Advancing FOCUS

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arei.net

github.com/arei

IDE
ACTI

STUPENDOUS

AMAZING

TOTALLY RIVETING

Focus Subsystem

Focus Subsystem

Focus Subsystem

Focus Subsystem

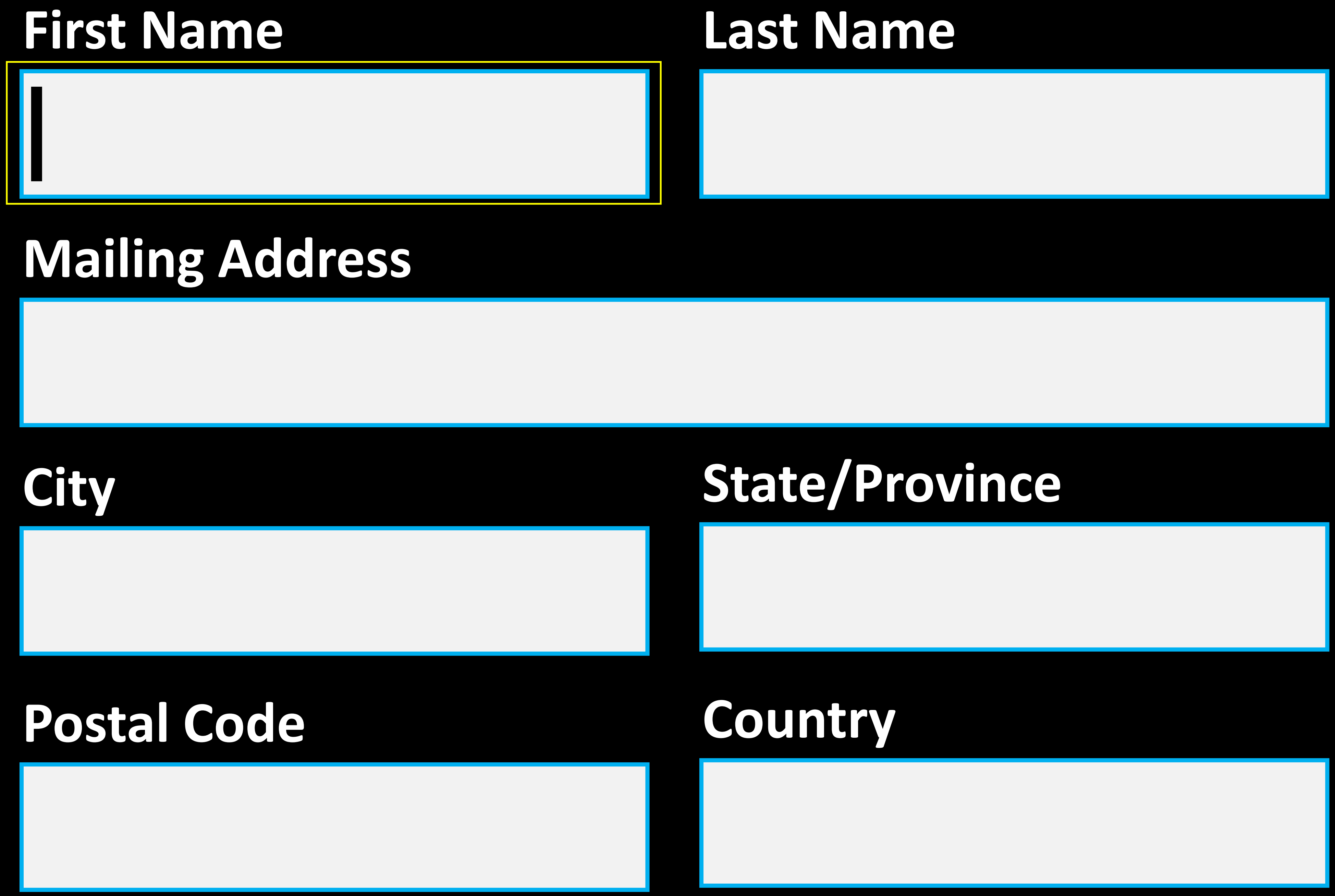
Focus Subsystem

- Does it work well?

- Does it work well?
- Does it meet the needs of the developers?

- Does it work well?
- Does it meet the needs of the developers?
- Could it do more to be better?

Focus



First Name

Last Name

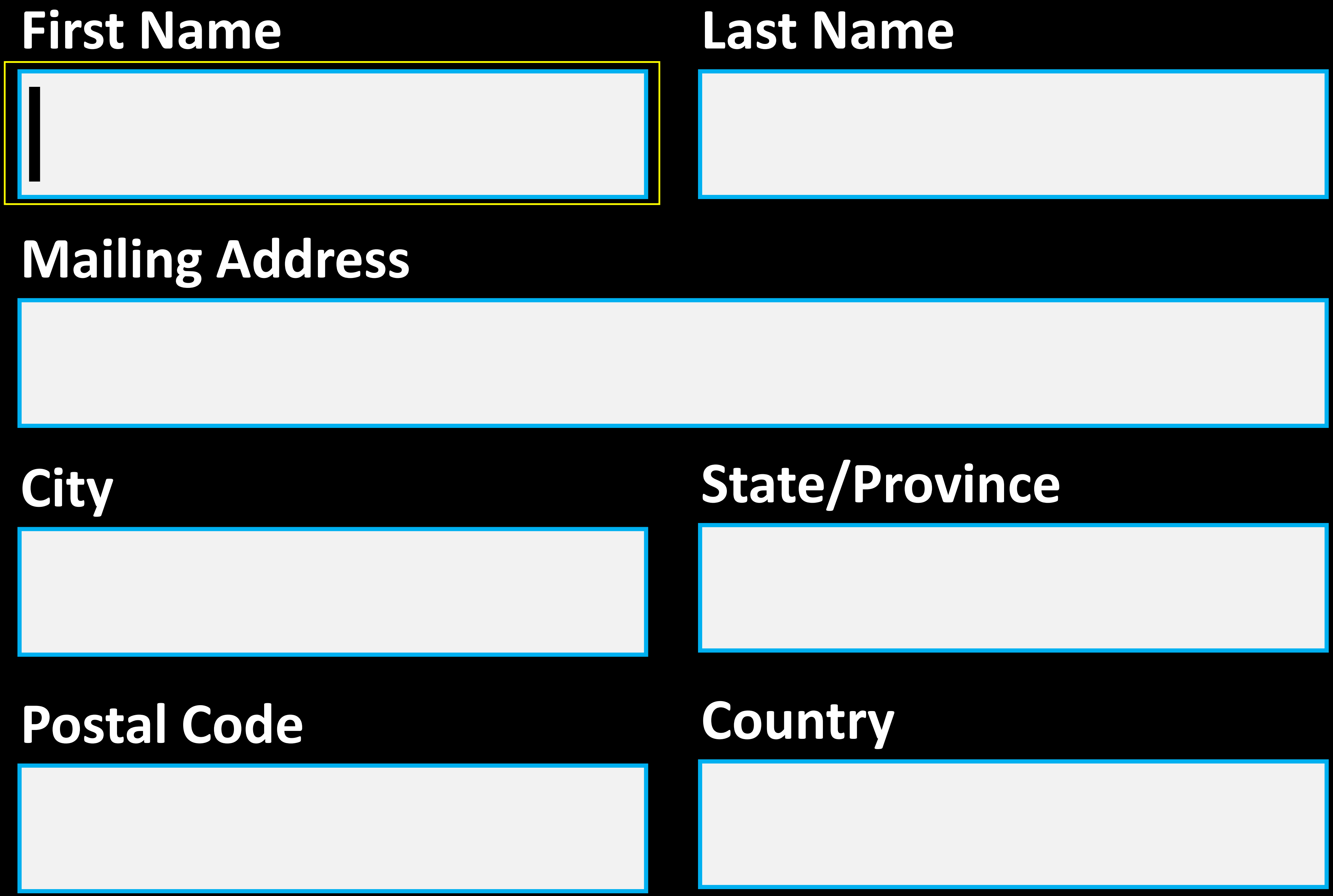
Mailing Address

City

State/Province

Postal Code

Country



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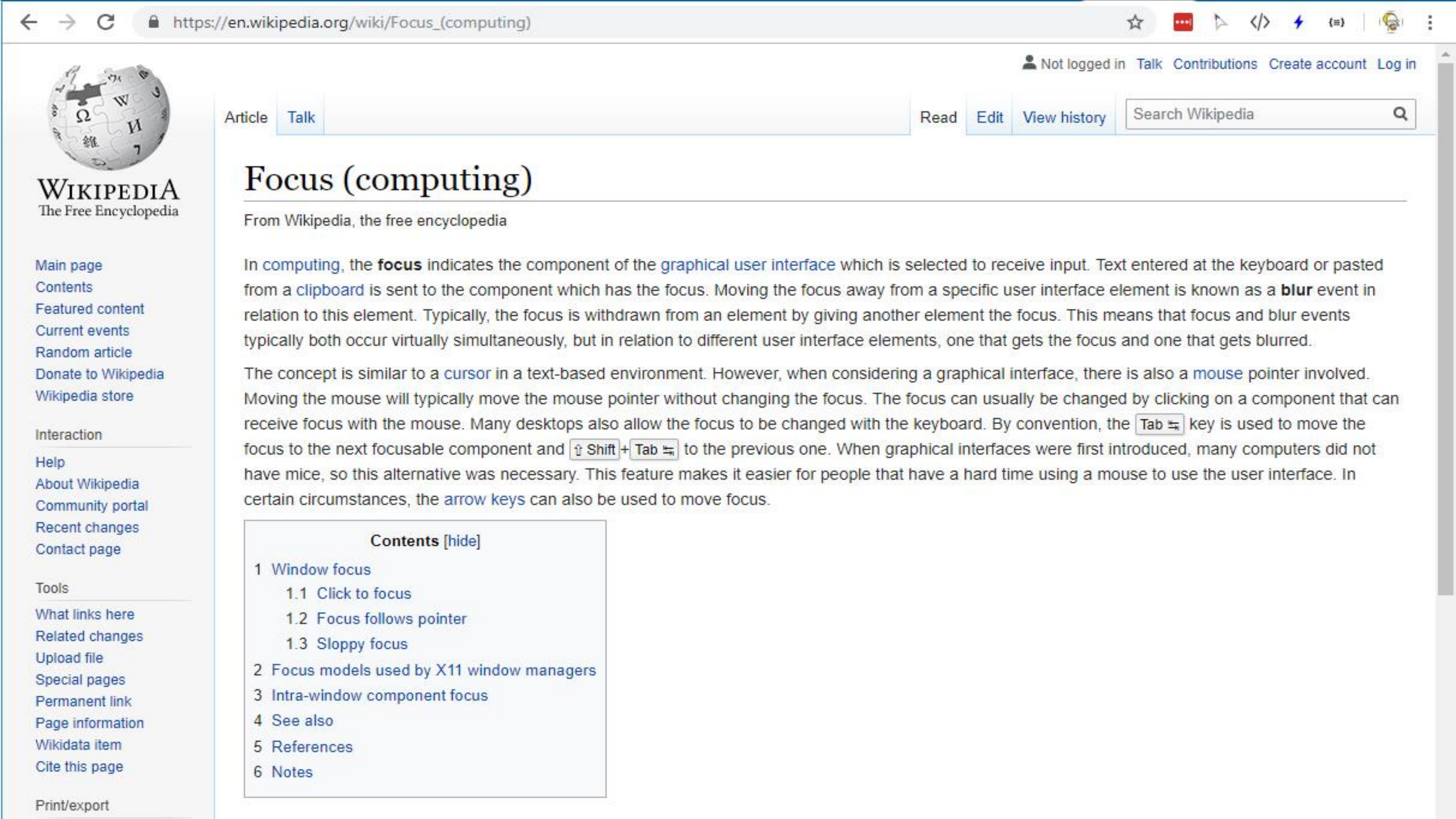

Focus (computing)

From Wikipedia, the free encyclopedia

In computing, the **focus** indicates the component of the graphical user interface which is selected to receive input. Text entered at the keyboard or pasted from a clipboard is sent to the component which has the focus. Moving the focus away from a specific user interface element is known as a **blur** event in relation to this element. Typically, the focus is withdrawn from an element by giving another element the focus. This means that focus and blur events typically both occur virtually simultaneously, but in relation to different user interface elements, one that gets the focus and one that gets blurred.

The concept is similar to a cursor in a text-based environment. However, when considering a graphical interface, there is also a mouse pointer involved. Moving the mouse will typically move the mouse pointer without changing the focus. The focus can usually be changed by clicking on a component that can receive focus with the mouse. Many desktops also allow the focus to be changed with the keyboard. By convention, the Tab ↹ key is used to move the focus to the next focusable component and ⇧ Shift+Tab ↹ to the previous one. When graphical interfaces were first introduced, many computers did not have mice, so this alternative was necessary. This feature makes it easier for people that have a hard time using a mouse to use the user interface. In certain circumstances, the arrow keys can also be used to move focus.

Contents [hide]

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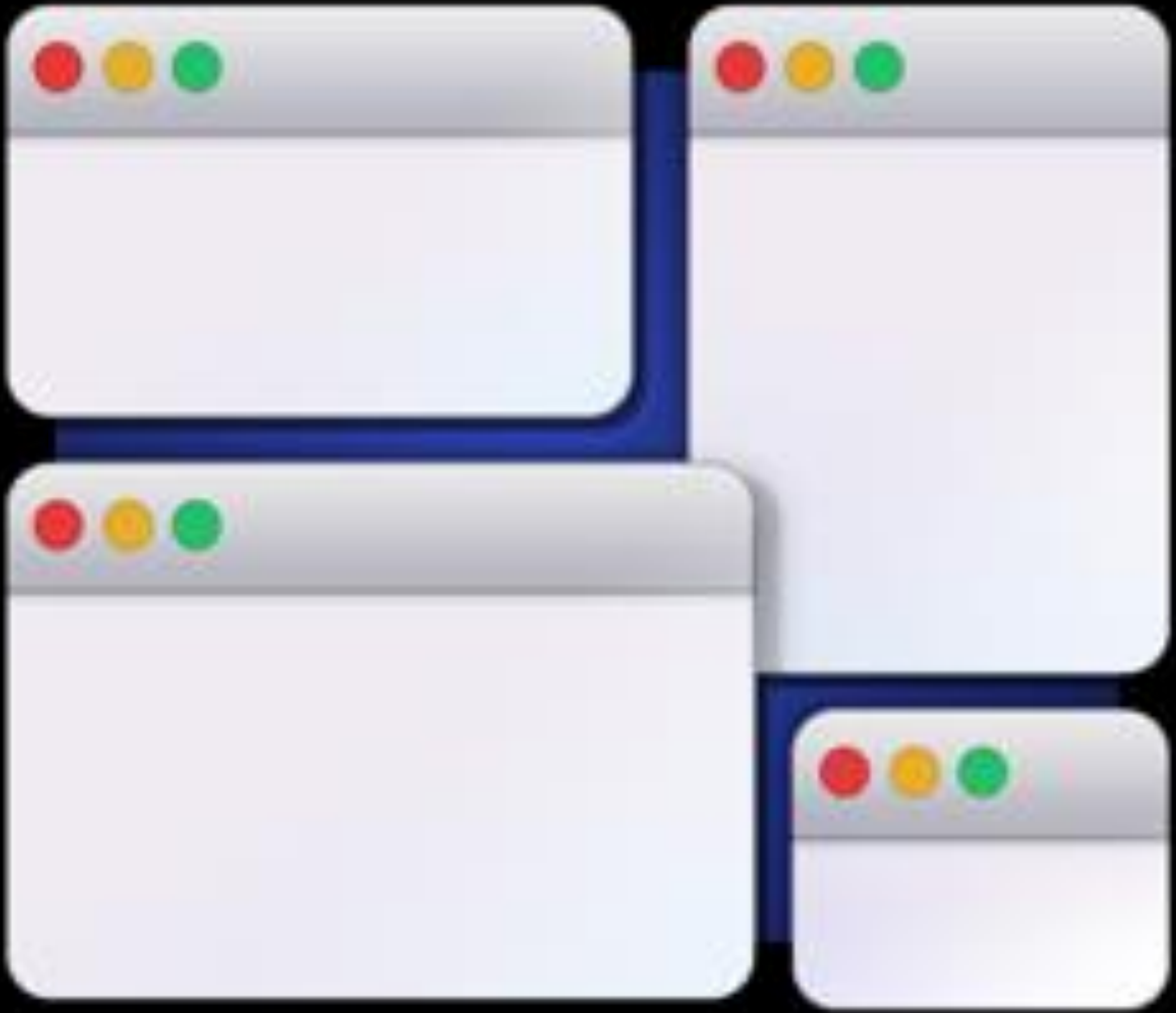
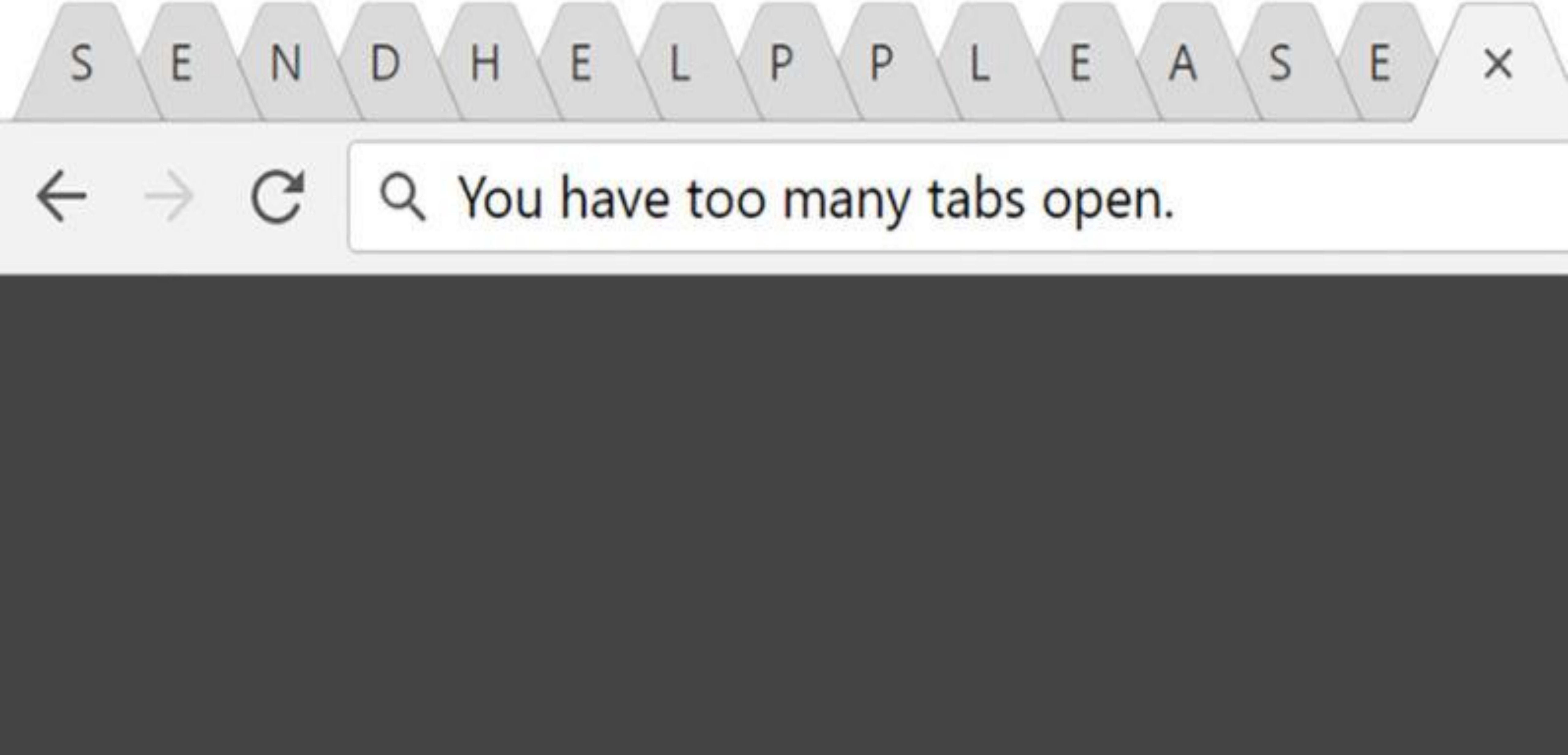
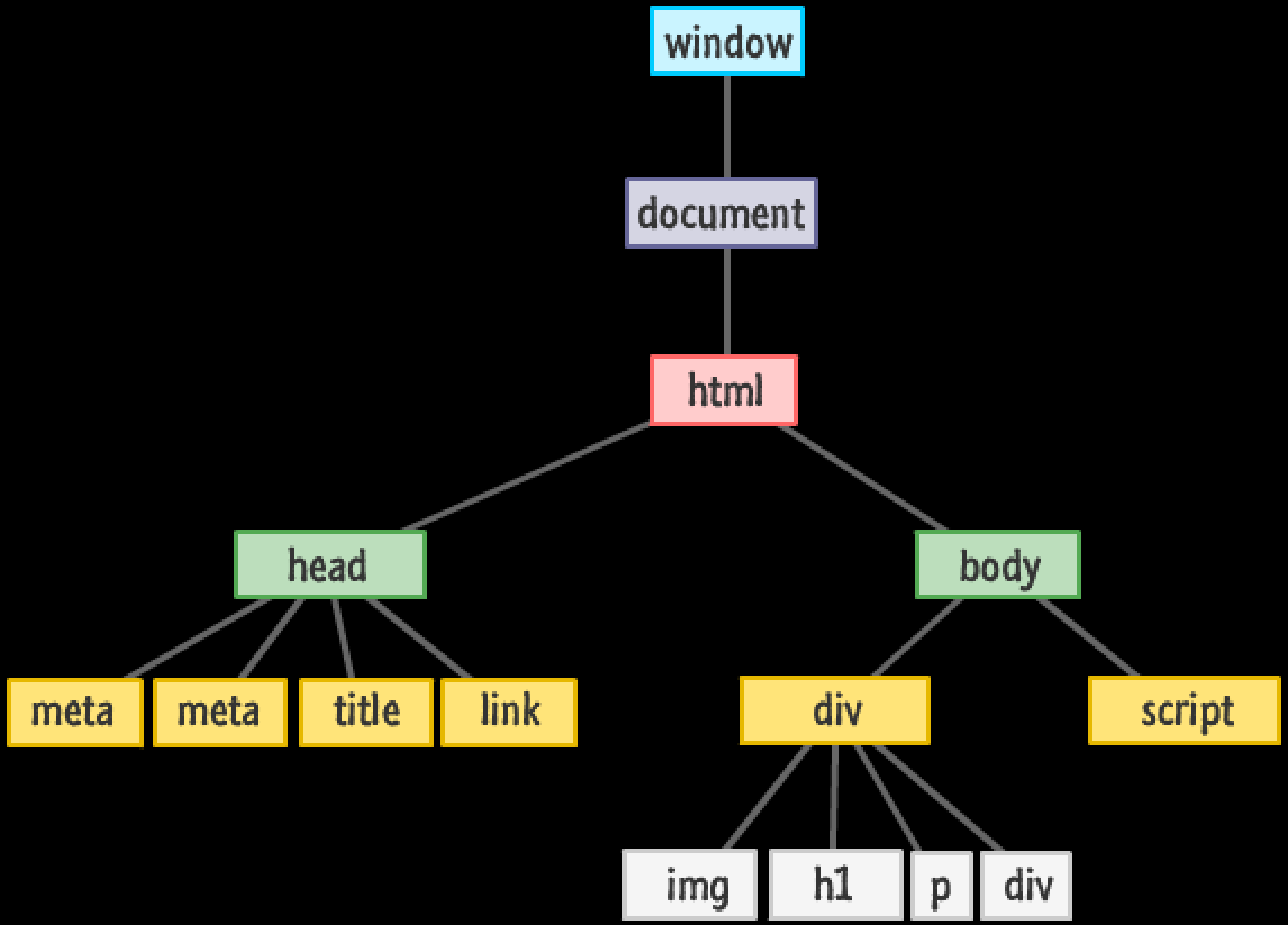




You have too many tabs open.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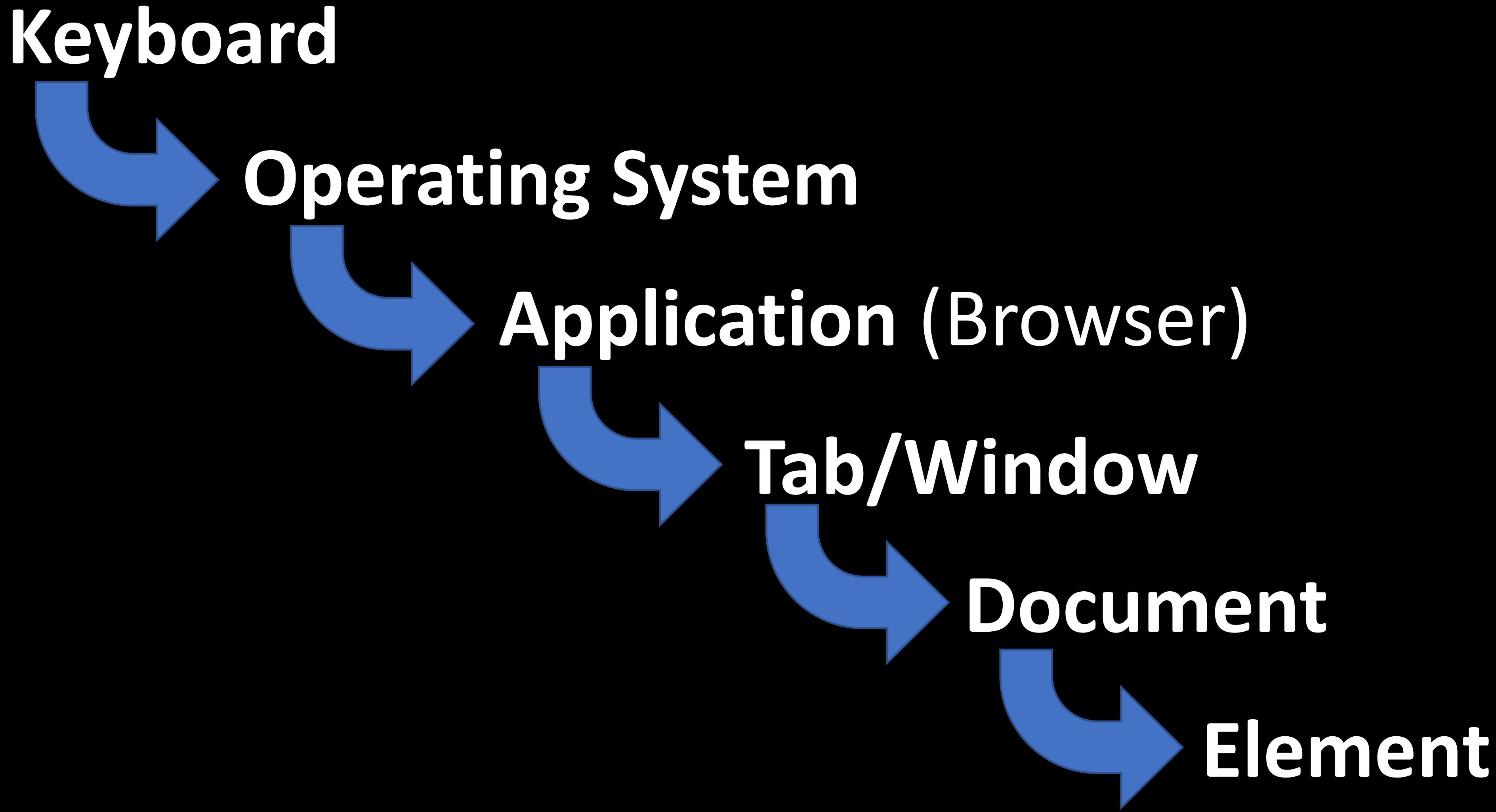
document.**activeElement**



Keyboard

Operating System

Application (Browser)

Tab/Window

Document

Element

Properties

document.activeElement

Methods

element.focus()

element.blur()

Events

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blur

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focusout

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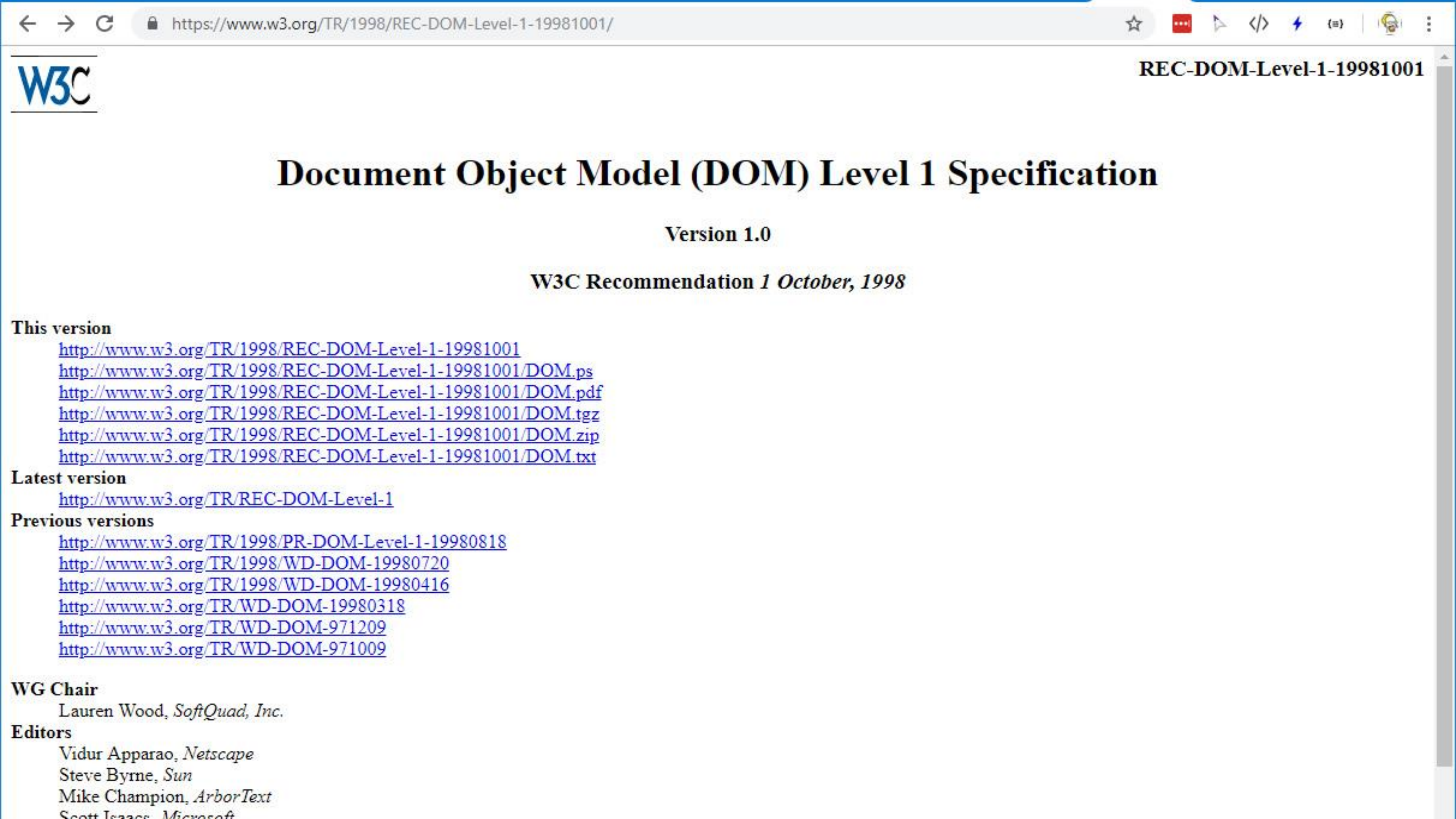


https://www.w3.org/TR/1998/REC-DOM-Level-1-19981001/

REC-DOM-Level-1-19981001

Document Object Model (DOM) Level 1 Specification

Version 1.0

W3C Recommendation *1 October, 1998*

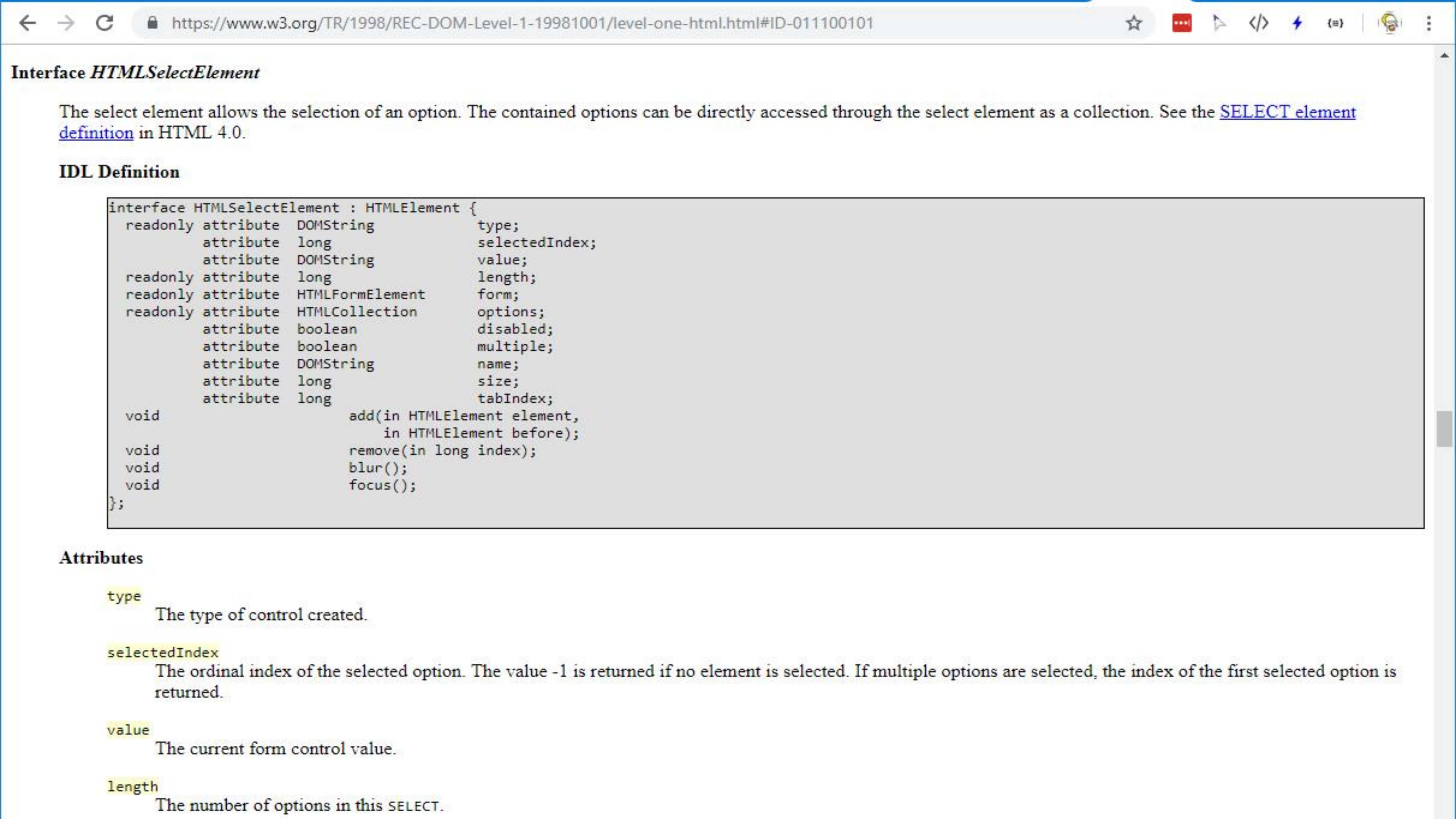
This version
- http://www.w3.org/TR/1998/REC-DOM-Level-1-19981001
- http://www.w3.org/TR/1998/REC-DOM-Level-1-19981001/DOM.ps
- http://www.w3.org/TR/1998/REC-DOM-Level-1-19981001/DOM.pdf
- http://www.w3.org/TR/1998/REC-DOM-Level-1-19981001/DOM.tgz
- http://www.w3.org/TR/1998/REC-DOM-Level-1-19981001/DOM.zip
- http://www.w3.org/TR/1998/REC-DOM-Level-1-19981001/DOM.txt

Latest version
- http://www.w3.org/TR/REC-DOM-Level-1

Previous versions
- http://www.w3.org/TR/1998/PR-DOM-Level-1-19980818
- http://www.w3.org/TR/1998/WD-DOM-19980720
- http://www.w3.org/TR/1998/WD-DOM-19980416
- http://www.w3.org/TR/WD-DOM-19980318
- http://www.w3.org/TR/WD-DOM-971209
- http://www.w3.org/TR/WD-DOM-971009

WG Chair
- Lauren Wood, *SoftQuad, Inc.*

Editors
- Vidur Apparao, *Netscape*
- Steve Byrne, *Sun*
- Mike Champion, *ArborText*
- Scott Isaacs, *Microsoft*



https://www.w3.org/TR/1998/REC-DOM-Level-1-19981001/level-one-html.html#ID-011100101

Interface *HTMLSelectElement*

The select element allows the selection of an option. The contained options can be directly accessed through the select element as a collection. See the SELECT element definition in HTML 4.0.

IDL Definition

```
interface HTMLSelectElement : HTMLElement {
  readonly attribute  DOMString            type;
           attribute  long                 selectedIndex;
           attribute  DOMString            value;
  readonly attribute  long                 length;
  readonly attribute  HTMLFormElement      form;
  readonly attribute  HTMLCollection       options;
           attribute  boolean              disabled;
           attribute  boolean              multiple;
           attribute  DOMString            name;
           attribute  long                 size;
           attribute  long                 tabIndex;
  void                      add(in HTMLElement element, 
                                in HTMLElement before);
  void                      remove(in long index);
  void                      blur();
  void                      focus();
};
```

Attributes

`type`
: The type of control created.

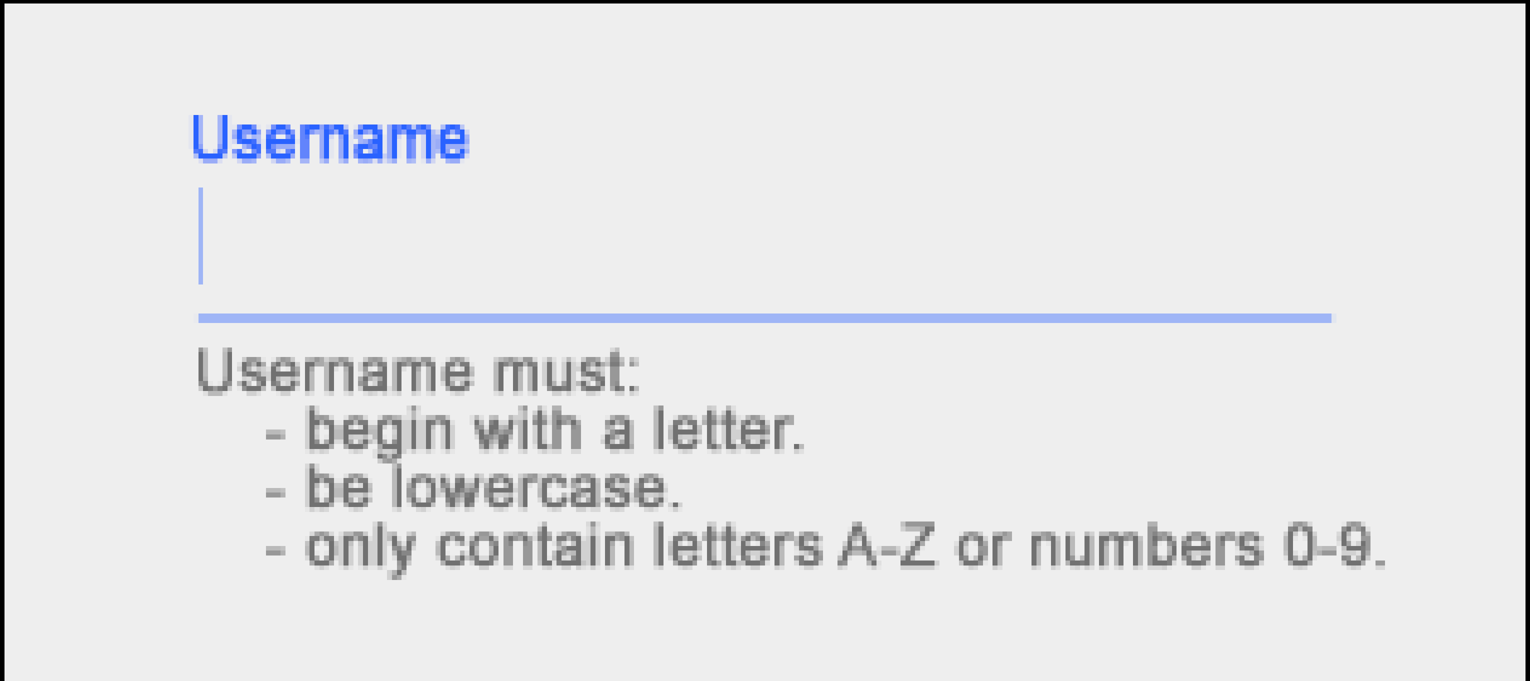
`selectedIndex`
: The ordinal index of the selected option. The value -1 is returned if no element is selected. If multiple options are selected, the index of the first selected option is returned.

`value`
: The current form control value.

`length`
: The number of options in this `SELECT`.

Not really Glen…

But pretend it is and he's as dashing as international heart-throb Brian Posehn…



Username must:

- begin with a letter.
- be lowercase.
- only contain letters A-Z or numbers 0-9.

End
Break
Enter

```
import {ZephComponents,html,onEventAt} from "ZephJS";
ZephComponents.define("my-user-field",()=>{
  html(`
    <div class="wrapper">
      <input class="field" type="text"></input>
    </div>
  `);

  onEventAt("input","keyup",(element,content,event)=>{
    if (event.keyCode===13) {

      ???????????????

    }
  });
});
```

Zeph
JS

zephjs.com

Zeph
JS

zephjs.com

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document.activeElement

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element.blur()

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focusin

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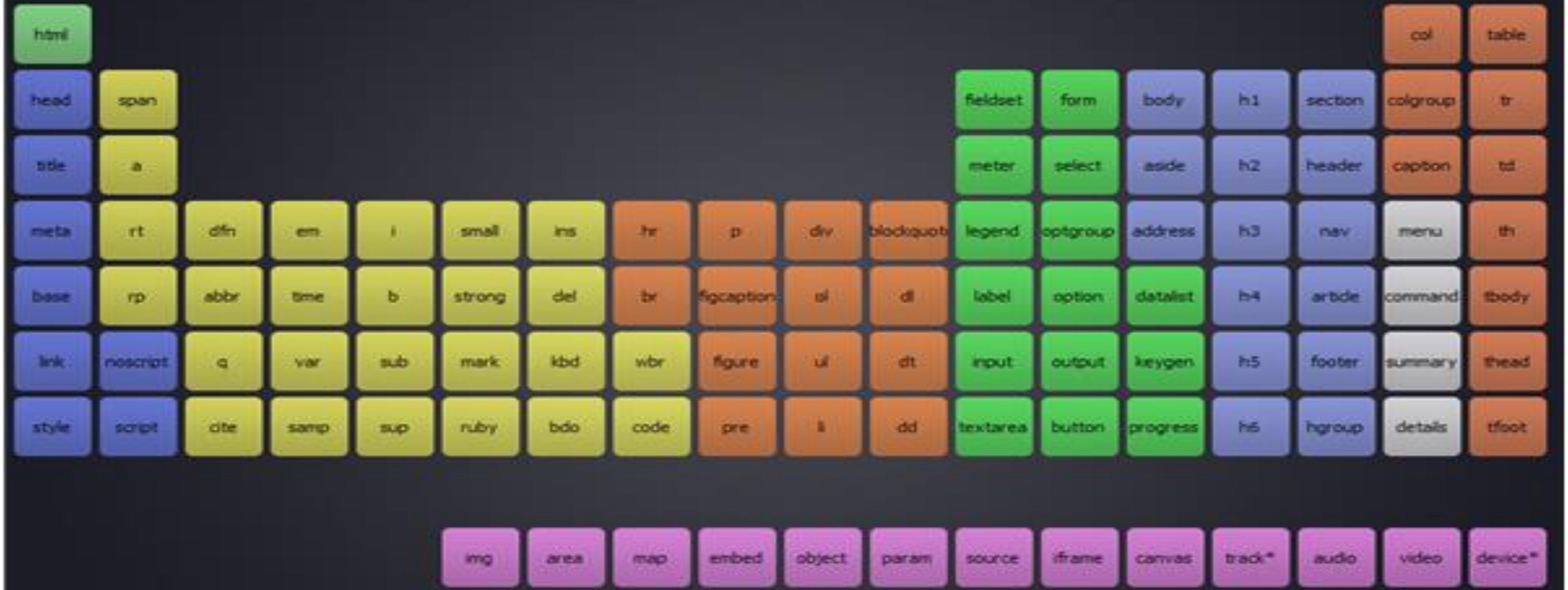
Periodic Table of the Elements



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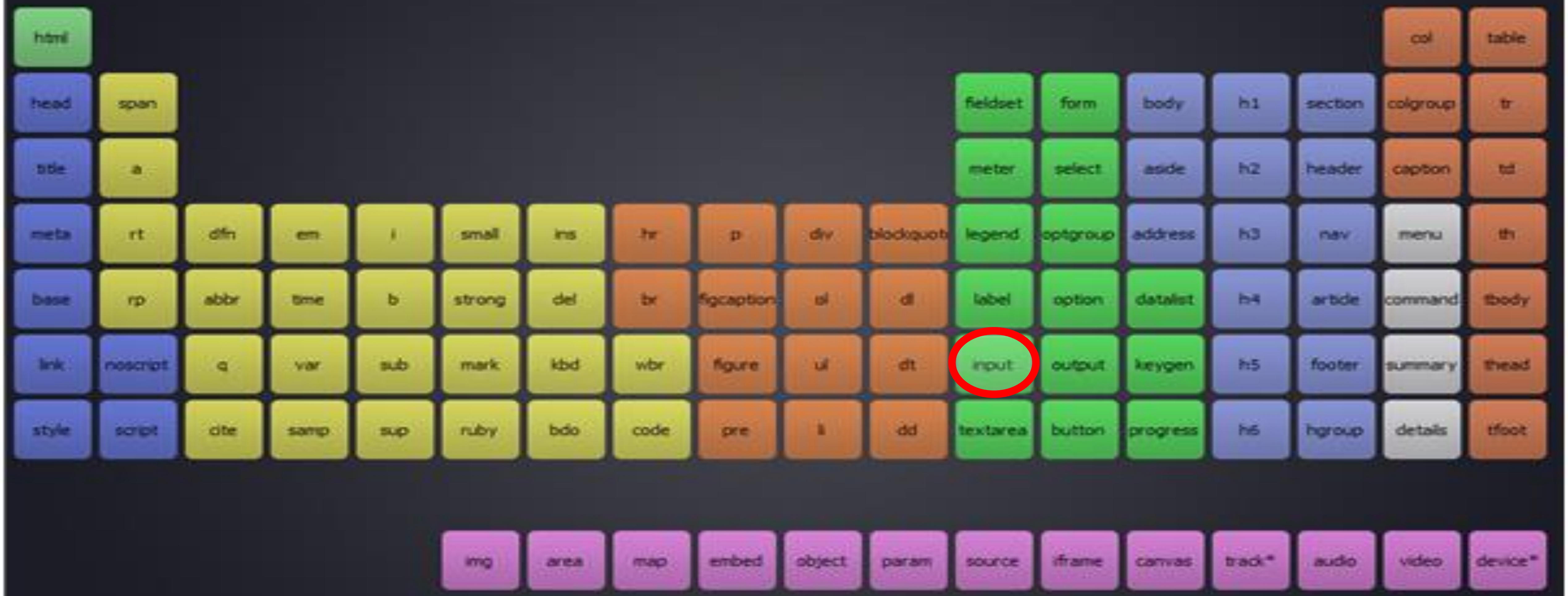

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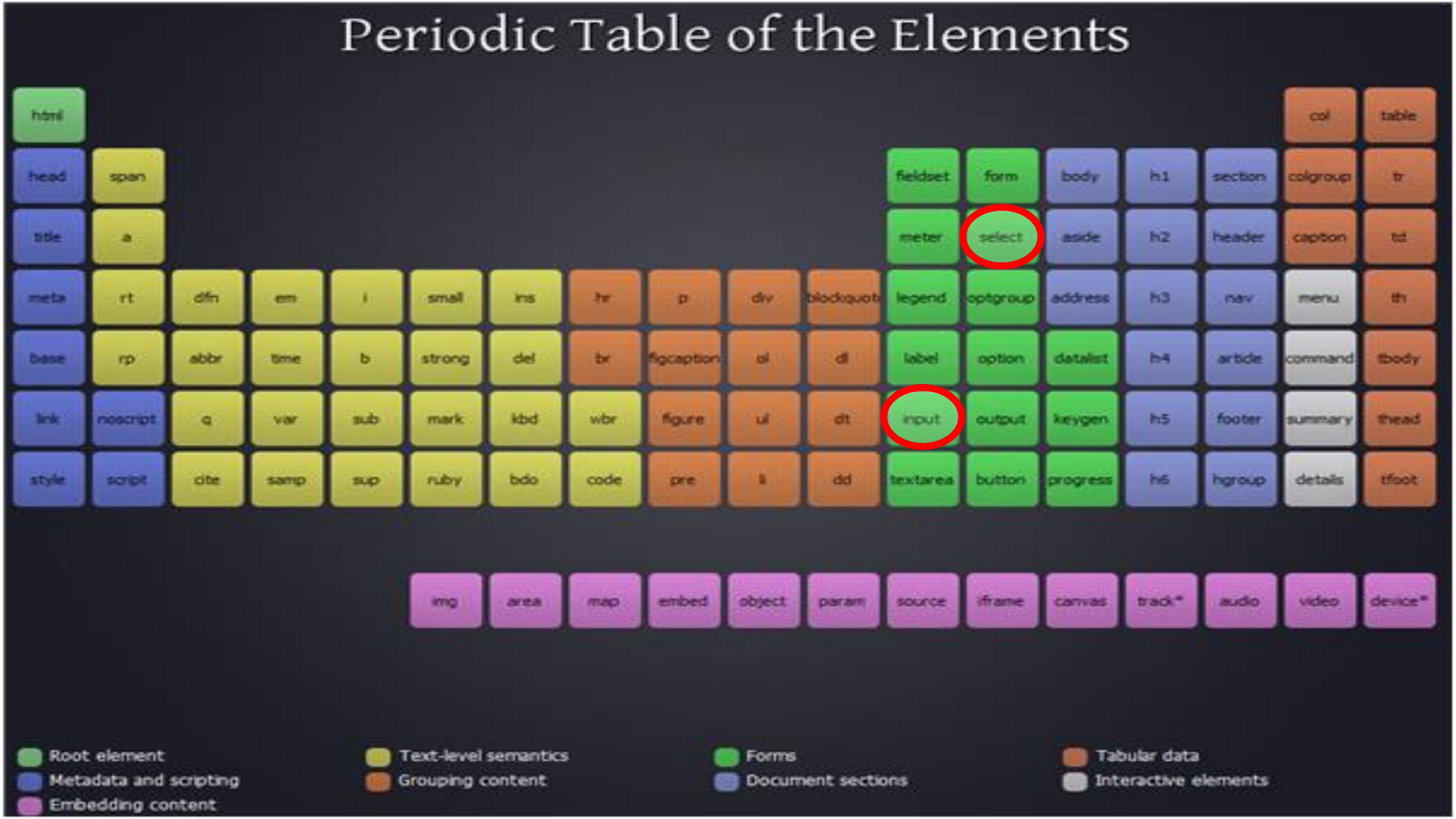

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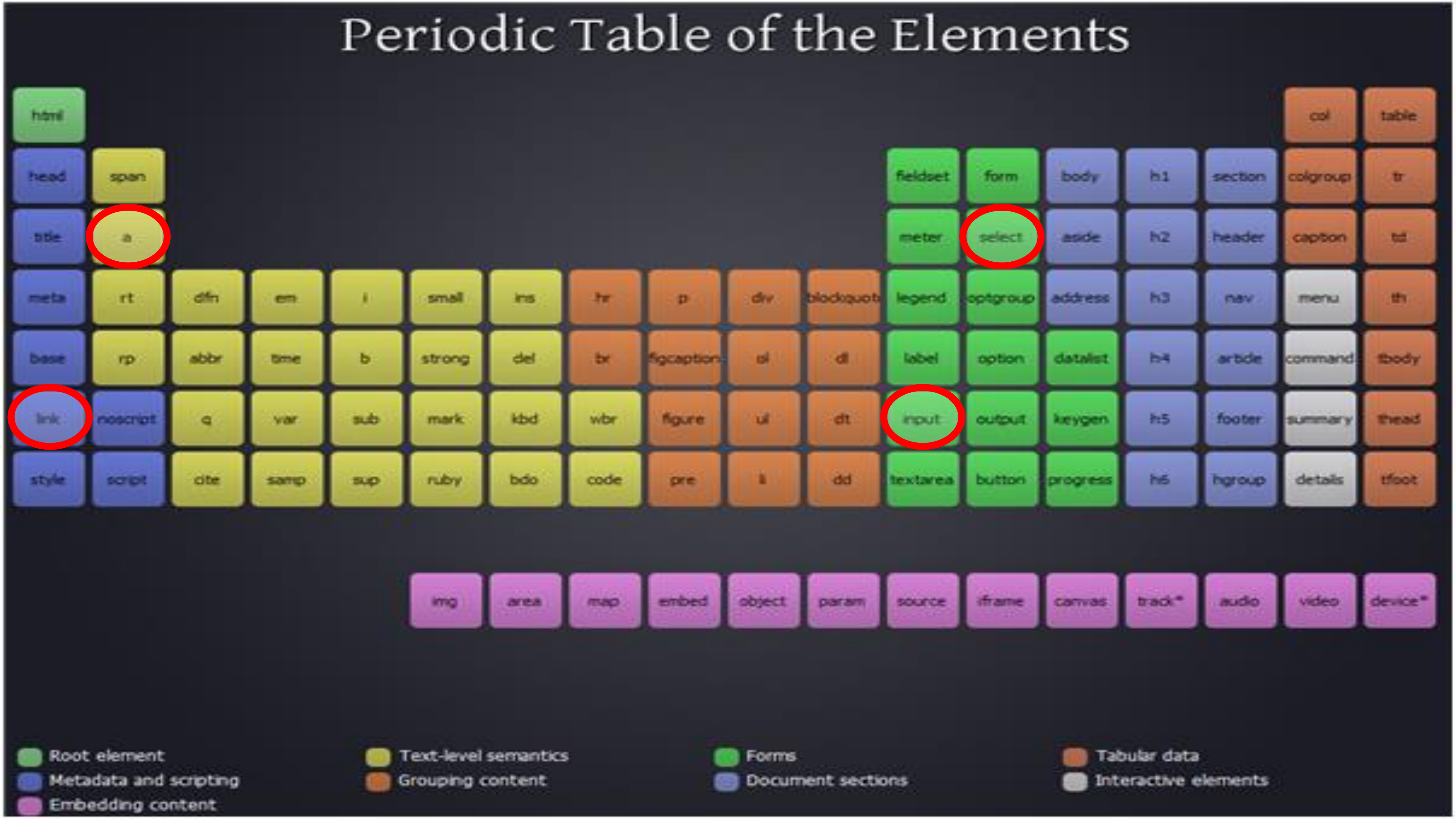

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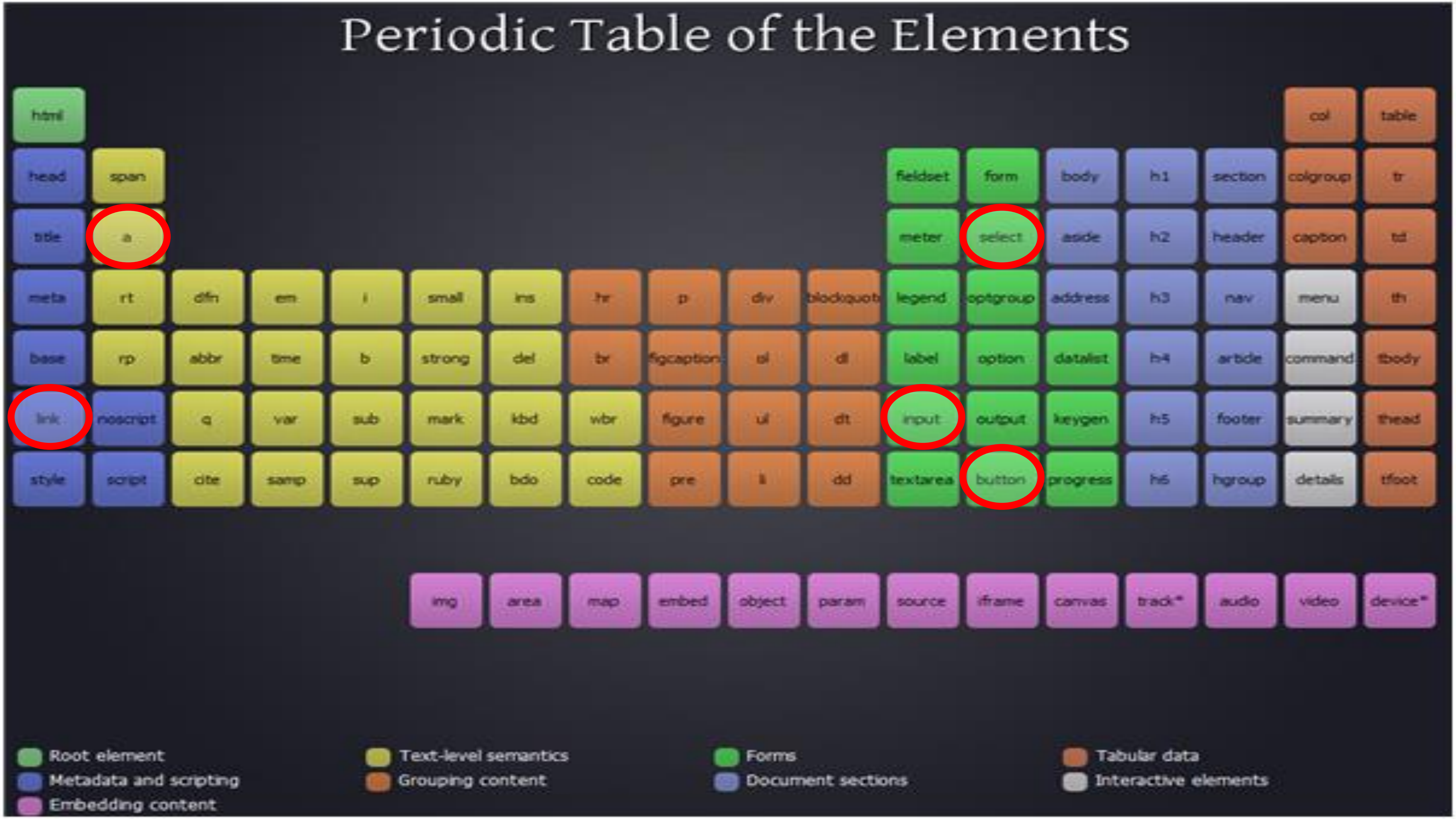

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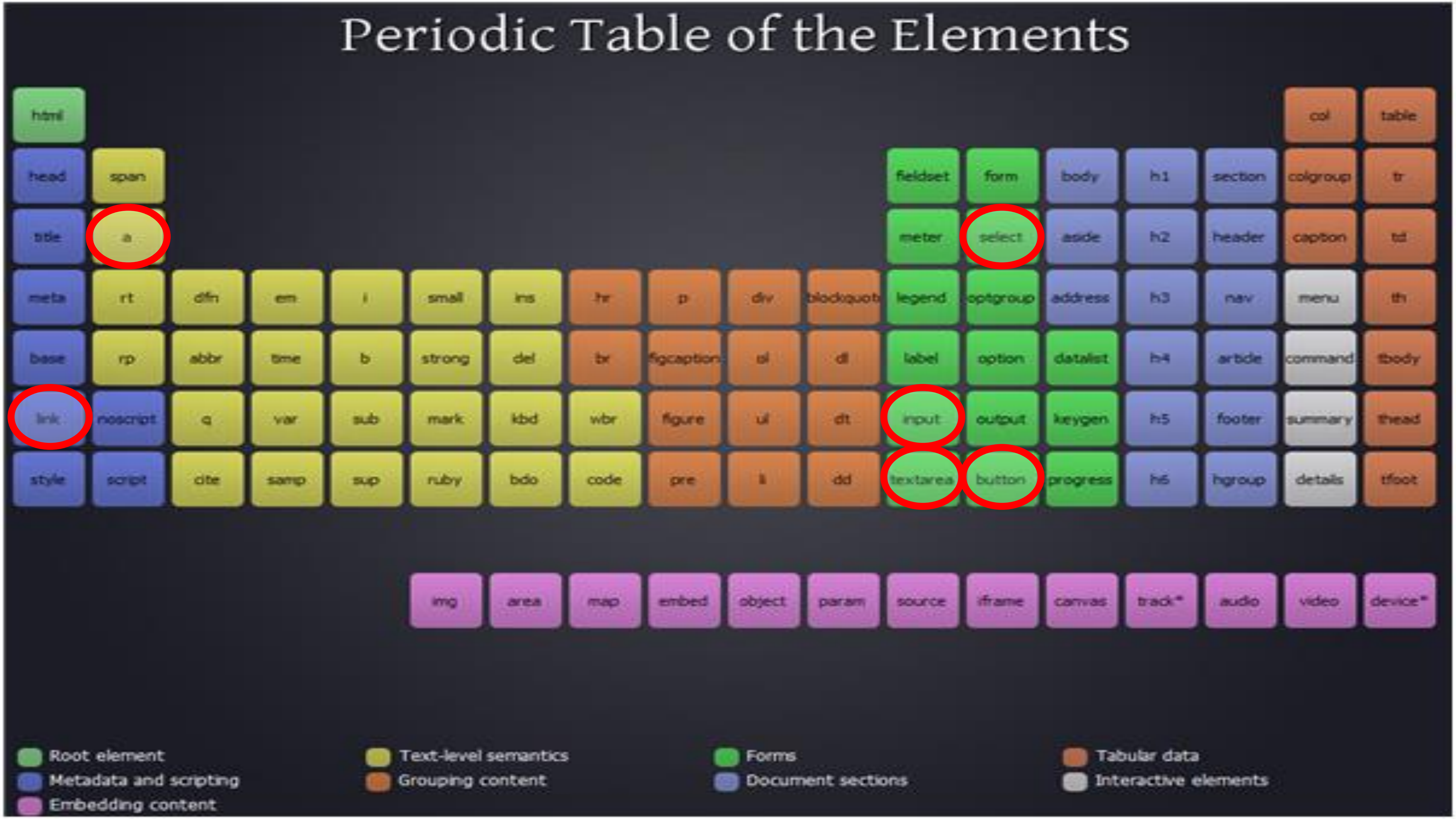

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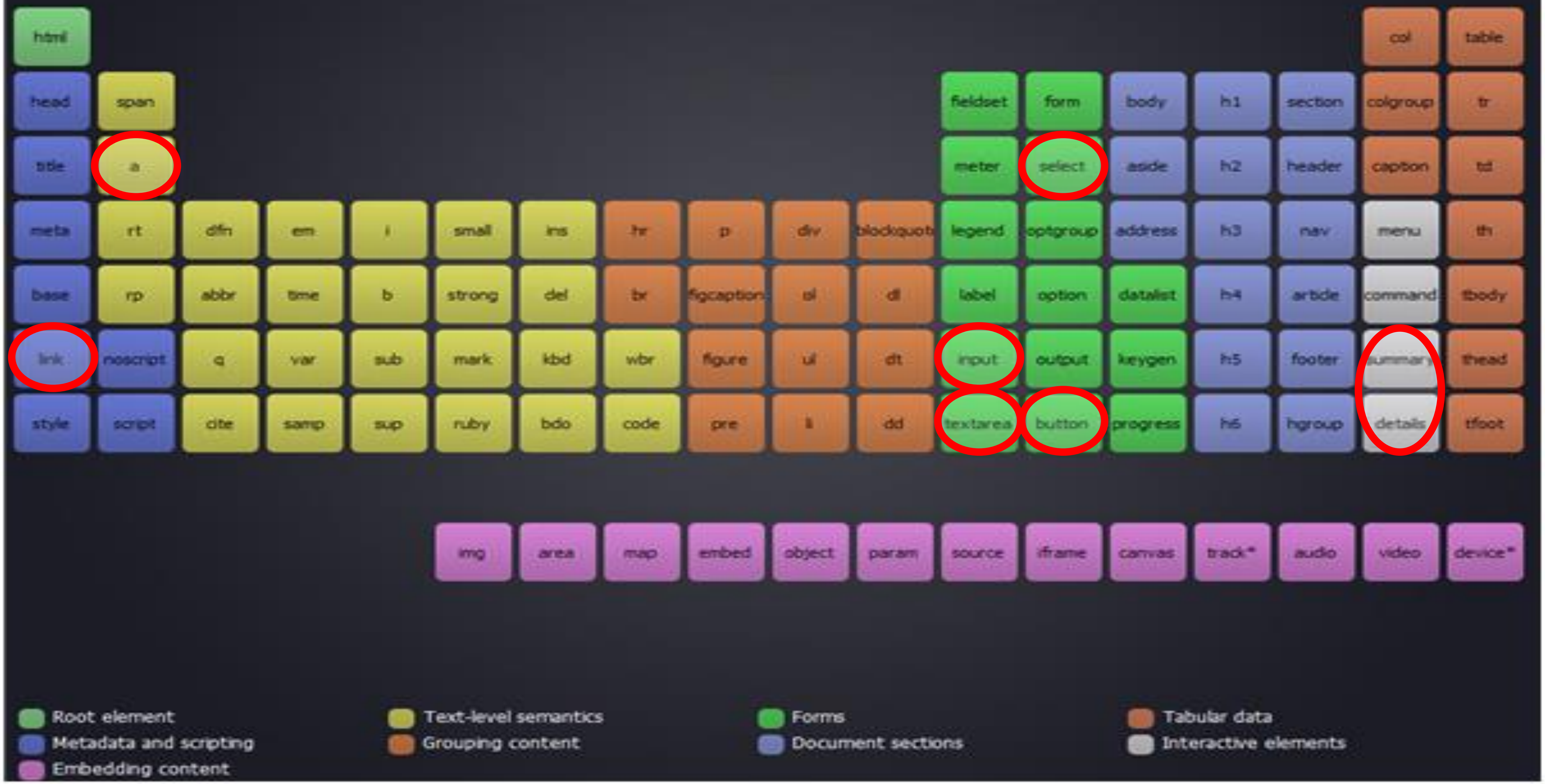

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style	script	[✓ cite]	[✓ samp]	[✓ sup]	[✓ ruby]	[✓ bdo]	[✓ code]	[✓ pre]	[✓ li]	[✓ dd]	[✓ textarea]	[✓ button]	progress	[✓ h6]	[✓ hgroup]	[✓ details]	tfoot
					img	area	map	embed	object	param	source	iframe	canvas	track*	audio	video	device*

🟩 Root element

🟦 Metadata and scripting

🟪 Embedding content

🟨 Text-level semantics

🟧 Grouping content

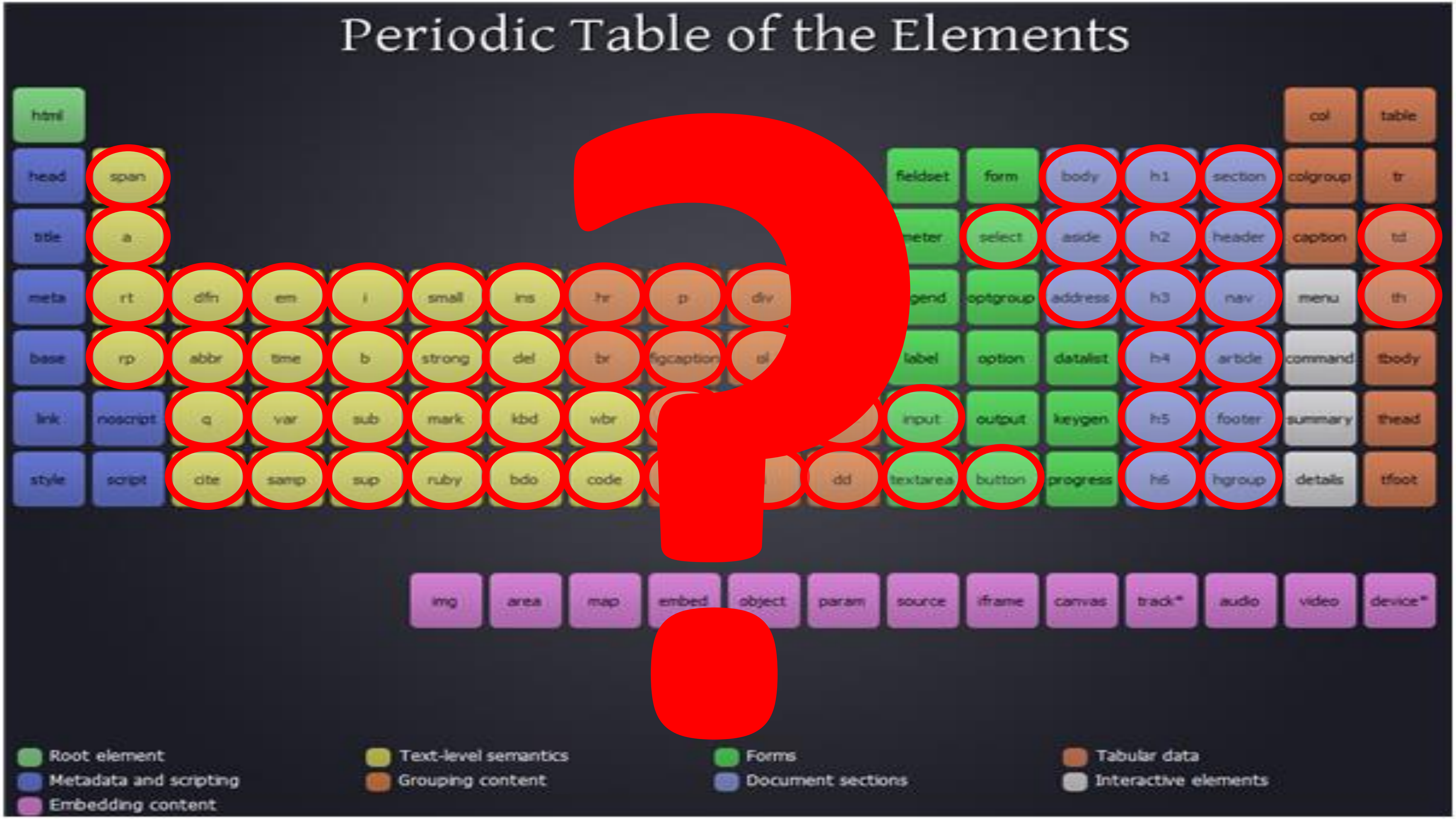
🟩 Forms

🟦 Document sections

🟧 Tabular data

⬜ Interactive elements

EXCEPT!


Periodic Table of the Elements
html
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form
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section
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a
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select
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h2
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menu
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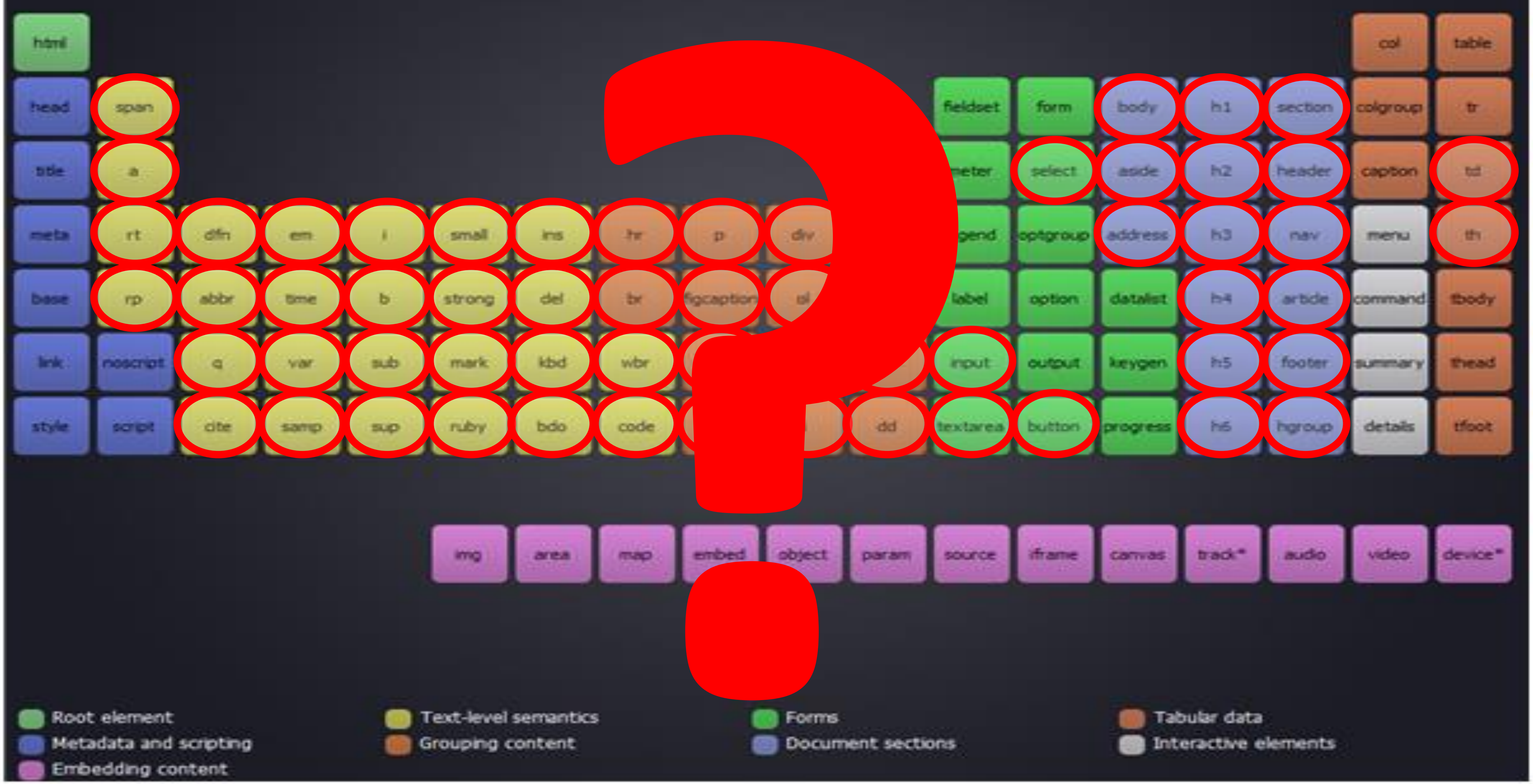
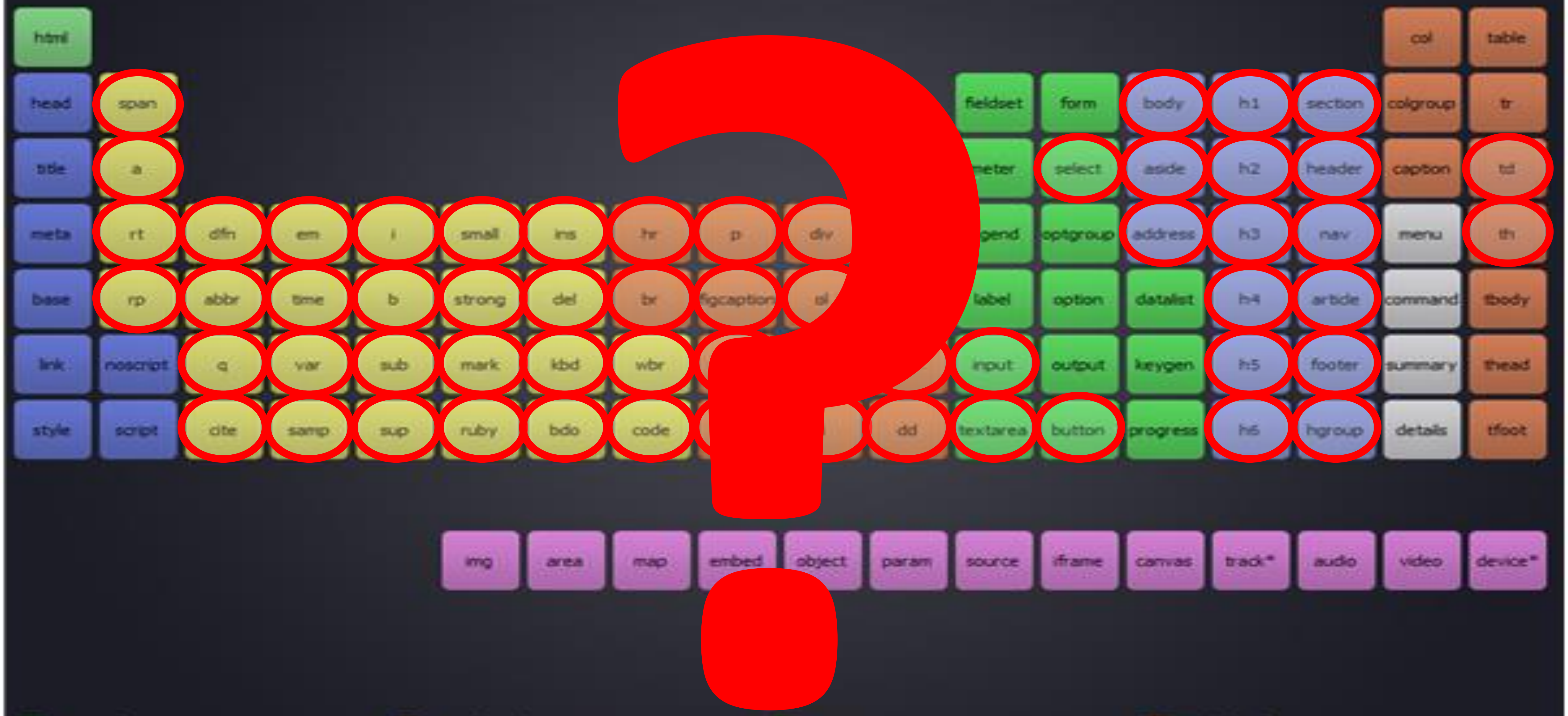
abbr
time
b
strong
del
br
figcaption
ol
label
option
datalist
h4
article
command
tbody
link
noscript
q
var
sub
mark
kbd
wbr
input
output
keygen
h5
footer
summary
thead
style
script
cite
samp
sup
ruby
bdo
code
dd
textarea
button
progress
h6
hgroup
details
tfoot
img
area
map
embed
object
param
source
iframe
canvas
track*
audio
video
device*
Root element
Text-level semantics
Forms
Tabular data
Metadata and scripting
Grouping content
Document sections
Interactive elements
Embedding content

Periodic Table of the Elements



Periodic Table of the Elements



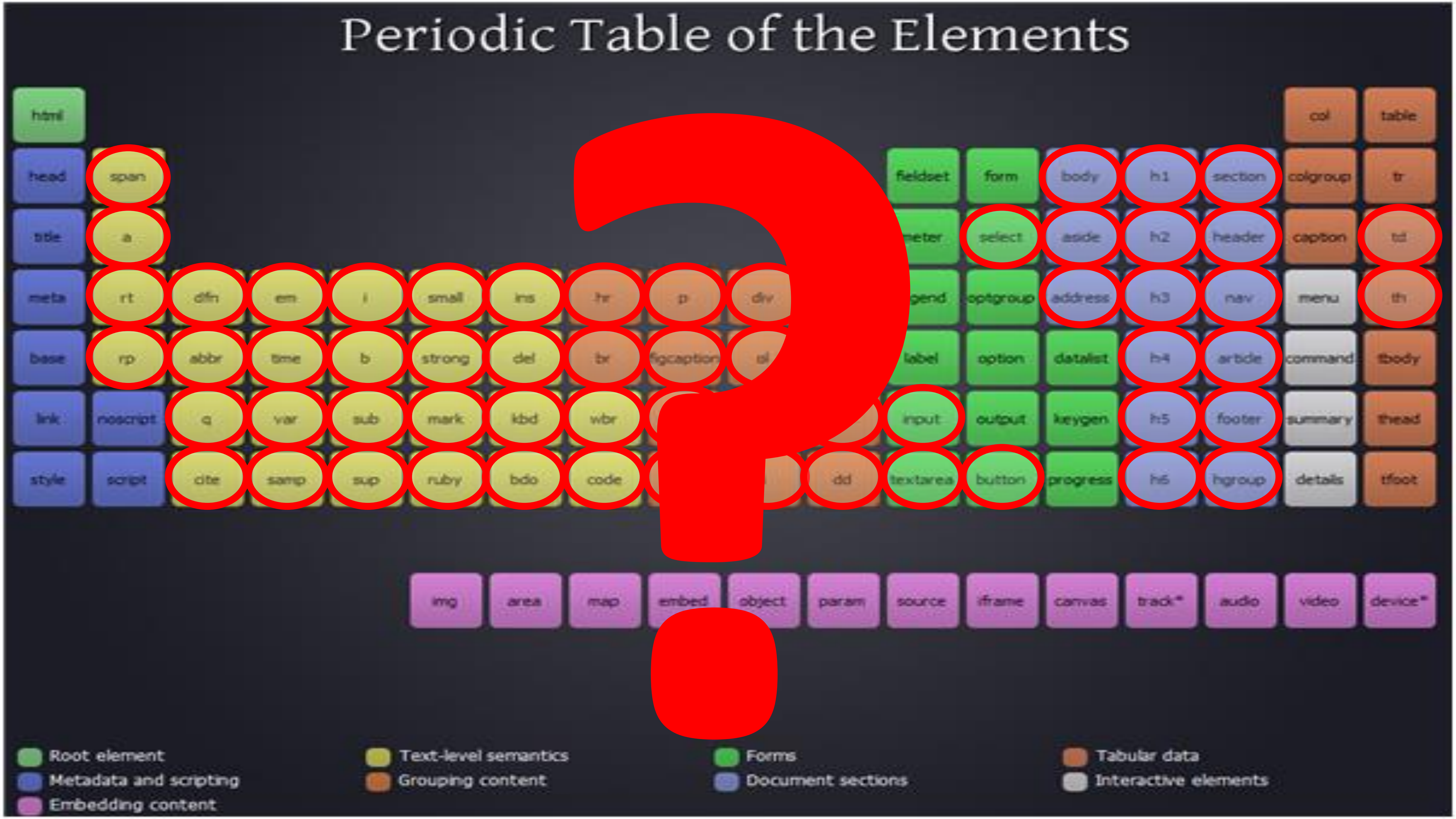
html																col	table
head	span										fieldset	form	body	h1	section	colgroup	tr
title	a										meter	select	aside	h2	header	caption	td
meta	rt	dfn	em	i	small	ins	hr	p	div		legend	optgroup	address	h3	nav	menu	th
base	rp	abbr	time	b	strong	del	br	figcaption	ol		label	option	datalist	h4	article	command	tbody
link	noscript	q	var	sub	mark	kbd	wbr				input	output	keygen	h5	footer	summary	thead
style	script	cite	samp	sup	ruby	bdo	code			dd	textarea	button	progress	h6	hgroup	details	tfoot
					img	area	map	embed	object	param	source	iframe	canvas	track*	audio	video	device*

🟩 Root element
🟦 Metadata and scripting
🟪 Embedding content

🟨 Text-level semantics
🟧 Grouping content

🟩 Forms
🟦 Document sections

🟧 Tabular data
⬜ Interactive elements



Periodic Table of the Elements

html																col	table
head	span										fieldset	form	body	h1	section	colgroup	tr
title	a										meter	select	aside	h2	header	caption	td
meta	rt	dfn	em	i	small	ins	hr	p	div		gend	optgroup	address	h3	nav	menu	th
base	rp	abbr	time	b	strong	del	br	figcaption	ol		label	option	datalist	h4	article	command	tbody
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style	script	cite	samp	sup	ruby	bdo	code			dd	textarea	button	progress	h6	hgroup	details	tfoot
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🟧 Grouping content
🟩 Forms
🟦 Document sections
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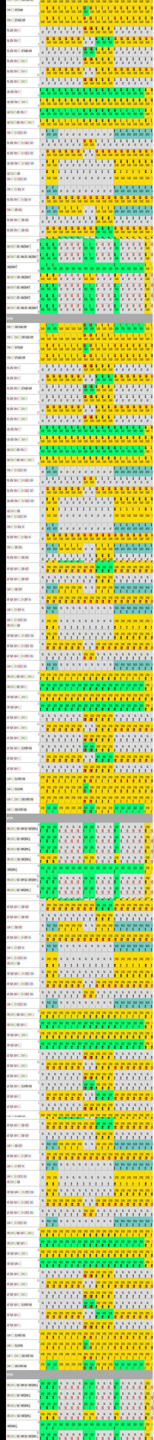
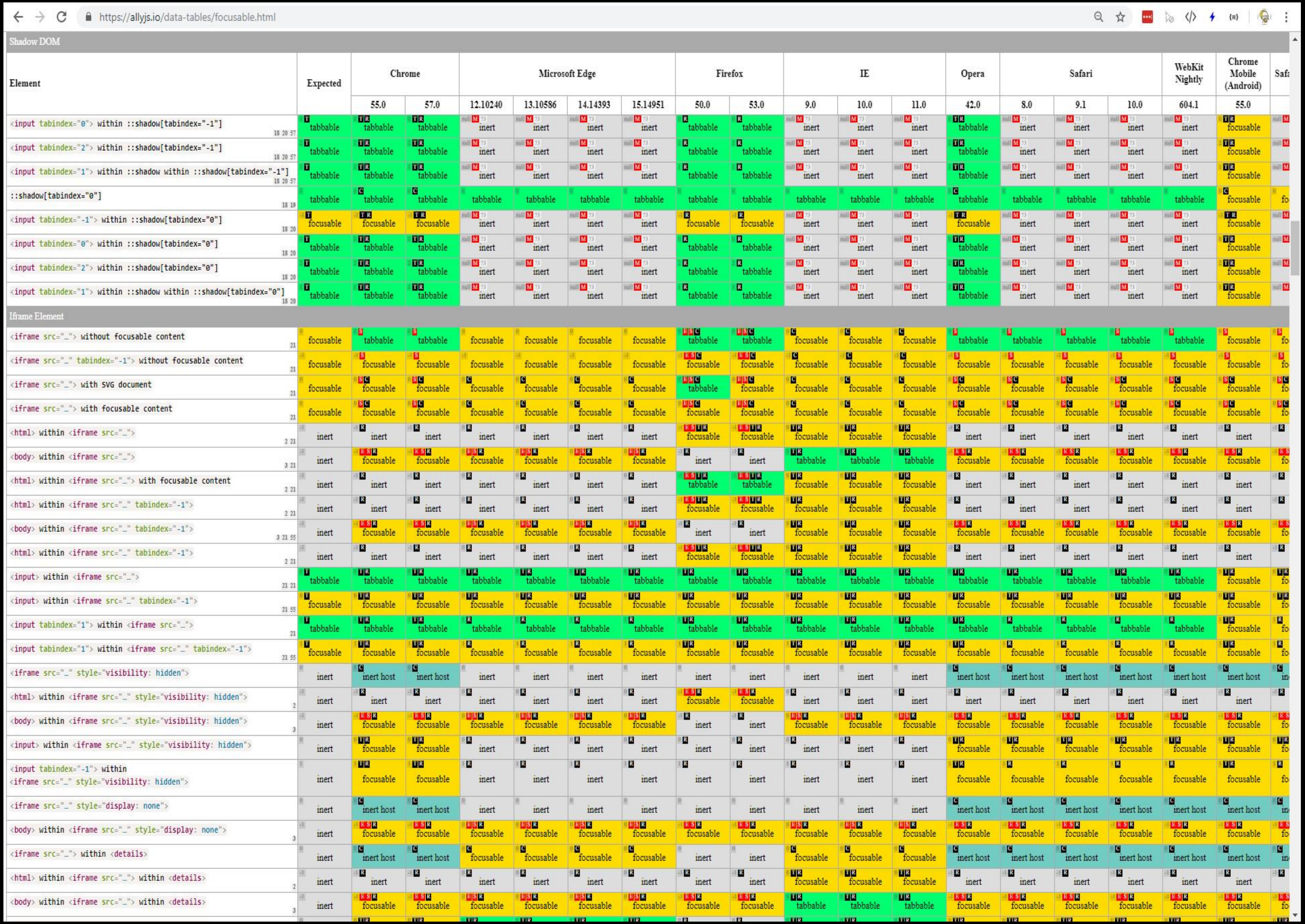
⬜ Interactive elements





Shadow DOM

Element	Expected	Chrome		Microsoft Edge				Firefox		IE			Opera	Safari			WebKit Nightly	Chrome Mobile (Android)	Safa
		55.0	57.0	12.10240	13.10586	14.14393	15.14951	50.0	53.0	9.0	10.0	11.0	42.0	8.0	9.1	10.0	604.1	55.0	
`<input tabindex="0"> within ::shadow[tabindex="-1"]` 18 20 57	tabbable	tabbable	tabbable	inert	inert	inert	inert	tabbable	tabbable	inert	inert	inert	tabbable	inert	inert	inert	inert	focusable	
`<input tabindex="2"> within ::shadow[tabindex="-1"]` 18 20 57	tabbable	tabbable	tabbable	inert	inert	inert	inert	tabbable	tabbable	inert	inert	inert	tabbable	inert	inert	inert	inert	focusable	
`<input tabindex="1"> within ::shadow within ::shadow[tabindex="-1"]` 18 20 57	tabbable	tabbable	tabbable	inert	inert	inert	inert	tabbable	tabbable	inert	inert	inert	tabbable	inert	inert	inert	inert	focusable	
`::shadow[tabindex="0"]` 18 19	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	focusable	fo
`<input tabindex="-1"> within ::shadow[tabindex="0"]` 18 20	focusable	focusable	focusable	inert	inert	inert	inert	focusable	focusable	inert	inert	inert	focusable	inert	inert	inert	inert	focusable	
`<input tabindex="0"> within ::shadow[tabindex="0"]` 18 20	tabbable	tabbable	tabbable	inert	inert	inert	inert	tabbable	tabbable	inert	inert	inert	tabbable	inert	inert	inert	inert	focusable	
`<input tabindex="2"> within ::shadow[tabindex="0"]` 18 20	tabbable	tabbable	tabbable	inert	inert	inert	inert	tabbable	tabbable	inert	inert	inert	tabbable	inert	inert	inert	inert	focusable	
`<input tabindex="1"> within ::shadow within ::shadow[tabindex="0"]` 18 20	tabbable	tabbable	tabbable	inert	inert	inert	inert	tabbable	tabbable	inert	inert	inert	tabbable	inert	inert	inert	inert	focusable	

Iframe Element

Element	Expected	Chrome 55.0	Chrome 57.0	Edge 12.10240	Edge 13.10586	Edge 14.14393	Edge 15.14951	Firefox 50.0	Firefox 53.0	IE 9.0	IE 10.0	IE 11.0	Opera 42.0	Safari 8.0	Safari 9.1	Safari 10.0	WebKit Nightly 604.1	Chrome Mobile (Android) 55.0	Safa
`<iframe src="…"> without focusable content` 21	focusable	tabbable	tabbable	focusable	focusable	focusable	focusable	tabbable	tabbable	focusable	focusable	focusable	tabbable	tabbable	tabbable	tabbable	tabbable	focusable	fo
`<iframe src="…" tabindex="-1"> without focusable content` 21	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	fo
`<iframe src="…"> with SVG document` 21	focusable	focusable	focusable	focusable	focusable	focusable	focusable	tabbable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	fo
`<iframe src="…"> with focusable content` 21	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	fo
`<html> within <iframe src="…">` 2 21	inert	inert	inert	inert	inert	inert	inert	focusable	focusable	focusable	focusable	focusable	inert	inert	inert	inert	inert	inert	
`<body> within <iframe src="…">` 3 21	inert	focusable	focusable	focusable	focusable	focusable	focusable	inert	inert	tabbable	tabbable	tabbable	focusable	focusable	focusable	focusable	focusable	focusable	fo
`<html> within <iframe src="…"> with focusable content` 2 21	inert	inert	inert	inert	inert	inert	inert	tabbable	tabbable	focusable	focusable	focusable	inert	inert	inert	inert	inert	inert	
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`<body> within <iframe src="…" tabindex="-1">` 3 21 55	inert	focusable	focusable	focusable	focusable	focusable	focusable	inert	inert	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	fo
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`<input> within <iframe src="…">` 21 21	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	tabbable	focusable	fo
`<input> within <iframe src="…" tabindex="-1">` 21 55	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	fo
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`<input tabindex="1"> within <iframe src="…" tabindex="-1">` 21 55	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	fo
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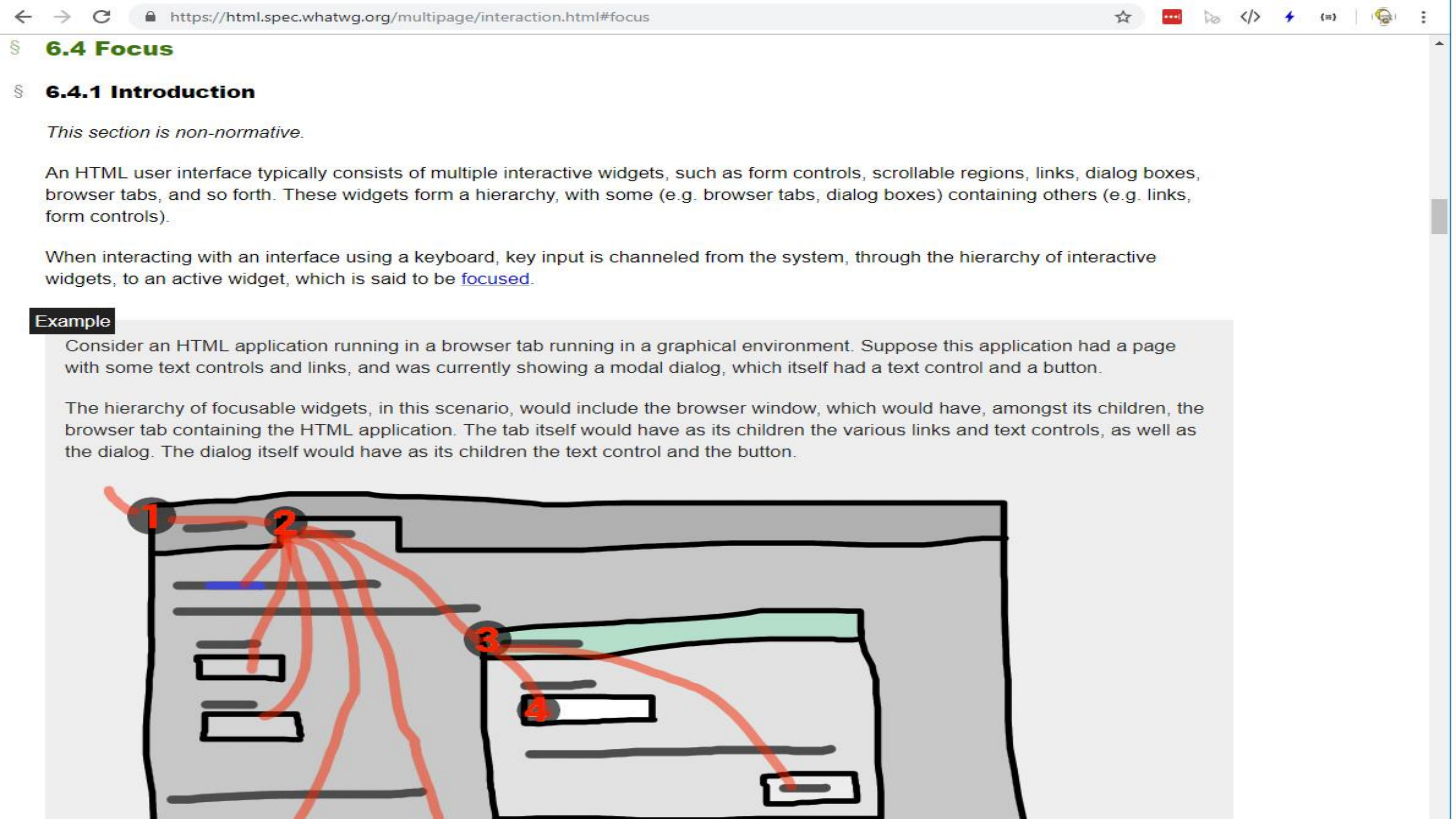
`<html> within <iframe src="…" style="visibility: hidden">` 2	inert	inert	inert	inert	inert	inert	inert	focusable	focusable	inert	inert	inert	inert	inert	inert	inert	inert	inert	
`<body> within <iframe src="…" style="visibility: hidden">` 3	inert	focusable	focusable	focusable	focusable	focusable	focusable	inert	inert	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	fo
`<input> within <iframe src="…" style="visibility: hidden">`	inert	focusable	focusable	inert	inert	inert	inert	inert	inert	inert	inert	inert	focusable	focusable	focusable	focusable	focusable	focusable	fo
`<input tabindex="-1"> within` `<iframe src="…" style="visibility: hidden">`	inert	focusable	focusable	inert	inert	inert	inert	inert	inert	inert	inert	inert	focusable	focusable	focusable	focusable	focusable	focusable	fo
`<iframe src="…" style="display: none">`	inert	inert host	inert host	inert	inert	inert	inert	inert	inert	inert	inert	inert	inert host	inert host	inert host	inert host	inert host	inert host	in
`<body> within <iframe src="…" style="display: none">` 3	inert	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	fo
`<iframe src="…"> within <details>`	inert	inert host	inert host	focusable	focusable	focusable	focusable	inert	inert	focusable	focusable	focusable	inert host	inert host	inert host	inert host	inert host	inert host	in
`<html> within <iframe src="…"> within <details>` 2	inert	inert	inert	inert	inert	inert	inert	inert	inert	focusable	focusable	focusable	inert	inert	inert	inert	inert	inert	
`<body> within <iframe src="…"> within <details>` 3	inert	focusable	focusable	focusable	focusable	focusable	focusable	focusable	focusable	tabbable	tabbable	tabbable	focusable	focusable	focusable	focusable	focusable	focusable	fo



https://html.spec.whatwg.org/multipage/interaction.html#focus

§ 6.4 Focus

§ 6.4.1 Introduction

This section is non-normative.

An HTML user interface typically consists of multiple interactive widgets, such as form controls, scrollable regions, links, dialog boxes, browser tabs, and so forth. These widgets form a hierarchy, with some (e.g. browser tabs, dialog boxes) containing others (e.g. links, form controls).

When interacting with an interface using a keyboard, key input is channeled from the system, through the hierarchy of interactive widgets, to an active widget, which is said to be focused.

Example

Consider an HTML application running in a browser tab running in a graphical environment. Suppose this application had a page with some text controls and links, and was currently showing a modal dialog, which itself had a text control and a button.

The hierarchy of focusable widgets, in this scenario, would include the browser window, which would have, amongst its children, the browser tab containing the HTML application. The tab itself would have as its children the various links and text controls, as well as the dialog. The dialog itself would have as its children the text control and the button.

- Elements that have their tabindex focus flag set, that are not actually disabled, that are not expressly inert, and that are either being rendered or being used as relevant canvas fallback content.
- The shapes of area elements in an image map associated with an img element that is being rendered and is not expressly inert.
- The user-agent provided subwidgets of elements that are being rendered and are not actually disabled or expressly inert
- The scrollable regions of elements that are being rendered and are not expressly inert.
- The viewport of a Document that is in a browsing context and is not inert.
- Any other element or part of an element, especially to aid with accessibility or to better match platform conventions.

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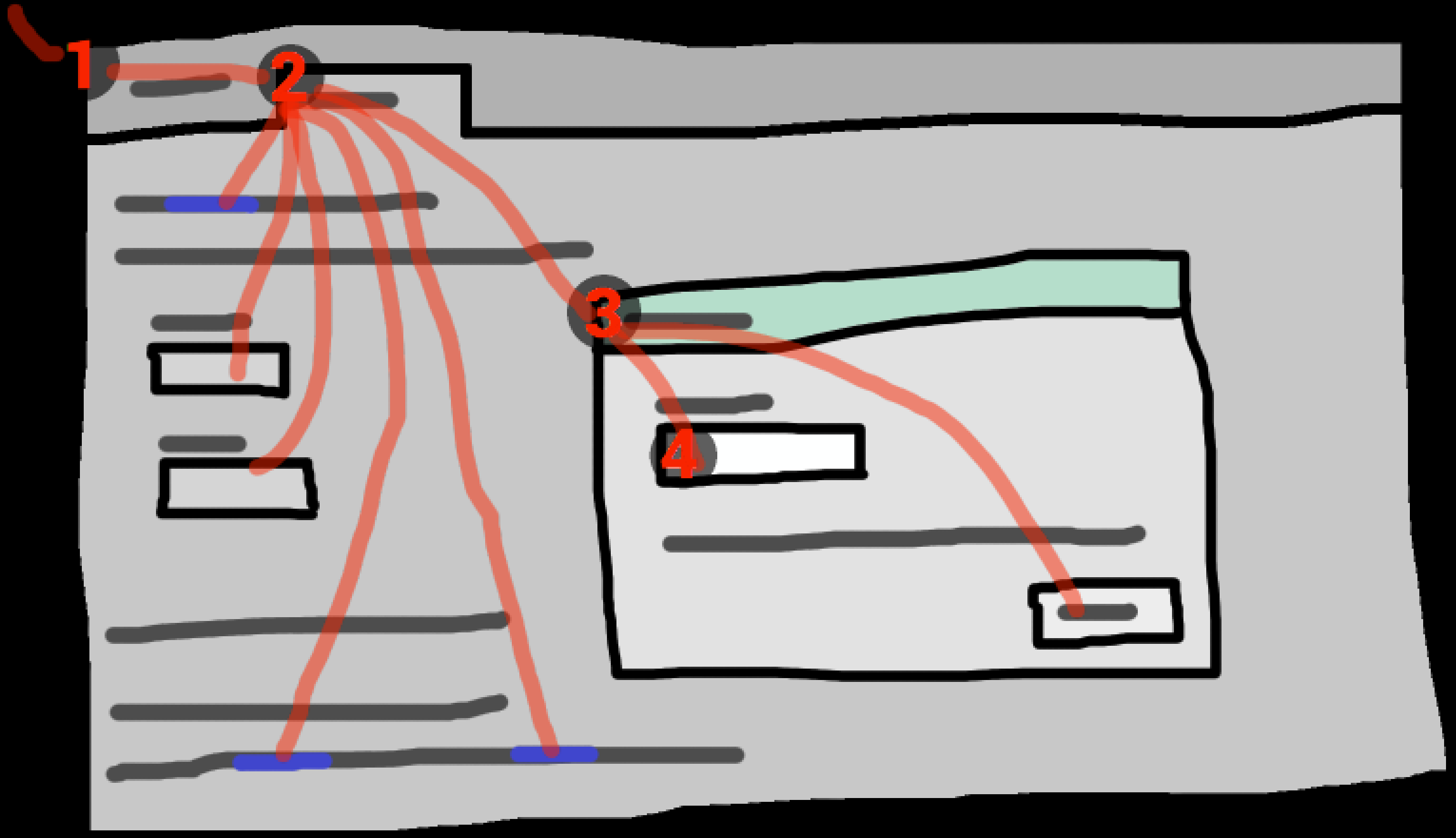
1 No way to automatically advance (or reverse) focus

1. No way to automatically advance (or reverse) focus

2. No way to determine what is focusable

1. No way to automatically advance (or reverse) focus

2. No way to determine what is focusable


1
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3
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- ✓ **.isFocusable(e)**

- ✓ .isFocusable(e)
- ✓ .forward()
- ✓ .backward()

- ✓ **.isFocusable(e)**
- ✓ **.forward()**
- ✓ **.backward()**

- ✓ .isFocusable(e)
- ✓ .forward()
- ✓ .backward()
- ✓ .trap()

- ✓ .isFocusable(e)
- ✓ .forward()
- ✓ .backward()
- ✓ .trap()
- ✓ .order()

- ✓ .isFocusable(e)
- ✓ .forward()
- ✓ .backward()
- ✓ .trap()
- ✓ .order()

- ✓ .isFocusable(e)
- ✓ .forward()
- ✓ .backward()
- ✓ .trap()
- ✓ .order()
- ✓ .previousActiveElement
- ✓ .history

- ✓ .isFocusable(e)
- ✓ .forward()
- ✓ .backward()
- ✓ .trap()
- ✓ .order()
- ✓ .previousActiveElement
- ✓ .history
- ✓ .autofocus(e)

- ✓ .isFocusable(e)
- ✓ .forward()
- ✓ .backward()
- ✓ .trap()
- ✓ .order()
- ✓ .previousActiveElement
- ✓ .history
- ✓ .autofocus(e)
- ✓ ???

- ✓ .isFocusable(e)
- ✓ .forward()
- ✓ .backward()
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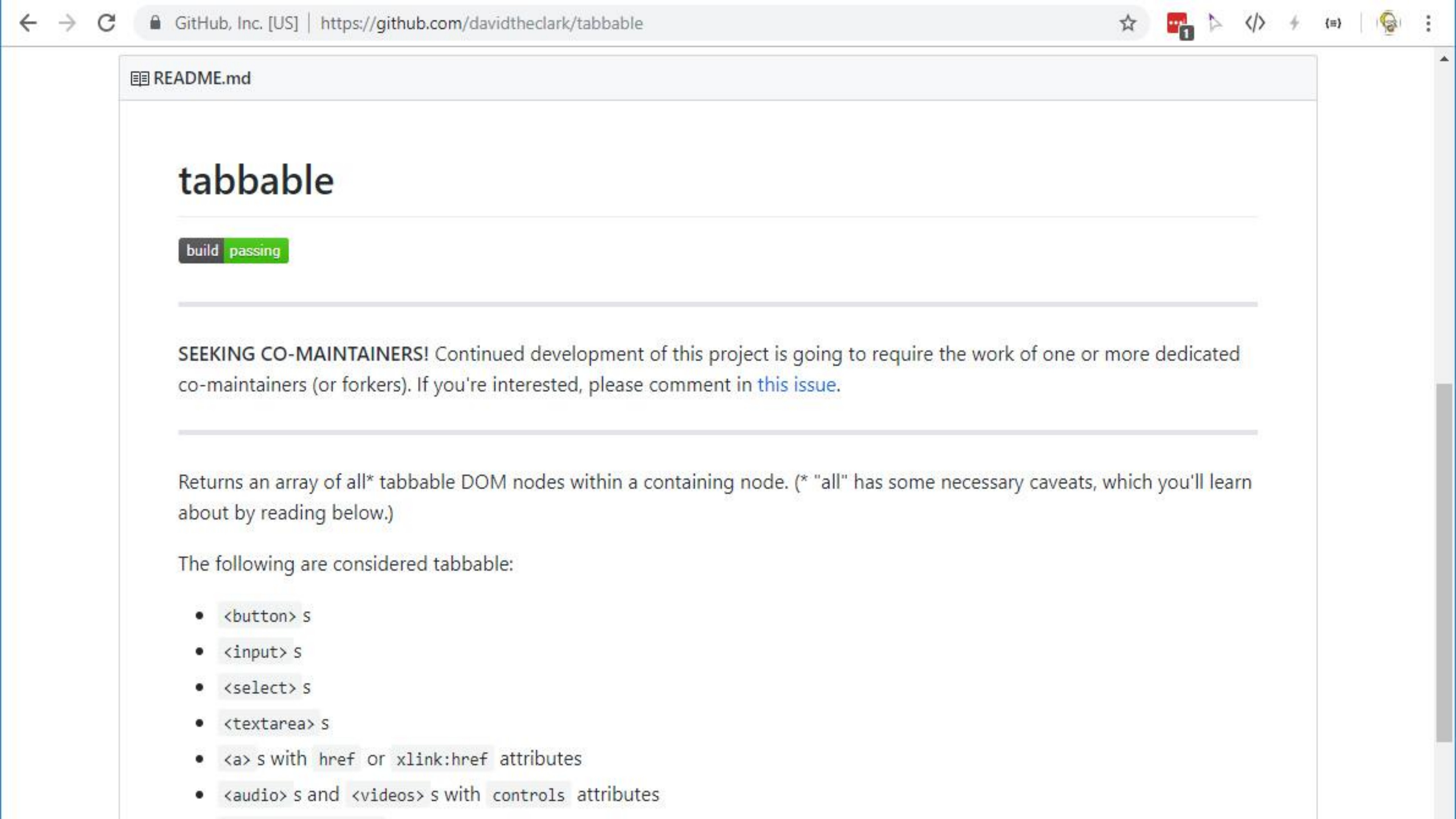
- ✓ .order()
- ✓ .previousActiveElement
- ✓ .history
- ✓ .autofocus(e)
- ✓ ???

Glen’s Awesome JS Focus Library


GitHub, Inc. [US] | https://github.com/davidtheclark/tabbable
README.md
build passing

tabbable

SEEKING CO-MAINTAINERS! Continued development of this project is going to require the work of one or more dedicated co-maintainers (or forkers). If you're interested, please comment in this issue.

Returns an array of all* tabbable DOM nodes within a containing node. (* "all" has some necessary caveats, which you'll learn about by reading below.)

The following are considered tabbable:

- `<button>` s
- `<input>` s
- `<select>` s
- `<textarea>` s
- `<a>` s with `href` or `xlink:href` attributes
- `<audio>` s and `<videos>` s with `controls` attributes

window.focusManager

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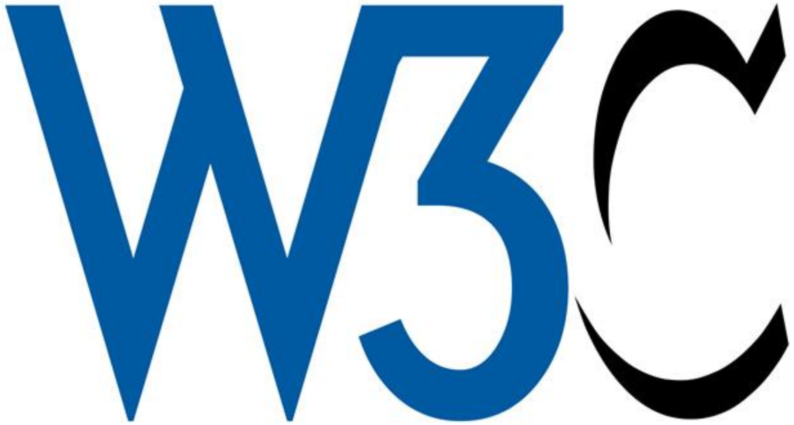
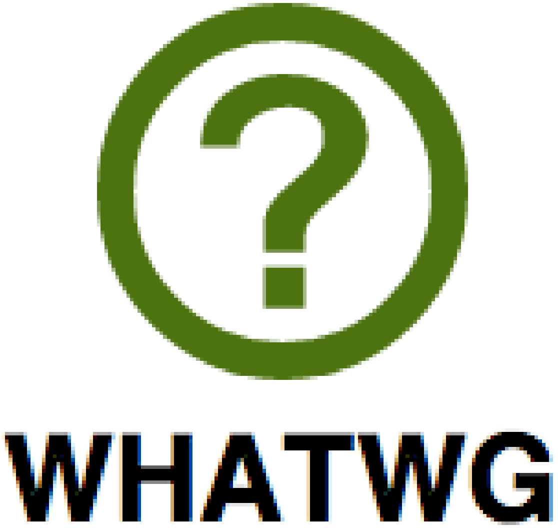
W3C

W3C

?
WHATWG

W3C
WHATWG

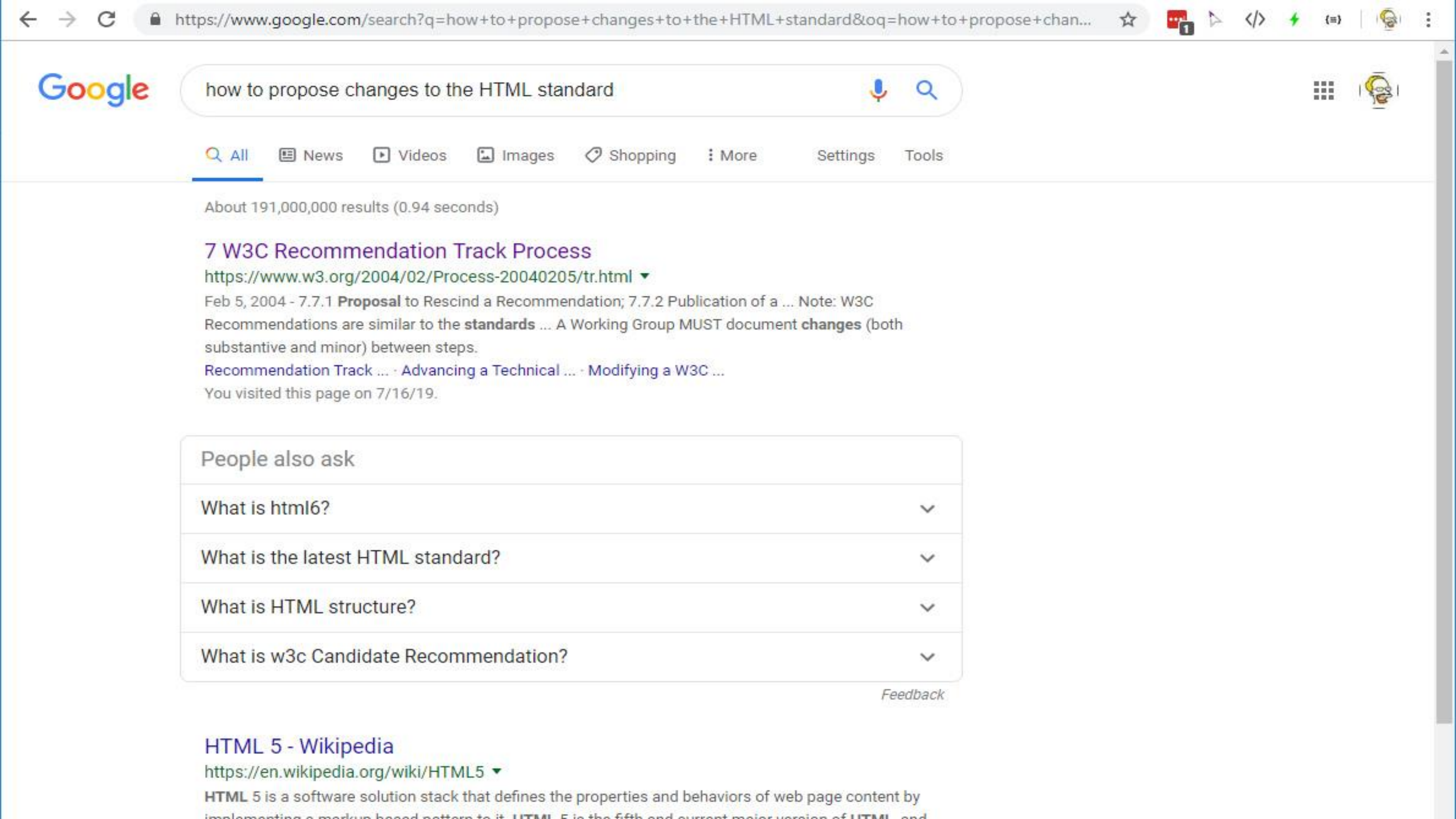

W3C


WHATWG

W3C
WHATWG

Still not Glen…

But let's pretend Glen is this cool and popular and super well-known…


https://www.google.com/search?q=how+to+propose+changes+to+the+HTML+standard&oq=how+to+propose+chan...
Google
All
News
Videos
Images
Shopping
More
Settings
Tools

how to propose changes to the HTML standard

About 191,000,000 results (0.94 seconds)

7 W3C Recommendation Track Process

https://www.w3.org/2004/02/Process-20040205/tr.html ▾

Feb 5, 2004 - 7.7.1 **Proposal** to Rescind a Recommendation; 7.7.2 Publication of a ... Note: W3C Recommendations are similar to the **standards** ... A Working Group MUST document **changes** (both substantive and minor) between steps.

Recommendation Track ... · Advancing a Technical ... · Modifying a W3C ...

You visited this page on 7/16/19.

People also ask

What is html6?

What is the latest HTML standard?

What is HTML structure?

What is w3c Candidate Recommendation?

Feedback

HTML 5 - Wikipedia

https://en.wikipedia.org/wiki/HTML5 ▾

HTML 5 is a software solution stack that defines the properties and behaviors of web page content by implementing a markup based pattern to it. **HTML** 5 is the fifth and current major version of **HTML**, and

Web Platform Incubator Community Group

Web Platform Incubator Community Group

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Hey~

Hey~

Hey~

Y Hacker News

JS DAILY

JS
CONF

The
Focus Traversal API
Proposal

The Focus Traversal API Proposal

focusManager.isFocusable(e)

focusManager.forward()

focusManager.backward()

focusManager.next(e)

focusManager.previous(e)

focusManager.hasFocus(e)

focusManager.focus(e)

focusManager.orderedElements()

focusManager.currentlyFocused

focusManager.previouslyFocused

focusManager.history

Coming Soon...
focusManager.trap(e)
focusManager.order(a)
focusManager.autofocus(e)

The Focus Traversal API Proposal

```
focusManager.isFocusable(e)
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Coming Soon…
focusManager.trap(e)
focusManager.order(a)
focusManager.autofocus(e)

The Focus Traversal API Proposal

github.com/awesomeeng/FocusTraversalAPI

```
npm install focus-traversal-api-polyfill
```

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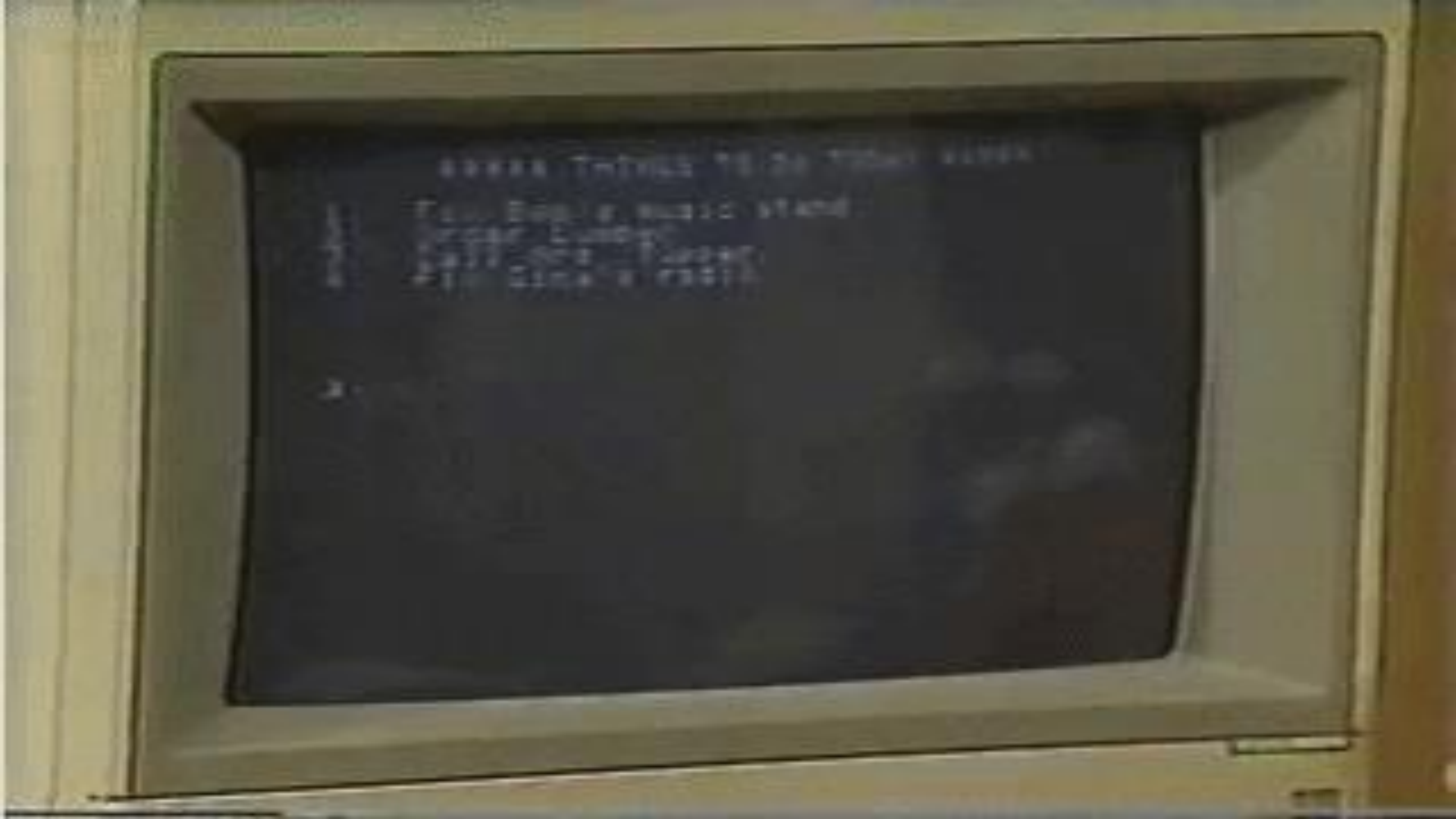
Perhaps I could be
of some assistance?



```
          ***** THINGS TO DO TODAY *****!

 1.     Fix Bob's music stand.
 2.     Order lumber
 3.     Call the Tuner
 4.     Fix Gina's chair

 >
```

Let’s make Browser Focus work for us… Spread the word about the Focus Traversal API Proposal!

https://github.com/awesomeeng/FocusTraversalAPI

#FocusTraversalAPI #JavaScript #Web

@AREINET

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Focus Traversal API Explainer

https://github.com/awesomeeng/FocusTraversalAPI/blob/master/EXPLAINER.md

Github Repo

https://github.com/awesomeeng/FocusTraversalAPI

Github Get Involved Page

https://github.com/awesomeeng/FocusTraversalAPI/blob/master/GET_INVOLVED.md

WICG W3C Discourse Discussion

https://discourse.wicg.io/t/proposal-focus-traversal-api/3427

WHATWG Github Issue

https://github.com/whatwg/html/issues/4784

ZephJS Library

https://zephjs.com