

# Javascript Errors

# Objectives

- Identify and resolve common JS errors by reading a stack trace and identifying the cause of the error
- Catch exceptions using a try...catch block and handle them
- Explain the 6 debugger actions (resume, step over, step into, step out, breakpoints, exceptions).

# TypeError

Thrown when a variable or parameter is not of a valid type. For example:

```
var person;  
person.name;  
// Uncaught TypeError:  
//Cannot read property 'name' of undefined
```

# SyntaxError

Thrown when the JavaScript syntax is wrong. For example:

```
var greet = function {  
    console.log('Hello world');  
};  
// Uncaught SyntaxError: Unexpected token {
```

# ReferenceError

Thrown when attempting to access something that has not been declared. For example:

```
wishfulThinking();  
// Uncaught ReferenceError: wishfulThinking  
// is not defined
```

# RangeError

Thrown when the maximum call stack size is exceeded. Like when a recursive function calls itself too many times. For example:

```
var factorial = function(n) {  
  if (n === 1) {  
    return 1;  
  }  
  
  return n * factorial(n - 1);  
}  
  
factorial(30000);  
// Uncaught RangeError: Maximum call stack size exceeded
```

# Try...catch

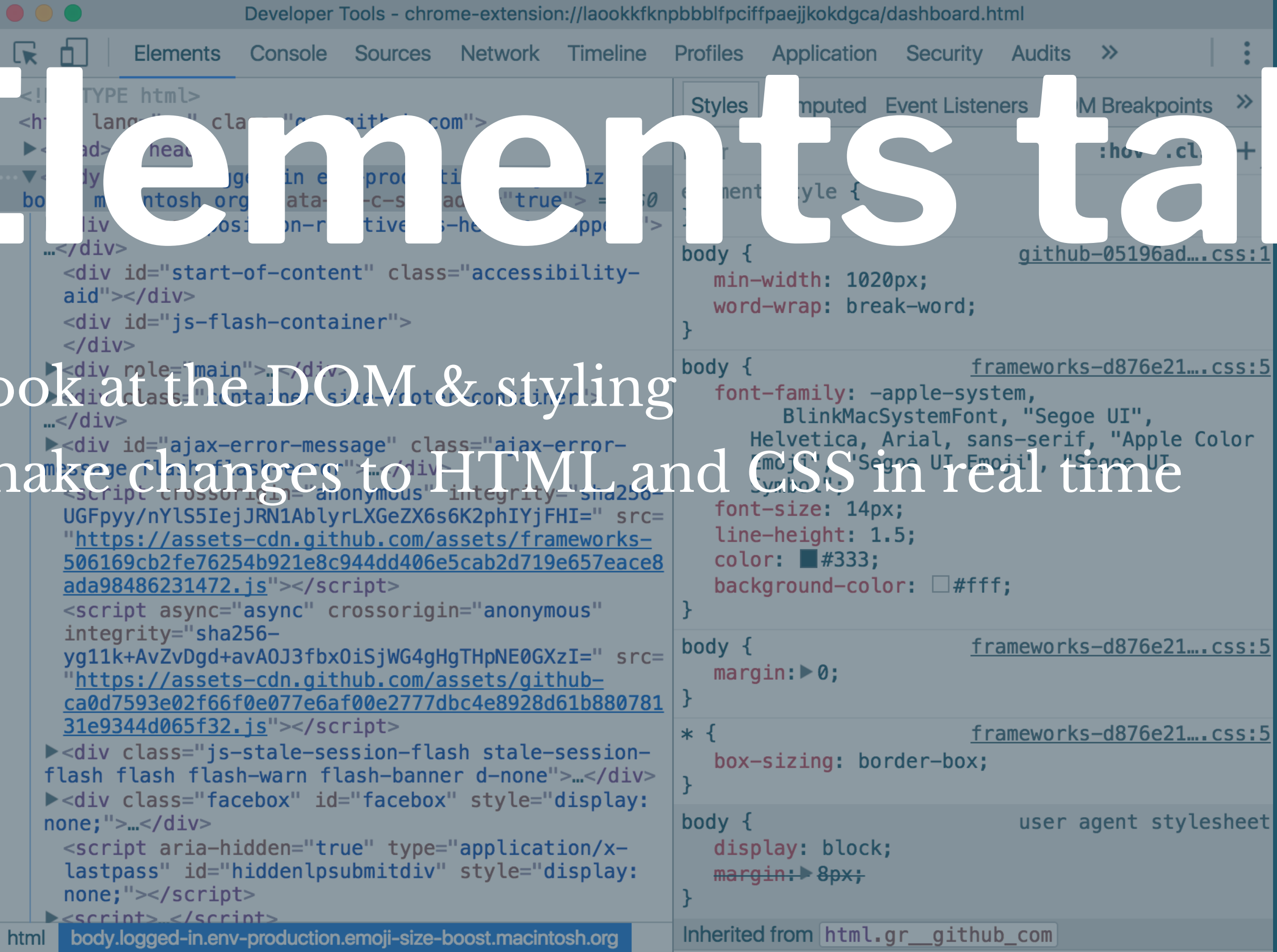
```
try {  
    var arr = new Array[-1]; // Throws RangeError  
}  
catch(err) {  
    console.log(err); // This IS the RangeError  
}
```

# Chrome Developer Tools



# Elements tab

- look at the DOM & styling
- make changes to HTML and CSS in real time



Developer Tools - chrome-extension://laookkfknppbbblfpciffpaejjkokdgc/dashboar.html

ElementsConsoleSourcesNetworkTimelineProfilesApplicationSecurityAudits>>

<!DOCTYPE html>  
<html lang="en" class="gr\_\_github\_com">  
 <head>...</head>  
 <body class="logged-in env-production emoji-size-boost macintosh org" data-gr-c-s-loaded="true"> == \$0  
 <div class="position-relative js-header-wrapper">  
 ...</div>  
 <div id="start-of-content" class="accessibility-aid"></div>  
 <div id="js-flash-container">  
 </div>  
 <div role="main">...</div>  
 <div class="container site-footer-container">  
 ...</div>  
 <div id="ajax-error-message" class="ajax-error-message flash flash-error">...</div>  
 <script crossorigin="anonymous" integrity="sha256-UGFpyy/nYlS5IejJRN1AblyrLXGeZX6s6K2phIYjFHI=" src="https://assets-cdn.github.com/assets/frameworks-506169cb2fe76254b921e8c944dd406e5cab2d719e657eace8ada98486231472.js"></script>  
 <script async="async" crossorigin="anonymous" integrity="sha256-yg11k+AvZvDgd+avA0J3fbx0iSjWG4gHgTHpNE0GXzI=" src="https://assets-cdn.github.com/assets/github-ca0d7593e02f66f0e077e6af00e2777dbc4e8928d61b88078131e9344d065f32.js"></script>  
 <div class="js-stale-session-flash stale-session-flash flash flash-warn flash-banner d-none">...</div>  
 <div class="facebox" id="facebox" style="display: none;">...</div>  
 <script aria-hidden="true" type="application/x-lastpass" id="hiddenlpsubmitdiv" style="display: none;"></script>  
 <script>...</script>  
 </body>  
</html>

StylesComputedEvent ListenersDOM Breakpoints>>

Filter: :hov .cls +

element.style {  
 }  
body {  
 min-width: 1020px;  
 word-wrap: break-word;  
}  
body {  
 font-family: -apple-system, BlinkMacSystemFont, "Segoe UI", Helvetica, Arial, sans-serif, "Apple Color Emoji", "Segoe UI Emoji", "Segoe UI Symbol";  
 font-size: 14px;  
 line-height: 1.5;  
 color: #333;  
 background-color: #fff;  
}  
body {  
 margin: 0;  
}  
\* {  
 box-sizing: border-box;  
}  
body {  
 display: block;  
 margin: 8px;  
}  
Inherited from html.gr\_\_github\_com

Elements Console Sources Network Timeline Profiles Application Security Audits

Preser

&gt; document

&lt; ▼ #

&lt;!DOCTYPE html&gt;

&lt;html lang="en" class="gr\_\_github\_com"&gt;

▶ &lt;head&gt;...&lt;/head&gt;

▶ <body class="logged-in env-production emoji-size-boost macintosh org" data-gr-c-s-loaded="true">...</body>  
</html>

&gt; localStorage

&lt; Storage {bundle-urls: "{\"frameworks.js\":\"https://assets-cdn.github.com/as...

▶ 3adc33d4d19adc2bad851a35ed9b9b0f73702c554f5.css\"}, initialDocumentLoad: \"true\", logged-in: \"true\", length: 3}

&gt; var arr = [1,2,3]

&lt; undefined

&gt; arr.toString()

&lt; \"1,2,3\"

&gt;

# Console tab

— see errors

— test JS





Elements

Console

Sources

Network

Timeline

Profiles

Application

Security

Audits



Preserve log

&gt; document

&lt; ▼ #document

&lt;!DOCTYPE html&gt;

&lt;html lang="en" class="gr\_\_github\_com"&gt;

▶ &lt;head&gt;...&lt;/head&gt;

▶ <body class="logged-in env-production emoji-size-boost macintosh org" data-gr-c-s-loaded="true">...</body>  
</html>

&gt; localStorage

< Storage {bundle-urls: "{"frameworks.js":"https://assets-cdn.github.com/as...  
▶ 3adc33d4d19adc2bad851a35ed9b9b0f73702c554f5.css"}", initialDocumentLoad: "true", logged-in: "true", length: 3}

&gt; var arr = [1,2,3]

&lt; undefined

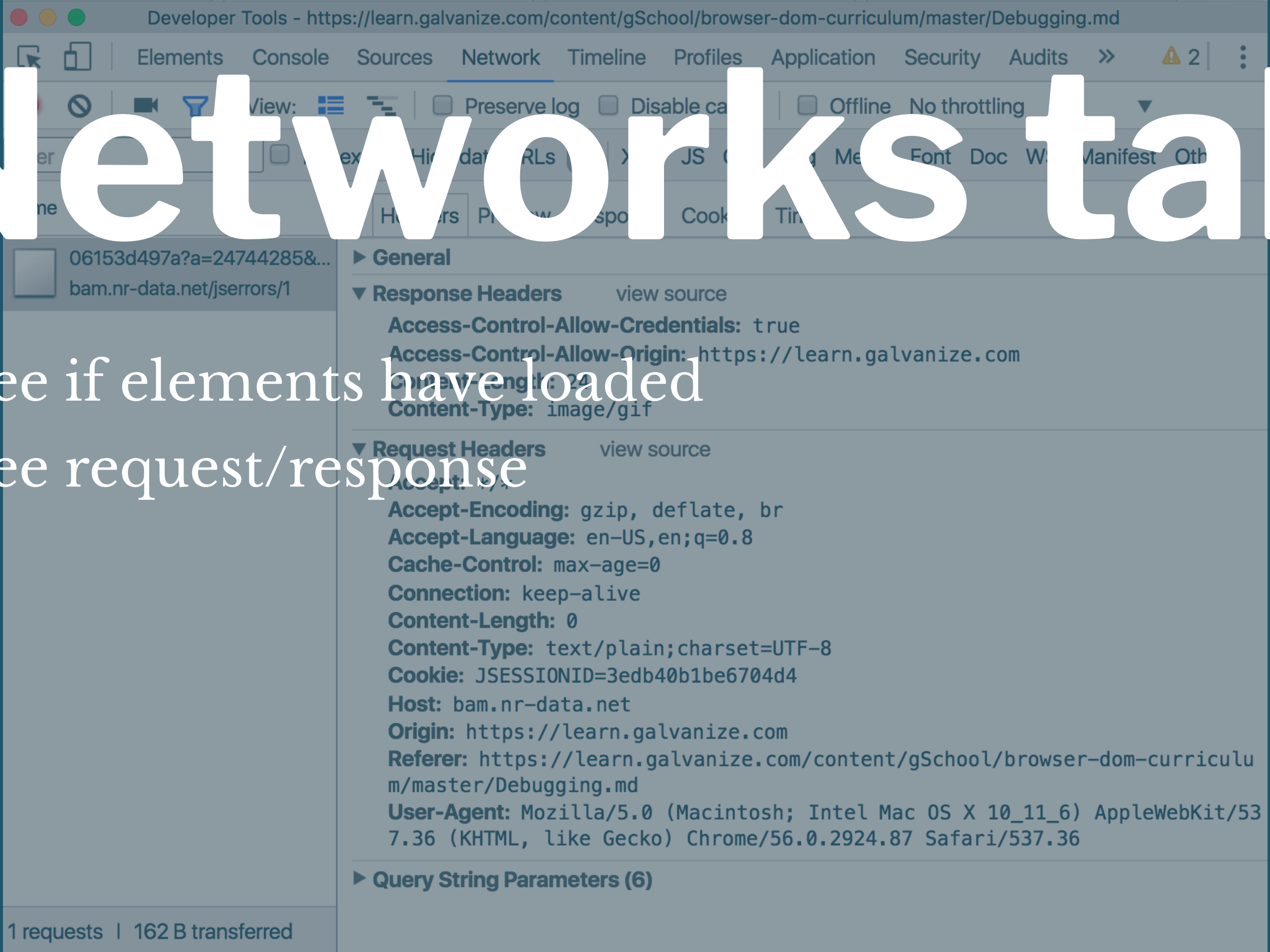
&gt; arr.toString()

&lt; "1,2,3"

&gt;

# Networks tab

- see if elements have loaded
- see request/response



Developer Tools - https://learn.galvanize.com/content/gSchool/browser-dom-curriculum/master/Debugging.md

Elements

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View: 

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 Preserve log

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 Disable cache

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 Offline

No throttling

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Filter

☐ Regex

☐ Hide data URLs

All

XHR

JS

CSS

Img

Media

Font

Doc

WS

Manifest

Other

Name

×

Headers

Preview

Response

Cookies

Timing

06153d497a?a=24744285&...  
bam.nr-data.net/jserrors/1

▶ General

▼ Response Headers 

view source

Access-Control-Allow-Credentials: true  
Access-Control-Allow-Origin: https://learn.galvanize.com  
Content-Length: 24  
Content-Type: image/gif

▼ Request Headers 

view source

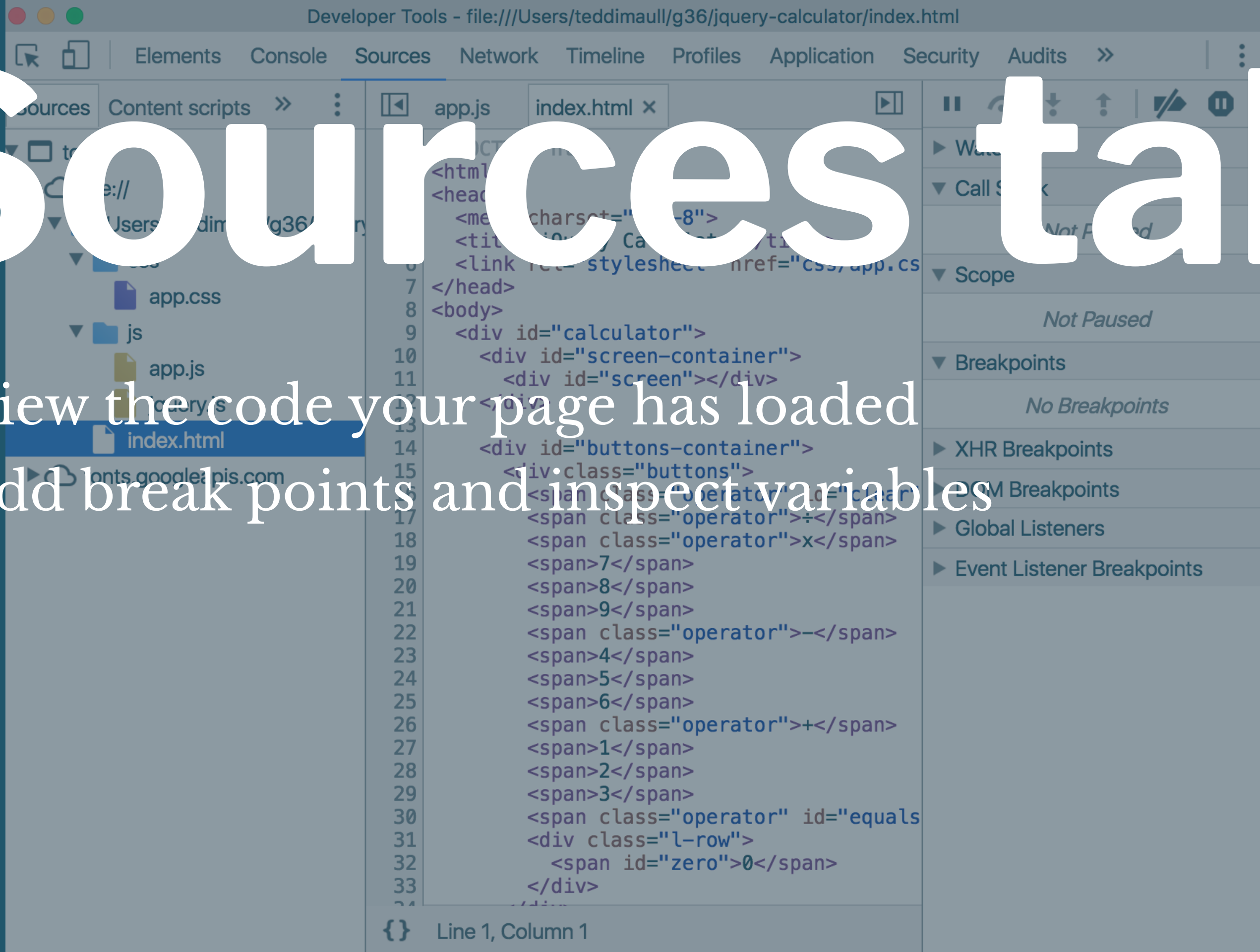
Accept: \*/\*  
Accept-Encoding: gzip, deflate, br  
Accept-Language: en-US,en;q=0.8  
Cache-Control: max-age=0  
Connection: keep-alive  
Content-Length: 0  
Content-Type: text/plain; charset=UTF-8  
Cookie: JSESSIONID=3edb40b1be6704d4  
Host: bam.nr-data.net  
Origin: https://learn.galvanize.com  
Referer: https://learn.galvanize.com/content/gSchool/browser-dom-curriculum/master/Debugging.md  
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10\_11\_6) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/56.0.2924.87 Safari/537.36

▶ Query String Parameters (6)

1 requests | 162 B transferred

# Sources tab

- view the code your page has loaded
- add break points and inspect variables





Developer Tools - file:///Users/teddimaull/g36/jquery-calculator/index.html

Elements

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>>

Sources

Content scripts

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app.js

index.html x

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▼ top

▼ file://

▼ Users/teddimaull/g36/jquery-calculator

▼ css

app.css

▼ js

app.js

jquery.js

index.html

▶ fonts.googleapis.com

1

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```
<!DOCTYPE html>
<html>
<head>
  <meta charset="utf-8">
  <title>jQuery Calculator</title>
  <link rel="stylesheet" href="css/app.css">
</head>
<body>
  <div id="calculator">
    <div id="screen-container">
      <div id="screen"></div>
    </div>

    <div id="buttons-container">
      <div class="buttons">
        <span class="operator" id="clear">C</span>
        <span class="operator">÷</span>
        <span class="operator">x</span>
        <span>7</span>
        <span>8</span>
        <span>9</span>
        <span class="operator">-</span>
        <span>4</span>
        <span>5</span>
        <span>6</span>
        <span class="operator">+</span>
        <span>1</span>
        <span>2</span>
        <span>3</span>
        <span class="operator" id="equals">=</span>
        <div class="l-row">
          <span id="zero">0</span>
        </div>
      </div>
    </div>
  </div>
</body>
</html>
```

▶ Watch

▼ Call Stack

Not Paused

▼ Scope

Not Paused

▼ Breakpoints

No Breakpoints

▶ XHR Breakpoints

▶ DOM Breakpoints

▶ Global Listeners

▶ Event Listener Breakpoints

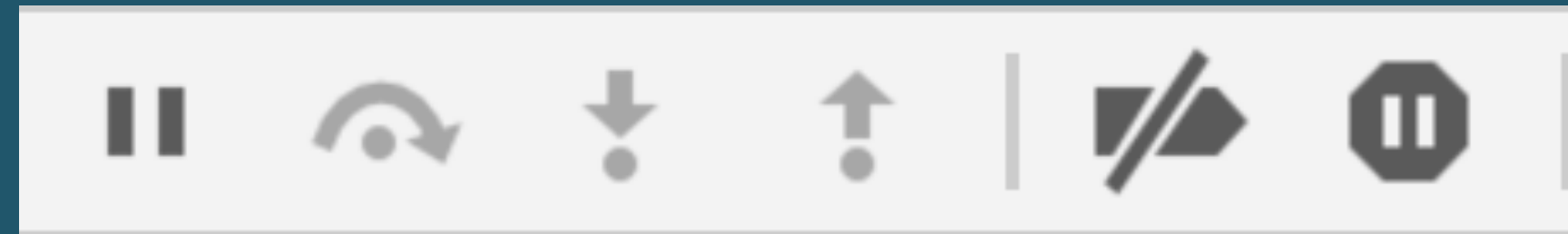
{ }

Line 1, Column 1



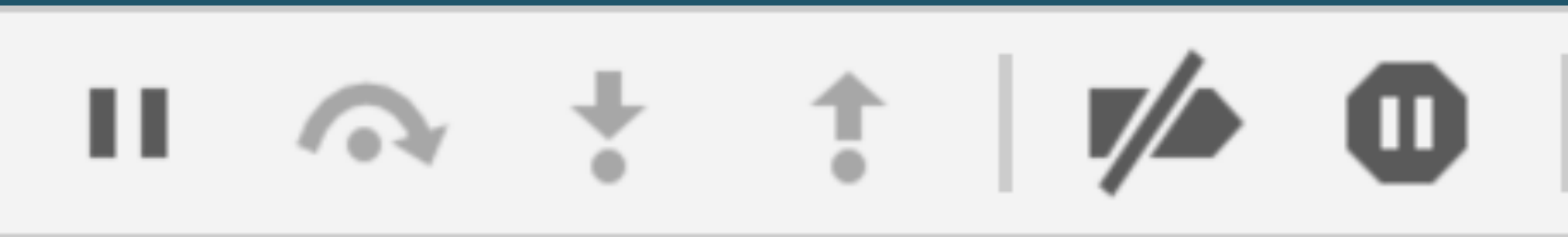
## Debugger Actions

- **resume** - resume execution until the next breakpoint
- **step over** - run highlighted line then step over to the next line of code
- **step into** - go down into whatever function is being called
- **step out** - return from the current function and go to its caller



## Debugger Actions

- **breakpoints** - deactivate all breakpoints in the code
- **exceptions** - pause on an exception



# Debugging Activity