
PROGRAMMING ADVICES
LEARN THE RIGHT WAY
26+ Years of Experience
Mohammed Abu-Hadhoud
MBA, PMOC, PgMP®, PMP®, PMI-RMP®, CSE, ITILF, MCPD, MCSD
لا تنسى الاشتراك في قناتنا على اليوتيوب ومشاركة القناة مع اصدقائك
لتعم الفائدة للجميع وانقاذ الاف الناس من التشتت وجزاكم الله خيرا
لا تنسونا من دعائكم وادعو لوالدي بالرحمة
www.ProgrammingAdvices.com


مهم جداً
هذا الملف للمراجعة السريعة واخذ الملاحظات عليه فقط ،لانه يحتوي
على اقل من 20٪ مما يتم شرحه في الفيديوهات
الاستعجال والاعتماد عليه فقط سوف يجعلك تخسر كميه معلومات
وخبرات كثيره
يجب عليك مشاهدة فيديو الدرس كاملا
لاتنسى عمل لايك ومشاركة القناة لتعم الفائدة للجميع
لا تنسونا من دعائكم
ProgrammingAdvices.com
Mohammed Abu-Hadhoud
STOP
PROGRAMMING
ADVICES
LEARN THE
RIGHT WAY

لا تخن الامانة

الأسعار الخاصة بالكورسات رمزية للغاية ولا تمثل 1% من قيمتها الفعلية، ومع ذلك تتوفر كوبونات دعم لكل طالب محتاج.

عند شراء الكورس، فهو مخصص لك وحدك، ولا يحق لك القيام بما يلي:

- تحميل الفيديوهات وتوزيعها.
- مشاركة حسابك مع الآخرين.
- الاشتراك في شراء الكورس مع أصدقائك، حيث يحق لكل فرد كوبون دعم إذا كان بحاجة إليه.
- استخدام كوبون دعم دون وجه حق.

إن مخالفة هذه التعليمات قد تؤدي إلى إغلاق المنصة، مما يحرم آلاف الطلاب من فرصة التعلم. وستكون مسؤولًا أمام الله عن ذلك، وأنا لن اسامح من يسيء استخدام هذه المنصة.

تذكر أن الله لا يبارك في عمل مبني على أخذ حقوق الآخرين أو حرمانهم من التعلم. لا تبدأ حياتك بما لا يرضي الله.

مع تحياتي، د. محمد أبو هدهود

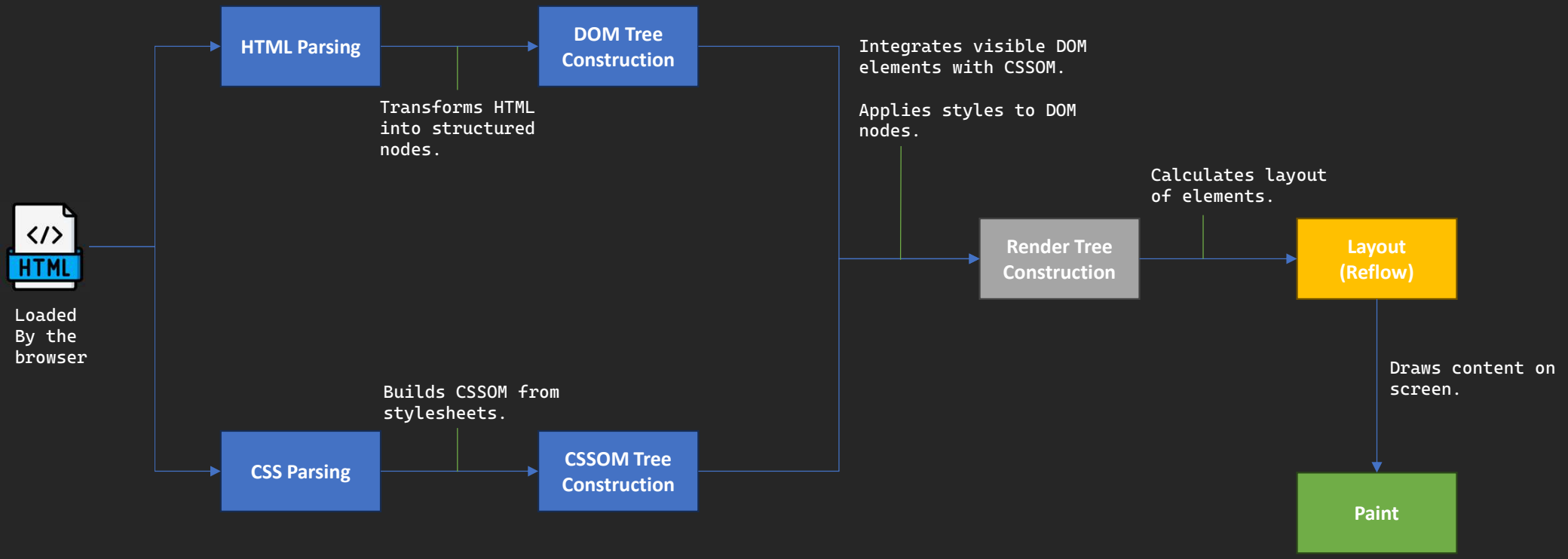
How Browsers Render HTML with JavaScript Involved?

ProgrammingAdvices.com

HTML DEEP DIVE

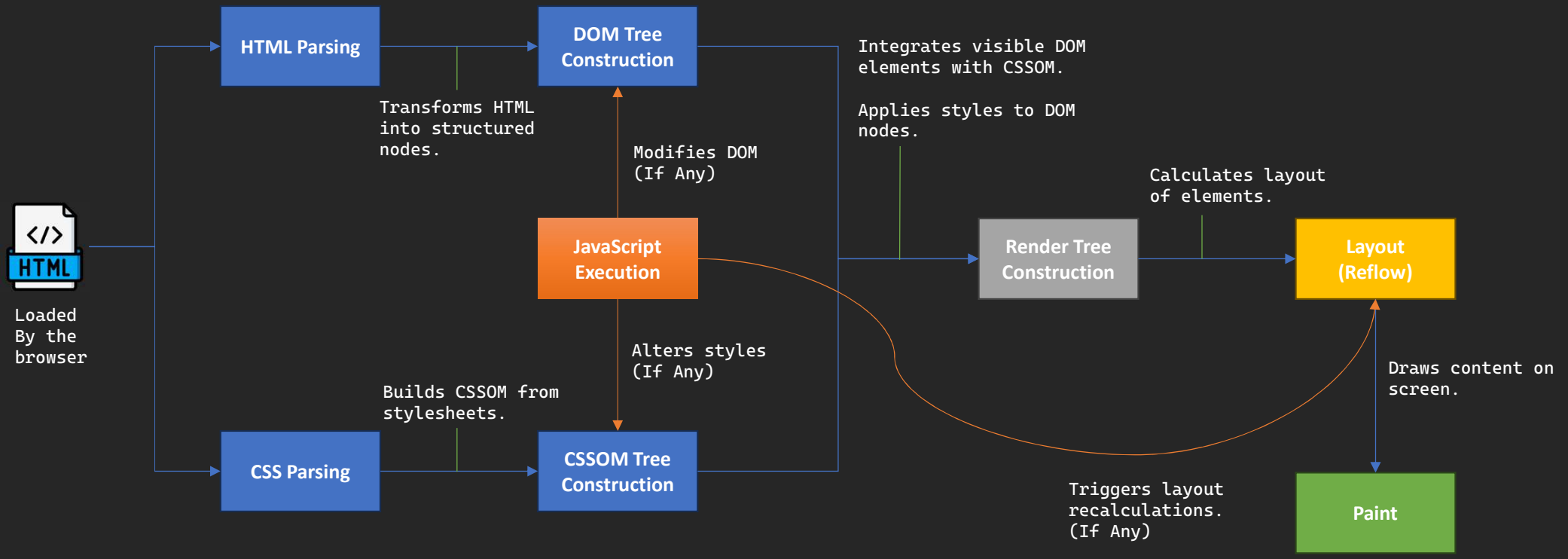
Dr. Mohammed Abu-Hadhoud
DBA, MBA, PMOC, PgMP®, PMP®, PMI-RMP®, CM, ITILF, MCPD, MCSD

How Browsers Render HTML?



Dr. Mohammed Abu-Hadhoud
DBA, MBA, PMOC, PgMP, PMP, PMI-RMP, CM, ITILF, MCPD, MCSD
28+ years of experience

How Browsers Render HTML with JS?



Dr. Mohammed Abu-Hadhoud
DBA, MBA, PMOC, PgMP, PMP, PMI-RMP, CM, ITILF, MCPD, MCSD
28+ years of experience

Step 1: Parsing HTML

- Process: When a browser loads an HTML file, it reads, or "parses," the HTML code to understand the structure and content of the page.
- Outcome: The browser converts HTML tags into DOM (Document Object Model) nodes, creating a "DOM tree."

Dr. Mohammed Abu-Hadhoud
DBA, MBA, PMOC, PgMP, PMP, PMI-RMP, CM, ITILF, MCPD, MCSD
28+ years of experience

Step 2: Parsing CSS

- Process: Alongside HTML, the browser parses external, internal, and inline CSS to determine the styling of various HTML elements.
- Outcome: The CSS information is used to create the CSSOM (CSS Object Model).

Dr. Mohammed Abu-Hadhoud
DBA, MBA, PMOC, PgMP, PMP, PMI-RMP, CM, ITILF, MCPD, MCSD
28+ years of experience

Step 3: Executing JavaScript

- **Process:**
  - JavaScript execution can occur during initial parsing if scripts are synchronous, or after HTML parsing if scripts are asynchronous or deferred.
  - JavaScript can modify both the DOM and CSSOM during or after their construction.
- **Outcome:**
  - JavaScript may add, remove, or modify elements in the DOM, which can necessitate recalculating the CSSOM and re-rendering the Render Tree.
  - It can trigger layout changes or even repaints depending on the nature of the DOM manipulation.

Dr. Mohammed Abu-Hadhoud
DBA, MBA, PMOC, PgMP, PMP, PMI-RMP, CM, ITILF, MCPD, MCSD
28+ years of experience

Step 4: Constructing the Render Tree

- It is a combination of the DOM and CSSOM, containing only visible elements and their styles, crucial for painting the page.
- **Process:** The browser combines the DOM and CSSOM to form the render tree, which represents the visual layout of the webpage. Only elements that are actually visible (i.e., those that affect layout and are not set to display: none) are included.
- **Outcome:** The render tree includes all the visual elements of the page, like text and colors, positioned according to CSS rules.

Dr. Mohammed Abu-Hadhoud
DBA, MBA, PMOC, PgMP, PMP, PMI-RMP, CM, ITILF, MCPD, MCSD
28+ years of experience

Not in the RederTree

- Non-Visual Elements: Head , script, Title ..etc.
- Nodes Hidden via Display:None

Dr. Mohammed Abu-Hadhoud
DBA, MBA, PMOC, PgMP, PMP, PMI-RMP, CM, ITILF, MCPD, MCSD
28+ years of experience

Step 5: Layout Process

- **Process:**
  - The browser calculates the exact position and size of each object on the page, a process known as "layout" or "reflow" .
  - This process can be affected by JavaScript, especially if scripts alter the geometry of elements (like changing the size, position, or display properties).
- **Outcome:** Determines how elements are spatially positioned on the screen.

Dr. Mohammed Abu-Hadhoud
DBA, MBA, PMOC, PgMP, PMP, PMI-RMP, CM, ITILF, MCPD, MCSD
28+ years of experience

Step 6: Painting

- **Process:**
  - The final step is painting, where the render tree is converted into actual pixels on the screen.
  - Painting can be triggered by changes in visual styles that don’t affect layout, such as color changes or shadows.
- **Outcome:** The visual representation of the page is displayed to the user.

Dr. Mohammed Abu-Hadhoud
DBA, MBA, PMOC, PgMP, PMP, PMI-RMP, CM, ITILF, MCPD, MCSD
28+ years of experience

Important Note on JavaScript's Impact:

- **Reflows and Repaints:**
  - JavaScript can cause performance issues if not handled correctly, as DOM manipulations can lead to frequent reflows and repaints.
  - Efficient JavaScript coding practices are essential to minimize these performance hits, ensuring smooth, efficient rendering by the browser.
- **Asynchronous Loading:** Modern web practices often involve loading JavaScript asynchronously or deferring it to avoid blocking the rendering of the page, enhancing the user experience by displaying content faster.

Dr. Mohammed Abu-Hadhoud
DBA, MBA, PMOC, PgMP, PMP, PMI-RMP, CM, ITILF, MCPD, MCSD
28+ years of experience

Important:

Understanding this interaction is crucial for optimizing performance and ensuring compatibility across different browsers and devices.

Dr. Mohammed Abu-Hadhoud
DBA, MBA, PMOC, PgMP, PMP, PMI-RMP, CM, ITILF, MCPD, MCSD
28+ years of experience


ProgrammingAdvices.com
Thank You
Mohammmed Abu-Hadhoud
26+ Years of Experience
MBA, PMOC, PgMP®, PMP®, PMI-RMP®, CM, ITILF, MCPD, MCSD
PROGRAMMING ADVICES
LEARN THE RIGHT WAY