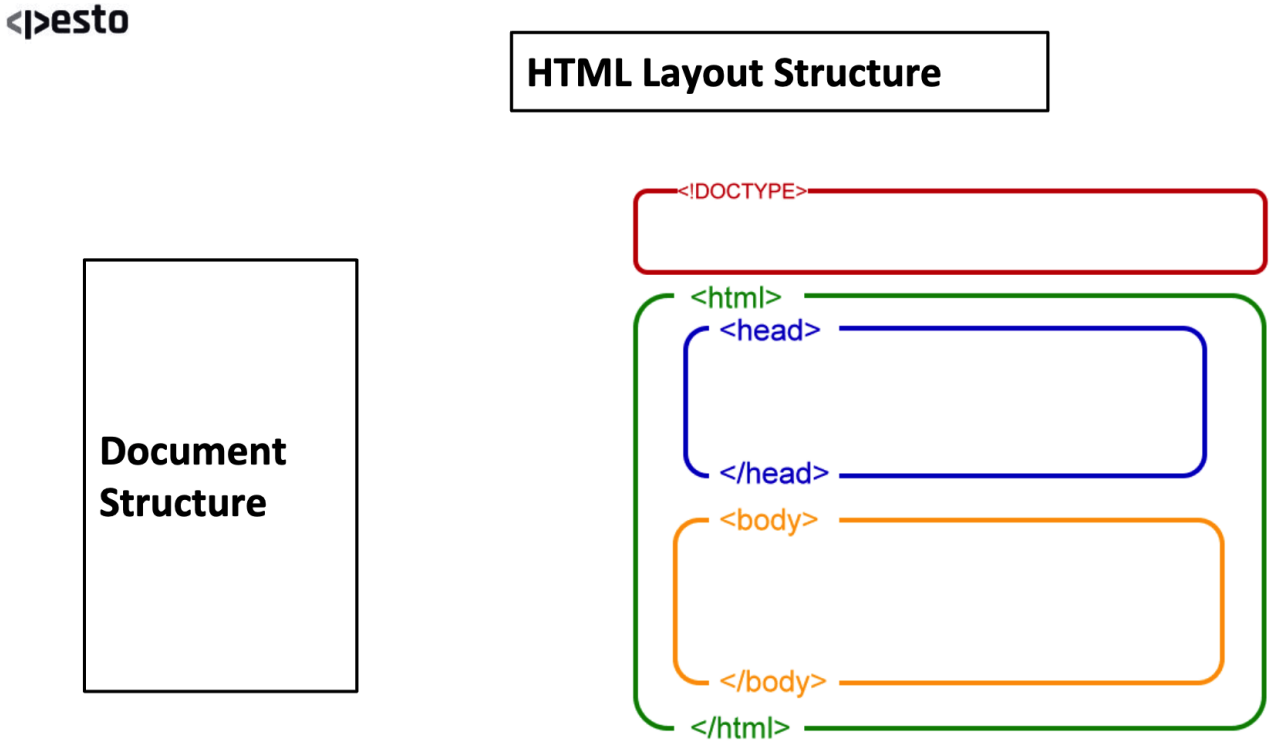
HTML :

- Stands for `Hyper text markup language`. tells the broser how to display the content.
- It is a `markup language`.
- **`markup language :`**
  - It is a computer language that is used to annotate text to provide information about its structure and formatting.
  - Typically composed of `Markup-Tags` and `Content`.
  - `Markup-Tag` : is used to identify the begining and end of a piece of content, and they provide information about how that content should be displayed or processed.
  - `Content` : is the text, image or other data that is being marked up.

HTML Layout Structure :

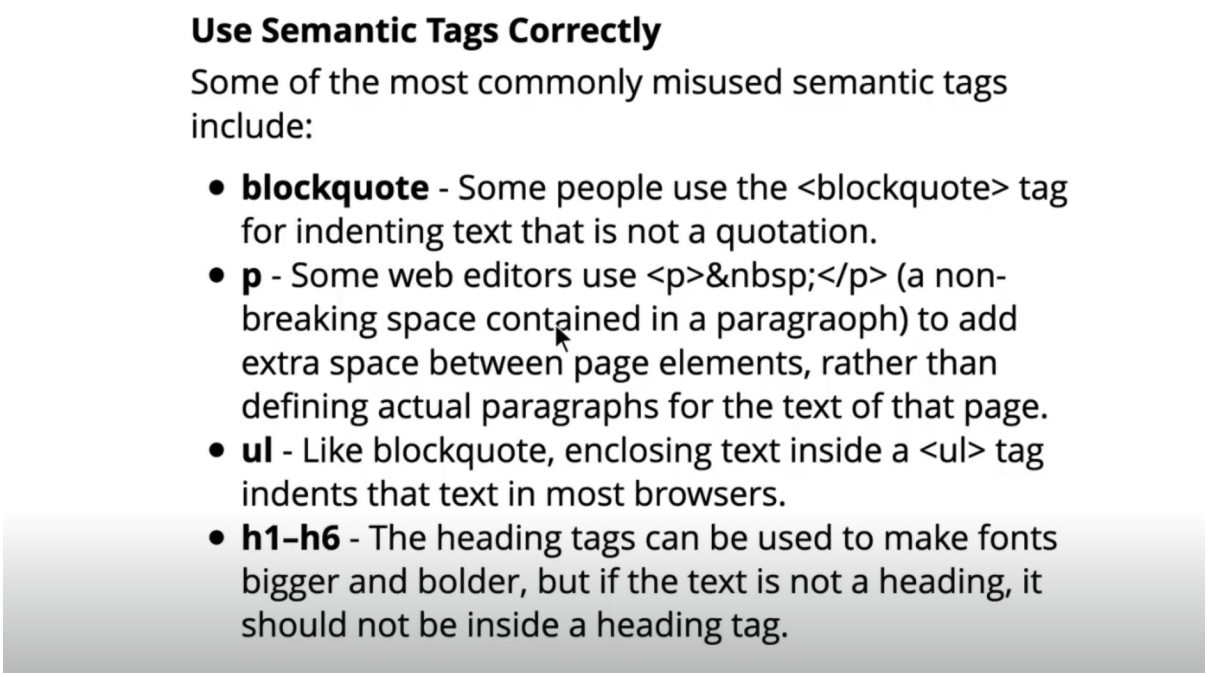


-

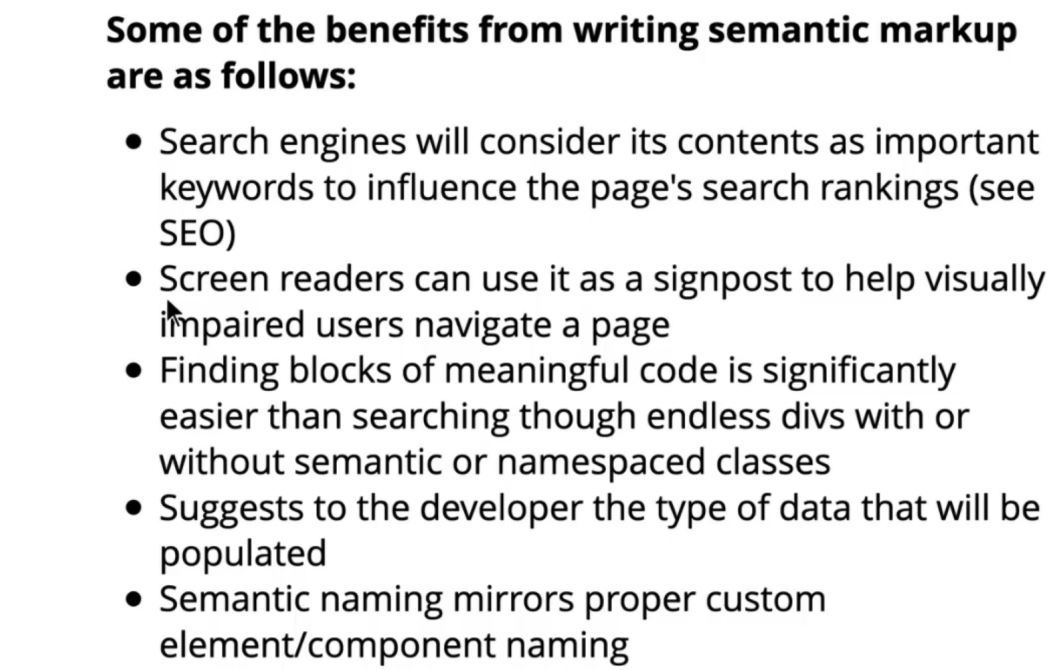
```
<html>
    <head>

    </head>
    <body>
        All visible things are in body.
        <h1>Hello World!!</h1>
    </body>
</html>
```

Html Basics :

- `Elements`
  - `opening tag + content + closing tag` = `element`.
  - the tags tell the information about the content.
  - eg :- `<b> Hello!! </b>`
- `Tags`
  - the opening and closing tags.
  - every tag has certain meaning to it.
  - eg :- `<b></b>` stands for bold.
- `Attributes`
  - They provide additional info about the contents of the elements.
  - 2 part : name & value. name = value
  - `<a href="abc.com"> ABC </a>`
- `Semantic HTML`
  - In programming, Semantics = "meaning of a piece of code".
  - eg:- `what effect does running that line of JS code have?` or `what purpose/role that HTML element have?` (rather that what does it look like).
  - semantic HTML introduces meaning to the webpage rather that just presentation.
  - eg :-
    1. `<p>` : it indicates enclosed text is paragraph. both semantic and presentational. people know what para are and browser know how to display them.
    2. `<em>Hey</em>` will tell the screen readers to put more emphasis while pronunciating the content.
- Why should you care about semantics?
  - impacts SEO highly.
  - It tells the browser the meaning of page and its content.
  - It helps in communicating with search engines and client computers very well.
  - eg :-
    1. If suppose we create a list using CSS and Div Element --> it might get displayed as list on page but there could be some keyboard features or something that won't come with it as in case of using an original list element.
    2. `<em>Hey</em>` will tell the screen readers to put more emphasis while pronunciating the content.
- Use semantic tags correctly

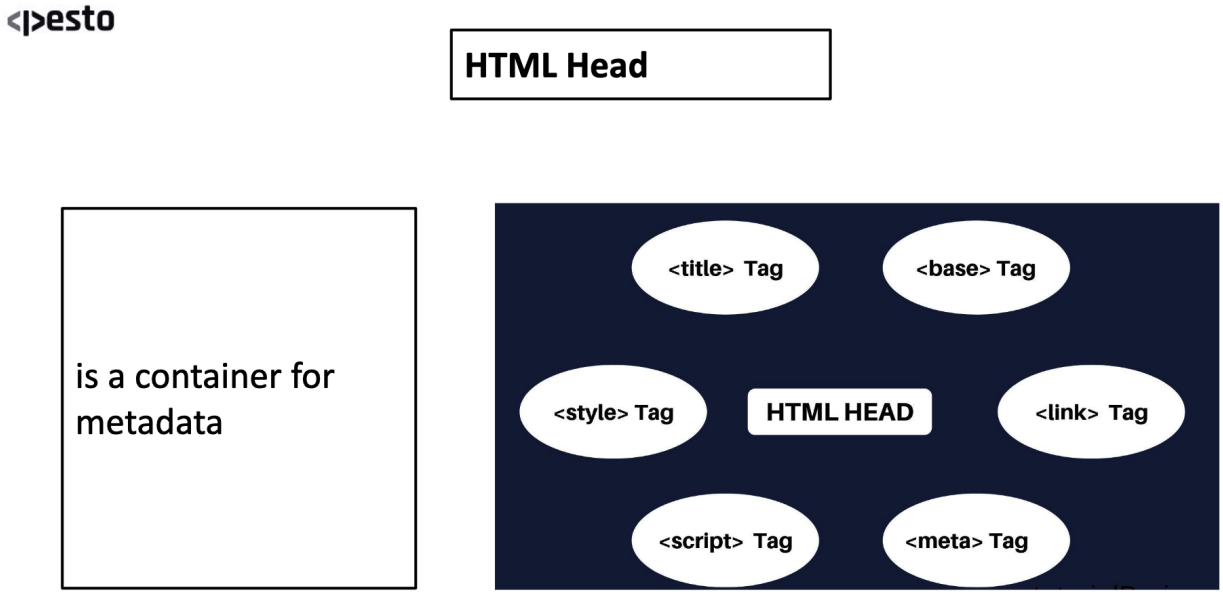


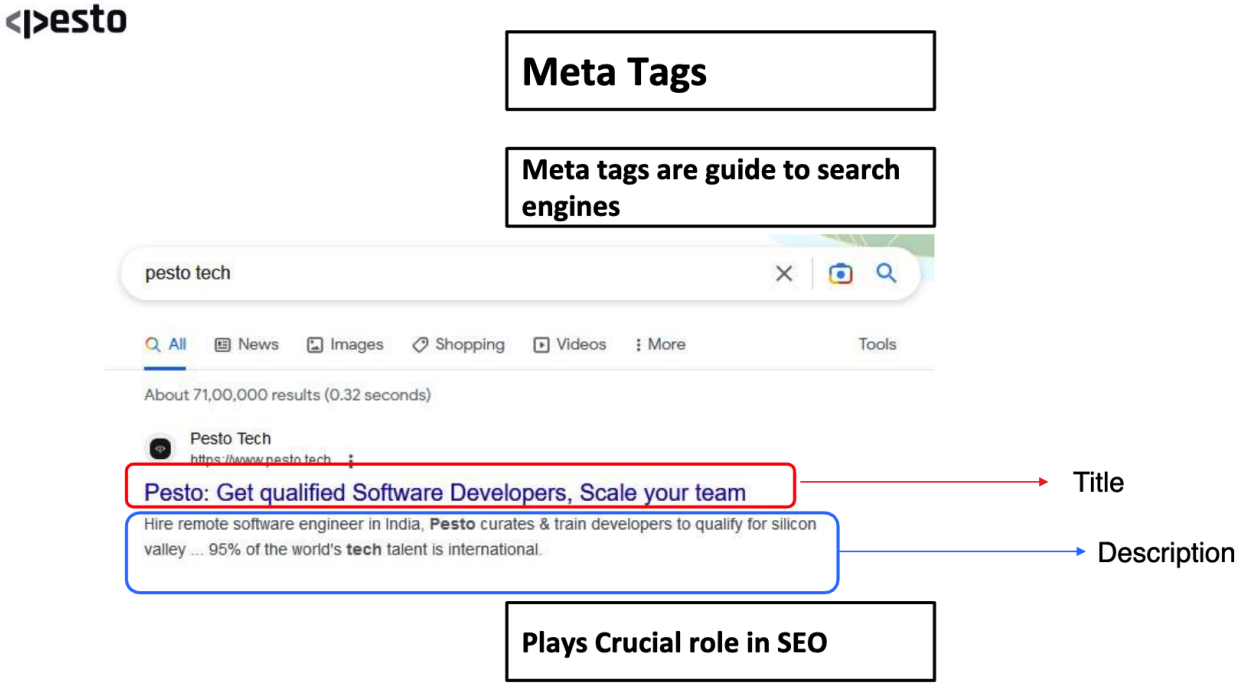
- What's the difference b/w `<b> and <strong>, <i> and <em>` ?
  - `<b>` : is a style.
  - `<strong>` : is a indication of how something should be understood.
  - `<em>` : same as `<strong>` just adding more emphasis/attention to this element.
- Some of the benefits from writing semantic markup



Deep dive into <HEAD> :

- Head is basically a container for `metadata`.





- List of all meta tags: https://www.metatags.org/all-meta-tags-overview/

3 - ways to add CSS in your webpage :

1. `inline` :
   - highest priority, but not recommended for big appliations as it becomes difficult to maintain.
   - `<h1 style="color: red">Hey there!!</h1>`
2. `internal` :
   - recommended to add in the `<head></head>` section of html.

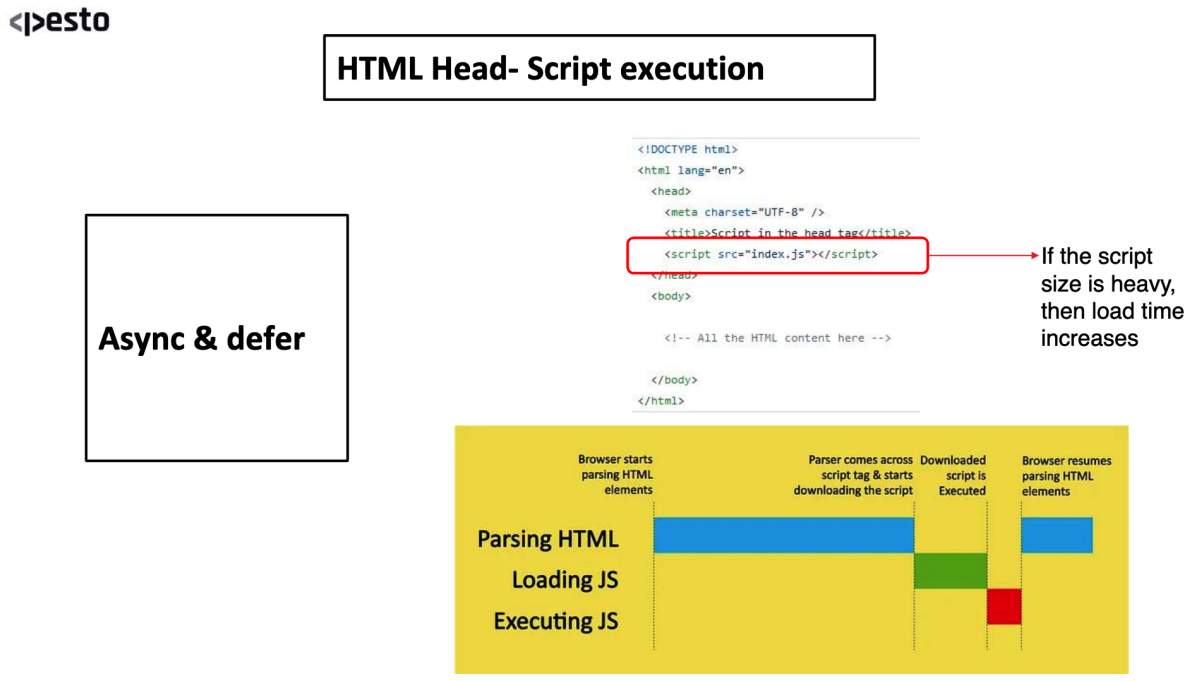
```
<style>color: red;</style>
```

3. `external` :
    - `<link rel="stylesheet" type="text/css" href="style.css">`
    - Can we insert a `style.scss` file in Html page using `<link>` tag?
        - No, you cannot directly insert a .scss file using a `<link>` tag in an HTML document.
        - The `<link>` tag is used to include external CSS files, not Sass (.scss) files. Browsers do not understand Sass syntax, as it requires preprocessing to be converted into standard CSS.
        - Sass is a preprocessor that extends CSS with features like variables, nesting, mixins, and more, which are not part of the standard CSS specification.
        - To use Sass in your projects, you need to follow the steps mentioned earlier.
            1. Write your styles in a .scss file.
            2. Compile the .scss file into a regular .css file using the Sass compiler.
                - command : `sass styles.scss styles.css`
            3. Link the compiled .css file in your HTML using the `<link>` tag.

Javascript in html : `async vs defer`

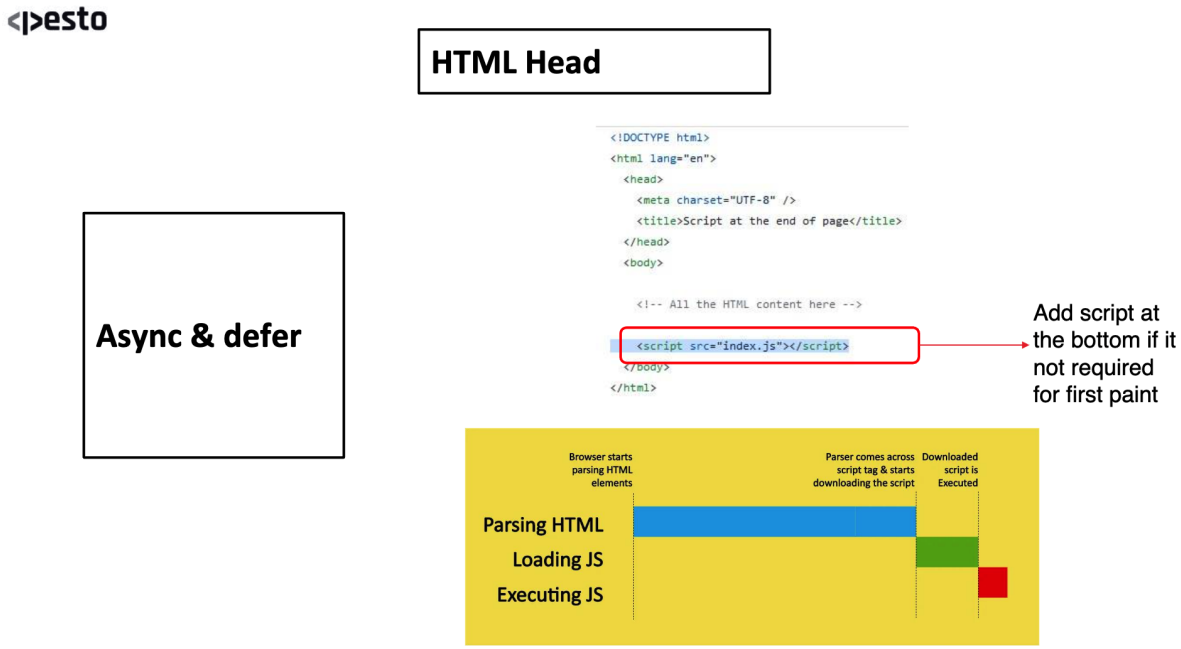
- **NOTE : without using `async` or `defer` JS loading will not happen in parallel with HTML parsing.**
- **NOTE : Using `async` and `defer` together is not recommended, but if used together JS will give higher priority to `async`.**

1. Adding javascript in `<head>` :
    - If the script size is heavy, then load time increases when added in head.
    - Hence not recommended for heavy scripts.
    - the loading of JS happens when the execution engine reaches that line and at that moment the parsing is paused.
    - parsing resumes when both the loading and execution of JS code is complete.



2. Adding javascript at bottom of `<body>` :

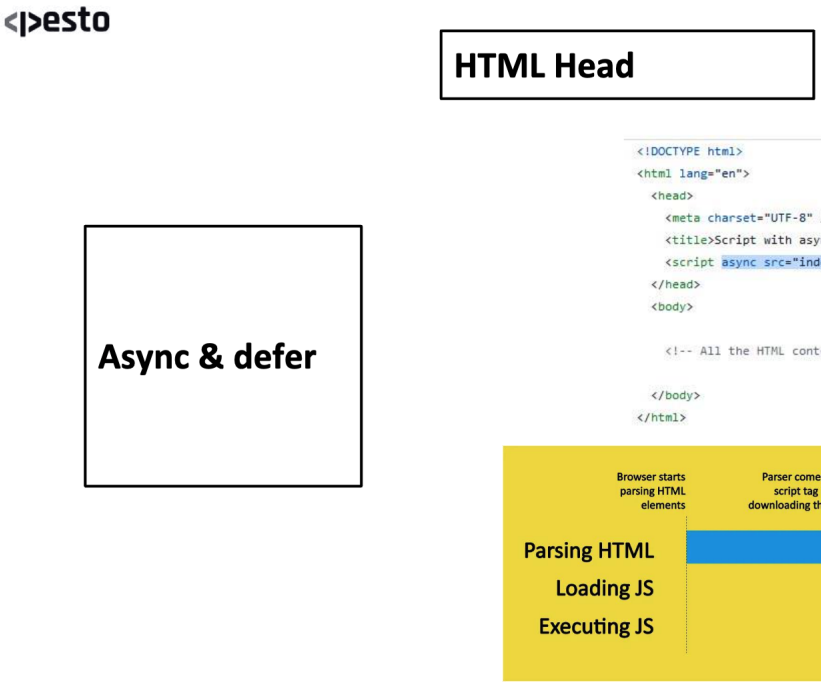
- we add javascript at bottom of body only if we dont want the script to load at the first paint.
- the loading of JS happens after the parsing of entire HTML is complete.



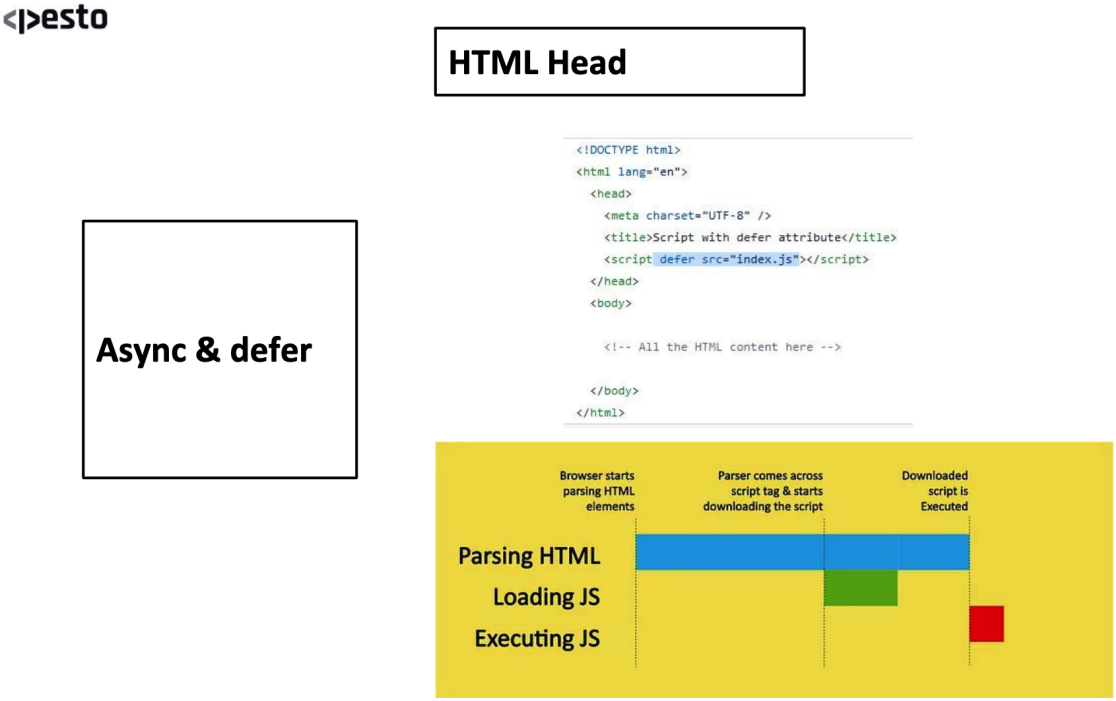
-

3. Using `async` :

- It loads the JS parallel to the HTML parsing.
- If executes the JS only when loading is completed, at that time the parsing is paused until the JS execution is finished.
- we use `async` if our script contains some code that is necessary for our page to load at the very start.
- eg :- if we want to load a image that comes from database at the main page of our website/app. like on amazon website the images show up the moment the js completes its loading.
- eg :- sometimes websites like flipkat/amazon just load a lower resolution or pixalated image at the first page load and when we spend sometime on that page the it replaces the those images with high resolution ones. in such cases as well we will make the low resolution images as `async` so that it shows up as soon as it loads and since it is of low resolution it will load very fast if loading happens parallely.



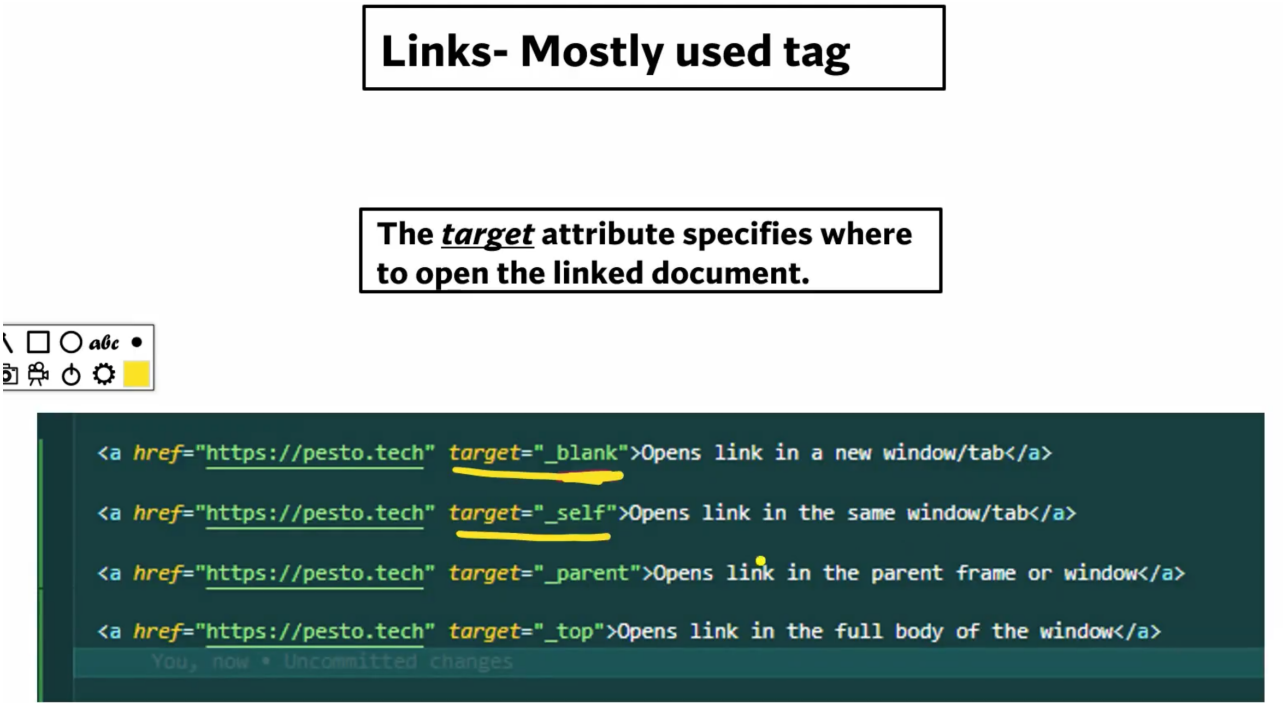
4. Using `defer` :
    - It loads the JS parallel to the HTML parsing.
    - If executes the JS only when loading and the parsing of HTML is completed or finished.
    - eg :- in amazon website we don't want the menu click event to actually load at the very beginnig but after some images have loaded so we add the `defer` keyword for such cases.



link tag in HTML `<a href="..." target="..."> content </a>` :

- `<a target="_blank|_self|_parent|_top|framename">`

Value	Description
`_blank`	Opens the linked document in a new window or tab.
`_self`	Opens the linked document in the same frame as it was clicked `(this is default)`.
`_parent`	Opens the linked document in the parent frame `(immediate parent)`.
`_top`	Opens the linked document in the full body of the window `(ie. the topmost parent)`.
framename	Opens the linked document in the named iframe.



SEO friendly tags :

1. `<address>` :
2. `<blockquote>` :
3. `<abbr>` :
4. `<q>` :
5. `<cite>` :
6. `<bdo>` :

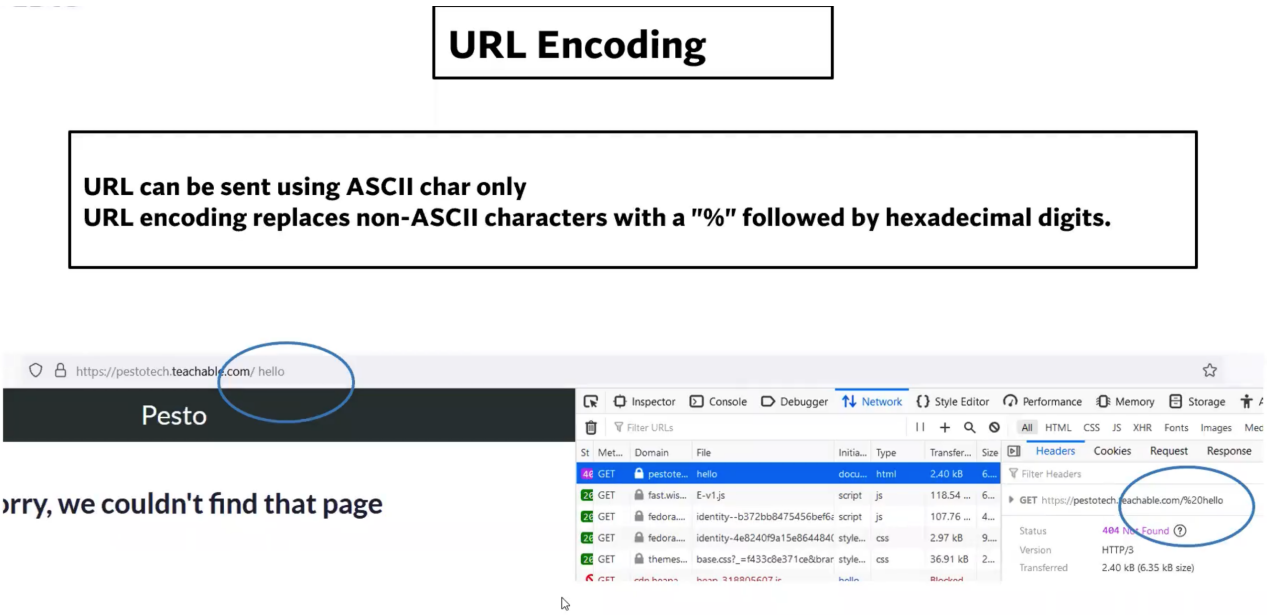
Symbols and Emojis :

```
<!DOCTYPE html>
<html lang="en">
    <head>
        <meta charset="UTF-8" />
        <meta http-equiv="X-UA-Compatible" content="IE=edge" />
```

```
        <meta name="viewport" content="width=device-width, initial-
scale=1.0" />
        <title>My Website</title>
    </head>
    <body>
        <h1>My First Emoji</h1>
        <p>Happy face emoji is : &#128512;</p>
    </body>
</html>
```

URL encoding :

- in below image we can see no-ascii char " " has been replaced by "%20" ascii value.



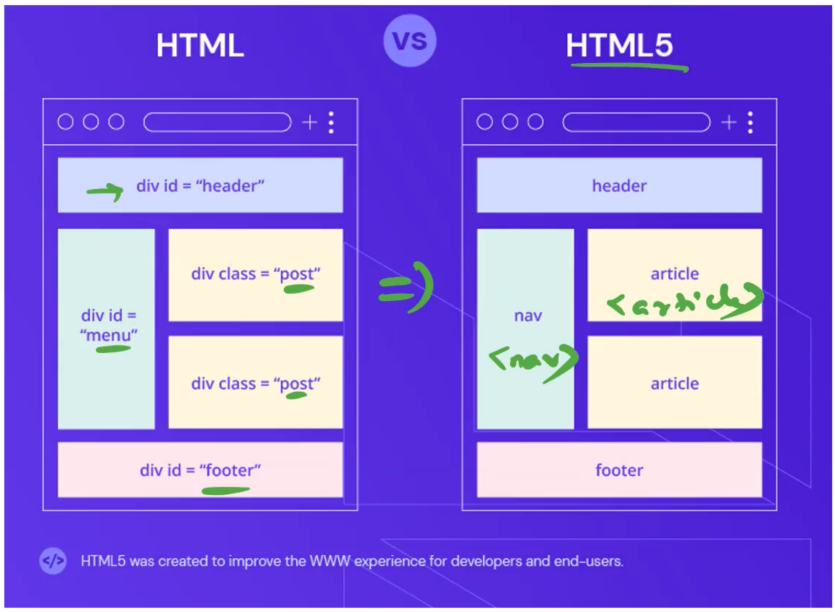
XHTML :

- Html displays content even if it has errors.
- XHTML is more stricter and formatted.
- Use cases of HTML : Compliant web applications.
- Use case of XHTML : Legacy & Error-prone applications like financing systems.

HTML	XHTML
Tags aren't extensible	Tags are extensible
Tags are not case sensitive.	Only lowercase tags are allowed
Possible to leave off any ending tag like </body>	Tags must appear in pairs
Overlapping tags	No overlapping tags

HTML-4 vs HTML-5 :

HTML4 Vs HTML5



- More Semantic
- More SEO friendly
- More readable
- More tags