

Part 1: JavaScript DevTools Examples

1. Reproduce a Bug

- **Description:** Introduced typo pet_info.happines to simulate a bug.
- **Steps:** Click Exercise → error appears in Console.
- **Screenshot:** Console showing undefined or error message.

The screenshot shows the Chrome DevTools Console tab. At the top, there are tabs for 'Console' (which is selected), 'What's new', 'AI assistance', and 'Issues'. Below the tabs is a toolbar with icons for play/pause, stop, and refresh, followed by dropdown menus for 'top', 'Filter', 'Default levels', 'No Issues', and settings. The main area starts with an error message: '(Internal Server Error)'. Below it, an error is listed: 'Error: 'happines' is not a valid property of pet_info.' with a link to 'installHook.js:1'. Underneath, a section titled 'After Exercise' shows a table dump of a variable:

(index)	value
name	'Ignikit'
weight	9
happiness	5
energy	70
happines	4
mood	'cheery'

At the bottom of the screenshot, the source code is shown:

```
function clickedExerciseButton() {
  // BUG: typo in property name
  pet_info.happines = Math.max(0, pet_info.happiness - 1);

  // Manual bug detection
  if (pet_info.happines !== undefined) {
    console.error("Error: 'happines' is not a valid property of pet_info.");
  }
}
```

```

function clickedExerciseButton() {
  // BUG: typo in property name
  pet_info.happiness = Math.max(0, pet_info.happiness - 1);

  // Manual bug detection
  if (pet_info...happines !== undefined) {
    | console.error("Error: 'happines' is not a valid property of pet_info.");
  }
}

```

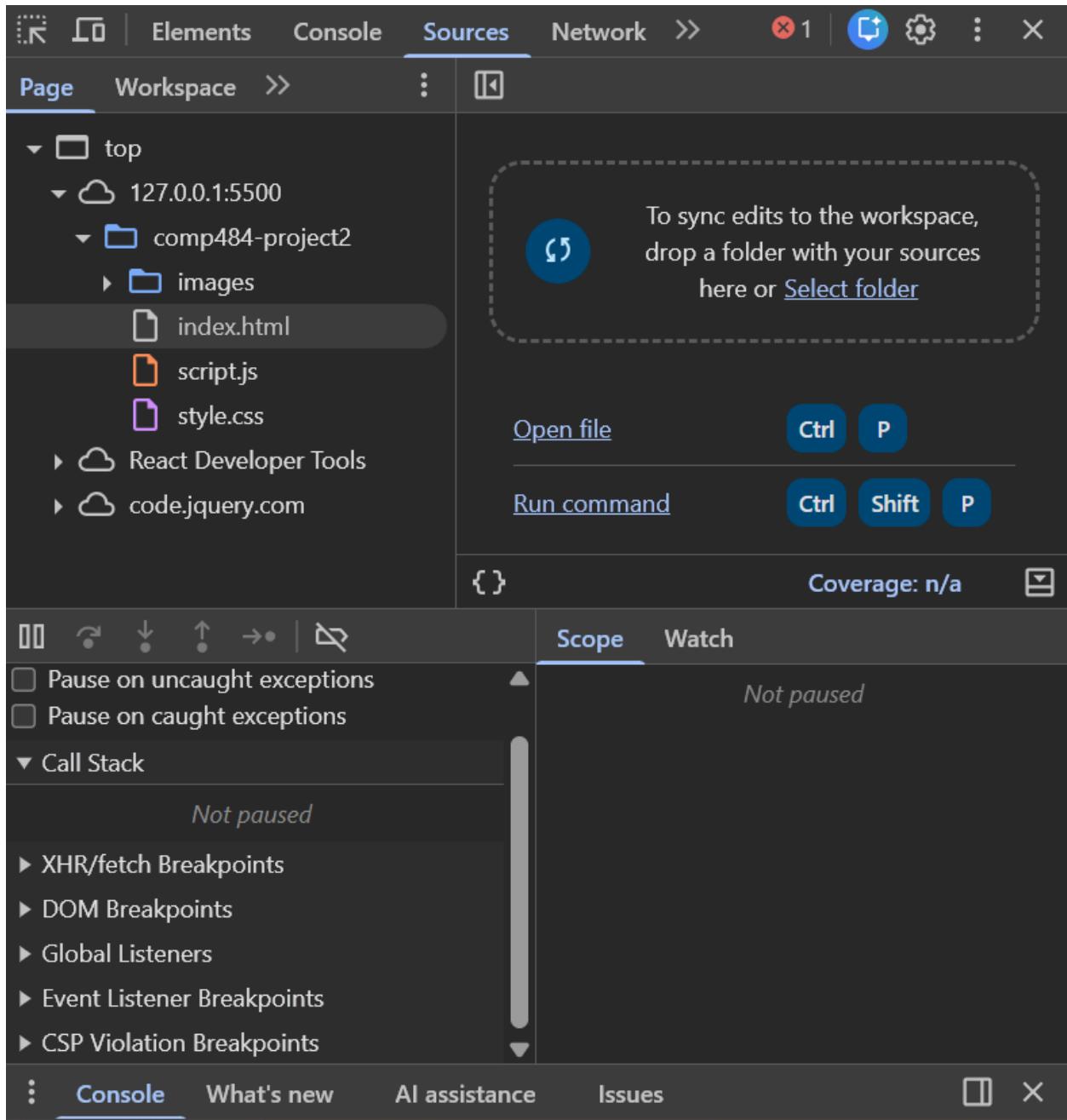
The screenshot shows the Glitch IDE's Sources panel. At the top, there is a code editor with a snippet of JavaScript. Below the code editor is a navigation bar with tabs: 'Console', 'What's new', 'AI assistance', and 'Issues'. The 'Console' tab is selected. Under the 'Console' tab, there is a message indicating an Internal Server Error (500 status code) for a GET request to 'https://glitch.com/edit/favicon-app.ico'. A tooltip suggests using `ctrl` + `i` to turn on code suggestions. Below the message, there is a table titled 'After Exercise' showing the state of the `pet_info` object. The table has two columns: 'index' and 'value'. The data in the table is as follows:

(index)	value
<code>name</code>	'Ignikit'
<code>weight</code>	9
<code>happiness</code>	4
<code>energy</code>	70
<code>mood</code>	'meh'

A tooltip at the bottom right of the table indicates that the table is an 'Object'.

2. Get Familiar with Sources UI

- **Description:** Opened Sources panel, explored file tree.
- **Steps:** Navigated to scripts.js
- **Screenshot:** Sources panel with file tree visible.



3. Pause the Code

- **Description:** Added debugger; in clickedPlayButton.
- **Steps:** Click Play → execution pauses.
- **Screenshot:** Sources panel paused at debugger.

Paused in debugger | ⏪ | ⏹

This is your Pet: Ignikit



Name: Ignikit
Weight: 10 pounds
Happiness: 5 tail wags (per min)
Energy: 100 left

Treat Play Exercise Sleep

```
function clickedPlayButton() {
    pet_info.happiness++;
    debugger;
    pet_info.weight = Math.max(0, pet_info.weight - 1);
    pet_info.energy = Math.max(0, pet_info.energy - 20);
    updateAll();
    logPet("After Play");
    notify("That was fun!!!");
    animatePet("play");
}
```

script.js

Page Workspace > script.js

1 top
2 127.0.0.1:5500
3 comp484-project2
4 images
5 index.html
6 script.js
7 style.css
8 React Developer Tools
9 code.jquery.com

Line 42, Column 3 Coverage: n/a

Scope Watch

Local Global

Debugger paused

Breakpoints

Call Stack

Console What's new AI assistance Issues

4. Step Through Code

- **Description:** Used Step Over/Into in Sources.
 - **Steps:** Stepped through updateAll() call chain.
 - **Screenshot:** Execution highlighting line by line.

F10:

The screenshot shows the Chrome DevTools interface with the "Sources" tab selected. The left sidebar lists the project structure, and the main pane displays the content of `script.js`. A yellow box highlights line 45 of the code, which contains the call to `updateAll()`.

```
36     notify("run!!!"),
37     animatePet("treat");
38 }
39
40 function clickedPlayButton() {
41   pet_info.happiness++;
42   debugger;
43   pet_info.weight = Math.max(0, pet_info.weight - 1);
44   pet_info.energy = Math.max(0, pet_info.energy - 20);
45   updateAll();
46   logPet("After Play");
47   notify("That was fun!!!");
48   animatePet("play");
49 }
```

The status bar at the bottom indicates "Line 45, Column 3". The "Scope" panel on the right shows a local variable `this: button.play-button` and a global object `Window`. The "Breakpoints" section on the left shows several breakpoints set across different files and scripts.

Bottom navigation bar: Console (selected), What's new, AI assistance, Issues.

F11:

The screenshot shows the Chrome DevTools interface with the 'Sources' tab selected. The left sidebar lists various files and resources, including 'script.js'. The main pane displays the code for 'script.js', with line 46 highlighted in yellow. The code on line 46 is:

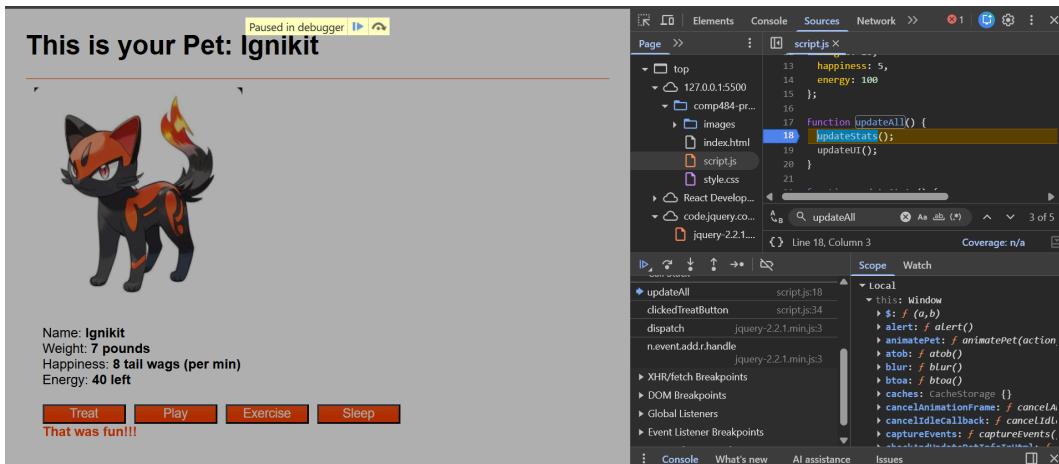
```
42     debugger;
43     pet_info.weight = Math.max(0, pet_info.weight - 1);
44     pet_info.energy = Math.max(0, pet_info.energy - 20);
45     updateAll();
46     logPet("After Play");
47     notify("That was fun!!!");
48     animatePet("play");
49 }
```

The status bar at the bottom indicates 'Line 46, Column 3'. On the right side, there are two panes: 'Scope' and 'Watch'. The 'Scope' pane shows the current execution context, which is a button element with the class 'play-button'. The 'Watch' pane lists numerous properties of this element, such as 'accessKey', 'ariaActiveDescendantElement', 'ariaAtomic', etc., all of which have a value of 'null'. Below the main pane, the 'Call Stack' section shows the call chain starting from 'clickedPlayButton' at line 46 of 'script.js', which triggered a 'dispatch' event via 'jquery-2.2.1.min.js:3'.

5. Set a Line-of-Code Breakpoint

- **Description:** Breakpoint set on updateAll().
- **Steps:** Trigger any button → pause at breakpoint.

- **Screenshot:** Breakpoint bubble on line.



The screenshot shows the Chrome DevTools Sources tab for a file named `script.js`. The code is as follows:

```
12     weight: 10,
13     happiness: 5,
14     energy: 100
15 };
16
17 function updateAll() {
18     updateStats();
19     updateUI();
20 }
21
22 function updateStats() {
23     let info = net.info;
24     if (info.mood = info.happiness >= 5) {
```

A blue arrow points to line 18, where the `updateStats()` function is defined. The line number 18 is highlighted in yellow. The status bar at the bottom indicates "Line 18, Column 3".

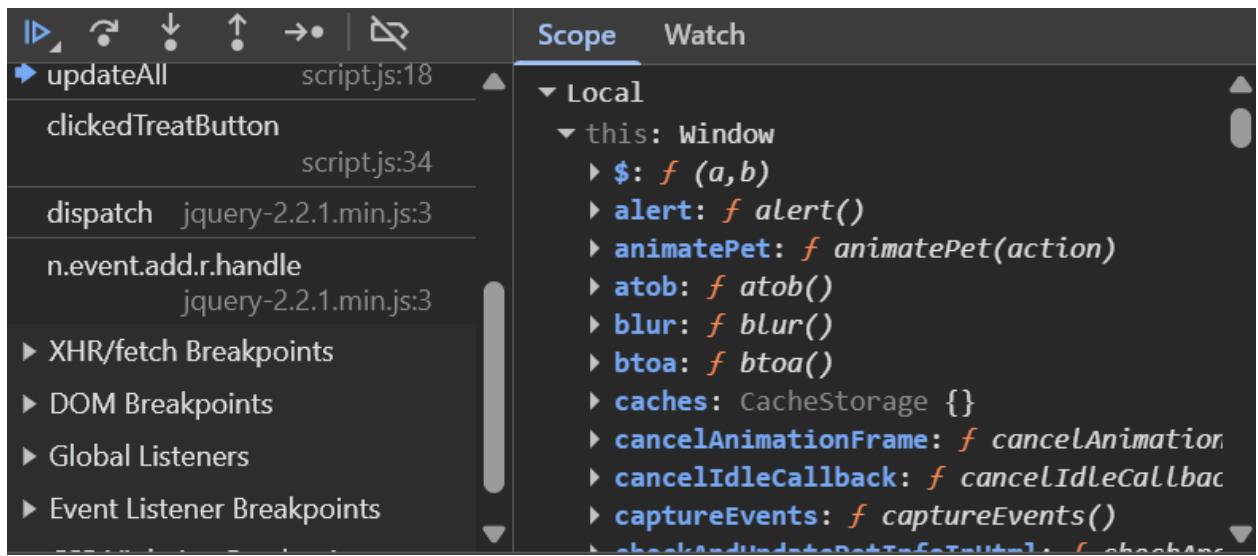
In the Call Stack panel, the stack trace is:

- script.js:18 updateAll
- script.js:34 clickedTreatButton
- jquery-2.2.1.min.js:3 dispatch
- jquery-2.2.1.min.js:3 n.event.add.r.handle

The Scope panel shows the following variables:

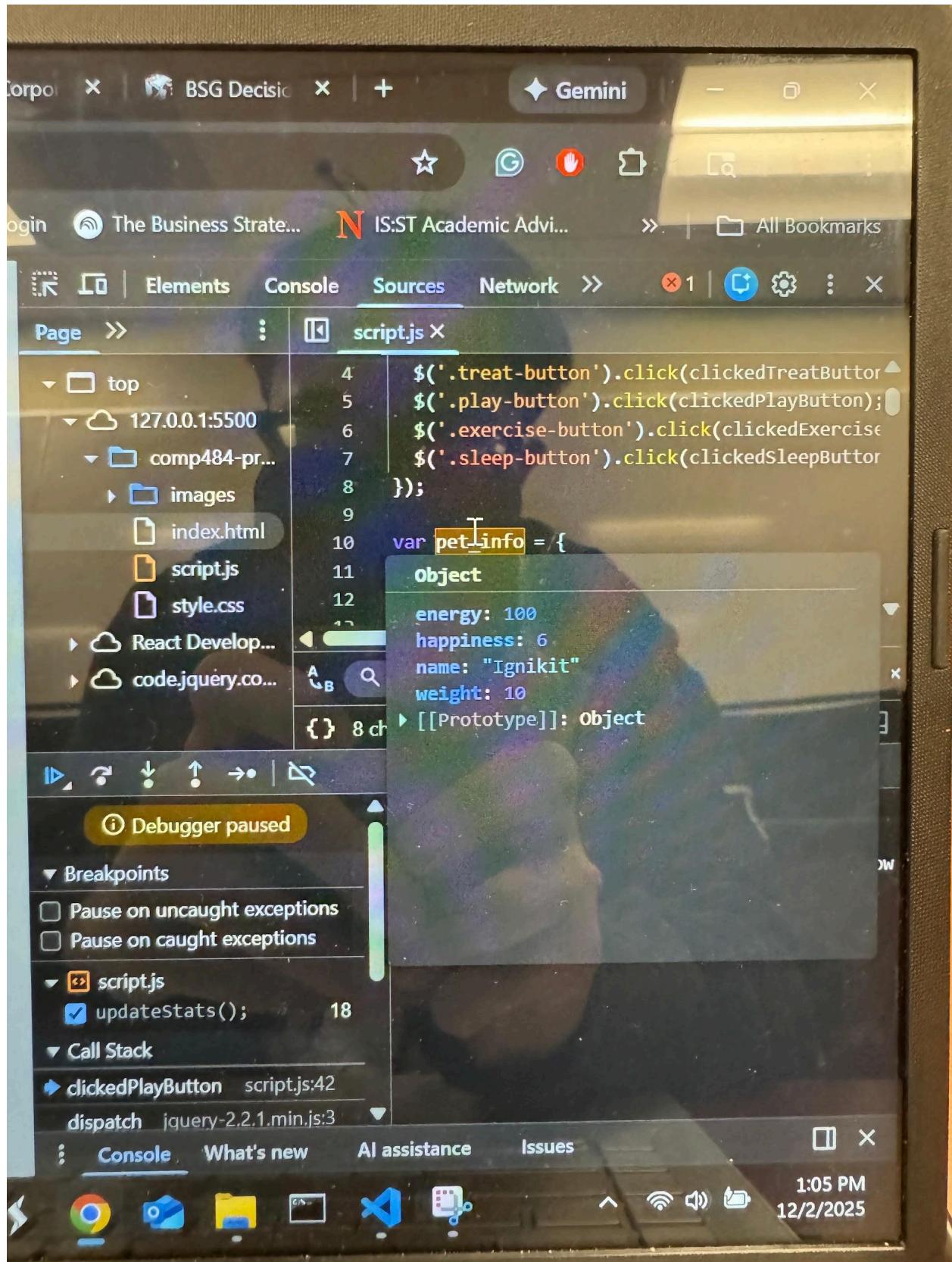
- Local:
 - this: Window
- Global: Window

At the bottom, there are tabs for Console, What's new, AI assistance, and Issues.



6. Check Variable Values

- **Method 1:** Hover over `pet_info`.



- **Method 2:** Inspect Scope pane.

The screenshot shows the Chrome DevTools interface with the "Sources" tab selected. The left sidebar lists breakpoints, the call stack, and other developer tools like Console and Issues. The main area displays the "Scope" pane for the "script.js" file, specifically at line 18 where the `updateStats()` function is defined. The scope shows numerous properties related to the `jQuery` object, all of which have their values set to null.

```

    ▼ Local
      ▶ this: button.play-button
        ► jQuery221036782968963435591: {events: {}
          accessKey: ""
          ariaActiveDescendantElement: null
          ariaAtomic: null
          ariaAutoComplete: null
          ariaBrailleLabel: null
          ariaBrailleRoleDescription: null
          ariaBusy: null
          ariaChecked: null
          ariaColCount: null
          ariaColIndex: null
          ariaColIndexText: null
          ariaColSpan: null
          ariaControlsElements: null
          ariaCurrent: null
          ariaDescribedByElements: null
          ariaDescription: null
          ariaDetailsElements: null
          ariaDisabled: null
          ariaErrorMessageElements: null
          ariaExpanded: null
          ariaFlowToElements: null
          ariaHasPopup: null
          ariaHidden: null
        }
      
```

The screenshot shows the Chrome DevTools interface with the 'Console' tab selected. At the top, there are tabs for 'Elements', 'Console' (which is underlined in blue), 'Sources', and 'Network'. On the right side of the header, there are icons for refresh, settings, and closing the panel. Below the tabs, there are buttons for 'top ▾' and 'Filter' with a dropdown menu. To the right of these are 'Default levels ▾' and 'No Issues' buttons, along with a gear icon for settings.

In the main console area, there is an error message in red text:

```
✖ Failed to load resource: the server responded with a status of 500 ()
```

Below the error, there is a code snippet in blue text:

```
> pet_info
< {name: 'Ignikit', weight: 10, happiness: 6, energy: 100}
```

- **Method 3:** Type `pet_info` in Console.
- **Screenshot:** Each method shown.

7. Apply a Fix

- **Description:** Corrected typo to `pet_info.happiness`.
- **Steps:** Saved fix, reloaded, tested Exercise.
- **Screenshot:** Fixed code and working output.

The screenshot shows the DevTools interface with the 'Console' tab selected. At the top, there are buttons for 'Console', 'What's new', 'AI assistance', and 'Issues'. Below the tabs is a toolbar with icons for back, forward, search, and refresh, followed by a 'Filter' button. To the right are buttons for 'Default levels', 'No Issues', and a gear icon for settings.

(Internal Server Error)

✖ ► Error: 'happines' is not a valid property of [installHook.js:1](#) `pet_info`.

▼ After Exercise [script.js:118](#)

[script.js:119](#)

(index)	Value
name	'Ignikit'
weight	9
happiness	5
energy	70
happines	4
mood	'cheery'

► Object

```

function clickedExerciseButton() {
    // BUG: typo in property name
    pet_info.happines = Math.max(0, pet_info.happiness - 1);

    // Manual bug detection
    if (pet_info.happines !== undefined) {
        console.error("Error: 'happines' is not a valid property of pet_info.");
    }
}

function clickedExerciseButton() {
    // FIXED: corrected typo
    pet_info.happiness = Math.max(0, pet_info.happiness - 1);

    pet_info.weight = Math.max(0, pet_info.weight - 1);
    pet_info.energy = Math.max(0, pet_info.energy - 30);
    updateAll();
    logPet("After Exercise");
    notify("Phew!");
    animatePet("exercise");
}

```

This is your Pet: Ignikit



Name: Ignikit
 Weight: 10 pounds
 Happiness: 5 tail wags (per min)
 Energy: 100 left

Treat Play Exercise Sleep

Paused in debugger | ▶ | ⌛ | Elements Console Sources Network > | ✎ | ⚙ | X | Default levels | No Issues | ⓘ | GET https://glitch.com/edit/favicon-app.ico 500 favicon-app.ico:1 (Internal Server Error) | > [ctrl] ⓘ to turn on code suggestions. Don't show again NEW

Part 2: DOM DevTools Examples

8. View DOM Nodes

- **Description:** Inspected .pet-image in Elements.
- **Steps:** Expanded attributes and children.
- **Screenshot:** Elements panel with node highlighted.

The screenshot shows the Chrome DevTools Elements tab open. The DOM tree on the left displays the structure of a web page. The root element is <main>, which contains a <section class="pet-image-container"> with an . Below this is a <section class="dashboard"> element. The <section> has several child nodes, including <div> elements and a <div class="button-container"> containing a <div class="notification">. A script tag with a long URL is also present. The bottom of the screenshot shows the Properties tab selected in the DevTools interface.

```
<main>
  <section class="pet-image-container">
    
  </section>
  ... <section class="dashboard"> == $0
    > <div>...</div>
    > <div>...</div>
    > <div>...</div>
    > <div>...</div>
    > <div class="button-container">...</div>
      <div class="notification">...</div>
    </section>
  </main>
  <script src="https://code.jquery.com/jquery-2.2.1.min.js" integrity="sha256-gvQgAFzTH6trSrAWoH1iPo9Xc96QxsZ3feW6kem+000=" crossorigin="anonymous"></script>
  <!-- Code injected by live-server -->
  > <script>...</script>
</body>
```

html body main section.dashboard

Styles Computed Layout Event Listeners DOM Breakpoints **Properties** >

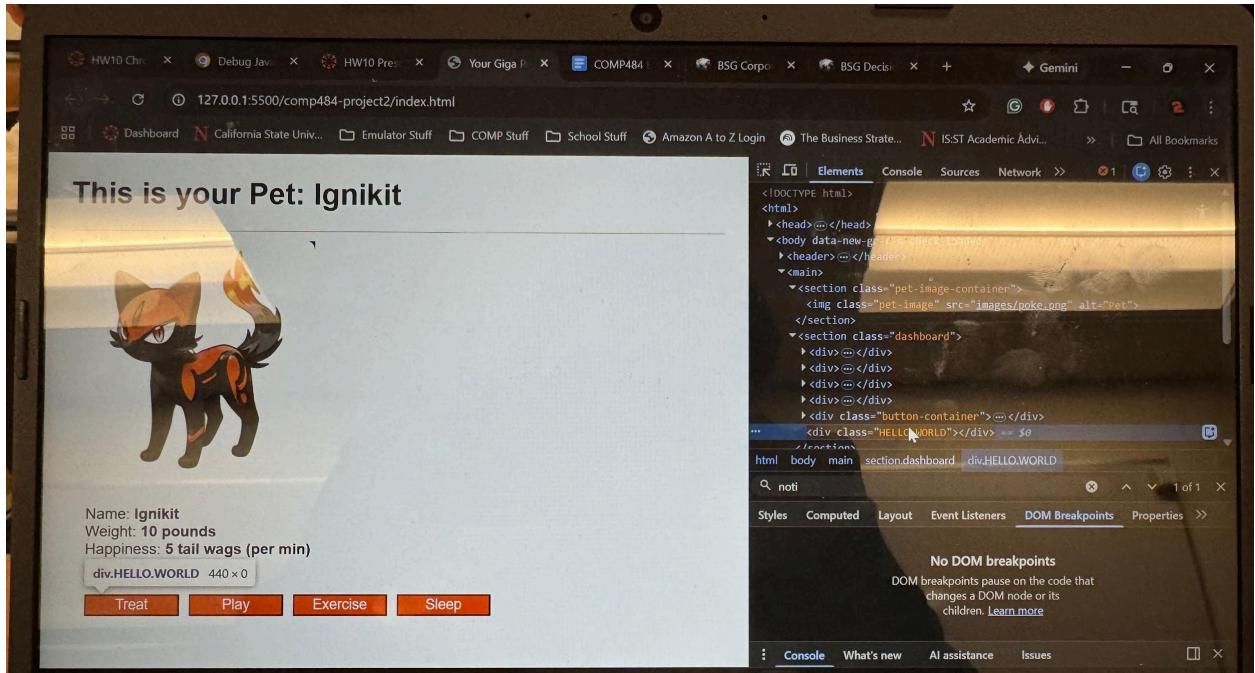
Filter Show all

accessKey: ""
attributeStyleMap: stylePropertyMap {size: 0}
attributes: NamedNodeMap {0: class, class: class, length: 1}
autocapitalize: ""
autofocus: false

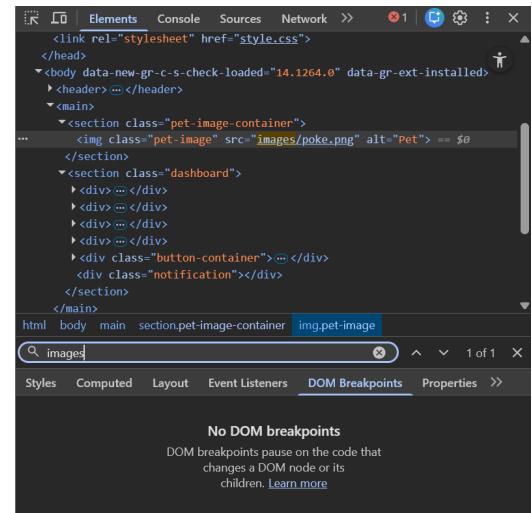
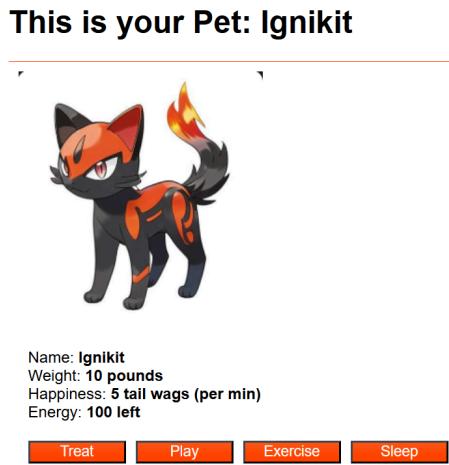
Console What's new AI assistance Issues

9. Edit the DOM

- **Edit content:** Changed .notification text.



- **Edit attributes:** Modified src of image.



This is your Pet: Ignikit



Name: **Ignikit**
Weight: **10 pounds**
Happiness: **5 tail wags (per min)**
Energy: **100 left**

Treat Play Exercise Sleep

```
Elements Console Sources Network > 02 | ↻ | X
<!DOCTYPE html>
<html>
  <head> ... </head>
  <body data-new-gr-c-s-check-loaded="14.1264.0" data-gr-ext-installed>
    <header> ... </header>
    <main>
      <section class="pet-image-container">
        
      </section>
      <section class="dashboard">
        <div> ... </div>
        <div> ... </div>
        <div> ... </div>
        <div> ... </div>
        <div class="button-container"> ... </div>
        <div class="notification"> ... </div>
      </section>
    </main>
</html>
```

html body main section.pet-image-container img.pet-image

Styles Computed Layout Event Listeners DOM Breakpoints Properties >

No DOM breakpoints

DOM breakpoints pause on the code that changes a DOM node or its children. [Learn more](#)

- **Edit node type:** Changed section to div to .

This is your Pet: Ignikit



Name: **Ignikit**
Weight: **10 pounds**
Happiness: **5 tail wags (per min)**
Energy: **100 left**

Treat Play Exercise Sleep

```
Elements Console Sources Network > 01 | ↻ | X
<!DOCTYPE html>
<html>
  <head> ... </head>
  <body data-new-gr-c-s-check-loaded="14.1264.0" data-gr-ext-installed>
    <header> ... </header>
    <main>
      <section class="pet-image-container">
        
      </section>
      <section class="dashboard"> ... </section> == $0
    </main>
    <script src="https://code.jquery.com/jquery-2.2.1.min.js" integrity="sha256-gVqgAfzTH6trrAWoH1Po9Xc96QxSz3few6Kem+000=" crossorigin="anonymous" data-gr-ext-installed="14.1264.0"> ... </script>
    <!-- Code injected by live-server -->
    <script> ... </script>
  </body>
</html>
```

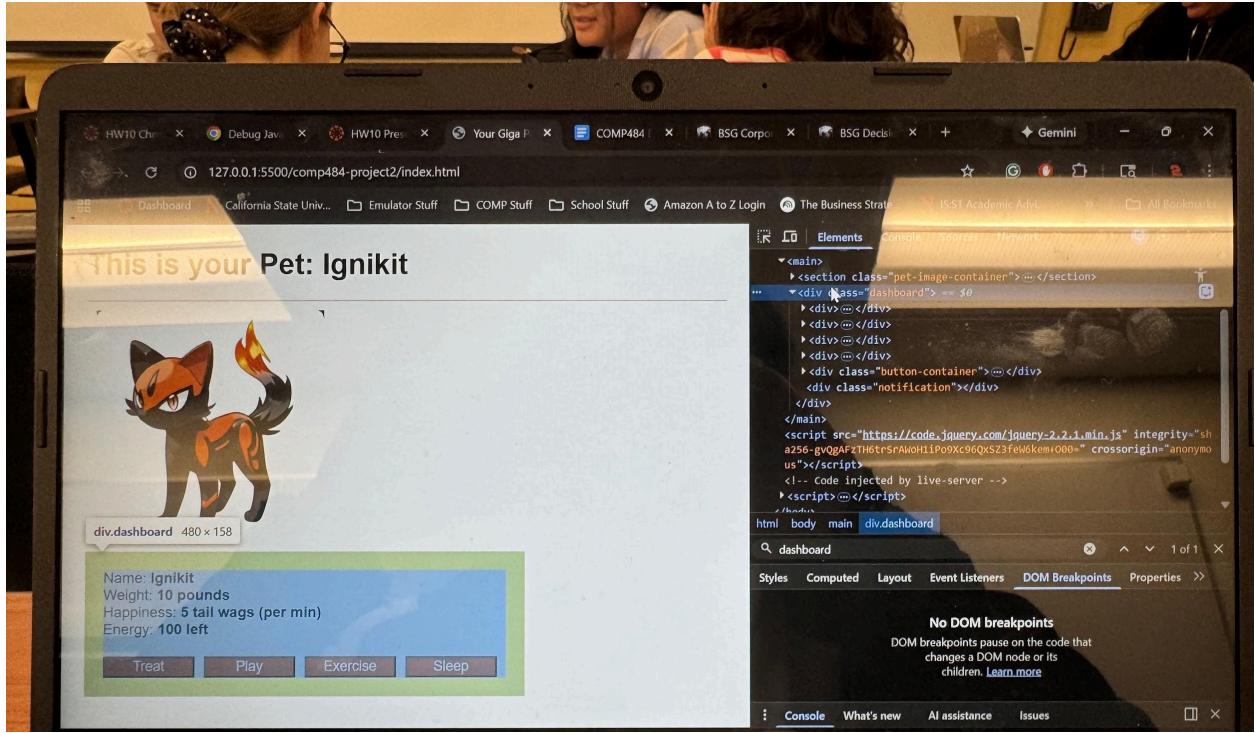
html body main section.dashboard

Styles Computed Layout Event Listeners DOM Breakpoints Properties >

No DOM breakpoints

DOM breakpoints pause on the code that changes a DOM node or its children. [Learn more](#)

Console What's new AI assistance Issues



- **Edit HTML:** Added inside dashboard.

This is your Pet: Ignikit



Name: **Ignikit**
Weight: **10 pounds**
Happiness: **5 tail wags (per min)**
Energy: **100 left**

Treat Play Exercise Sleep

```
<!DOCTYPE html>
<html>
  <head> ...
    <body data-new-gr-c-s-check-loaded="14.1264.0" data-gr-ext-installed>
      <header> ...
        <main>
          <section class="pet-image-container">
            
          </section>
        </main>
        <section class="dashboard"> ...
          <script src="https://code.jquery.com/jquery-2.2.1.min.js" integrity="sha256-gVQgAfzTH6trSrAM0H1Po9xcs23feW6kem+000=" crossorigin="anonymous"></script>
          <!-- Code injected by live-server -->
          <script>...</script>
        </section>
      </body>
    </html>
```

Styles Computed Layout Event Listeners DOM Breakpoints Properties >

No DOM breakpoints
DOM breakpoints pause on the code that changes a DOM node or its children. Learn more

Console What's new AI assistance Issues

This is your Pet: Ignikit



Name: **Ignikit**
HELLO NEW par added via DevTools.
Weight: **10 pounds**
Happiness: **5 tail wags (per min)**
Energy: **100 left**

Treat Play Exercise Sleep

```
<!DOCTYPE html>
<html> <scroll>
  <head> ...
    <body data-new-gr-c-s-check-loaded="14.1264.0" data-gr-ext-installed>
      <header> ...
        <main>
          <section class="pet-image-container"> ...
          <section class="dashboard">
            <div> ...
              <p>HELLO NEW par added via DevTools.</p> == $0
            </div>
            <div> ...
            </div>
            <div> ...
            </div>
            <div class="button-container"> ...
            </div>
            <div class="notification"></div>
          </section>
        </main>
      </body>
    </html>
```

Styles Computed Layout Event Listeners DOM Breakpoints Properties >

Grid / Masonry

Overlay display settings
Show line numbers
Show track sizes

Console What's new AI assistance Issues

- **Screenshot:** Each edit shown.

10. Duplicate a Node

- **Description:** Duplicated .button-container.
- **Screenshot:** Elements panel showing a duplicate.

This is your Pet: Ignikit



Name: Ignikit
Weight: 10 pounds
Happiness: 5 tail wags (per min)
Energy: 100 left

[Treat](#) [Play](#) [Exercise](#) [Sleep](#)

Elements

```
<section class="pet-image-container"> ... </section>
<section class="dashboard">
  ...
</section>
</main>
```

DOM Breakpoints

No DOM breakpoints

DOM breakpoints pause on the code that changes a DOM node or its children. [Learn more](#)

This is your Pet: Ignikit



Name: Ignikit
Weight: 10 pounds
Happiness: 5 tail wags (per min)
Energy: 100 left

[Treat](#) [Play](#) [Exercise](#) [Sleep](#)

Elements

```
<div> ... </div>
<div class="button-container">
  ...
</div>
...
<div class="button-container"> == $0
  ...
</div>
<div class="notification"></div>
</section>
</main>
```

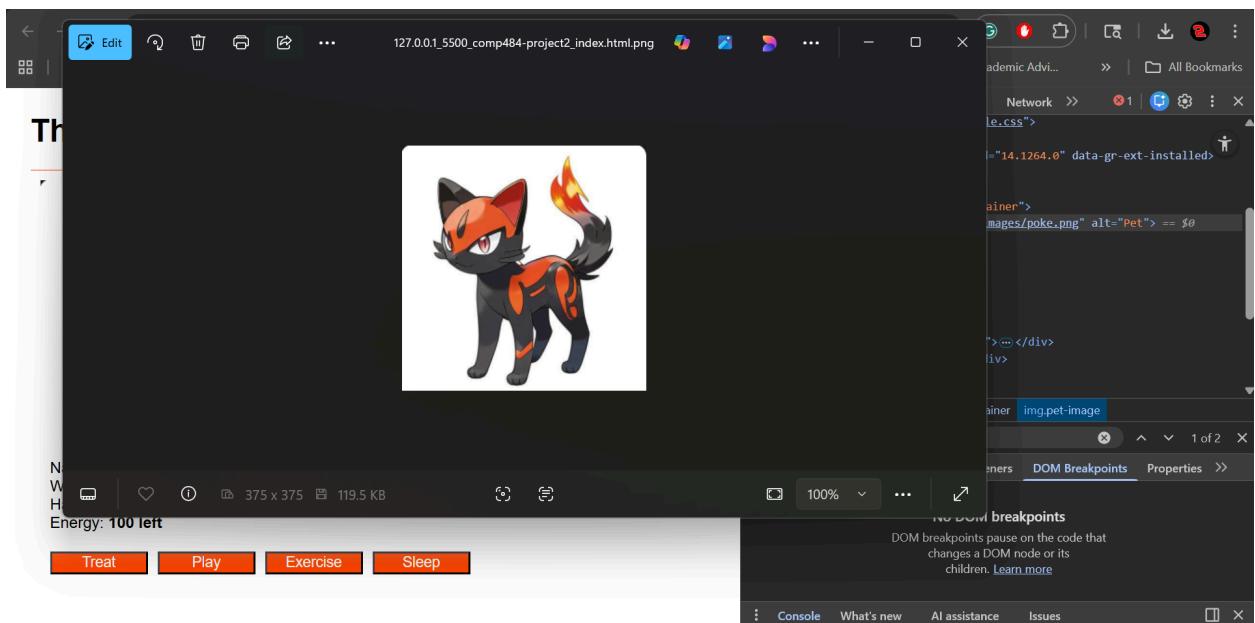
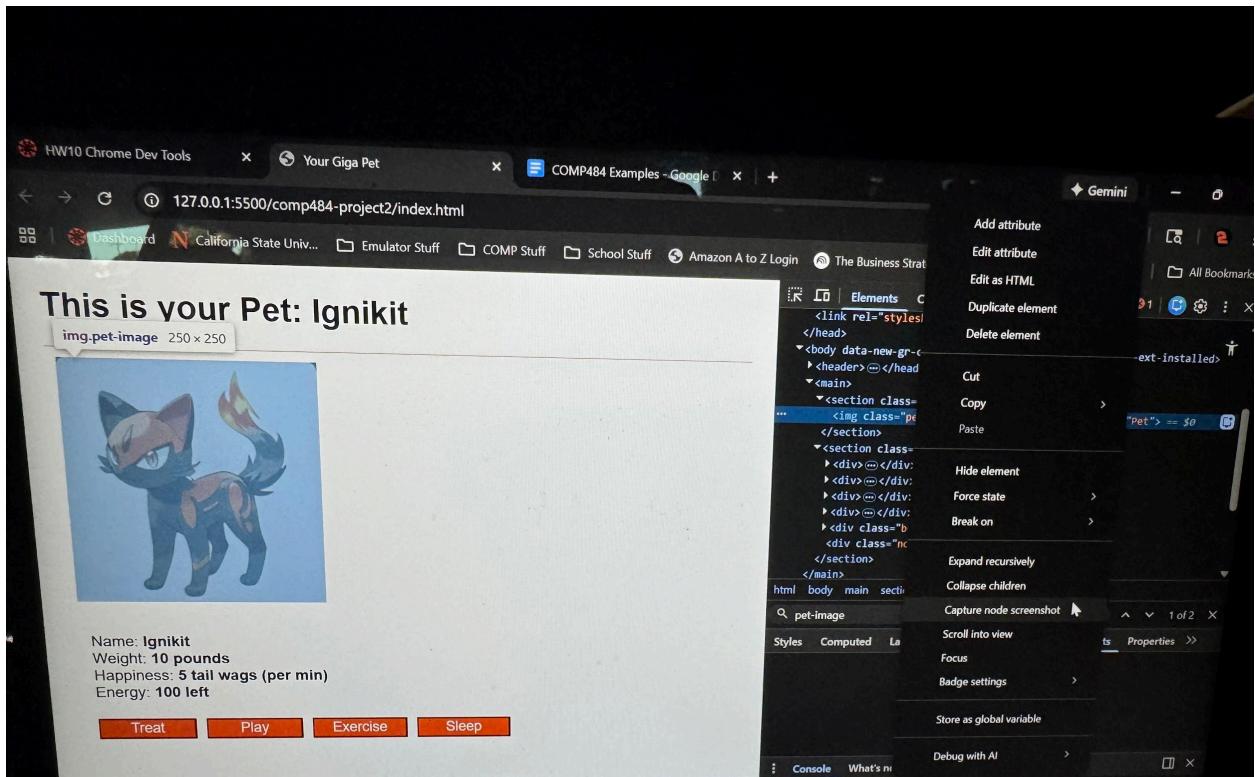
DOM Breakpoints

No DOM breakpoints

DOM breakpoints pause on the code that changes a DOM node or its children. [Learn more](#)

11. Capture a Screenshot

- **Description:** Captured .pet-image node screenshot.
- **Screenshot:** Saved image preview



12. Reorder DOM Nodes

- **Description:** Dragged Sleep button above Treat.
- **Screenshot:** Elements panel reordered.

This is your Pet: Ignikit



Name: Ignikit
Weight: 10 pounds
Happiness: 5 tail wags (per min)
Energy: 100 left

Treat Play Exercise Sleep

```
Elements Console Sources Network > 0 1 DOM Breakpoints Properties >
... <div class="button-container" = $0>
  <button class="treat-button">Treat</button>
  <button class="play-button">Play</button>
  <button class="exercise-button">Exercise</button>
  <button class="sleep-button">Sleep</button>
</div>
<div class="notification"></div>
</section>
</main>
<script src="https://code.jquery.com/jquery-2.2.1.min.js" integrity="sha256-gVQgAfzTH6trArAw0H1jPo9x9c96QxsZ3few6kem+000=" crossorigin="anonymous"></script>
<!-- Code injected by live-server -->
<script> ...</script>
</body>
<grammarly-desktop-integration data-grammarly-shadow-root="true"> ...
</grammarly-desktop-integration>
html body main section.dashboard div.button-container
```

button

No DOM breakpoints

DOM breakpoints pause on the code that changes a DOM node or its children. [Learn more](#)

Styles Computed Layout Event Listeners DOM Breakpoints Properties >

This is your Pet: Ignikit



Name: Ignikit
Weight: 10 pounds
Happiness: 5 tail wags (per min)
Energy: 100 left

Sleep Treat Play Exercise

```
Elements Console Sources Network > 0 1 DOM Breakpoints Properties >
... <section>
  <div> ...
  <div> ...
  <div> ...
  <div> ...
  <div class="button-container">
    <button class="sleep-button">Sleep</button> = $0
    <button class="treat-button">Treat</button>
    <button class="play-button">Play</button>
    <button class="exercise-button">Exercise</button>
  </div>
  <div class="notification"></div>
</section>
</main>
<script src="https://code.jquery.com/jquery-2.2.1.min.js" integrity="sha256-gVQgAfzTH6trArAw0H1jPo9x9c96QxsZ3few6kem+000=" crossorigin="anonymous"></script>
<!-- Code injected by live-server -->
<script> ...</script>
</body>
<grammarly-desktop-integration data-grammarly-shadow-root="true"> ...
</grammarly-desktop-integration>
html body main section.dashboard div.button-container button.sleep-button
```

button

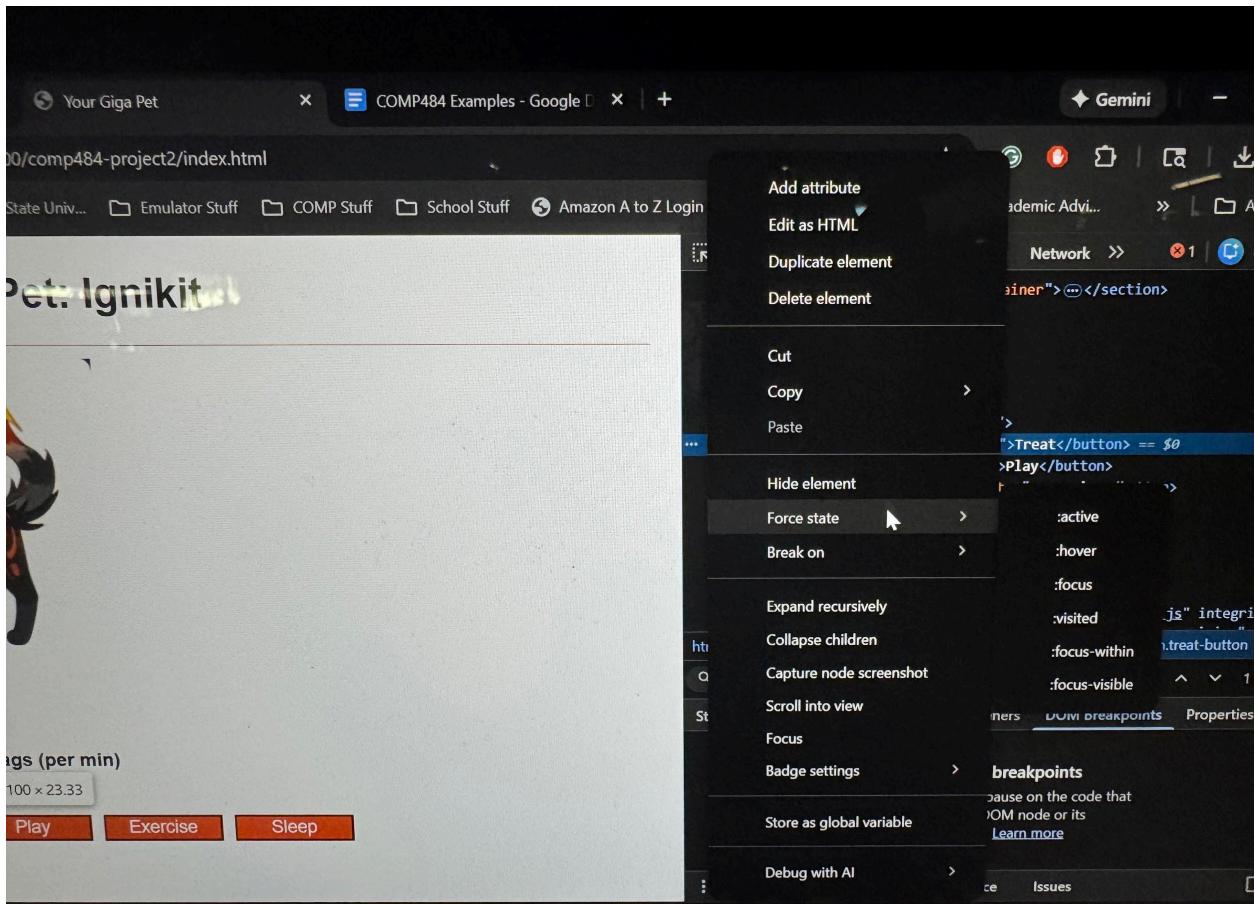
No DOM breakpoints

DOM breakpoints pause on the code that changes a DOM node or its children. [Learn more](#)

Console What's new AI assistance Issues

13. Force State

- **Description:** Forced :hover on Treat button.
- **Screenshot:** Button styled as hovered.

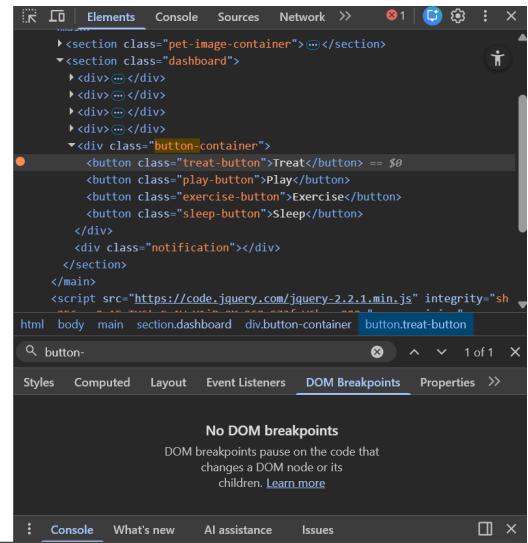


This is your Pet: Ignikit



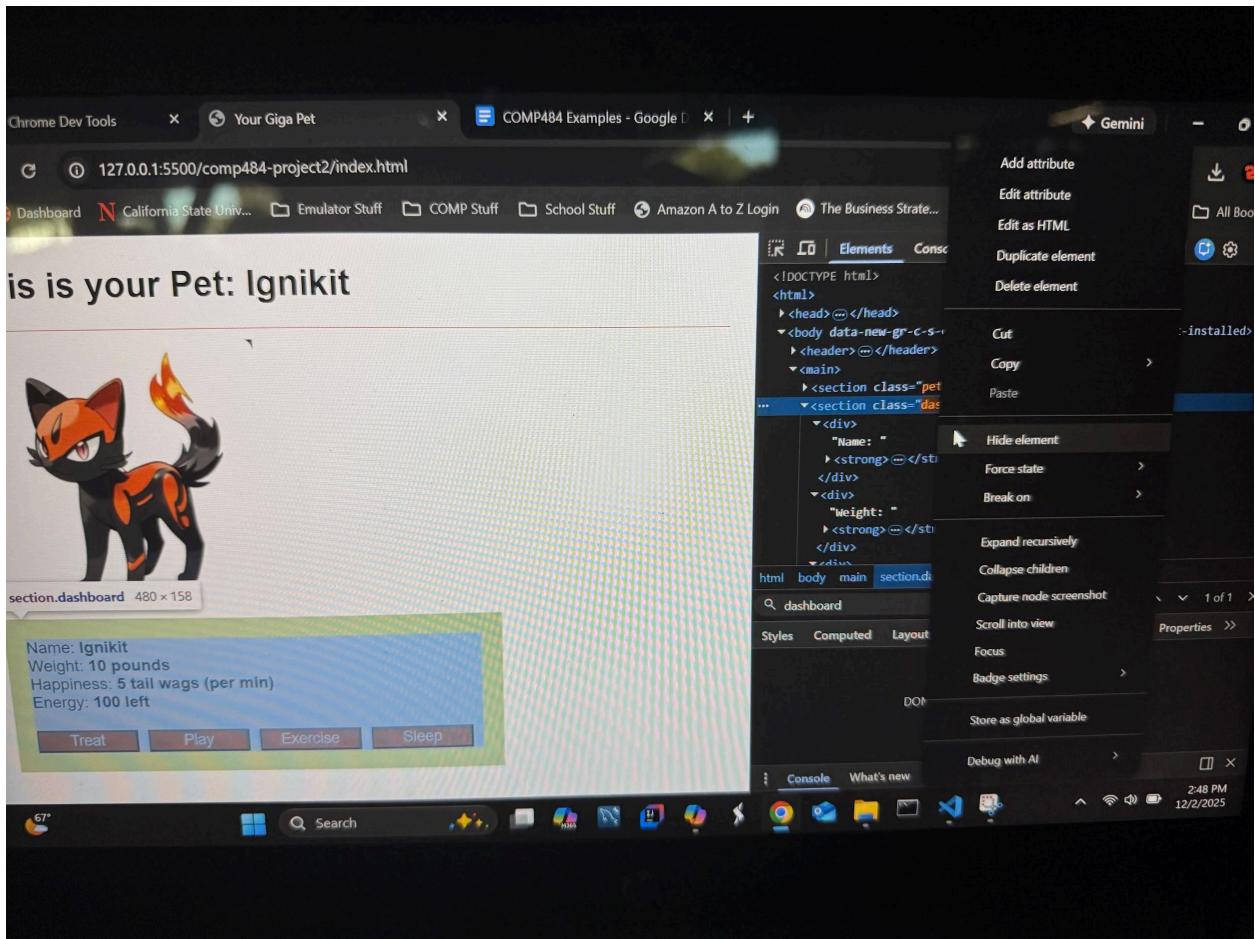
Name: Ignikit
 Weight: 10 pounds
 Happiness: 5 tall wags (per min)
 Energy: 100 left

[Treat](#) [Play](#) [Exercise](#) [Sleep](#)

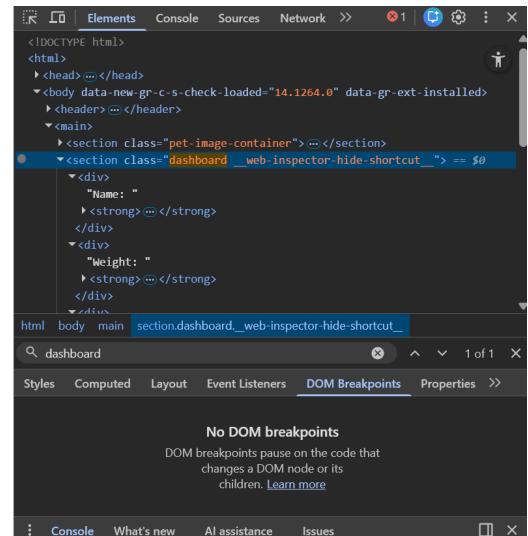


14. Hide a Node

- **Description:** Hid `.dashboard`.
- **Screenshot:** Page with dashboard hidden.

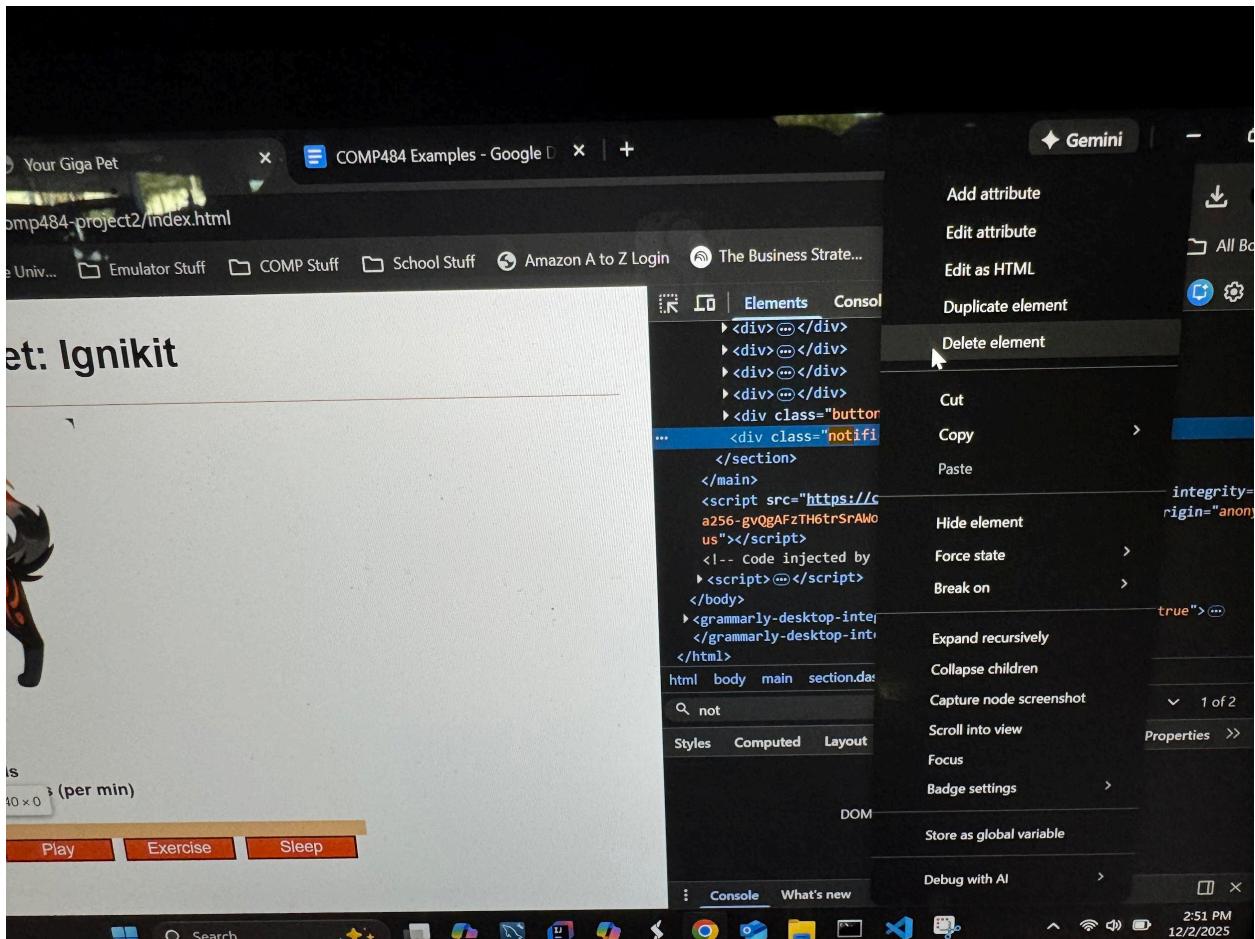


This is your Pet: Ignikit



15. Delete a Node

- **Description:** Deleted .notification.
- **Screenshot:** Elements panel with node removed.

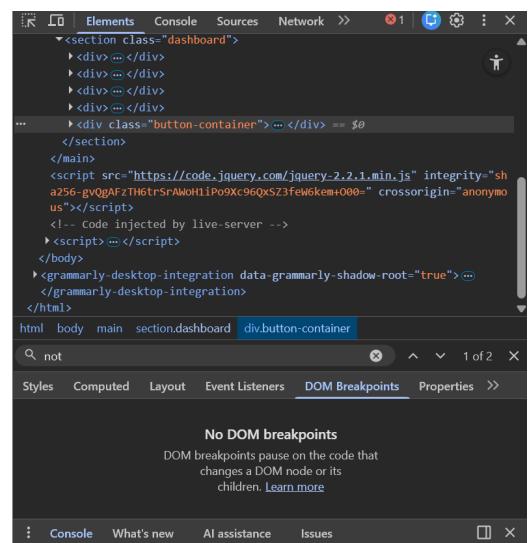


This is your Pet: Ignikit



Name: Ignikit
 Weight: 10 pounds
 Happiness: 5 tail wags (per min)
 Energy: 100 left

[Treat](#) [Play](#) [Exercise](#) [Sleep](#)



Part 3: Access Nodes in Console

16. Console Access

- **Description:** Used \$0 and \$\$.
- **Steps:** Selected .pet-image in Elements → \$0 in Console.
- **Screenshot:** Console showing node reference.

The screenshot shows the Chrome DevTools Elements tab with the following content:

```
<link rel="stylesheet" href="style.css">
</head>
<body data-new-gr-c-s-check-loaded="14.1264.0" data-gr-ext-installed>
  <header>
    <h1>This is your Pet: Ignikit</h1>
  </header>
  <main>
    <section class="pet-image-container">
       == $0
    </section>
    <section class="dashboard">
      <div>...</div>
      <div>...</div>
      <div>...</div>
      <div>...</div>
      <div class="button-container">...</div>
      <div class="notification">...</div>
    </section>
  </main>
</body>
```

The 'pet-image' class is highlighted in yellow in the DOM tree. In the console below, the node reference is shown as `== $0`, indicating it is the current selected element.

```
✖ GET https://glitch.com/edit/favicon-app.ico 500 favicon-app.ico:1 ⓘ  
(Internal Server Error)
```

```
> $0
```

```
↳ 
```

```
>
```



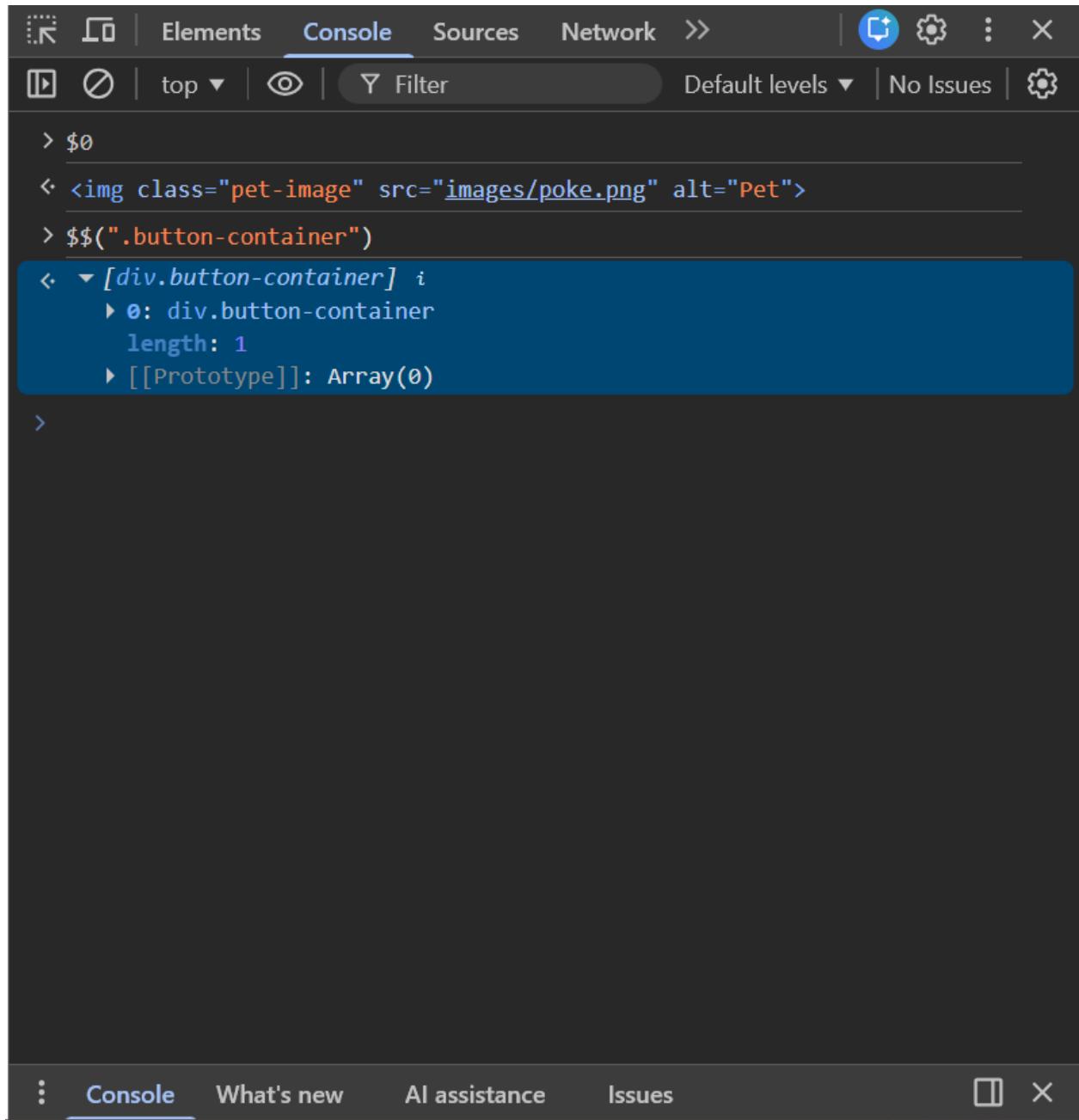
Console

What's new

AI assistance

Issues





The screenshot shows the Chrome DevTools interface with the "Console" tab selected. The console output displays the result of a jQuery selector:

```
> $(".button-container")
< [div.button-container] i
  ▶ 0: div.button-container
  length: 1
  ▶ [[Prototype]]: Array(0)
```

The result is highlighted with a blue background. The first item in the array is expanded, showing its properties: index (0), value (div.button-container), length (1), and prototype ([[Prototype]]).