



Introduction to Web Development

HTML, CSS, JavaScript, and Tooling

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Our Agenda

- ✓ Web Development Fundamentals
An overview of HTML, CSS, and JavaScript roles.
- ✓ HTML: Page Structure
Core HTML elements for webpage layout.
- ✓ CSS: Styling and Design
Using CSS to style HTML elements.
- ✓ JavaScript: Dynamic Behavior
Introduction to scripting with JavaScript.
- ✓ Development Tools
Key tools and environments for web development.
- ✓ Closing & Wrap Up
Recap and resources for further learning.



athena

HTML



CSS



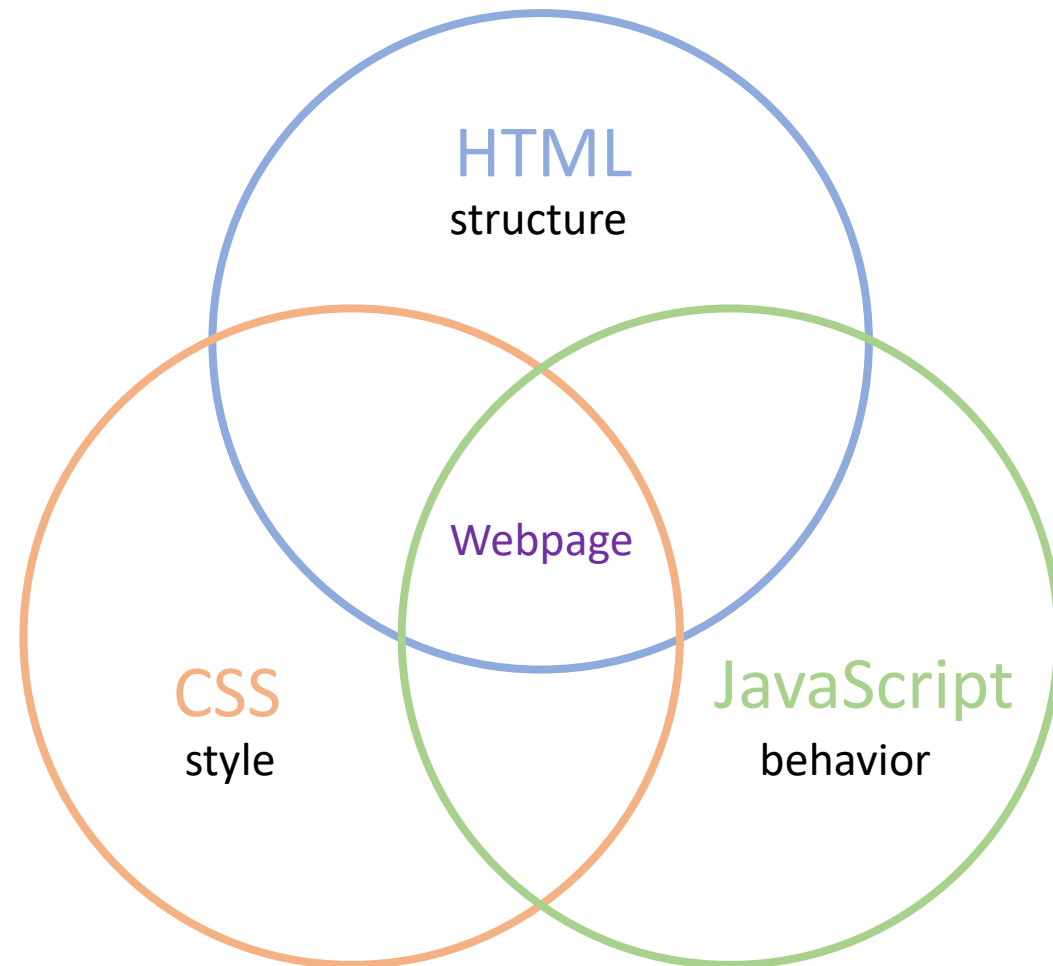
JS



Web Development Fundamentals

The Pillars of Web Development

HTML, CSS, and JavaScript converge to create a webpage, each adding structure, style, and interactivity respectively.





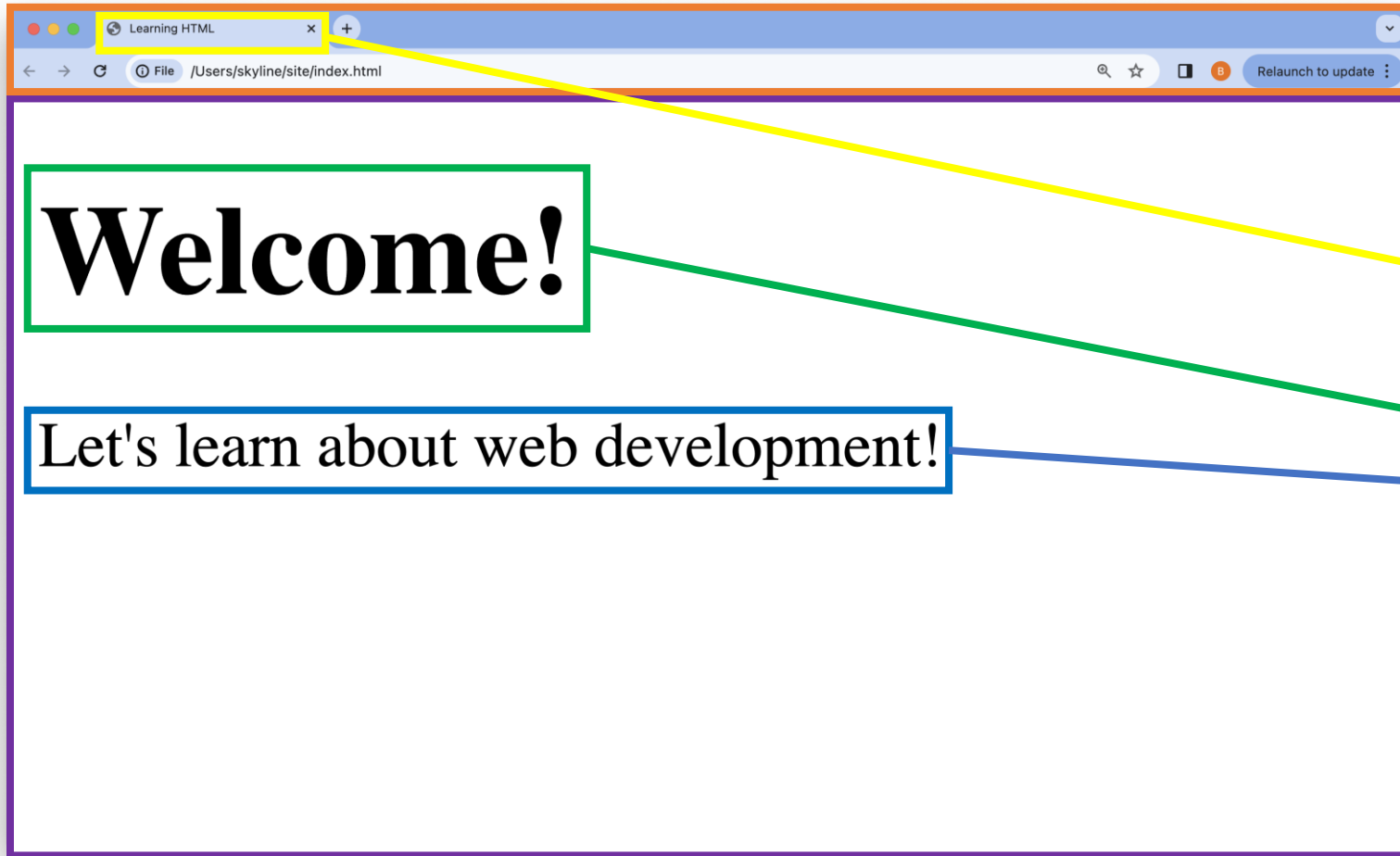
HTML: Page Structure

Basic HTML Structure

HTML structure forms the backbone of a webpage, organizing the content with a clean, semantic layout from header to footer

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4  |   <meta charset="UTF-8">
5  |   <title>Simple HTML Structure</title>
6  </head>
7  <body>
8  |   <header>
9  |   |   <h1>Website Header</h1>
10  |   </header>
11
12  |   <div>
13  |   |   <p>Main content goes here.</p>
14  |   </div>
15
16  |   <footer>
17  |   |   <p>Website Footer</p>
18  |   </footer>
19 </body>
20 </html>
```

HTML Structure



```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>Learning HTML</title>
</head>
<body>
  <div>
    <h1>Welcome!</h1>
    <p>Let's learn about web development!</p>
  </div>
</body>
</html>
```

Welcome!

Let's learn about web development!

HTML Structure

```
<div>
  <h2>Section Title</h2>
  <p>This is a paragraph of text within a div element.</p>
  <a href="https://example.com">Click here</a>
  <ul>
    <li>List Item 1</li>
    <li>List Item 2</li>
    <li>List Item 3</li>
  </ul>
  
  <button>Click Me</button>
</div>
```



Website Header

Section Title

This is a paragraph of text within a div element.

[Click here](#)

- List Item 1
- List Item 2
- List Item 3



Click Me

Website Footer



CSS: Styling and Design

Basic CSS Styling

Cascading Style Sheets (CSS) enhance the visual presentation of webpages by providing a powerful and flexible way to apply styles and layouts

```
body {
  font-family: Arial, sans-serif;
  margin: 0;
  padding: 0;
  background-color: #f4f4f4;
}

header {
  background-color: #333;
  color: #fff;
  padding: 20px;
  text-align: center;
}

div {
  padding: 20px;
  margin: 20px 0;
}

footer {
  background-color: #333;
  color: #fff;
  text-align: center;
  padding: 20px;
}
```

CSS Styling

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>Simple HTML Structure</title>
  <link rel="stylesheet" href="style.css">
</head>
<body>
  <header>
    <h1>Website Header</h1>
  </header>

  <div>
    <h2>Section Title</h2>
    <p>This is a paragraph of text within a div element.</p>
    <a href="https://example.com">Click here</a>
    <ul>
      <li>List Item 1</li>
      <li>List Item 2</li>
      <li>List Item 3</li>
    </ul>
    
    <button>Click Me</button>
  </div>

  <footer>
    <p>Website Footer</p>
  </footer>
</body>
</html>
```

Section Title

This is a paragraph of text within a div element.

[Click here](#)

- List Item 1
- List Item 2
- List Item 3



Click Me

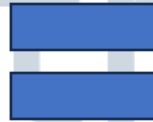
Website Footer

CSS Styling

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>Simple HTML Structure</title>
  <link rel="stylesheet" href="style.css">
</head>
<body>
  <header>
    <h1>Website Header</h1>
  </header>

  <div>
    <h2>Section Title</h2>
    <p>This is a paragraph of text within a div element.</p>
    <a href="https://example.com">Click here</a>
    <ul>
      <li>List Item 1</li>
      <li>List Item 2</li>
      <li>List Item 3</li>
    </ul>
    
    <button>Click Me</button>
  </div>

  <footer>
    <p>Website Footer</p>
  </footer>
</body>
</html>
```



```
body {
  font-family: Arial, sans-serif;
}
```


Website Header

Section Title

This is a paragraph of text within a div element.

[Click here](#)

- List Item 1
- List Item 2
- List Item 3



Click Me

Website Footer

```
text-align: center;
padding: 20px;
}
```

Basic styling
for html
elements

A custom
class
.custom-style
for specific
styling

A media
query for
responsive
design,
changing the
background
color on
smaller
screens

```
/* Basic element styling */  
body {  
  background-color: #eaeaea;  
}  
  
/* Nested element styling */  
div p {  
  margin-left: 20px;  
}  
  
/* Custom class */  
.custom-style {  
  padding: 10px;  
  background-color: #f0f0f0;  
}  
  
/* Hover effect for links */  
a:hover {  
  color: #ff0000;  
}  
  
/* Responsive design with media query */  
@media (max-width: 600px) {  
  body {  
    background-color: #cccccc;  
  }  
}
```

Nested element style.
This will apply to any
<p> inside a <div>

Hover effect for links.
This styling will be
applied when the
cursor is hovering
over an <a> element

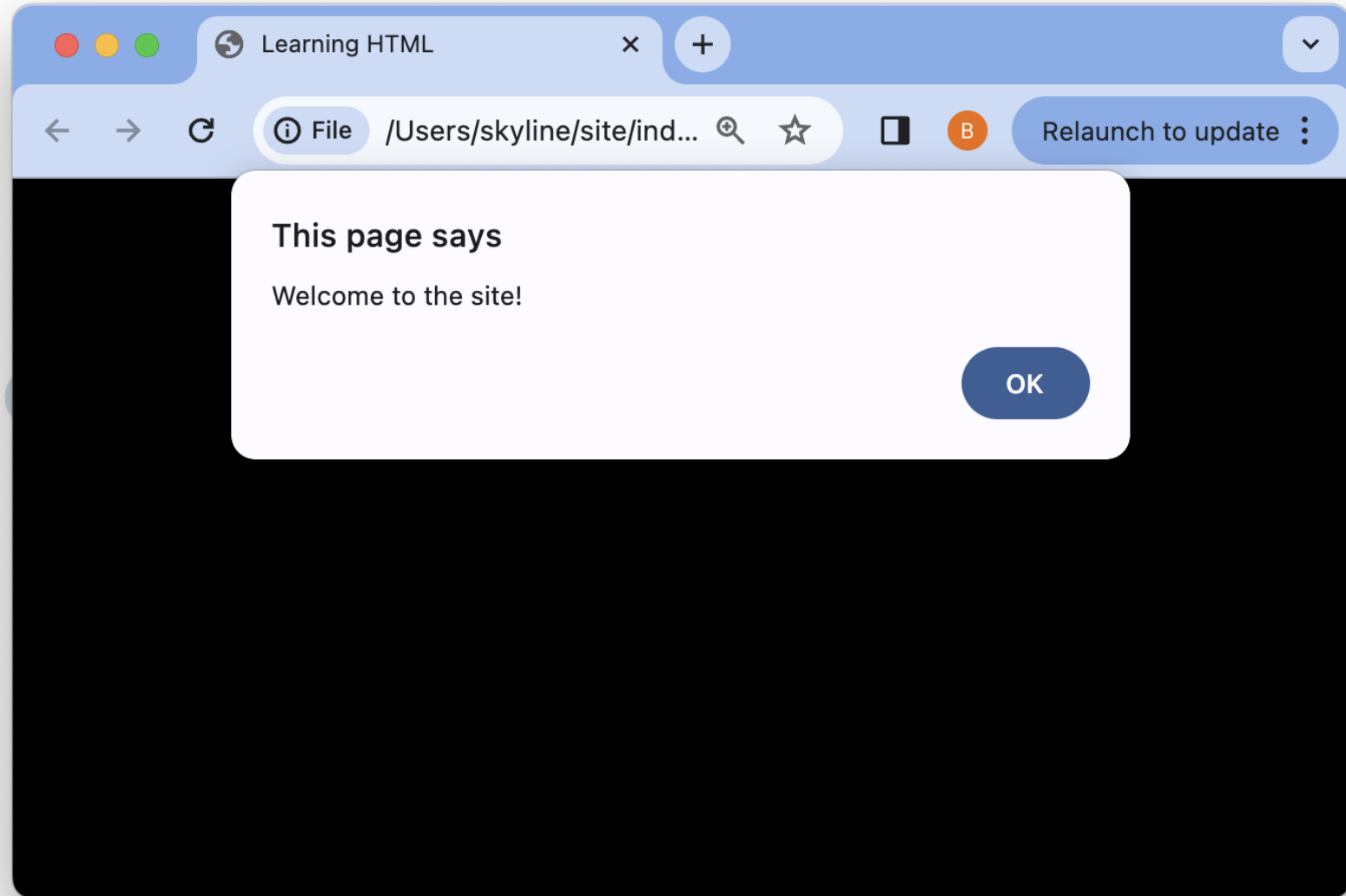


JavaScript: Dynamic Behavior

JavaScript Behavior

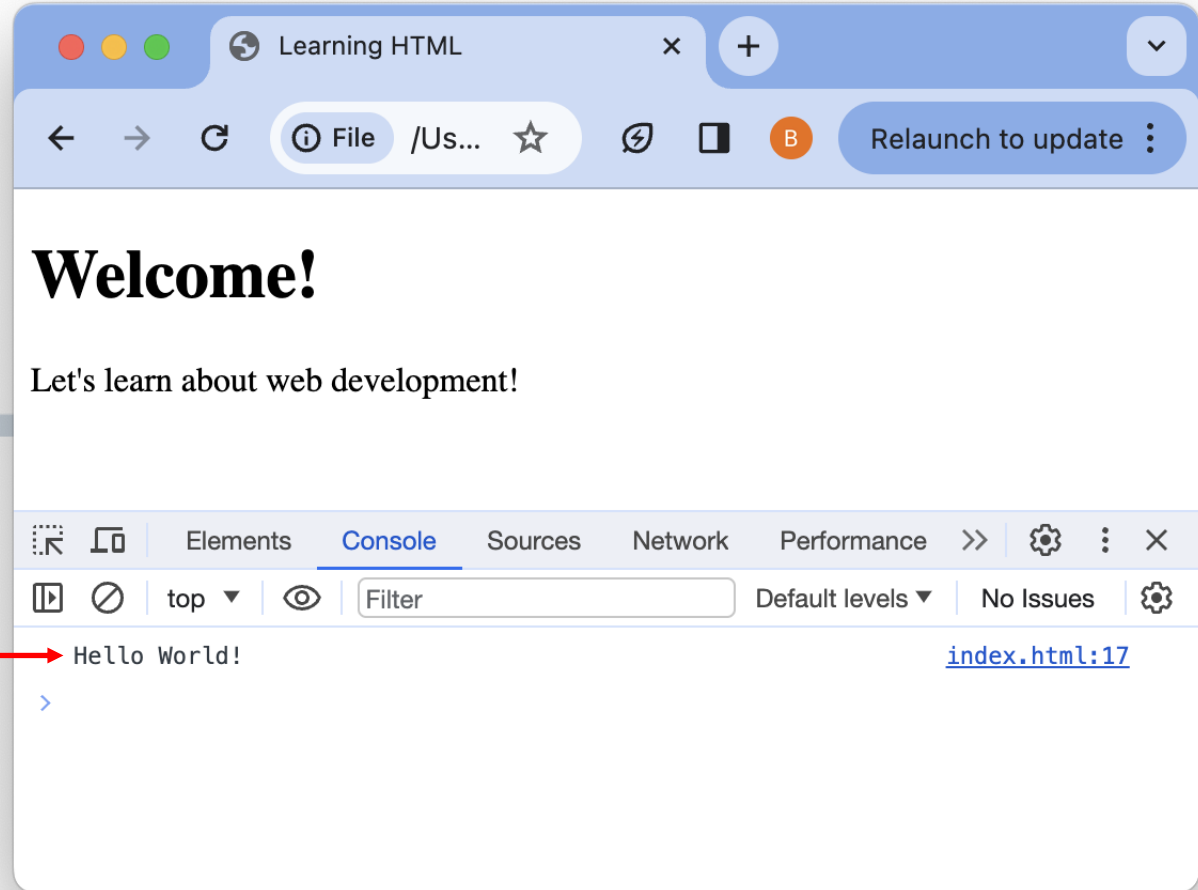
JavaScript adds interactivity to web pages, allowing for real-time content updates and user interaction.

```
document.addEventListener('DOMContentLoaded', function() {  
    alert('Welcome to the site!');  
});
```



How To Use JavaScript

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>Learning HTML</title>
</head>
<body>
  <div>
    <!-- main content -->
  </div>
  <script>
    console.log("Hello World!")
  </script>
</html>
```



The `<script>` tag embeds JavaScript code into an HTML page for client-side execution.

How To Use JavaScript



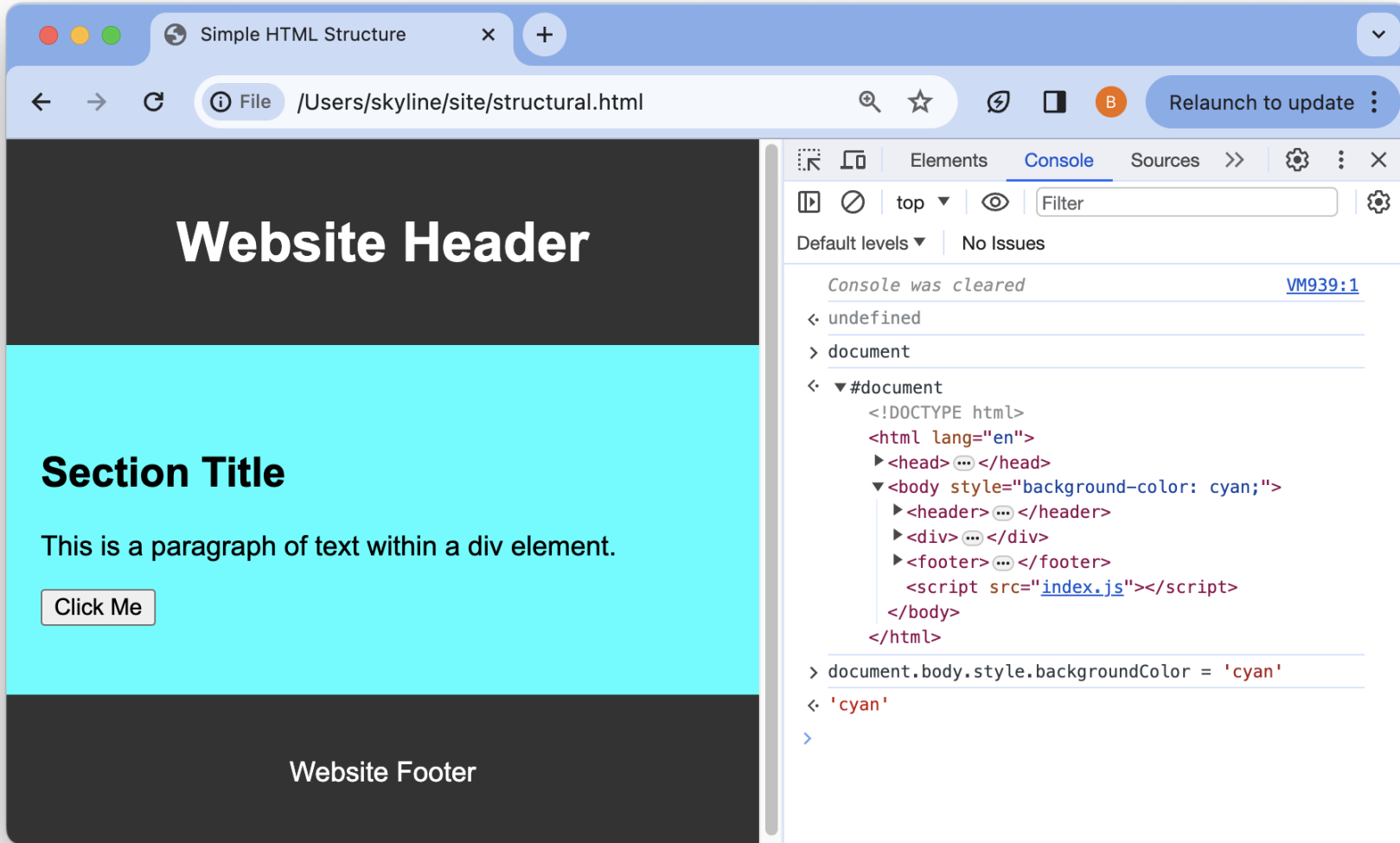
```
EXPLORER ... <> index.html JS index.js X  
v SITE  
<> index.html  
JS index.js  
# style.css  
JS index.js  
1 console.log("Hello World!")
```



```
<!DOCTYPE html>  
<html lang="en">  
<head>  
  <meta charset="UTF-8">  
  <title>Learning HTML</title>  
</head>  
<body>  
  <div>  
    <!-- main content -->  
  </div>  
  <script src="index.js"></script>  
</html>
```

Load JavaScript code from index.js (above) into the HTML file (right)

How To Use JavaScript



The screenshot shows a web browser window with a single tab titled "Simple HTML Structure". The address bar shows the file path: `File /Users/skyline/site/structural.html`. The browser interface includes navigation buttons (back, forward, refresh), a search icon, a star icon, and a "Relaunch to update" button. The main content area is divided into three sections: a black header with the text "Website Header", a cyan body with a "Section Title" and a paragraph "This is a paragraph of text within a div element.", and a black footer with the text "Website Footer". A "Click Me" button is located in the cyan section. The developer console is open on the right, showing the "Console" tab. The console output includes "Console was cleared" and a log of the document object model. The log shows the following structure:

```
VM939:1
< undefined
> document
< #document
  <!DOCTYPE html>
  <html lang="en">
    <head>
    <body style="background-color: cyan;">
      <header>
      <div>
      <footer>
      <script src="index.js"></script>
    </body>
  </html>
> document.body.style.backgroundColor = 'cyan'
< 'cyan'
>
```

You can use the JavaScript console for more than just logging values

How To Use JavaScript

```
<body>
  <header>
    <h1>Website Header</h1>
  </header>

  <div>
    <h2>Section Title</h2>
    <p>This is a paragraph of text within a div element.</p>
    <button id="my-button">Click Me</button>
  </div>

  <footer>
    <p>Website Footer</p>
  </footer>

  <script src="index.js"></script>
</body>
```

HTML elements have IDs to provide a unique identifier, allowing JavaScript to select and manipulate specific elements in the DOM.

How To Use JavaScript

```
document.addEventListener('DOMContentLoaded', () => {
  const myButton = document.getElementById('my-button');

  myButton.addEventListener('click', function() {
    const pastelColors = ['#ffbdbd', '#c6ffda', '#fdfd96', '#ff9cee', '#a0c4ff'];
    const randomPastelColor = pastelColors[Math.floor(Math.random() * pastelColors.length)];

    document.body.style.backgroundColor = randomPastelColor;

    setTimeout(() => {
      alert('I changed the background color to ' + randomPastelColor);
    }, 100);
  });
});
```

How To Use JavaScript

This page says
I changed the background color to #a0c4ff

Section Title

This is a paragraph of text within a div element.

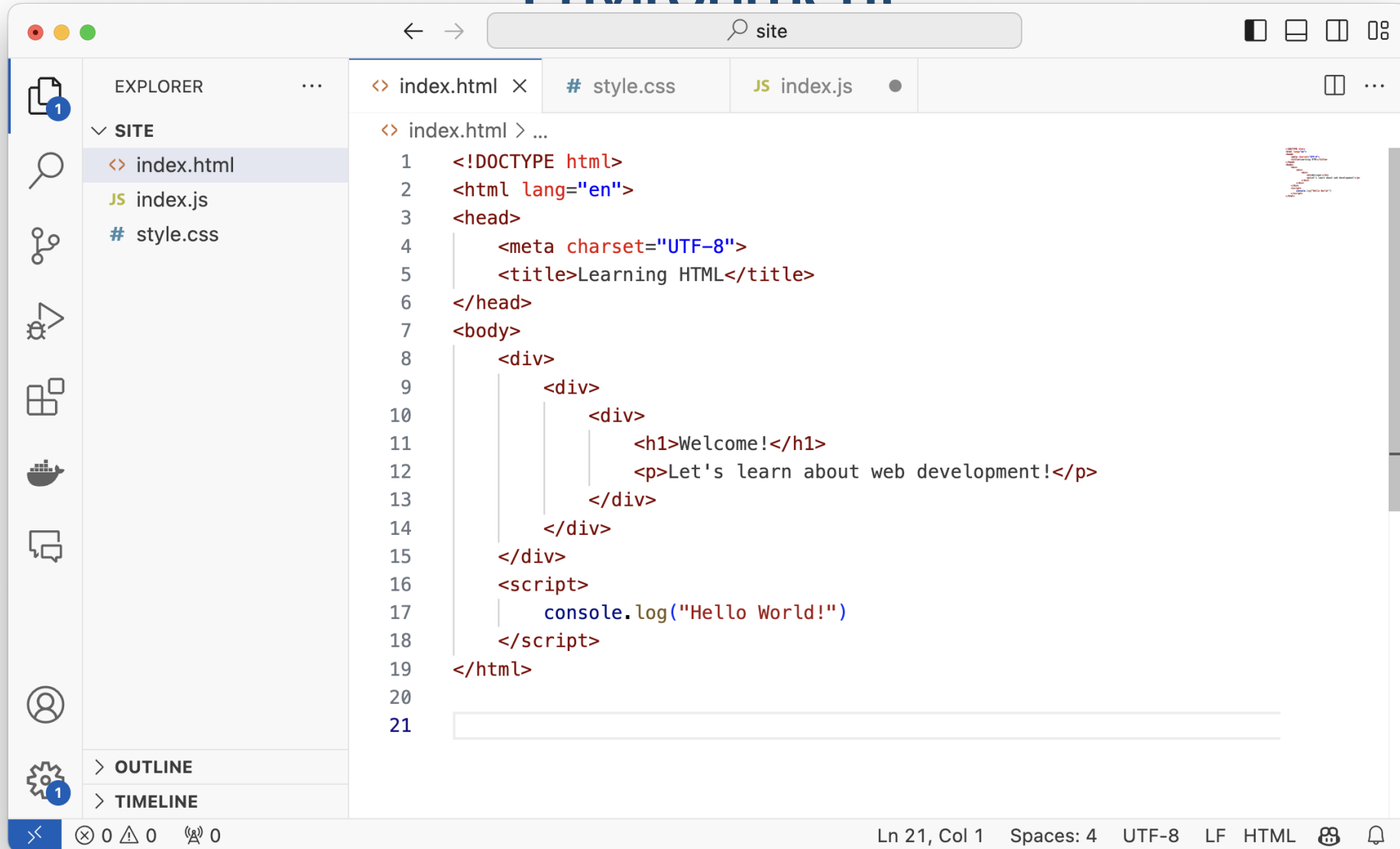
Click Me

Website Footer



Development Tools

Integrated Development Environment



Browser Developer Tools - Elements

DevTools - file:///Users/skyline/site/structural.html

Elements Console Sources Network Performance Memory Application Security Lighthouse Recorder Performance insights

```
<!DOCTYPE html>
<html lang="en">
  <head>
  </head>
  <body>
    <header>
      <h1>Website Header</h1>
    </header>
    <div>
      <h2>Section Title</h2>
      <p>This is a paragraph of text within a div element.</p>
      <button id="my-button">Click Me</button>
    </div>
    <footer == $0
      <p>Website Footer</p>
    </footer>
    <script src="index.js"></script>
  </body>
</html>
```

Styles Computed Layout Event Listeners

Filter :hov .cls + - []

```
element.style {
}

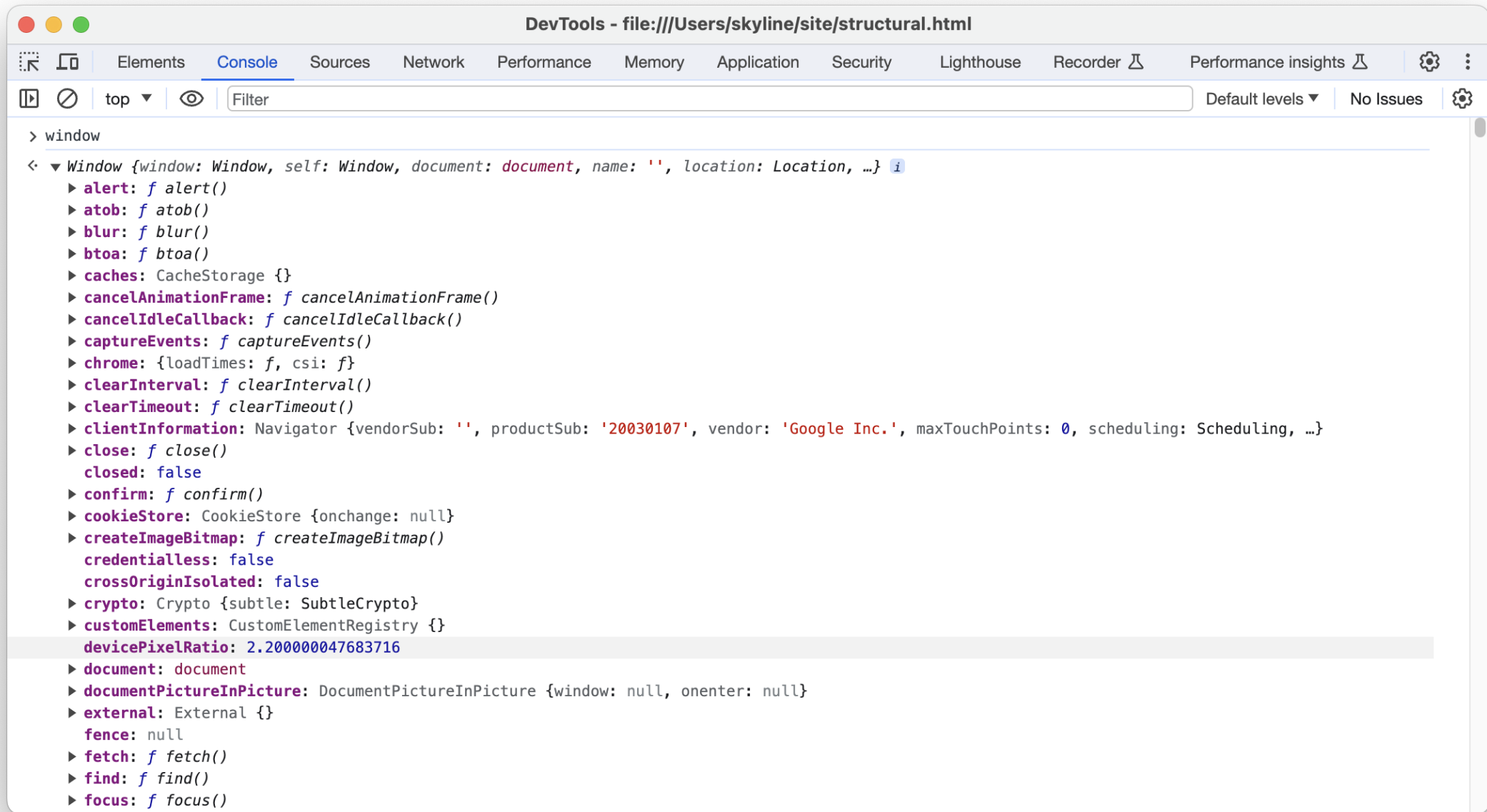
footer {
  background-color: #333;
  color: #fff;
  text-align: center;
  padding: 20px;
}

footer {
  display: block;
}

Inherited from body
body {
  font-family: Arial, sans-serif;
  margin: 0;
  padding: 0;
  background-color: #f4f4f4;
}
```

html body footer

Browser Developer Tools - Console



The screenshot shows the Chrome DevTools interface with the Console tab selected. The title bar reads "DevTools - file:///Users/skyline/site/structural.html". The top navigation bar includes tabs for Elements, Console, Sources, Network, Performance, Memory, Application, Security, Lighthouse, Recorder, and Performance insights. Below the navigation bar, there are icons for a play button, a refresh button, a dropdown menu set to "top", an eye icon, a "Filter" input field, "Default levels" dropdown, "No Issues" status, and a settings gear icon.

The console content shows the following structure:

```
> window
< ▼ Window {window: Window, self: Window, document: document, name: '', location: Location, ...} ⓘ
  ▶ alert: f alert()
  ▶ atob: f atob()
  ▶ blur: f blur()
  ▶ btoa: f btoa()
  ▶ caches: CacheStorage {}
  ▶ cancelAnimationFrame: f cancelAnimationFrame()
  ▶ cancelIdleCallback: f cancelIdleCallback()
  ▶ captureEvents: f captureEvents()
  ▶ chrome: {loadTimes: f, csi: f}
  ▶ clearInterval: f clearInterval()
  ▶ clearTimeout: f clearTimeout()
  ▶ clientInformation: Navigator {vendorSub: '', productSub: '20030107', vendor: 'Google Inc.', maxTouchPoints: 0, scheduling: Scheduling, ...}
  ▶ close: f close()
  ▶ closed: false
  ▶ confirm: f confirm()
  ▶ cookieStore: CookieStore {onChange: null}
  ▶ createImageBitmap: f createImageBitmap()
  ▶ credentialless: false
  ▶ crossOriginIsolated: false
  ▶ crypto: Crypto {subtle: SubtleCrypto}
  ▶ customElements: CustomElementRegistry {}
  ▶ devicePixelRatio: 2.200000047683716
  ▶ document: document
  ▶ documentPictureInPicture: DocumentPictureInPicture {window: null, onenter: null}
  ▶ external: External {}
  ▶ fence: null
  ▶ fetch: f fetch()
  ▶ find: f find()
  ▶ focus: f focus()
```

Browser Developer Tools - Network

The screenshot shows the Chrome DevTools Network tab for the file:///Users/skyline/site/structural.html. The interface includes a toolbar with various filters and settings, a list of network requests, and a summary bar at the bottom.

Toolbar settings: Preserve log, Disable cache, No throttling, Blocked response cookies, Blocked requests, 3rd-party requests.

Filter: Invert Hide data URLs Hide extension URLs **All** Doc JS Fetch/XHR CSS Font Img Media Manifest WS Wasm Other

Name	Status	Type	Initiator	Size	Time	Waterfall
structural.html	200	document	Other	507 B	2 ms	
style.css	200	stylesheet	structural.html:5	355 B	8 ms	
index.js	200	script	structural.html:23	549 B	8 ms	

3 requests | 1.4 kB transferred | 1.4 kB resources | Finish: 24 ms

Questions



Thank you for attending.

If you have any additional questions, or would like to learn more about our Athena program, please email...

pka@skyline-ats.com

