Default Behaviour
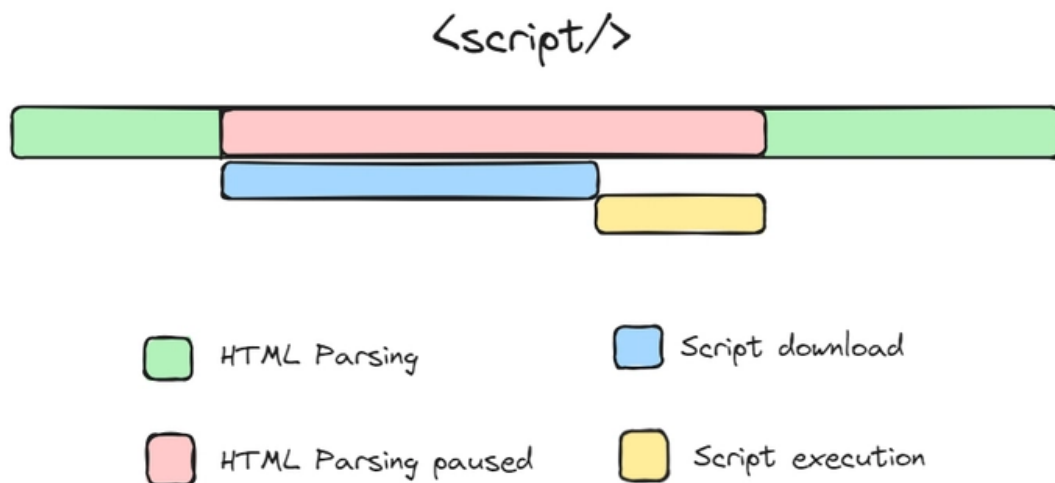
We generally connect our HTML page with external javascript with <script> tag. Traditionally, JavaScript <script> tags were often placed in the <head> section of the HTML document. However, doing so means that the parsing of the HTML is blocked until the JavaScript file is fetched and executed, leading to slower page load times. Nowadays, we mostly prefer to keep the <script> tag after all the contents of the <body> element to the page get loaded first.

<script/>

🟩 HTML Parsing   🟦 Script download

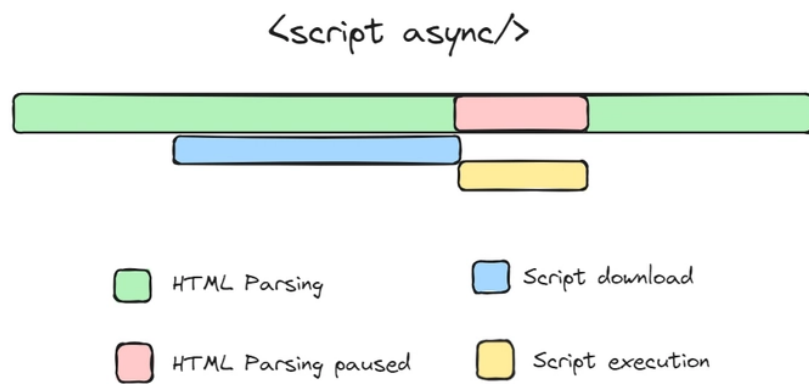🟥 HTML Parsing paused   🟨 Script execution

async and **defer** are optional attributes for the HTML *<script src="...">* tag that instruct the browser to download the indicated file in the background at a low priority without interrupting the process of rendering the page in the browser.

Async

When we include a script with the async attribute, it tells the browser to download the script asynchronously while parsing the HTML document. The script is downloaded in the background without blocking the HTML parsing process.

Once the script is downloaded, it's executed asynchronously, meaning it can run at any time, even before the HTML document has finished parsing.

<script src="example.js" async></script>

<script async/>

🟩 HTML Parsing	🟦 Script download
🟥 HTML Parsing paused	🟨 Script execution

Defer

When we include a script with the defer attribute, it also tells the browser to download the script asynchronously while parsing the HTML document. However, the execution of the script is deferred until after the HTML document has been parsed.
<script src="example.js" defer></script>

<script defer/>

🟩 HTML Parsing	🟦 Script download
🟥 HTML Parsing paused	🟨 Script execution