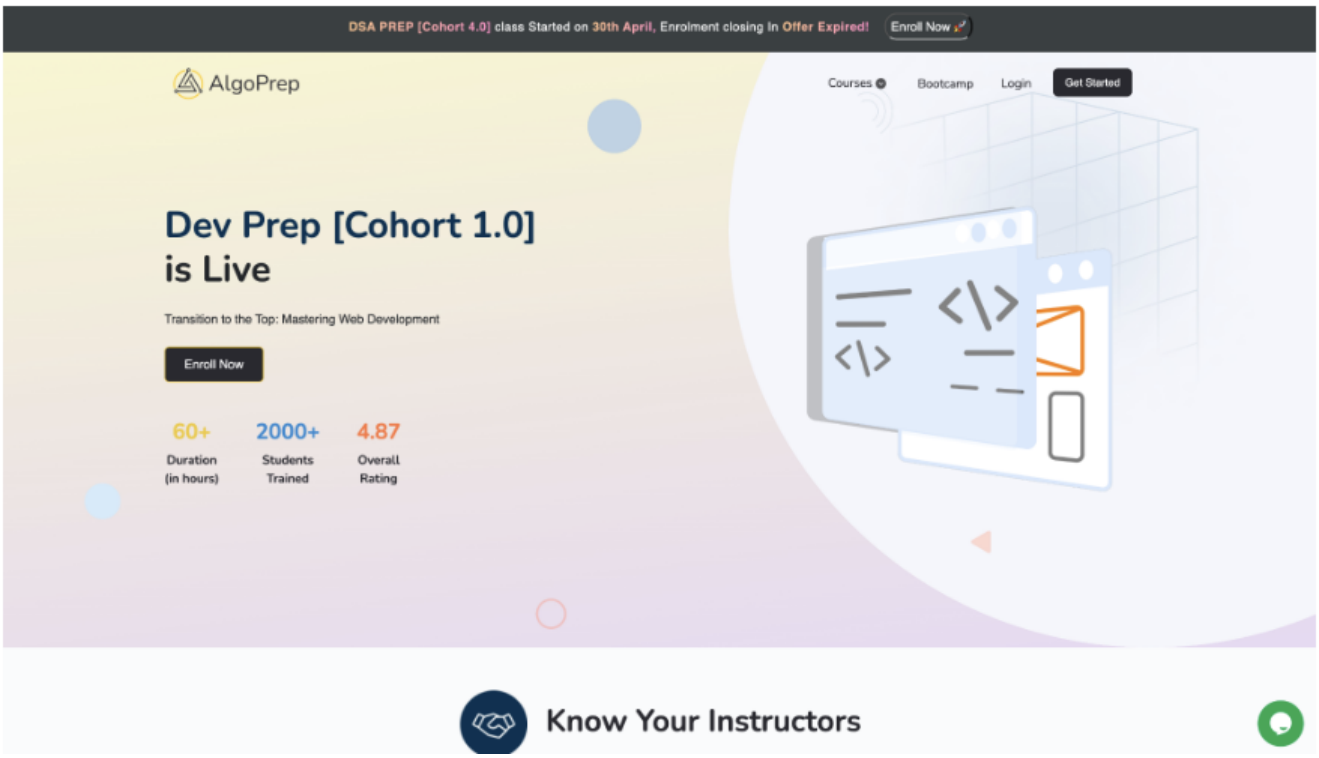
setup

1. Integrated development environment
2. It's a comprehensive tool used by developers to write and test software
3. We are going to use Visual Studio Code (VS Code) which is a popular IDE. It's a lightweight IDE developed by Microsoft, widely used for programming in various languages.
4. VS Code offers features like syntax highlighting, intelligent code completion, and other imp features making it a versatile tool for developers.
5. Download VS code
6. Installation(64 bit)
    - windows : *https://www.geeksforgeeks.org/how-to-install-visual-studio-code-on-windows/*
    - macos : *https://docs.cse.lehigh.edu/vscode/installing-vscode-mac/*

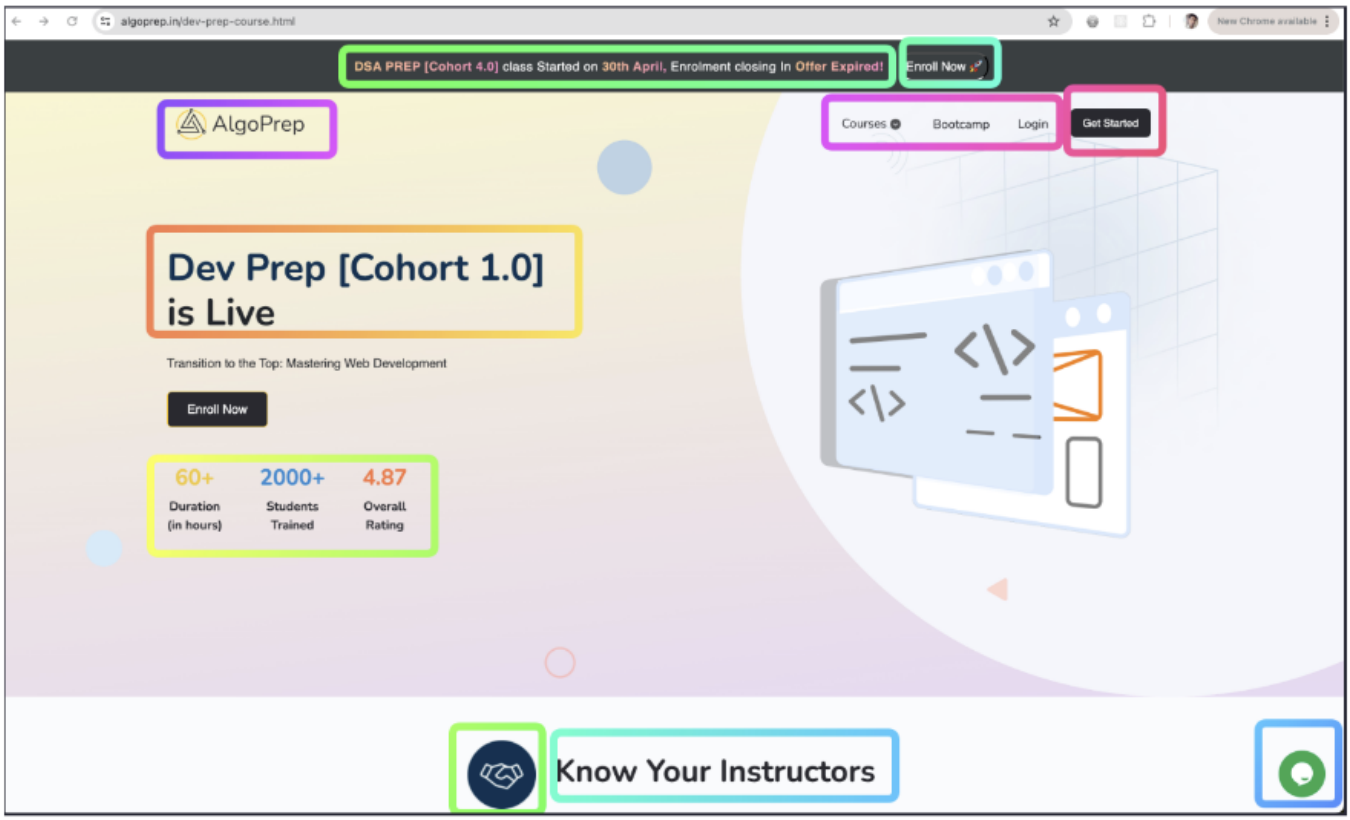
What is HTML?

HTML (HyperText Markup Language) is a markup language that tells web browsers how to structure the web pages you visit

- If you are given this web page



- These are the different component from which this webpage is build



- This is how our webpage will look like with only html

Structure of an HTML element

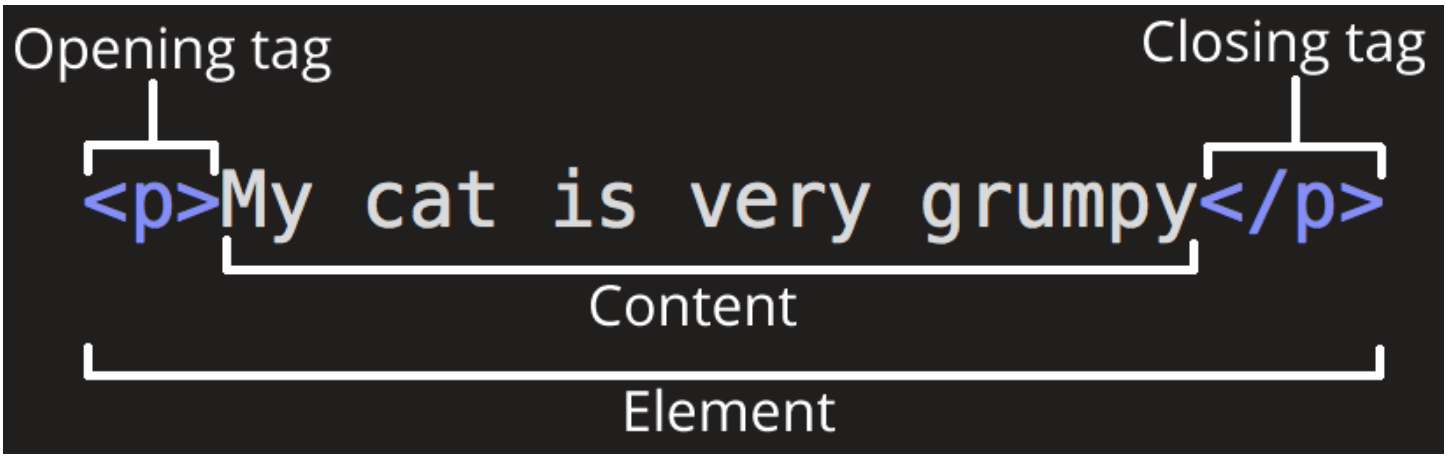
consider the following line of text:

```
My cat is very grumpy
```

If we wanted the text to stand by itself, we could specify that it is a paragraph by enclosing it in a paragraph (`<p>`) element:

```
<p>My cat is very grumpy</p>
```

Let's further explore our paragraph element :



The anatomy of our element is:

- **The opening tag:** This consists of the name of the element (in this example, `p` for paragraph), wrapped in opening and closing angle brackets. This opening tag marks where the element begins or starts to take effect. In this example, it precedes the start of the paragraph text.
- **The content:** This is the content of the element. In this example, it is the paragraph text.
- **The closing tag:** This is the same as the opening tag, except that it includes a forward slash before the element name. This marks where the element ends. Failing to include a closing tag is a common beginner error that can produce peculiar results

Anatomy of an HTML document

let's see a basic structure of HTML:

```
<!doctype html>
<html lang="en-US">
  <head>
    <title>HTML in one shot</title>
  </head>
  <body>
    <p>Namaste World </p>
  </body>
</html>
```

Here we have:

1. `<!DOCTYPE html>`: The doctype. When HTML was young (1991-1992), doctypes were meant to act as links to a set of rules that the HTML page had to follow to be considered good HTML. Doctypes used to look something like this:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

More recently, the doctype is a historical artifact that needs to be included for everything else to work right. `<!DOCTYPE html>` is the shortest string of characters that counts as a valid doctype.

2. `<html></html>`: The `<html>` element. This element wraps all the content on the page. It is sometimes known as the root element.
3. `<head></head>`: The `<head>` element. This element acts as a container for everything you want to include on the HTML page, **that isn't the content** the page will show to viewers. This includes keywords and a page description that would appear in search results, CSS to style content and more. You will learn more about this in the next article of the series.
4. `<title></title>`: The `<title>` element. This sets the title of the page, which is the title that appears in the browser tab the page is loaded in. The page title is also used to describe the page when it is bookmarked.
5. `<body></body>`: The `<body>` element. This contains all the content that displays on the page, including text, images, videos, games, playable audio tracks, or whatever else.

Writing code in vs-code

1. Under the folder, create index.html
2. Type exclamation and hit enter -> boilerplate code
3. This boilerplate HTML code is like the skeleton of a webpage

html structure revisited

```html
<!DOCTYPE html>
<html lang="en">
<head>
   <meta charset="UTF-8">
   <meta name="viewport" content="width=device-width, initial-scale=1.0">
   <title>Document</title>
</head>
<body>


</body>
</html>
```

1. `<!DOCTYPE html>`: It's like saying, "Hey, we're starting an HTML page!" (actually HTML5 which is the latest version of HTML)
2. `<html lang="en">`: This is the main container of your page, and lang="en" means it's in English.
3. Inside , there are two parts:
4. `<head>`: Think of it as the brain of your page. Its not visible but contains imp info
5. Meta tags -
    1. Meta tags in HTML are used to provide metadata about the web page. This data isn't displayed on the page itself but is important for browsers and search engines.
    2. They're essentially instructions to the browser and search engines about how to handle and display your page.
6. `<meta charset="UTF-8">`: This makes sure your page can understand a wide range of characters from different languages.
   a. When you're coding, you might use characters that are specific to certain languages, like accents in French or characters in Chinese.
   b. The UTF-8 character set includes a huge array of these characters from different languages. Without specifying UTF-8, your browser might not correctly interpret and display these characters, leading to garbled text or question marks on your webpage.
   7.`<meta name="viewport"...`: This helps your page look good on phones and

tablets.

8 . `<title>Document</title>`: This is your page's title. You'll see it in the browser tab.

7. `<body>`: This is where all the content you see on the webpage goes, like text and images.

Running the file

1. Write some text like hello world
2. Open the index.html from the file system and double click to run the file
3. Install live server extension

Case insensitive

1. HTML is designed to be case-insensitive for its tags, meaning it doesn't matter if you use uppercase, lowercase, or a mix of both for the tag names.
2. Whether you write `<head>` `<HEAD>` or `<HeAd>`, it will be interpreted the same way by the browser. This is part of the HTML specification to make the language more forgiving and easier to use, especially for beginners.
3. However, it's considered good practice to stick to lowercase for consistency and readability.

Tags

1. Headings - h1 to h6
2. Paragraph tags - for writing some descriptive content
   a. Lorem - emmet abbreviations
3. HTML tags like `p` and `h1` to `h6` gives meaning to the text, making it easier for both people and computers (screen readers) to understand the structure and importance of the content
4. `Img tags` - self enclosing tag
   a. It has additional information which describes the img which are called as attributes
   b. This is like adding adjectives to nouns in a sentence. Just like adjectives give more detail or characteristics to a noun, attributes provide additional

information about an HTML tag. c. accessories or features of a car. Just as a car can have features like a sunroof, a specific color, or a navigation system, HTML tags can have attributes that add extra features or details.

d. see the src and alt tags (alternate to image)

e. Either break the url or disable images with extension to see the alt tags

5. `Anchor tags`
    1. `<a>` tags, commonly known as anchor tags, are used in HTML to create hyperlinks
    2. They allow users to click on a link and be taken to another webpage, document, or a specific section within the same page.
    3. This is fundamental for the interconnected nature of the World Wide Web, where resources are linked together through these hyperlinks.

    ```
    <a>take me to google</a>
    ```

    4. As you can see, it does nothing
    5. What we need are some attributes for anchor tags