สยามชำนาญกิจ
SIAM CHAMNAN KIT

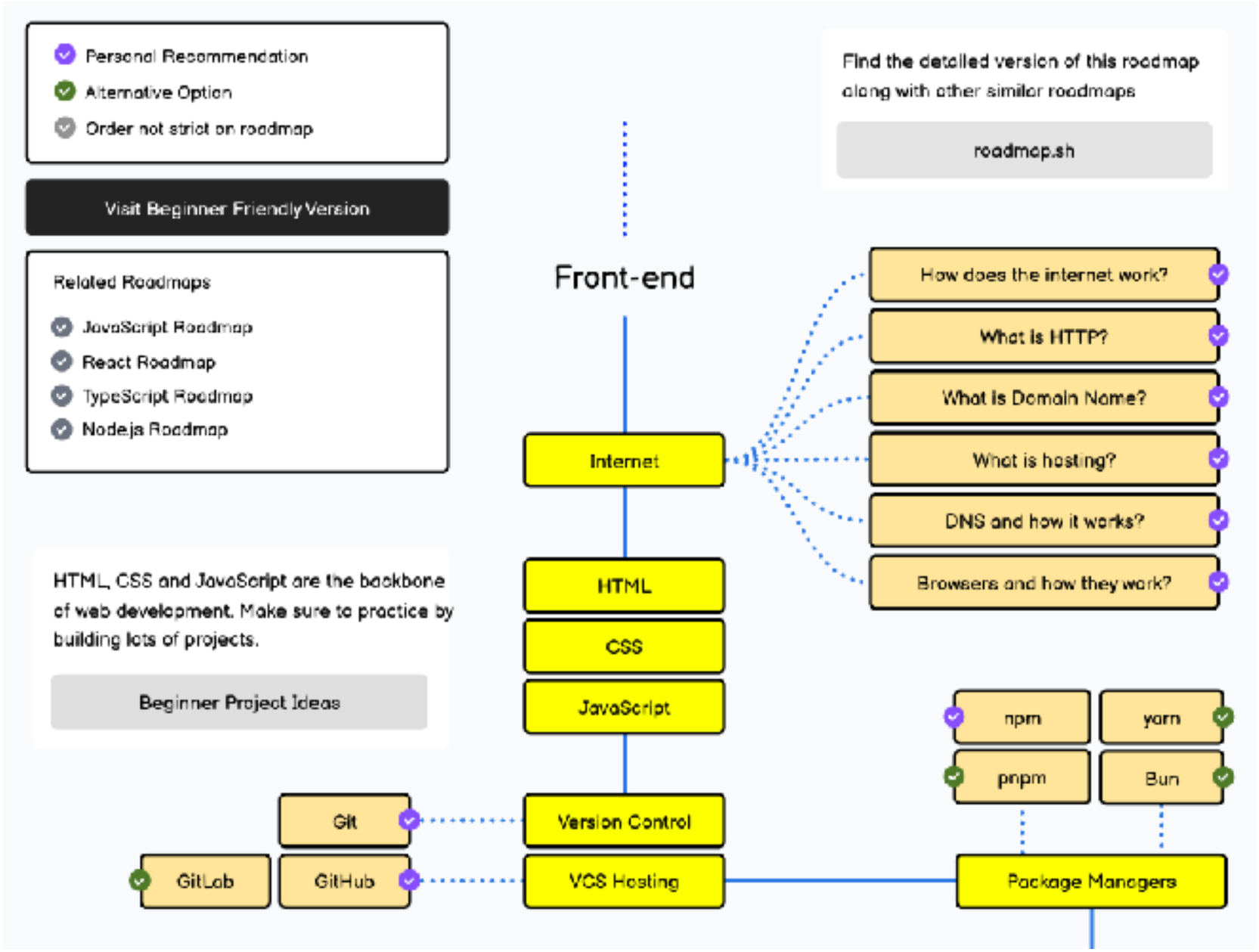
Frontend development
Web application

https://github.com/up1/workshop-frontend-web-2025

Frontend Development
Web Application

Frontend Developer Roadmap

Frontend Developer Roadmap



https://roadmap.sh/frontend

Frontend Development

3. Trends and Tools

2. Frameworks and Libraries

1. Core Foundations

Core Foundations

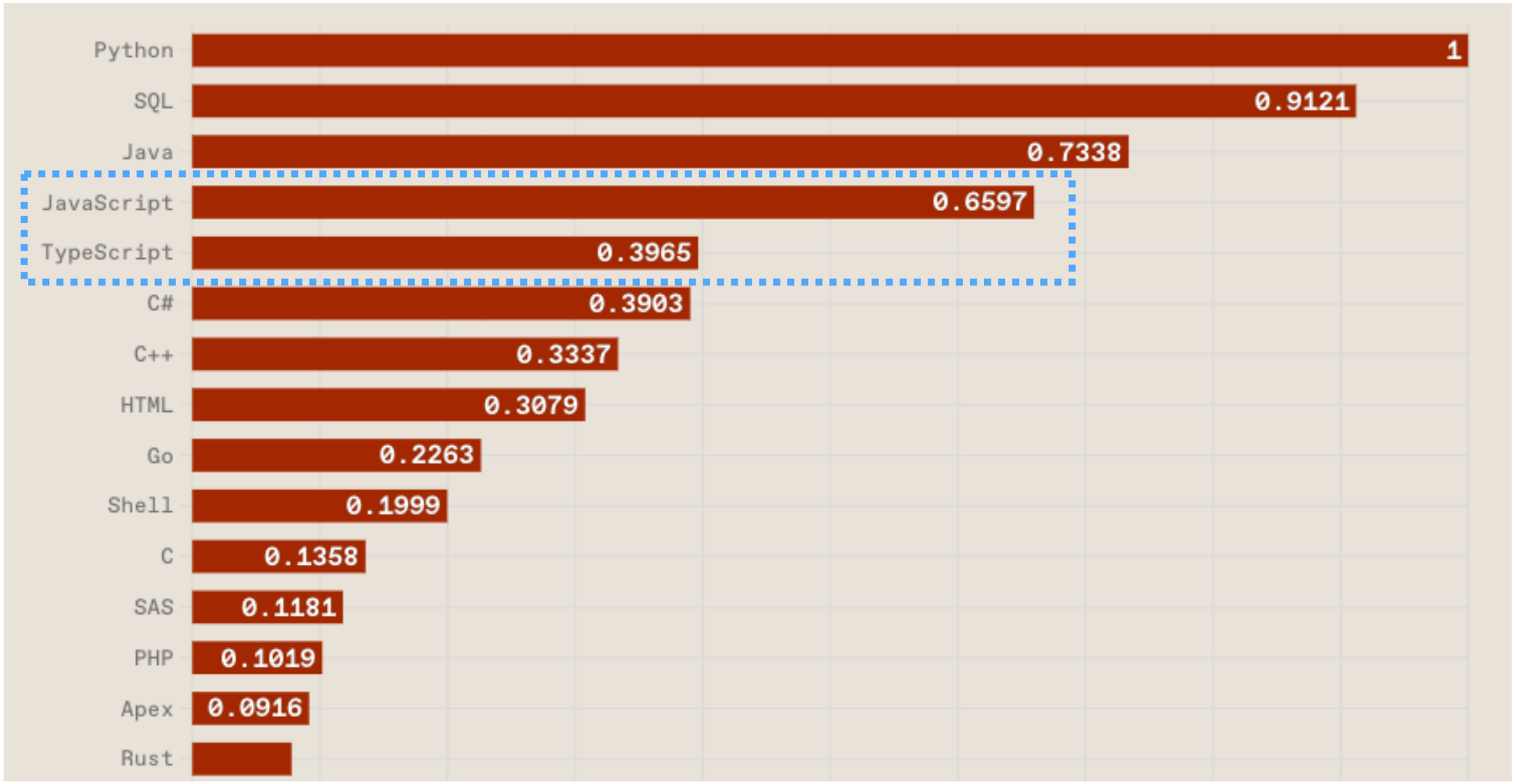
Web Application Properties

SEO
Accessibility
Speed and performance
User Experience (UX)

Core Foundations

HTML, CSS and JavaScript
TypeScript
Version Control (git)
Responsive design and **accessibility**

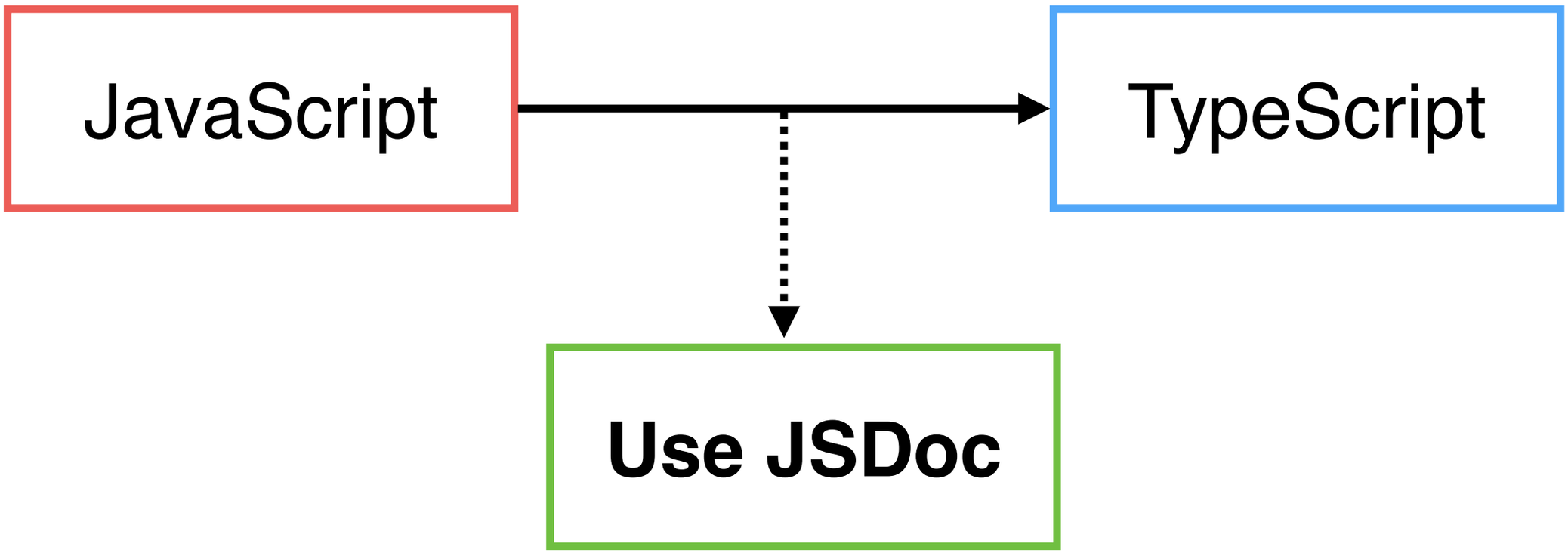
Top Programming 2025



https://spectrum.ieee.org/top-programming-languages-2025

Migration with incremental !!

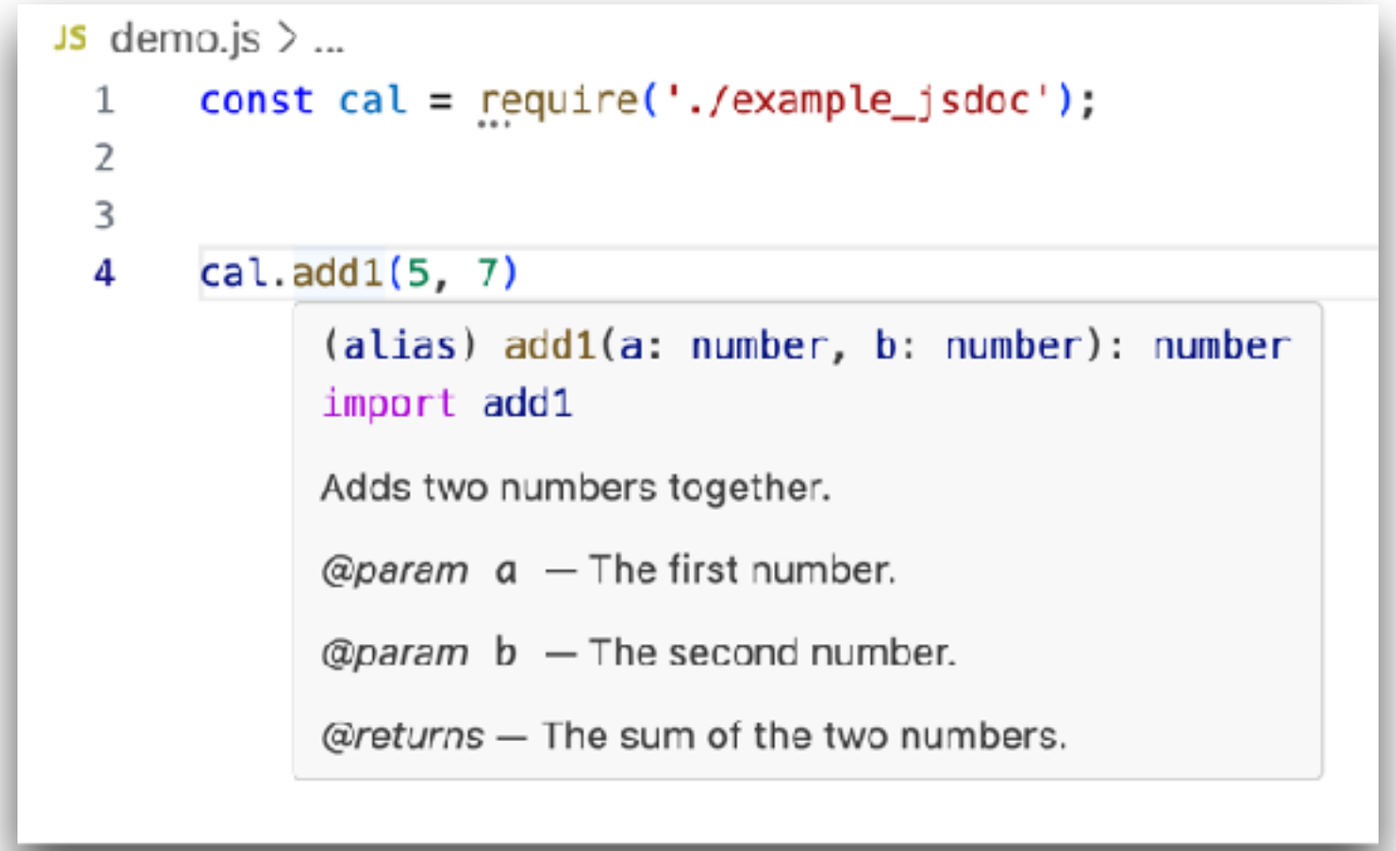
JavaScript to TypeScript



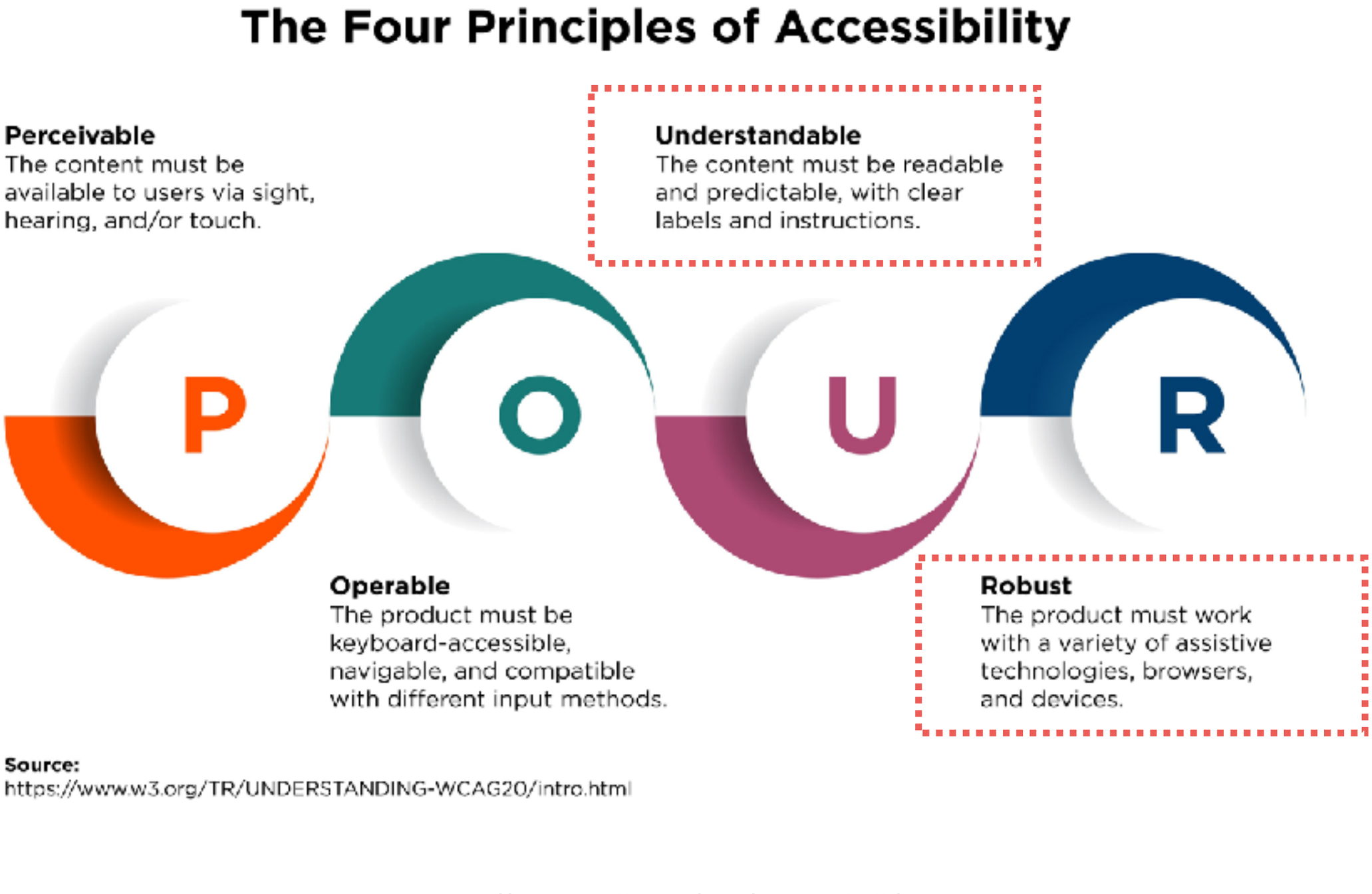
https://www.typescriptlang.org/docs/handbook/migrating-from-javascript.html

JSDoc and TSDoc

Documenting your source code
Improve readability and maintainability
IDE integration

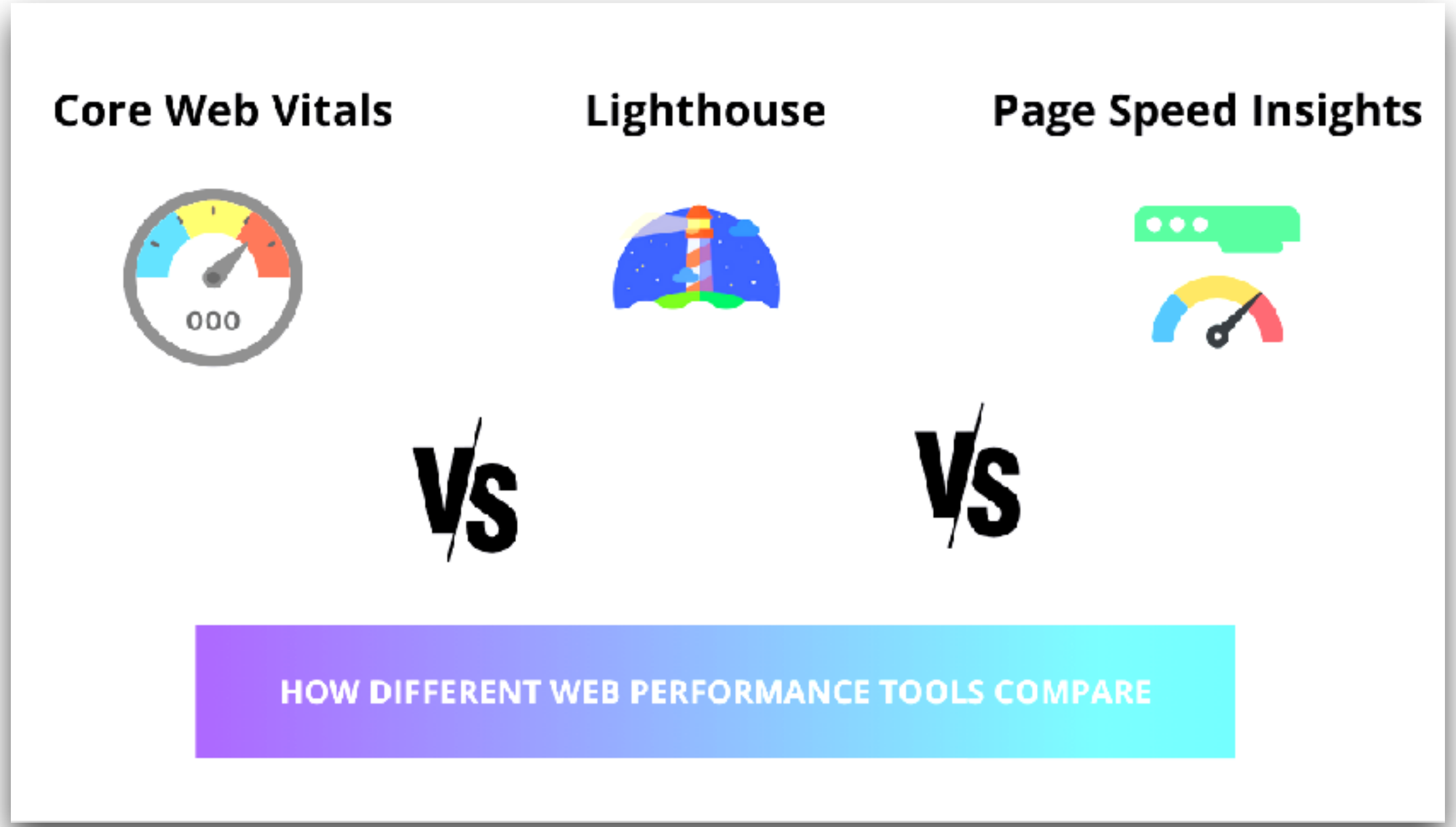


Web Accessibility



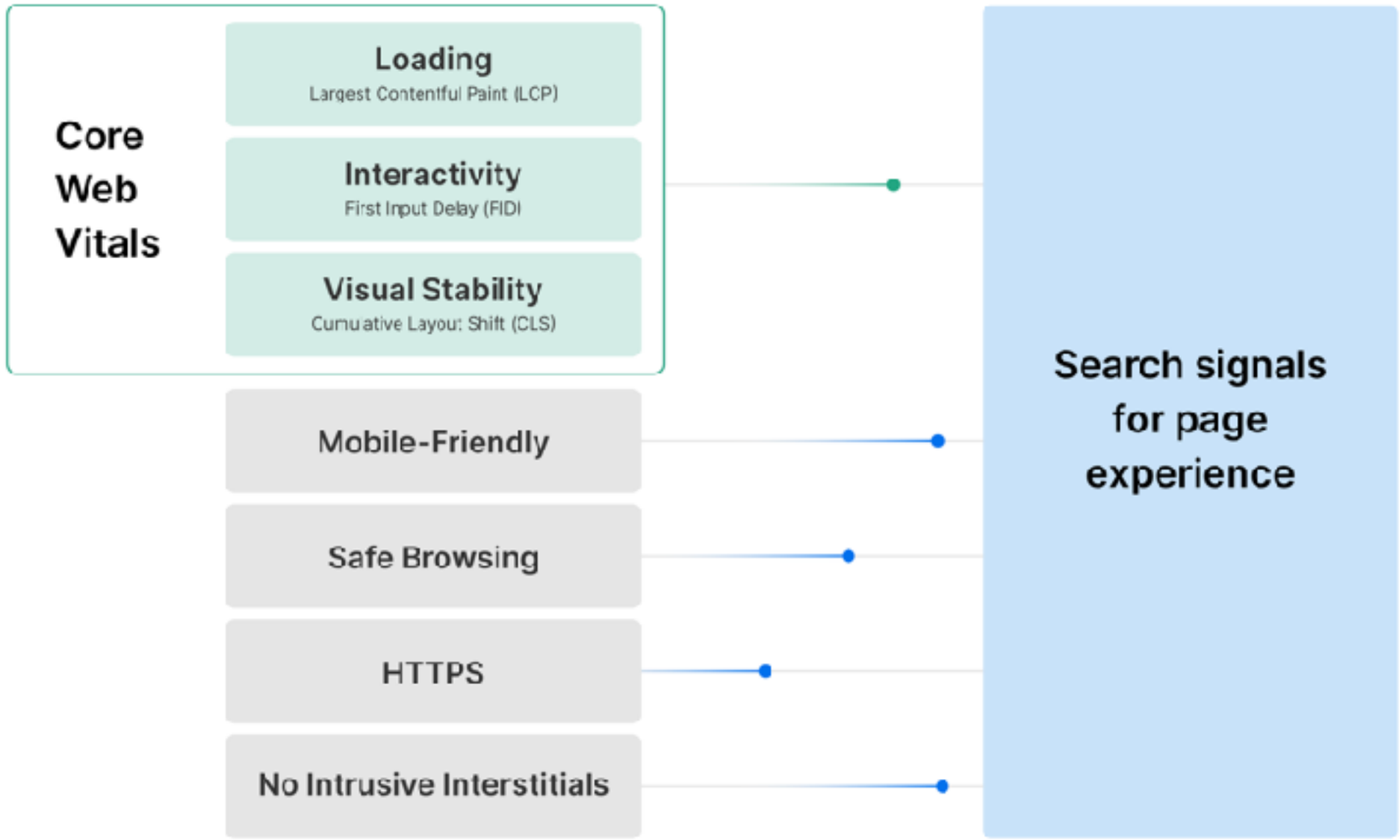
https://www.w3.org/TR/wcag-3.0/

Check your web app !!



https://learn.microsoft.com/en-us/microsoft-edge/devtools/accessibility/reference
https://www.marketingaid.io/understanding-different-performance-measurement-tools/

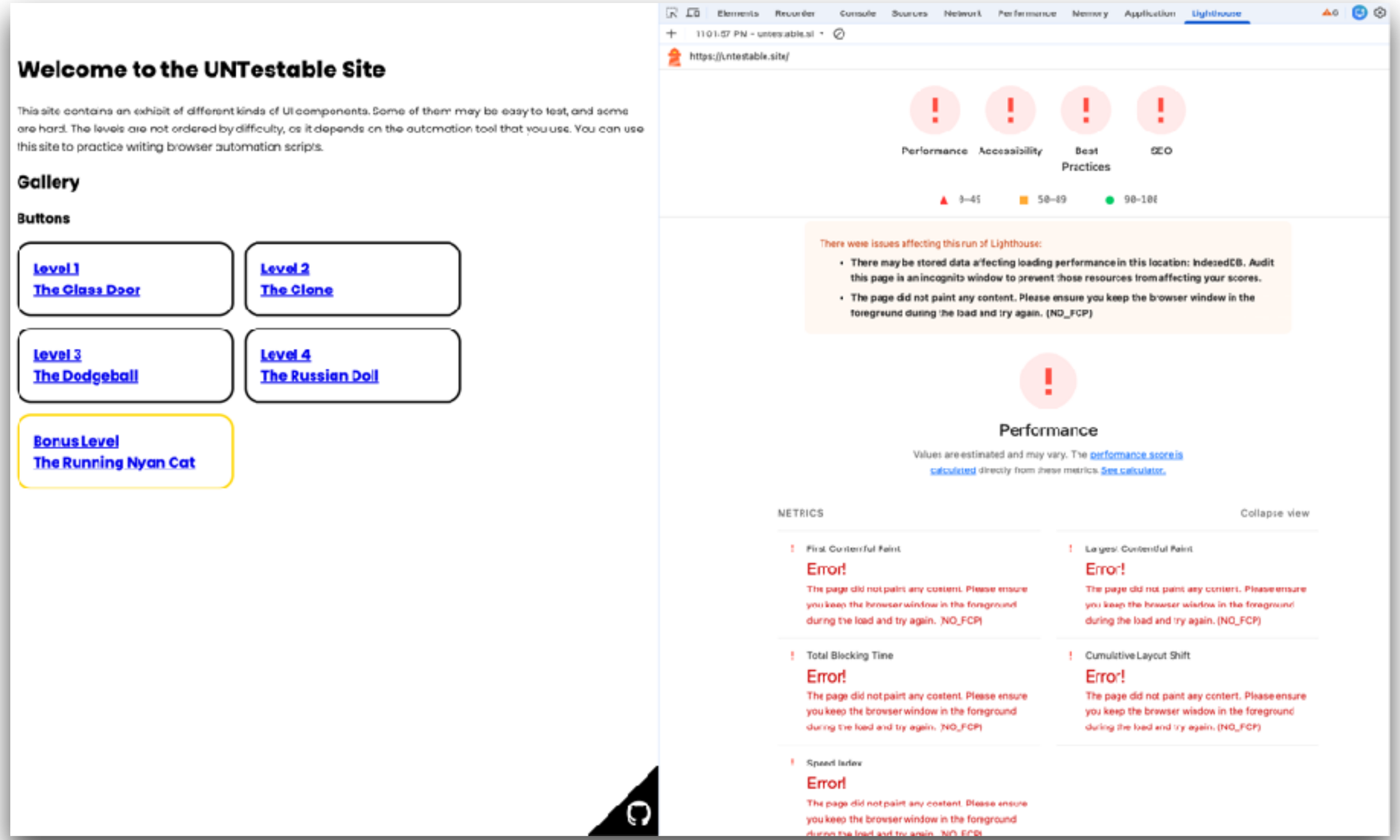
Core Web Vitals



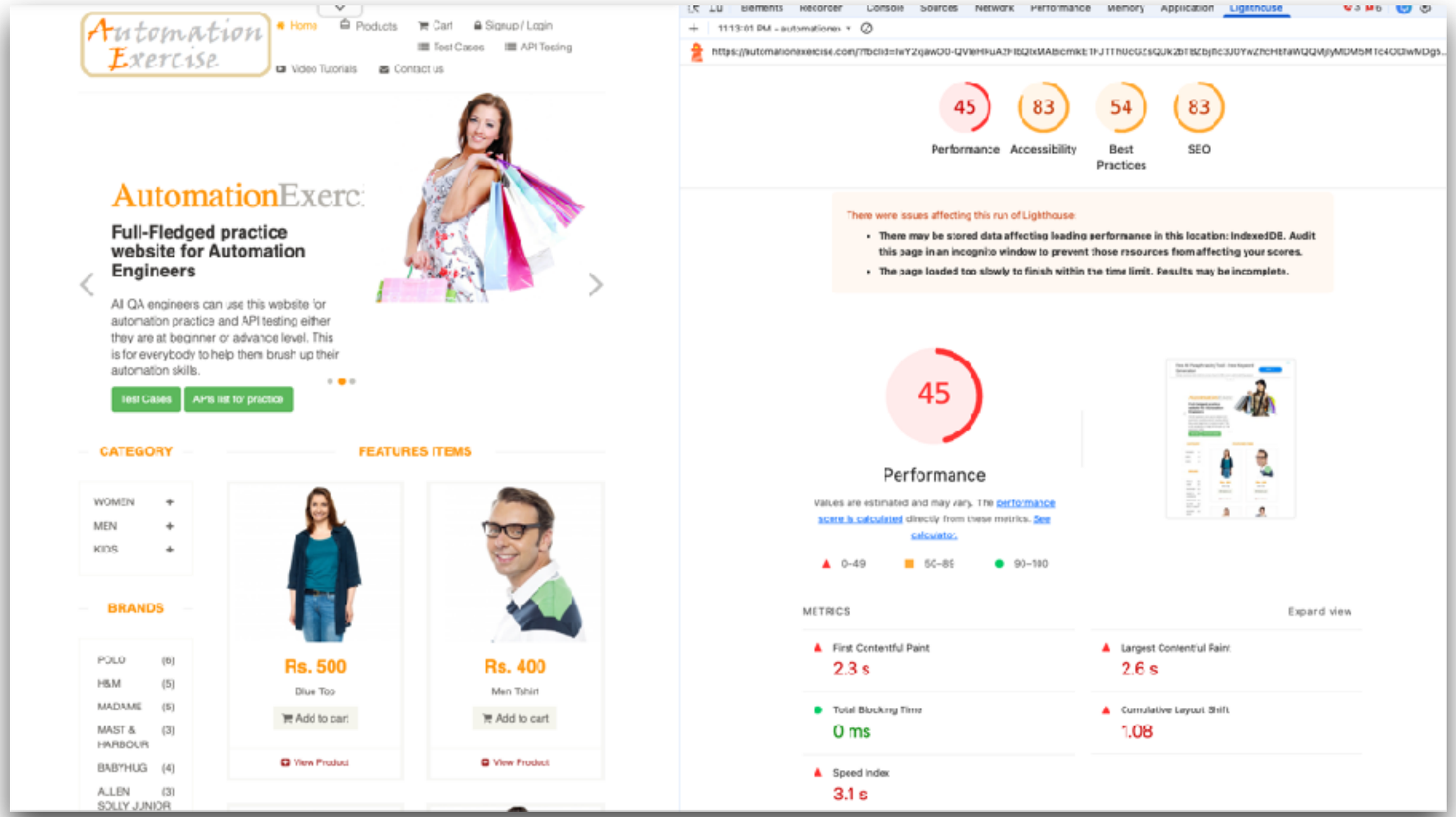
https://web.dev/explore/learn-core-web-vitals

https://developer.chrome.com/docs/crux/

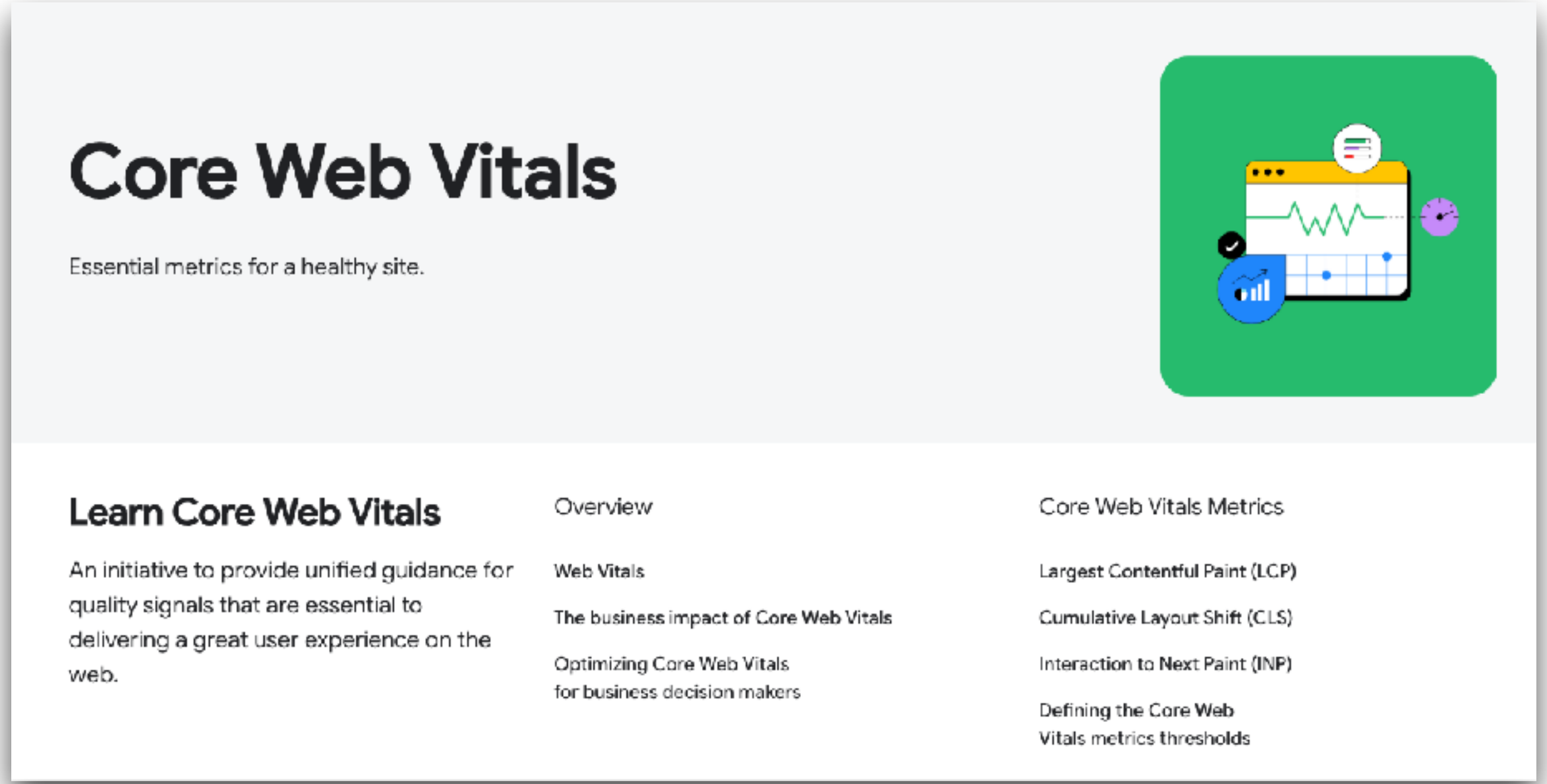
Lighthouse



Lighthouse



Core Web Vitals



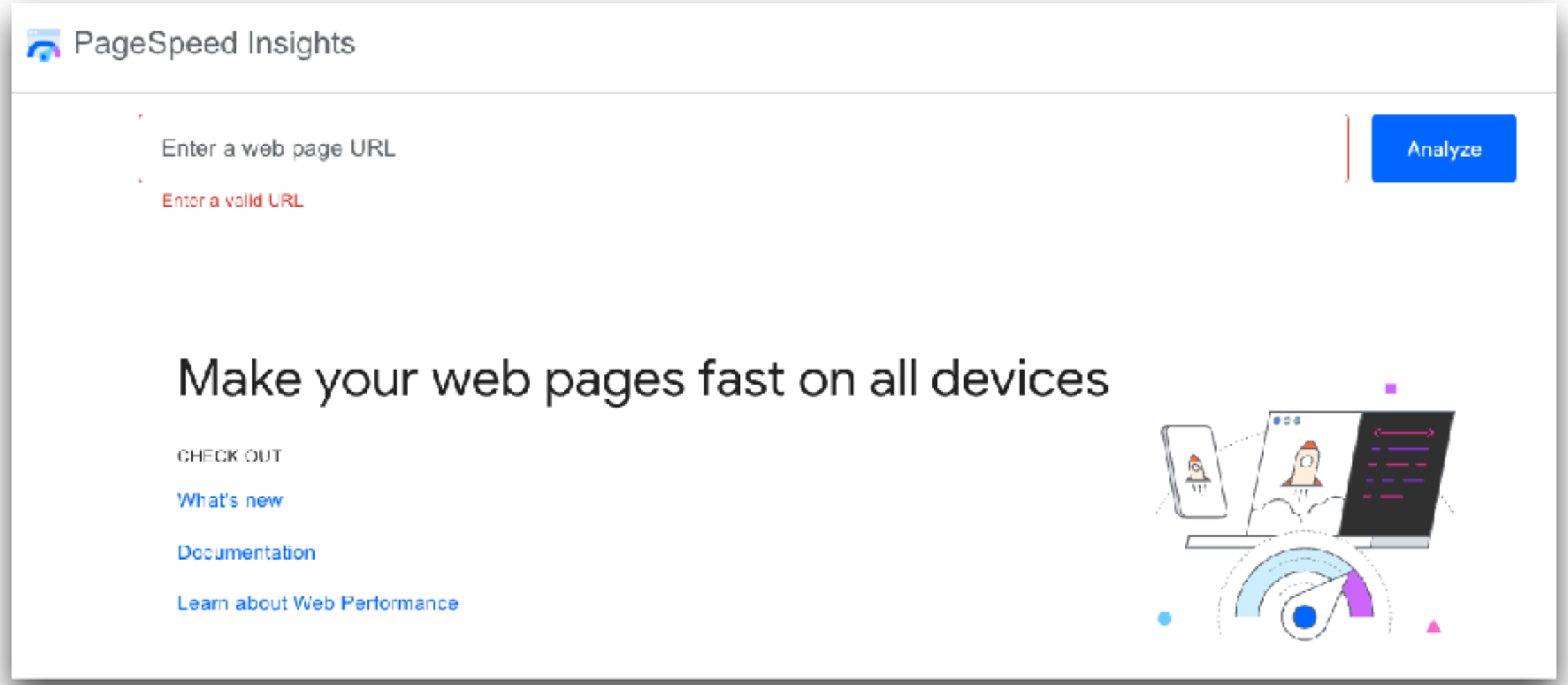
https://web.dev/explore/learn-core-web-vitals

Recommend Metrics

Metric name	Good Threshold
First Contentful Paint (FCP)	<= 1.8 secs
Largest Contentful Paint (LCP)	<= 2.5 secs
Cumulative Layout Shift (CLS)	<= 0.1 secs
First Input Delay (FID)	<= 100 ms
Interaction to Next Paint (INP)	<= 200 ms

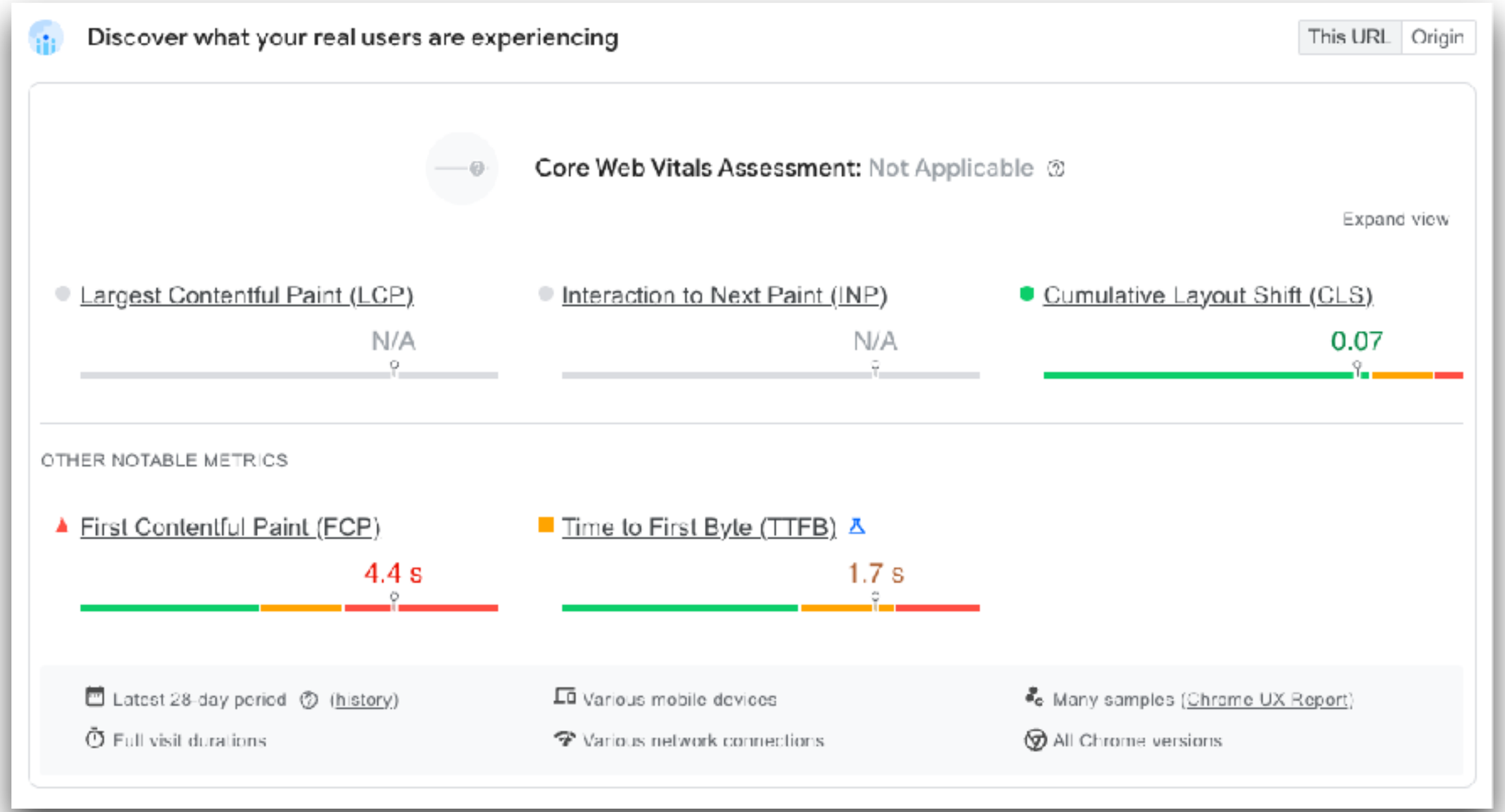
https://developers.google.com/speed/docs/insights/v5/about

PageSpeed Insights



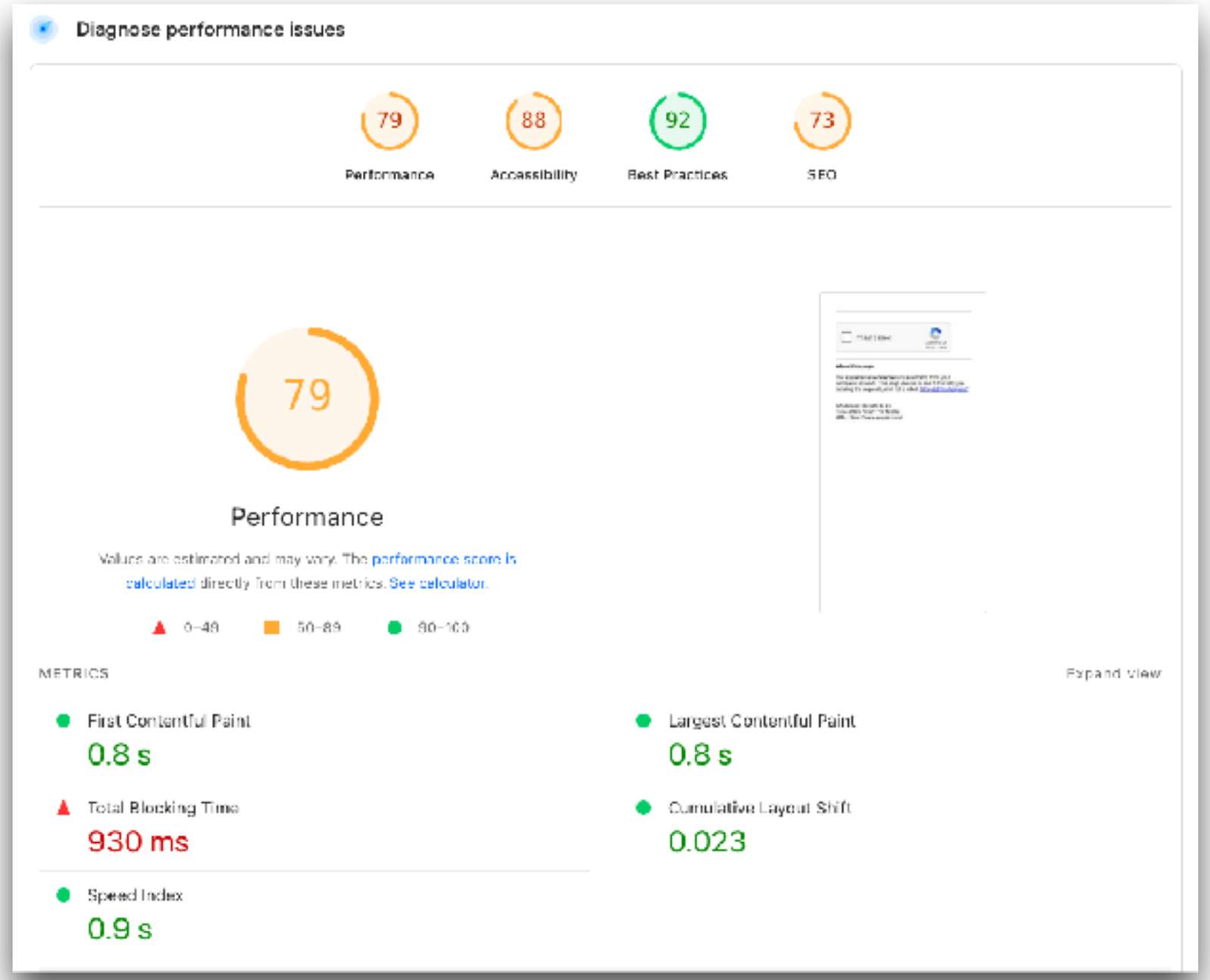
https://pagespeed.web.dev/

Result !!



https://pagespeed.web.dev/

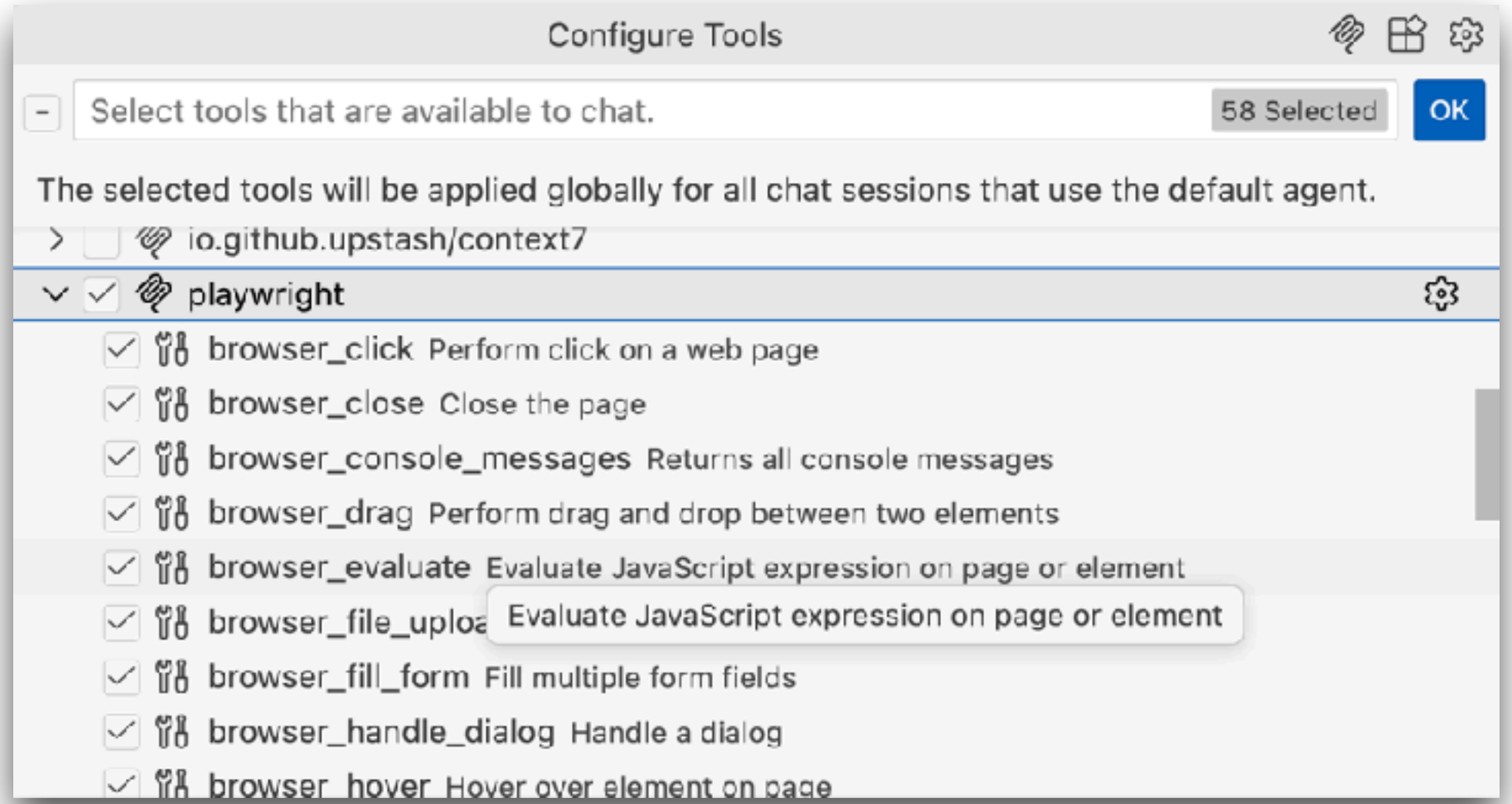
Result !!



https://pagespeed.web.dev/

Try to testing with AI !!

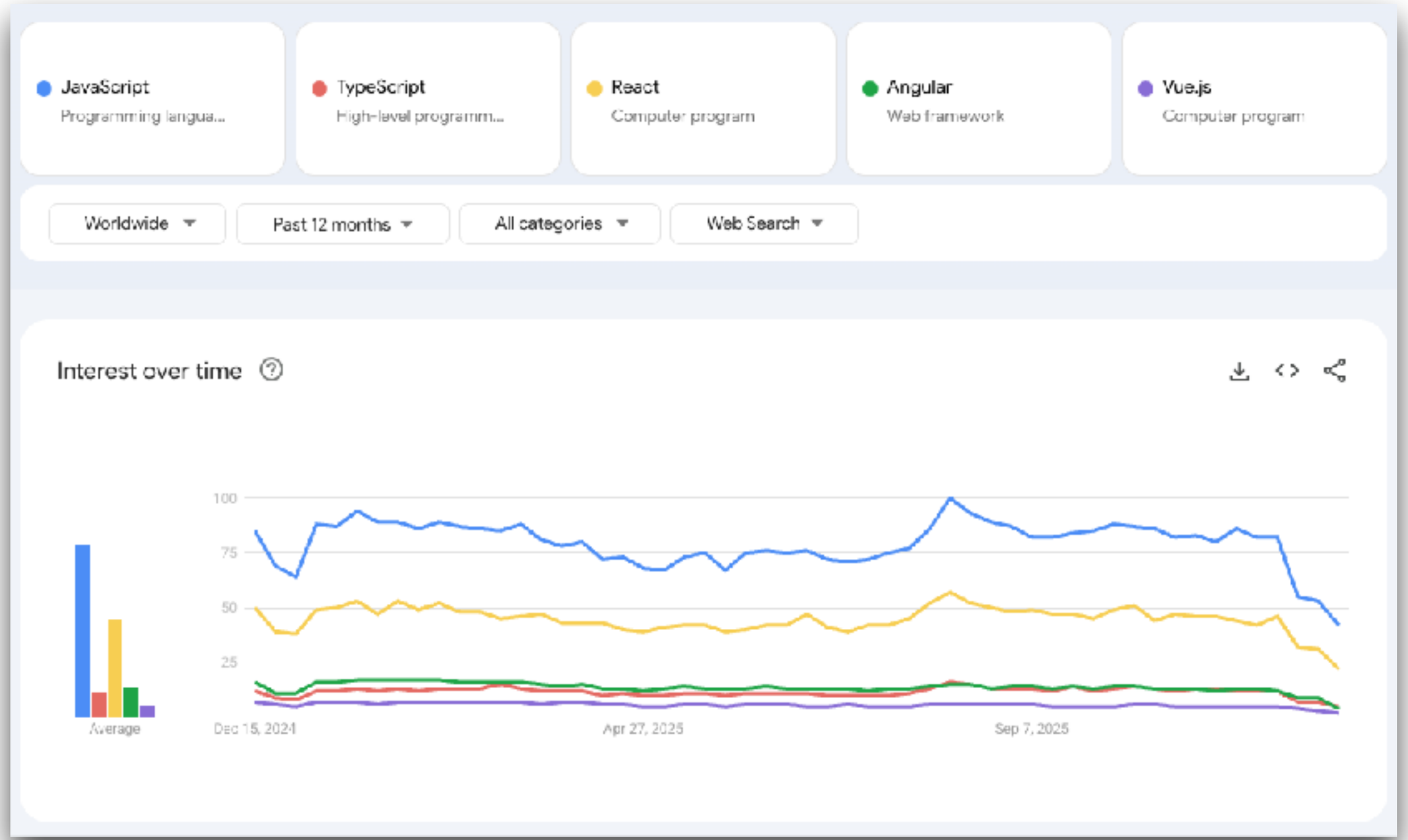
Playwright MCP from Microsoft



https://github.com/microsoft/playwright-mcp

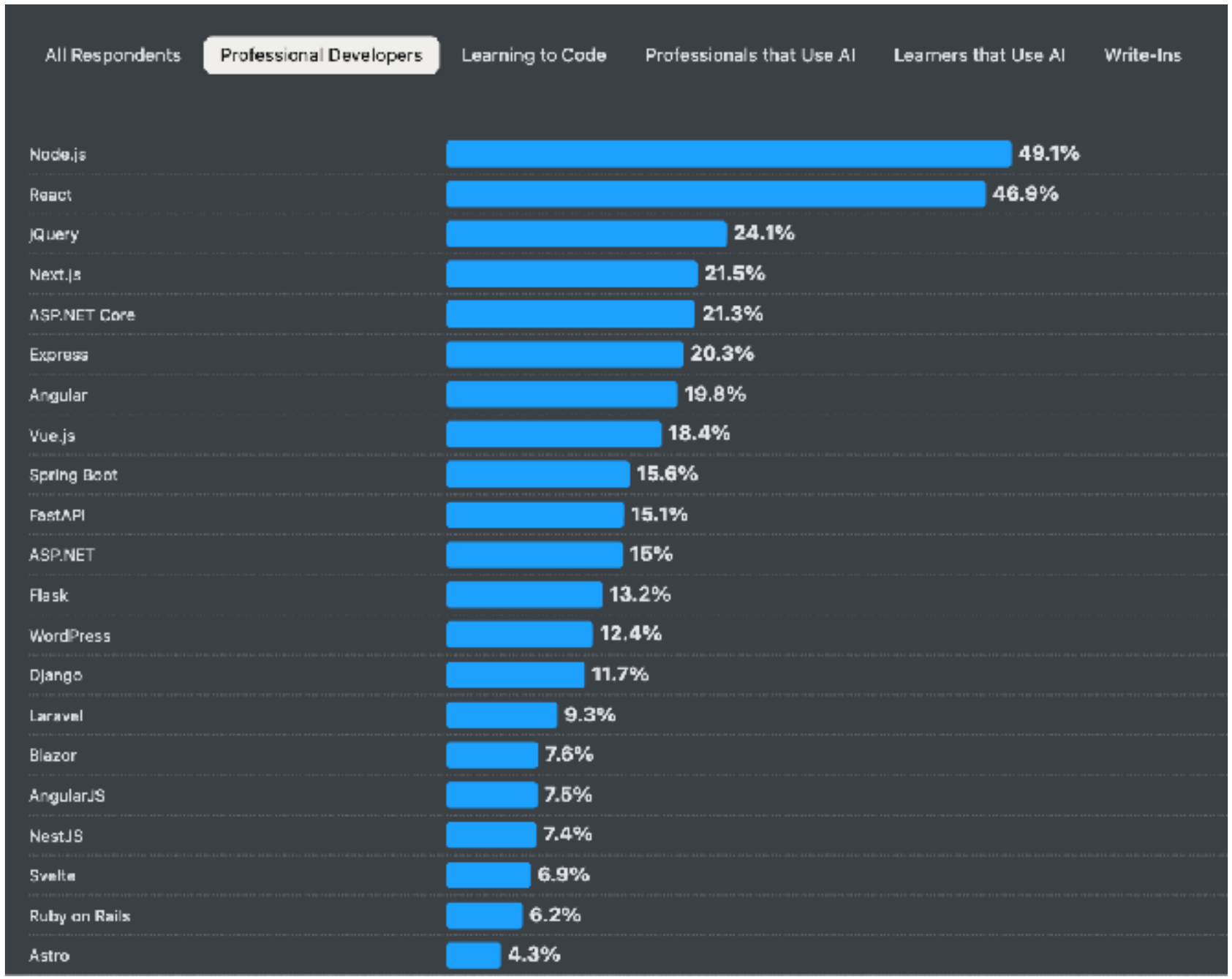
Key Frameworks and Libraries

Google Trends !!



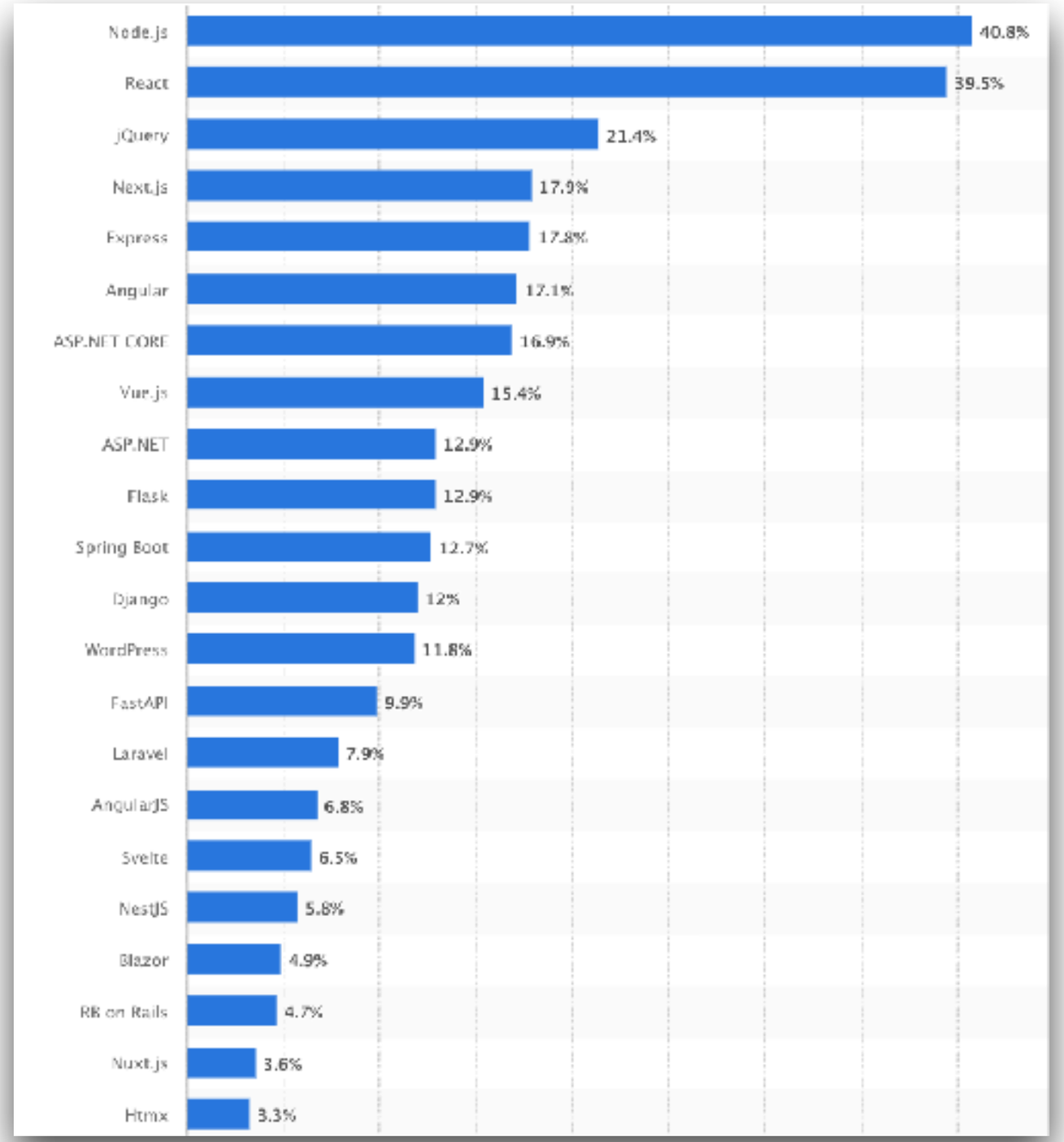
https://trends.google.com/

Top Web Frameworks



https://survey.stackoverflow.co/2025/technology#most-popular-technologies-webframe-prof

Most used web framework 2024



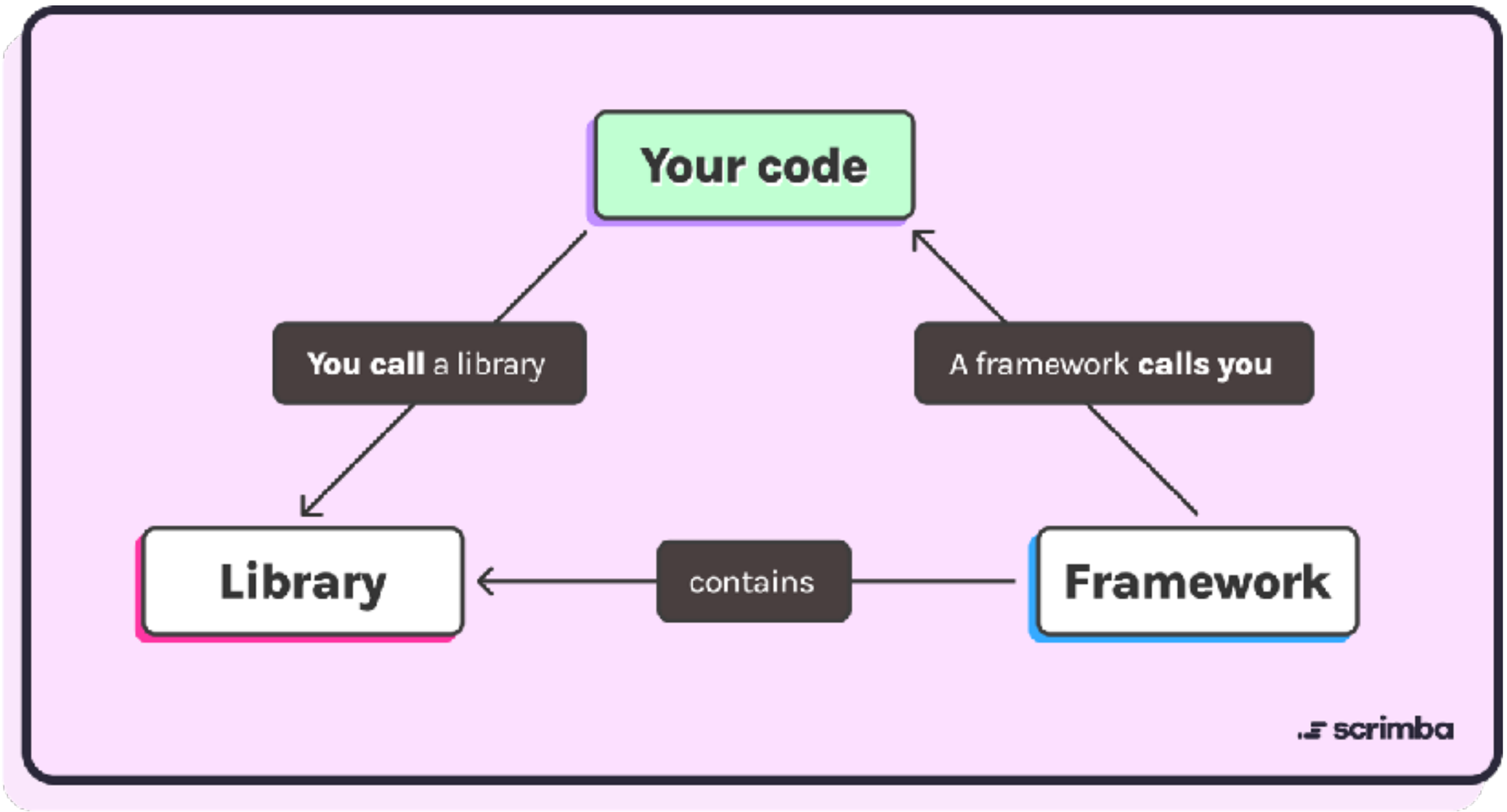
https://www.statista.com/statistics/1124699/worldwide-developer-survey-most-used-frameworks-web/

Web Frameworks ?

	React / Next.js	Vue / Nuxt.js	Angular
Core technology	React (library) Next.js (framework)	Vue (framework) Nuxt.js (framework)	Angular (framework)
Language	JavaScript (TypeScript support)	JavaScript (TypeScript support)	TypeScript
Architecture	Component-based	Component-based (Vue) Convention-driven (Nuxt)	Structured Dependency Injection
Rendering	CSR, SSR, SSG, ISR	CSR, SSR, SSG, ISR	CSR, SSR

https://www.statista.com/statistics/1124699/worldwide-developer-survey-most-used-frameworks-web/

Library vs Framework ?

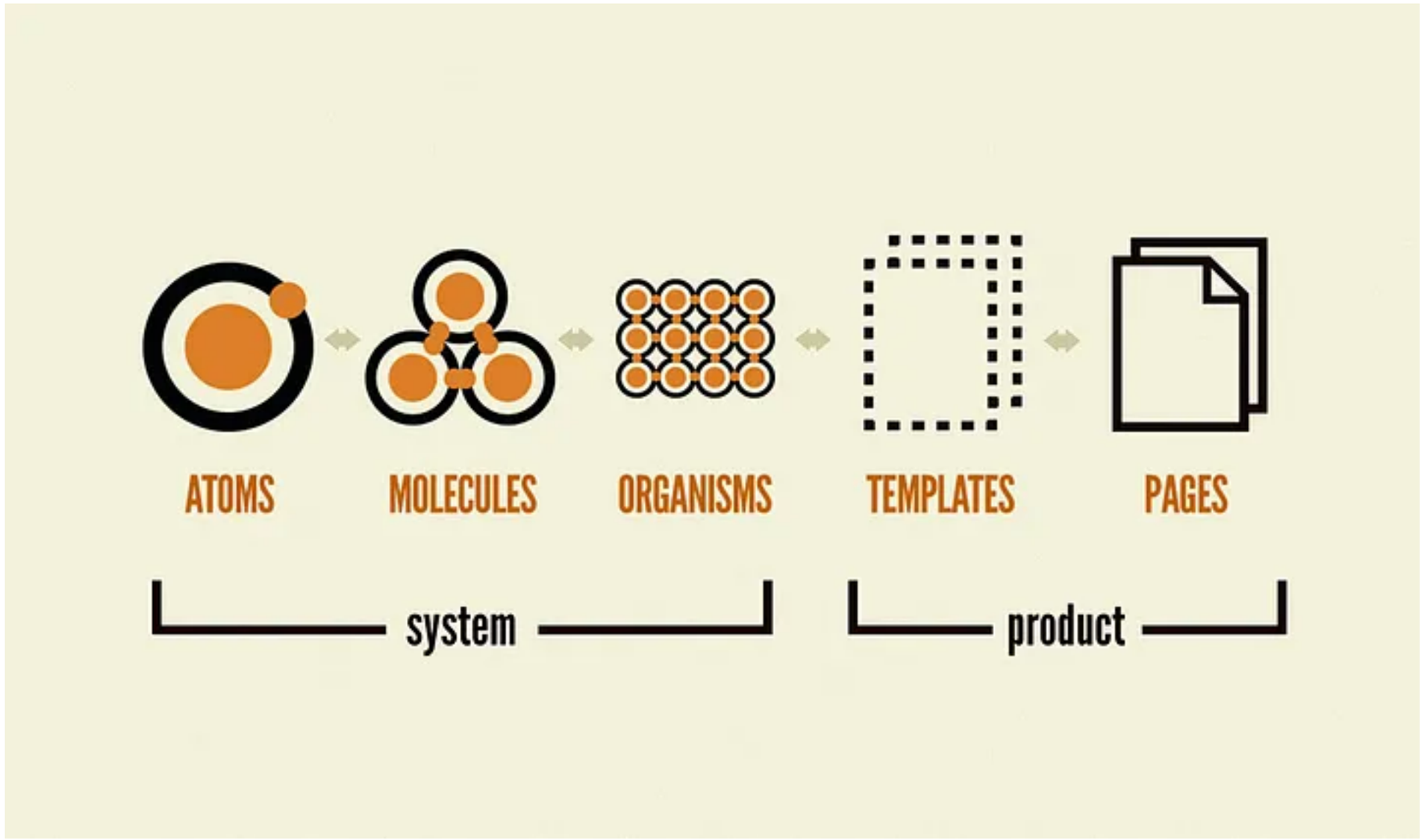


https://v1.scrimba.com/articles/difference-between-framework-and-library/

Component-Driven

https://www.componentdriven.org/

Atomic Design



https://atomicdesign.bradfrost.com/

Focusing on performance !!

Framework	Startup time	Bundle size	Memory use
Qwik	**Very fast**	**~1KB**	**Very Low**
Svelte	Fast	~60-70% smaller	Low
SolidJS	Fast	Compact	Very low
Astro	Static with SSG	Minimal (zero-js) Pure HTML	Tiny

https://krausest.github.io/js-framework-benchmark/2025/table_chrome_138.0.7204.50.html

Architect Your WebApps ?

https://www.patterns.dev/

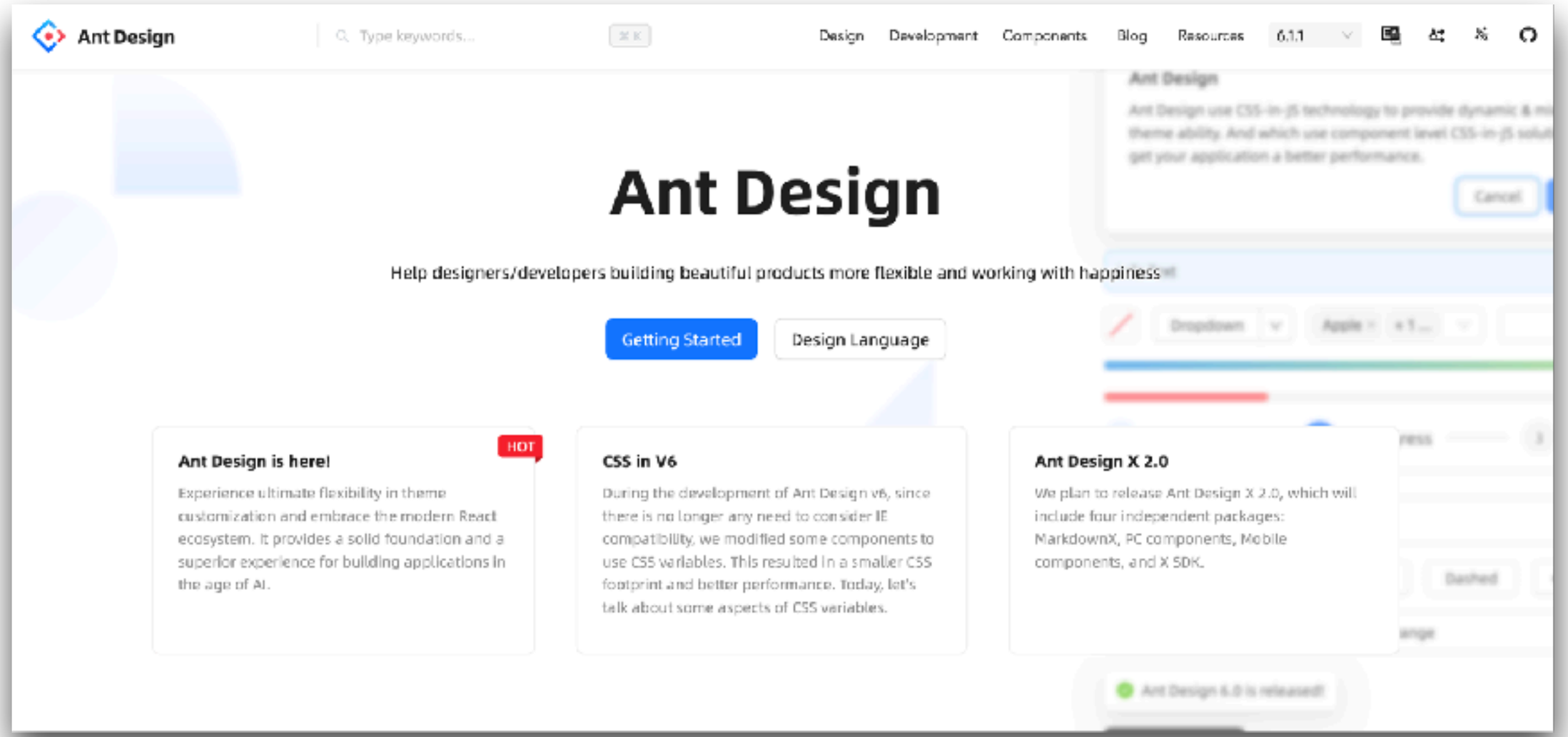
Trends and Tools

Trends and Tools

AI Integration
WebAssembly (Wasm)
Performance optimization
Design system (maintain consistency)

Ant Design

Open source UI design system



https://ant.design/

Pain Point of Web application ?

Pain Point of Web application ?

User Experience (UX)
Technical and Development
Performance optimization
Business and process

Common Solutions ?

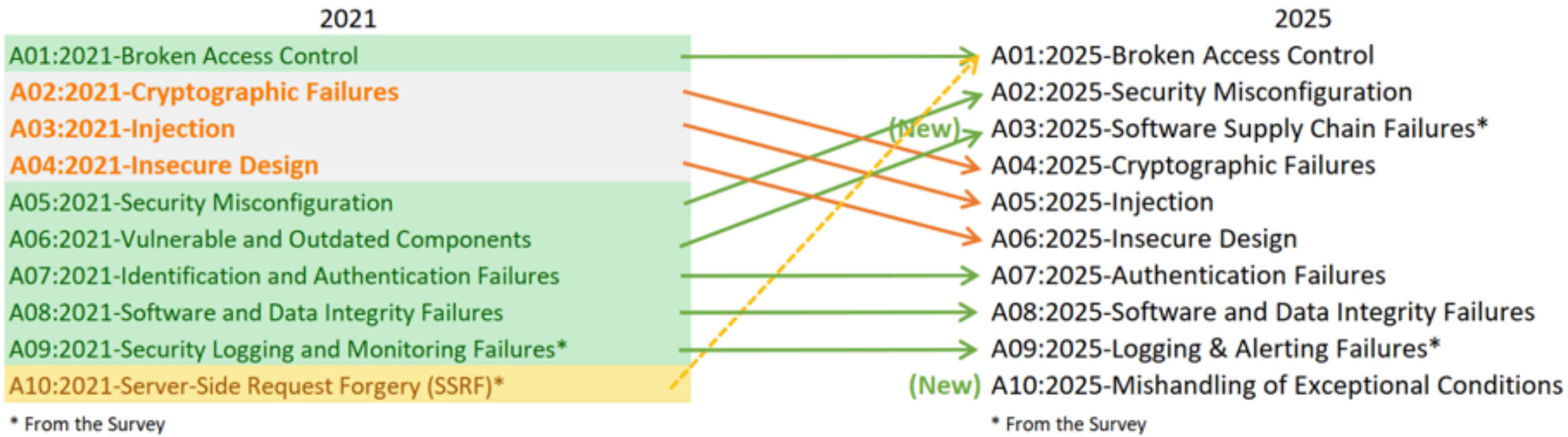
Prioritize speed (code, image, data)
Simplify UX
Mobile-First design
Use analytics
Regular audits
Invest in **security**

Security of Web application ?

OWASP Top 10 Web

What's changed in the Top 10 for 2025

There are two new categories and one consolidation in the Top Ten for 2025. We've worked to maintain our focus on the root cause over the symptoms as much as possible. With the complexity of software engineering and software security, it's basically impossible to create ten categories without some level of overlap.



https://owasp.org/Top10/2025/0x00_2025-Introduction/

React2shell ?

https://react.dev/blog/2025/12/03/critical-security-vulnerability-in-react-server-components

React2shell ?

CVE-2025-55182
Remote Code Execution (RCE)
React Server Components (RSC) in **React** and **Next.js**

https://www.wiz.io/blog/critical-vulnerability-in-react-cve-2025-55182

React2shell ?

CVE-2025-55182
Remote Code Execution (RCE)
React Server Components (RSC) in **React** and **Next.js**

React 19.0.0, 19.1.0, 19.1.1, 19.2.0
Next.js 15.x, 16.x

https://www.wiz.io/blog/critical-vulnerability-in-react-cve-2025-55182

Solutions ?

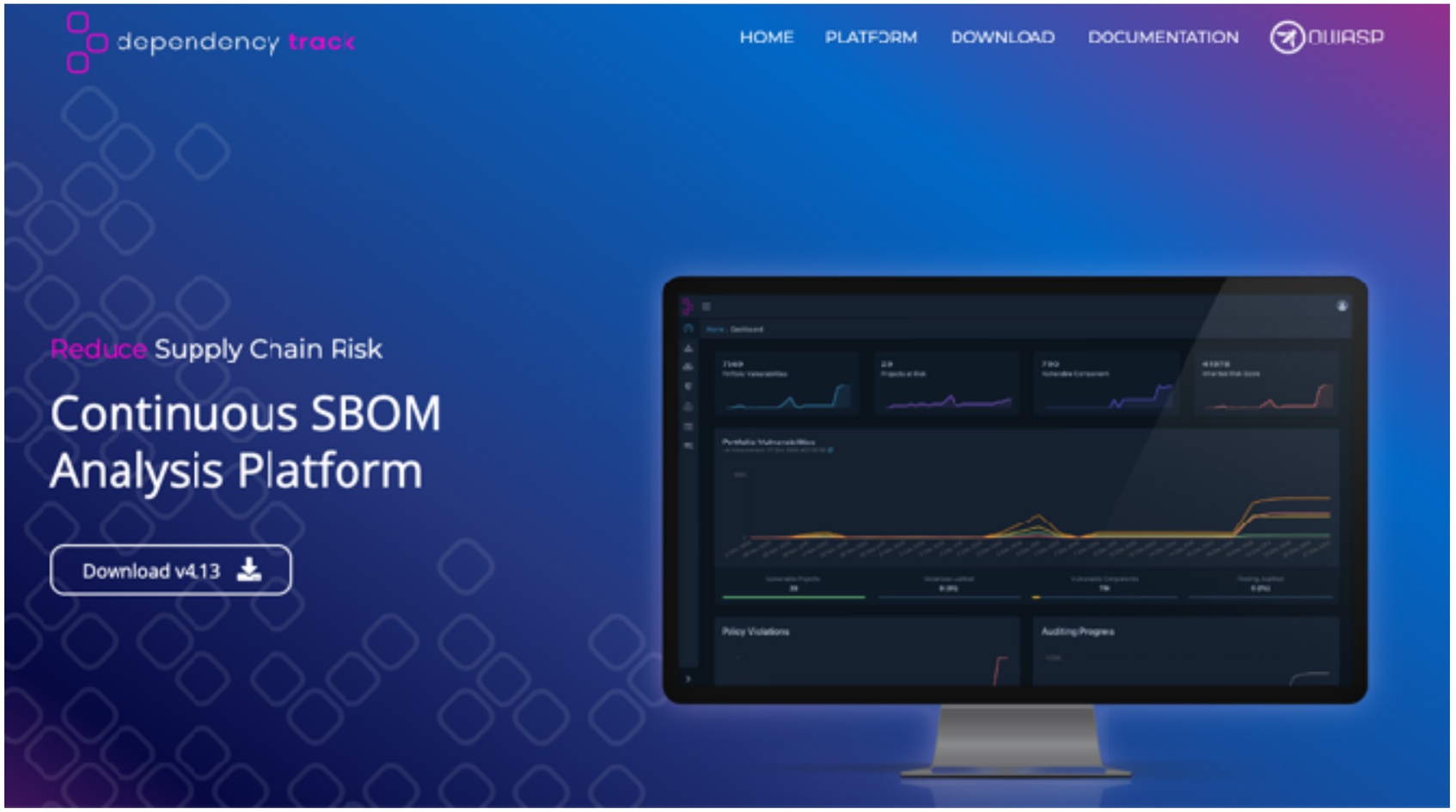
Update React
Update Next.js
Detection with react2shell-scanner
Network defense (WAF rules)

https://github.com/assetnote/react2shell-scanner

https://cloud.google.com/blog/topics/threat-intelligence/threat-actors-exploit-react2shell-cve-2025-55182

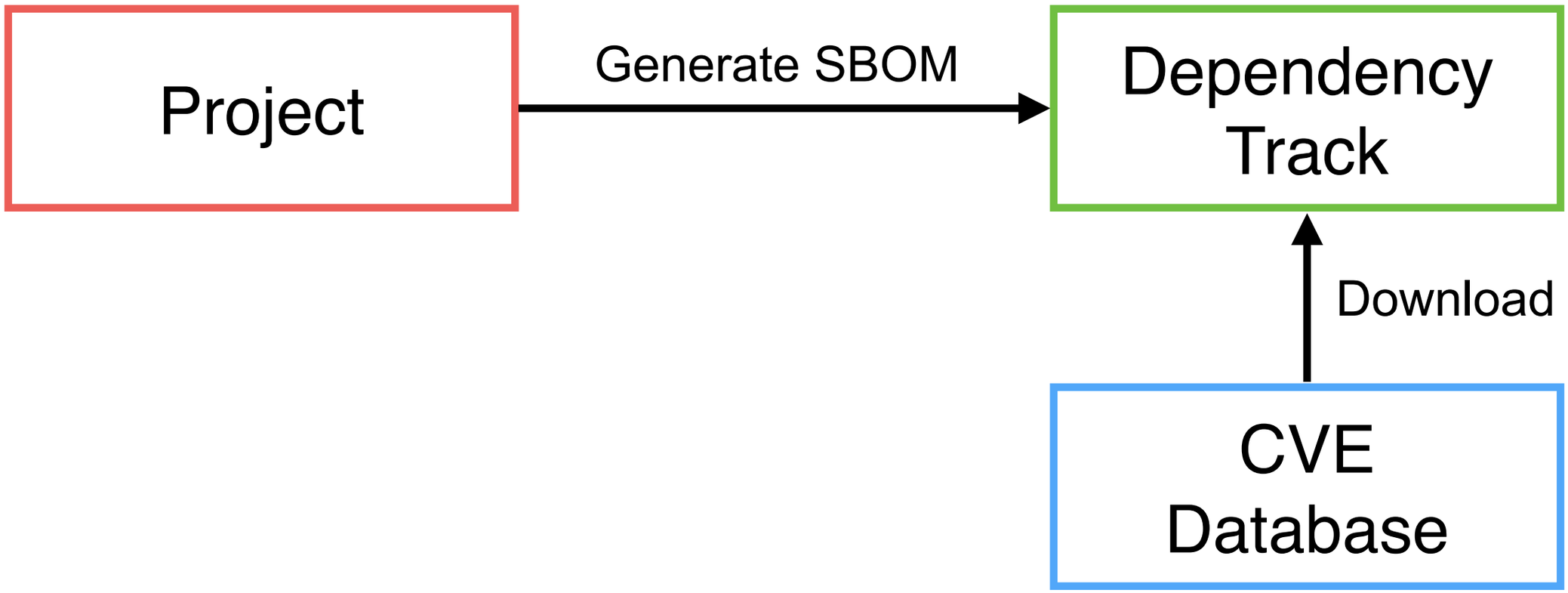
Dependency Track

Reduce supply chain risk
Continuous SBM (Software Bill of Material)



https://dependencytrack.org/

Process ?



https://en.wikipedia.org/wiki/Software_supply_chain

Q/A