



HTML 101

async vs defer in `<script>` tags ✨





What is it ?

We'll understand the difference in using the **async** and **defer** attributes in <script> tags in your HTML page

ways to load JS files



```
<script src="..."></script>
```



```
<script async src="..."></script>
```



```
<script defer src="..."></script>
```





<script> tag in the <head>



```
<html lang="en">
  <head>
    <script src="./index.js"></script>
  </head>
  <body>
    Hey lo World!
  </body>
</html>
```

without async or defer

parse

load

execute

parse



Blocks HTML parsing. User would see a blank page while it fetches the .js file



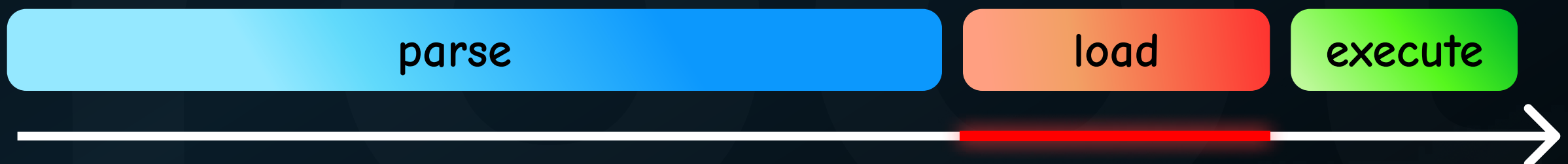


<script> at the end of <body>



```
<html lang="en">
  <head>
  </head>
  <body>
    Hey lo World!
    <script src="./index.js"></script>
  </body>
</html>
```

without async or defer



Waits for HTML DOM to be created. User might have to wait longer





using async



```
<html lang="en">
  <head>
    <script async src="./index.js"></script>
  </head>
  <body>
    Hey lo World!
  </body>
</html>
```

load

parse

execute

parse

Loads it as it is parsing the HTML and executes it as soon as the script is fetched. Good for 3rd party libraries.



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Caveat using async



```
<html lang="en">
  <head>
    <!-- takes 20 seconds to load -->
    <script async src="./index1.js"></script>
    <!-- takes 5 seconds to load -->
    <script async src="./index2.js"></script>
  </head>
  <body>
    Hey lo World!
  </body>
</html>
```

load 2

load 1

parse

execute 2

execute 1

parse

Scripts are not executed in order



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using defer



```
<html lang="en">
  <head>
    <script defer src="./index.js"></script>
  </head>
  <body>
    Hey lo World!
  </body>
</html>
```

load

parse

execute

Waits for DOM to be created. Executes script tags in the order you've defined them.



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multiple scripts using defer

```
<html lang="en">
  <head>
    <!-- takes 20 seconds to load -->
    <script defer src="./index1.js"></script>
    <!-- takes 5 seconds to load -->
    <script defer src="./index2.js"></script>
  </head>
  <body>
    Hey lo World!
  </body>
</html>
```

load 2

load 1

parse

execute 1

execute 2

Scripts are executed in order that you define them



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