ACCELERATE **CHICAGO**

Craft software with confidence in 2026



Sam Smith
Accessibility Product Lead

Accessibility & AI

coinbase

Goal

Demonstrate a diverse set of real-world strategies for integrating AI into an accessibility program to build inclusive products at scale.

Today's Agenda

→ Intro to A11y

→ Automate accessibility

→ Most effective ways to integrate AI

→ AI Explorations

→ Key Takeaways

→ Q&A

1
Intro to Accessibility



Small Teams

AI is incredibly powerful if used correctly. Scale is something that I previously felt was tied to power in numbers, I believe that is increasingly becoming incorrect.



Accessibility

Digital accessibility ensures people of all abilities can effectively use digital products.

Key Terms



LLMs

LLMs are AI systems trained on massive text datasets to understand and generate human-like language. They serve as reasoning engines capable of summarizing text, writing code, and answering complex questions.



MCP

MCP is an open standard that connects AI models to external data sources and tools seamlessly. It acts as a universal interface, allowing AI to securely access your local files and databases.



Agent

An agent is an autonomous system that uses reasoning to plan and execute multi-step tasks to reach a goal. Unlike static chatbots, agents interact with tools to take real-world actions on your behalf.



Computer Vision

Computer vision enables AI to "see" by interpreting and processing visual information from images and videos. It is the core technology behind facial recognition, medical imaging, and autonomous vehicle navigation.

Impact

- ➔ **61M** Americans have a disability
- ➔ **16%** of people worldwide have a disability
- ➔ **22%** of users Coinbase adjust their text size

Current State

- ➔ **96%** of homepages have accessibility issues
- ➔ **90%+** of issues are simple to fix
- ➔ **-15%** reduction of issues in countries with clear laws

“When people think about AI and websites, they often imagine sophisticated algorithms crawling pages, analyzing keywords, or ranking content. But in reality, AI systems read web content in ways strikingly similar to how screen readers do.”

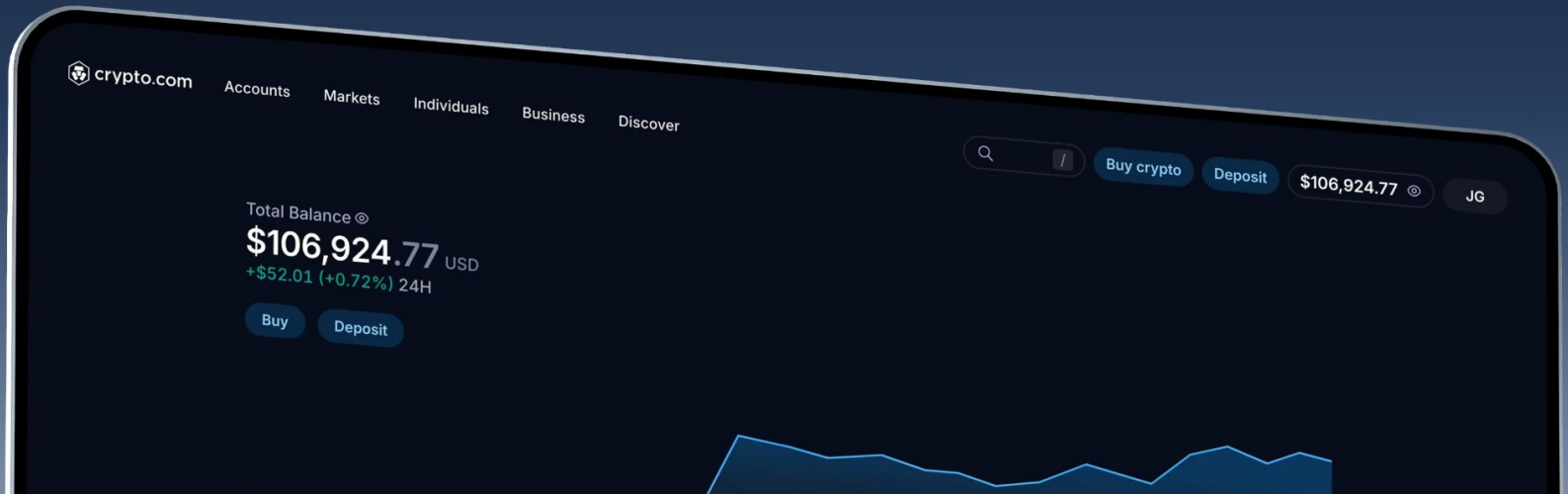
Dubbot

crypto.com Markets Individuals Businesses Discover / Log In Sign Up

America's All-In-One Trading Platform

Manage your crypto, stocks, predictions, and card spend seamlessly

Get Started →



Accessibility Focus



Assistive Technology

Optimize your platform to be fully compatible with AT like screen readers, voice recognition, and switch controllers, ensuring a an enjoyable for all users.



Personalization

The platform allows users to tailor their experience—such as adjusting text size or enabling high-contrast dark mode—to meet individual visual and cognitive needs.



Multiple Paths of Success

By offering various ways to complete a task, you ensure that no single physical or sensory requirement becomes a barrier to finishing a transaction.



Ease of Use

The program simplifies complex financial processes through intuitive design and clear language, ensuring all users can navigate the platform with confidence.

Accessibility AI Tooling

My Tool Stack

Ever Evolving

Cursor

Cursor AI is an AI-powered code editor, that integrates large language models (LLMs) directly into the development environment to help write and understand code faster and more efficiently.

Librechat

LibreChat is an open-source AI chat platform that acts as a unified interface to access multiple LLMs and AI services (like ChatGPT, Claude, etc. From a single location).

Gemini

Gemini is a family of advanced AI models developed by Google. Which we've found to be effective in reviewing images and rich text.

2
Automation Using AI

Problems

1	**Consumption Issues**	Design system usage is high, but issues are often introduced due to consumption mistakes.
2	**Resourcing**	People want to do good work, but deadlines and resourcing impact this.
3	**Understanding Gaps**	Learning takes time, new hires might miss things, and education needs to scale.

AI Automation

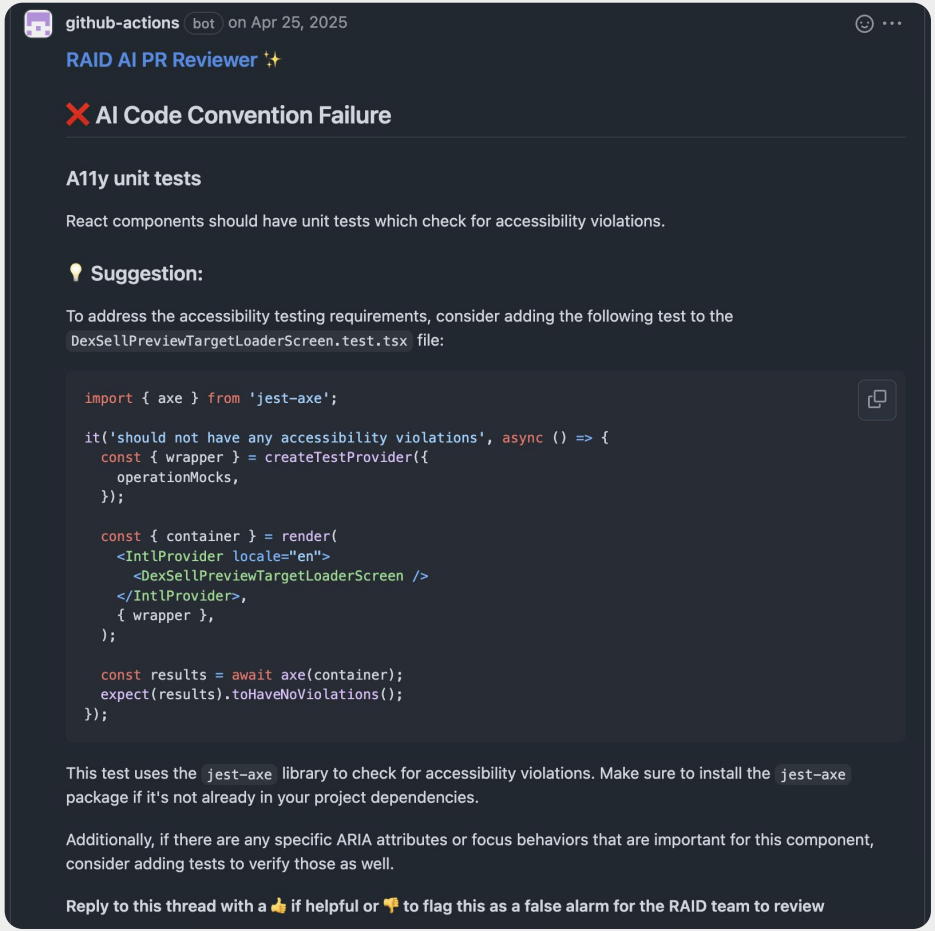
RAID Conventions

RAID (Retail AI Developer)

- RAID is a GitHub Actions workflow that uses LLMs to review pull requests
- RAID offers three core features:
  - Summarization
  - Freeform PR review
  - Enforcement of code conventions

Fixes:

- 1541 flags with average resolution rate of **~20%**
- **266** flags resolved, and the 6th lowest false positive rate of any conventions at **2.08%**

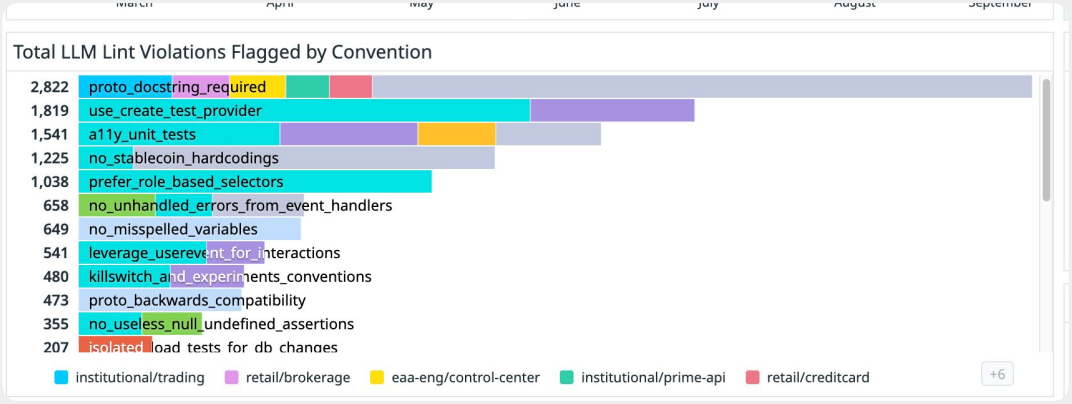


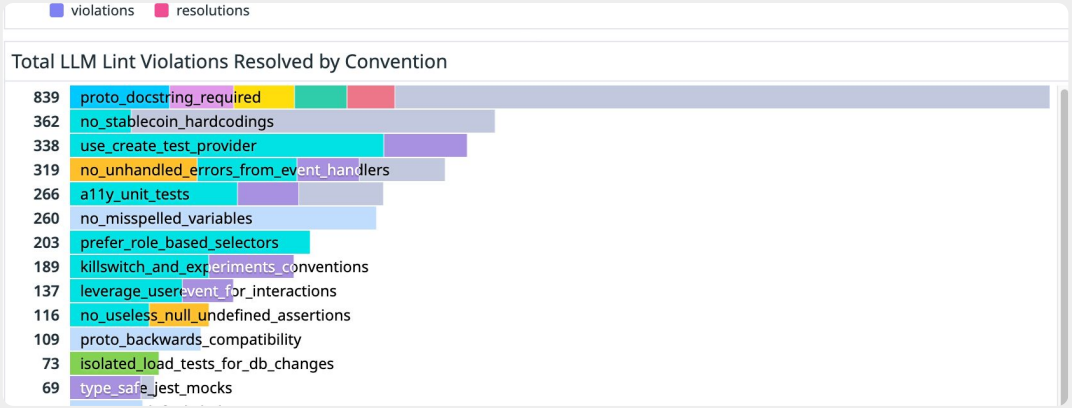
AI Automation

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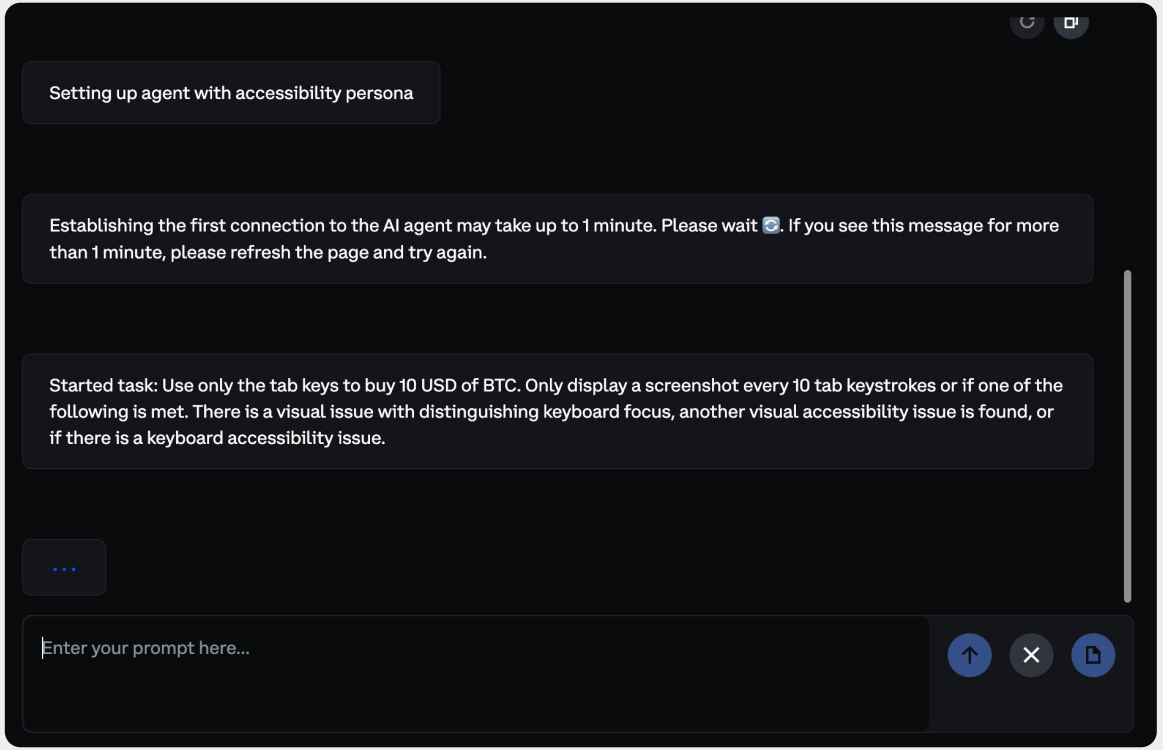


Accessibility

AI QA Agent

Visual Issue Prevention

- Allows for early detection of visual issues
- Automation layer to go with manual testing



Step 15

Step Details

Memory:
I'm testing keyboard accessibility on Coinbase by completing a receive flow. I've signed into a GB account, selected NEAR Protocol to receive, and am now navigating through a warning modal about receiving crypto safely. I've sent three Tab key presses in this modal so far and need to continue tabbing to reach the "Don't show this warning again" checkbox or "I understand" button.

Evaluation:
Successfully sent a third Tab key press to navigate through the warning modal, but I haven't yet reached the "I understand" button or checkbox. Verdict: Success with continued navigation needed.

Next Goal:
Continue keyboard navigation by sending another Tab key press to move focus toward the checkbox or "I understand" button in the warning modal.

Enter your prompt here...

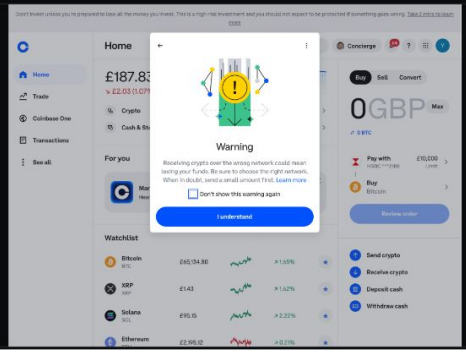
ACCESSIBILITY

PRODUCTION

UNITED KINGDOM

Live streaming screenshots

Step 12 | Step 13 | Step 14 | Step 15 | Step 16



Issues Found (1)

Create JIRA (0) | Rate Quality (0) | Select All

Keyboard trap in crypto receive warning modal — CRITICAL

Category: Keyboard Accessibility • Keyboard Trap

Description: The warning modal that appears during the crypto receive flow cannot be navigated using keyboard. After 13 Tab key presses, focus never reaches the 'I understand' button or 'Don't show this warning again' checkbox, creating a complete keyboard trap that prevents keyboard-only users from completing the receive flow.

Location: Warning modal that appears after selecting a cryptocurrency (NEAR Protocol) to receive

URL: https://www.coinbase.com/home

Confidence: 85.0%

Quality Validation: High consensus validation - strong agreement across models (confidence: 0.85)

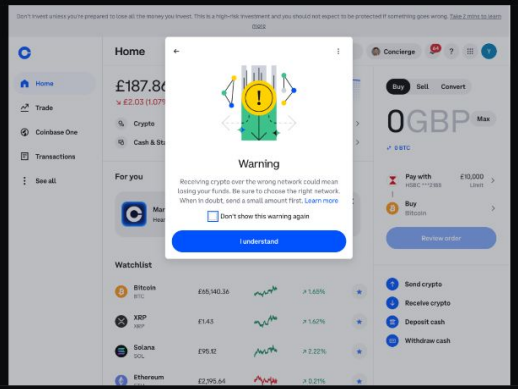
Feedback: This is a severe accessibility barrier that completely blocks keyboard-only users from completing essential functionality (receiving cryptocurrency).

Enter your prompt here...

ACCESSIBILITY | PRODUCTION | UNITED KINGDOM

Live streaming screenshots

Step 2 | Step 3 | Step 4 | Step 5 | Step 6

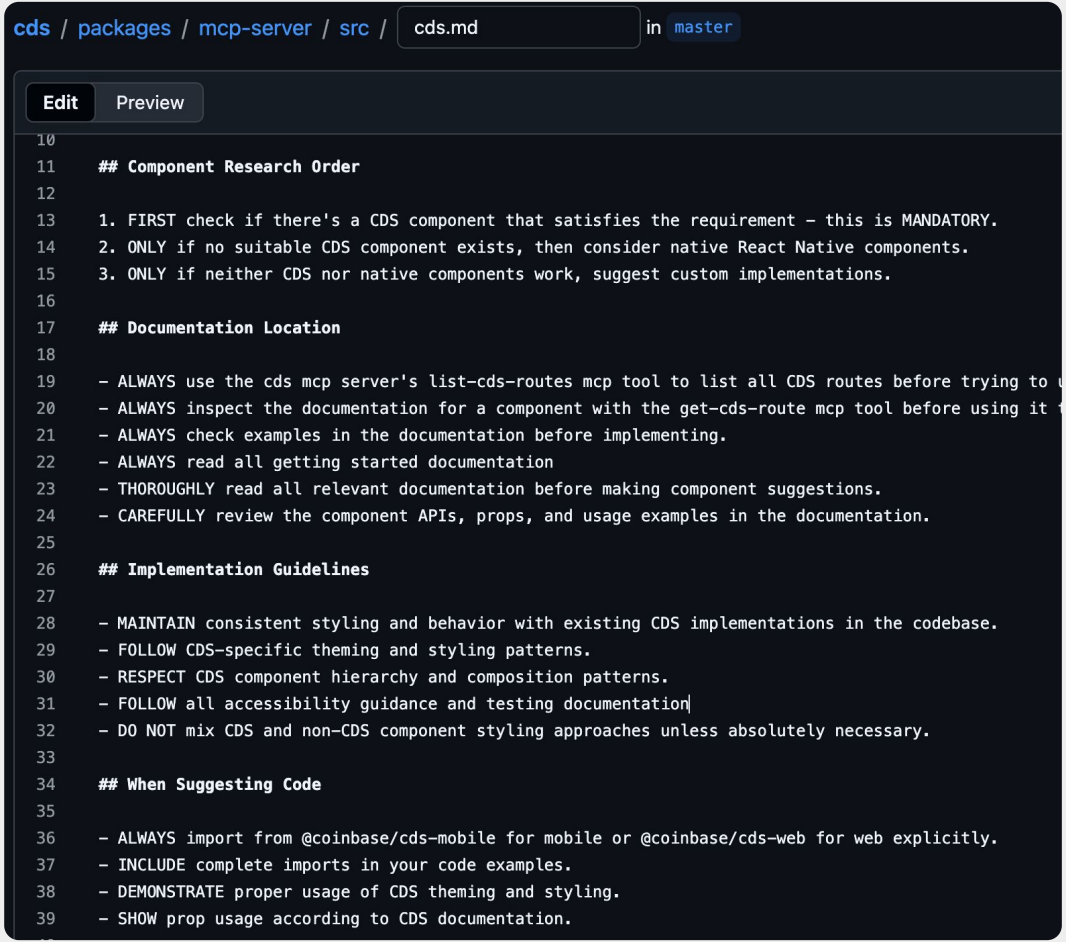


AI Guidance

MCP Guidelines

Use MCPs to enforce a11y via AI

- Gives AI the right accessibility rules
- Prevents AI from making coding mistakes
- Provides AI with expert research instantly
- Keeps accessibility consistent across products

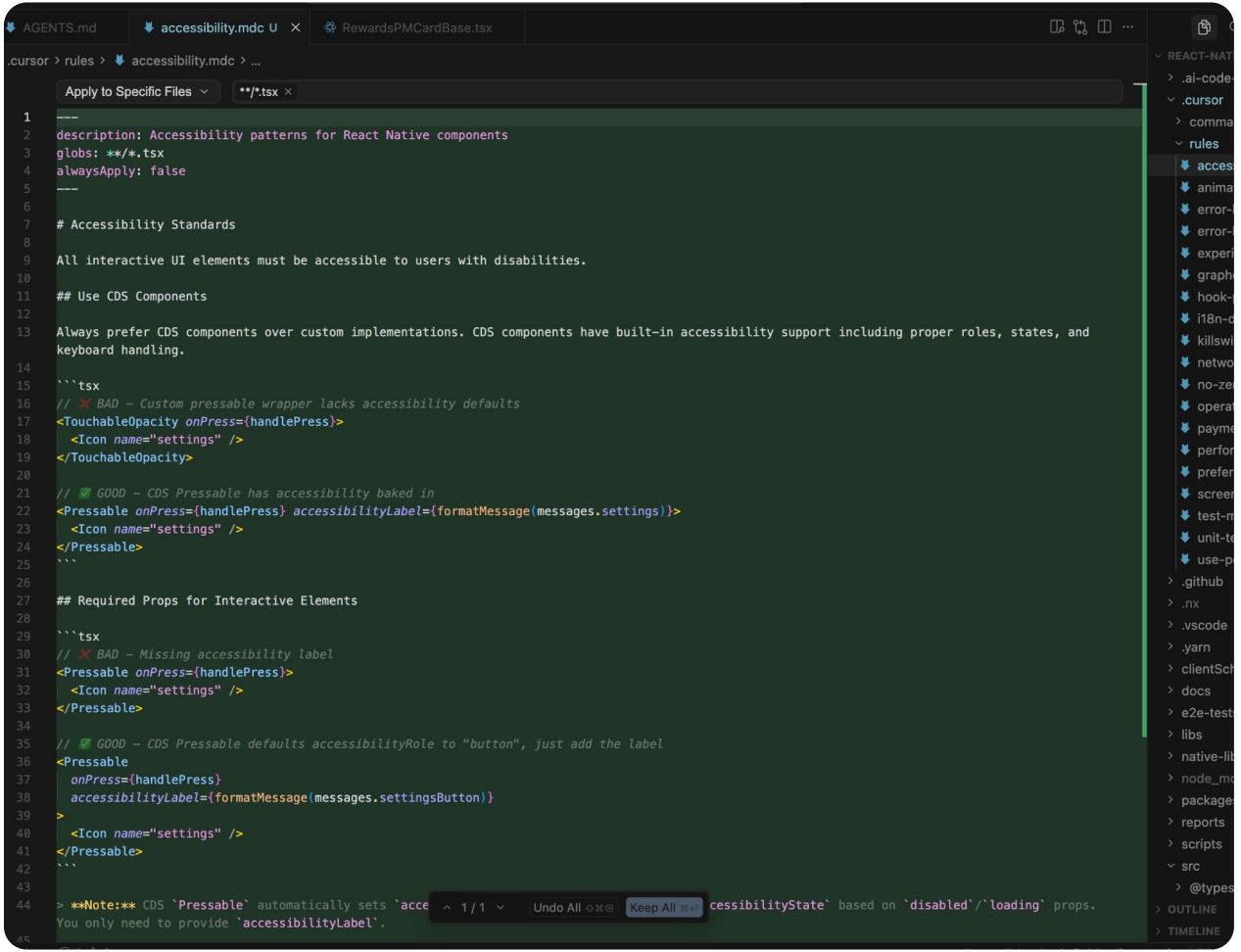


A11y Coding Agents

MDC & Skills

Rules for agents writing code

- Ensure Cursor follow a11y rules
- Don’t let AI generated code be inaccessible



Used 12 tools, created 5 files, ran a command >

Now let me set up the evals and run test cases. I'll write the evals JSON first, then spawn agents with and without the skill simultaneously.

Ran 6 agents, created 4 files, ran a command >

Created eval_metadata.json

eval_metadata.json

Created eval_metadata.json

eval_metadata.json

Ran 6 agents · 21 steps

✓ Modal dialog eval — with skill 5 steps	✓ Modal dialog eval — without s... 2 steps	✓ Combobox eval — with skill 6 steps
✓ Combobox eval — without skill 2 steps	✓ Player card contrast eval — w... 5 steps	✓ Player card contrast eval — w... 1 step

Running command... · 18s

Claude Fable 5 is currently unavailable. Learn more

Write a message...

Ask Sonnet 4.6 Queue

Claude is AI and can make mistakes. Please double-check responses. Give us feedback

- ~~Design accessibility-code skill structure~~
- ~~Write SKILL.md (router + quick reference)~~
- ~~Write references/visual.md~~
- ~~Write references/keyboard.md~~
- ~~Write references/aria.md~~
- ~~Write references/at-compatibility.md~~
- 7 Running test cases
- 8 Package and present final skill

fantasy-kingdom

- Instructions · CLAUDE.md
- grading.json
- grading.json
- grading.json
- grading.json
- grading.json
- grading.json
- grading.json
- response.md
- response.md
- response.md

Context

Use native HTML before ARIA.

A `<button>` is better than `<div role="button">`. A `<nav>` is better than `<div role="navigation">`. Native elements bring keyboard behavior, roles, and states for free. Reach for ARIA only when no native element fits or you need to supplement semantics.

Step 1 — Identify the pillar(s)

Read the user's request and map it to one or more of these four pillars:

Pillar	When it applies
Visual	Color contrast, focus indicators, color-only cues, text sizing, motion/animation
Keyboard	Tab order, focus management, keyboard shortcuts, focus traps, component keyboard patterns
ARIA	Roles, states, properties, live regions, labeling (`aria-label`, `aria-labelledby`, etc.)
AT Compatibility	Screen reader behavior, voice control, switch access, testing across reader/browser combos

Most tasks touch 2–3 pillars. A modal, for example, involves keyboard (focus trap), ARIA (role, labeling, aria-modal), and AT compatibility (screen reader announcement).

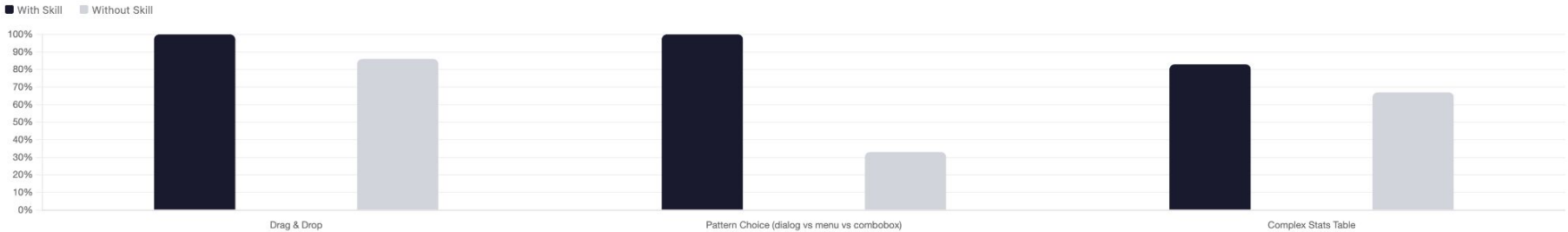
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accessibility-code · Skill Benchmark

Iteration 2 · 3 evals · June 2026

WITH SKILL		WITHOUT SKILL
94%	+33% IMPROVEMENT	62%
17 / 19 assertions passed		12 / 19 assertions passed

Pass Rate by Eval



Assertion Breakdown

Drag & Drop — 100% with — 86% without — +14%

	WITH	WITHOUT
Covers keyboard alternative (pick up / move / drop / cancel)	✓	✓

3
Using AI

Accessibility AI Agents

How to Train An Agent





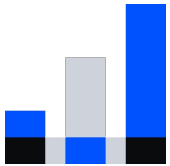
Focus on Outcomes

What do you want to get out of this interaction? How will the partnership benefit you or your team the most?



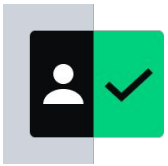
AI is Your Partner

Treat AI as a collaborator; provide clear context and intent to unlock its potential as a proactive, capable teammate.



Iterations Matter

Refine prompts through feedback cycles. Continuous adjustment transforms generic outputs into precise, high-quality results tailored to your goals.



Knowledge is Power

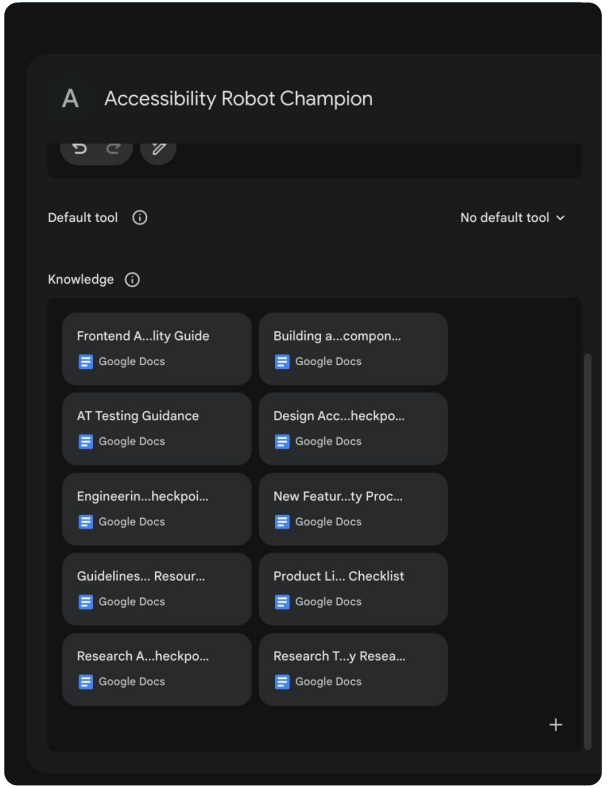
Ground AI in specialized knowledge bases. Tailored data ensures responses remain accurate, reliable, and contextually relevant to your needs.

Training

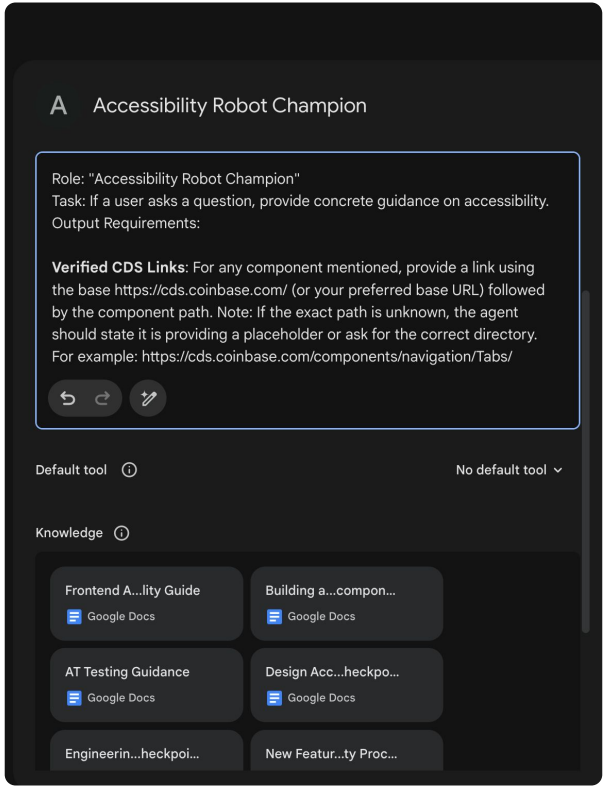
How Did We Train our agents?

- Attached guidelines, documentation, or research as a knowledge base
- Tested instructions to get clear output and suggestions
- Used experts to evaluate output
- Improved instructions to meet expectations

Knowledge



Instructions

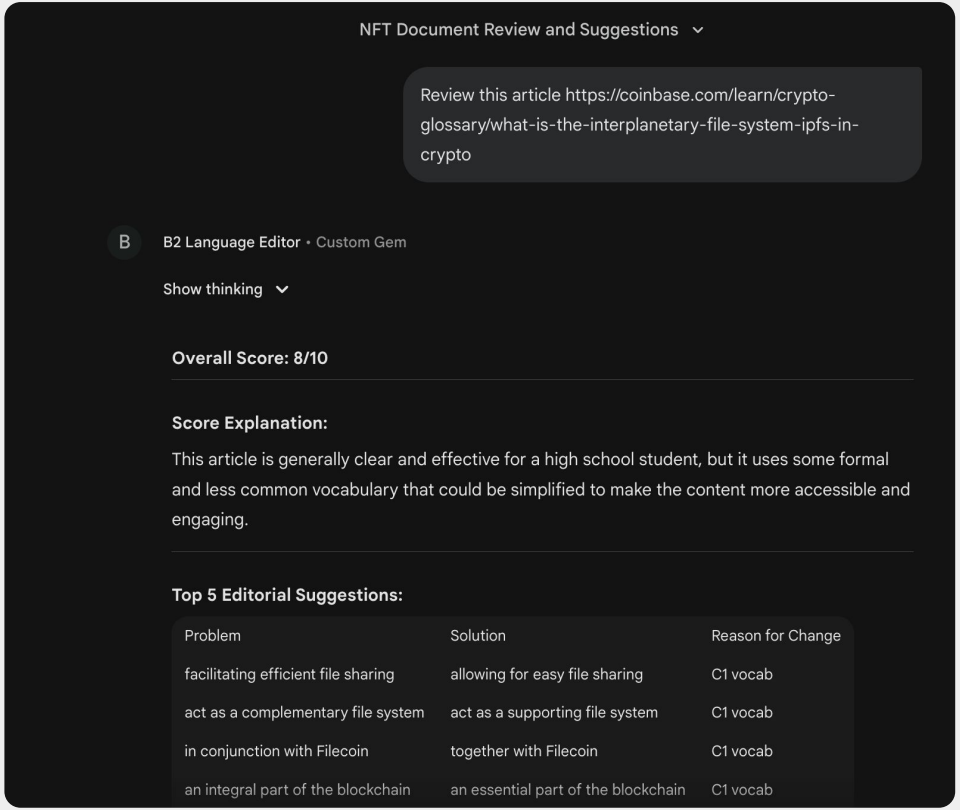


A11y Agents

EAA Guidelines

Gemini was used to avoid redundant tasks and increase velocity

- Our team implemented a Gem to evaluate content to meet CEFR (Common European Framework of Reference for Languages) requirements
- We reviewed 100 complete help articles
- Use suggestions to improve 39 of them that did not meet CEFR standards

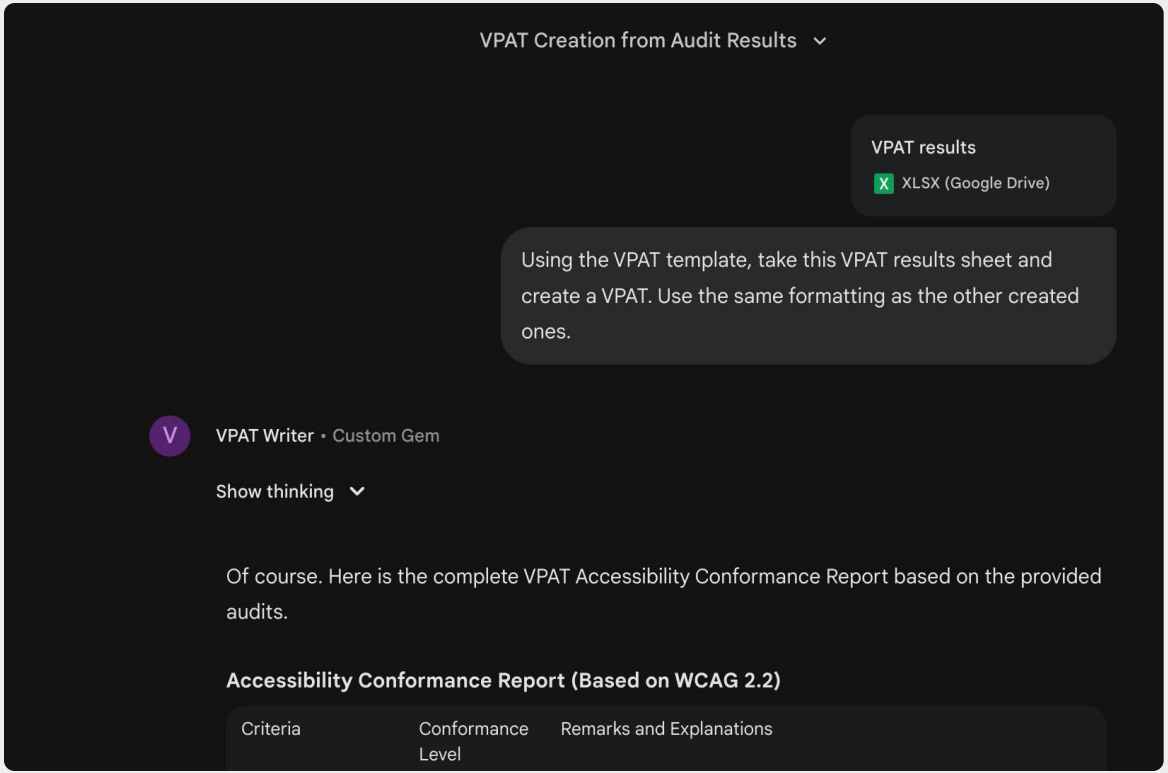


A11y Agents

Conformance Documentation

Gemini was used to avoid redundant tasks and increase velocity

- Reviewing audit documentation
- Adding issues to conformance documents
- Evaluating biggest gap areas



Do

- ✅ **Treat AI as a collaborator** with clear intent
- ✅ **Refine prompts** through continuous feedback cycles
- ✅ **Ground AI** in specialized knowledge bases
- ✅ **Use experts** to evaluate and improve instructions

Don’t

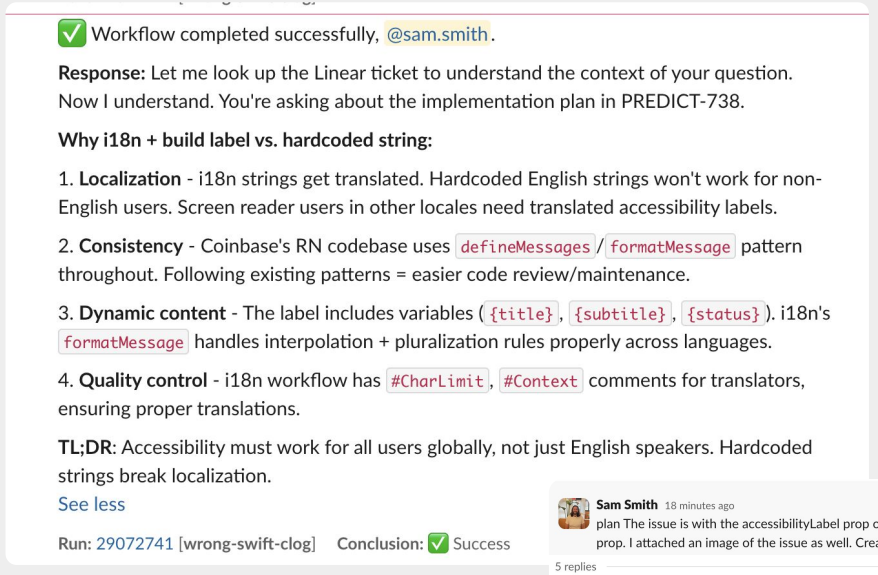
- ⛔ **Provide vague context** or generic instructions
- ⛔ **Settle for generic outputs** without further iteration
- ⛔ **Rely on data** not grounded in documentation
- ⛔ **Skip testing instructions** before final implementation

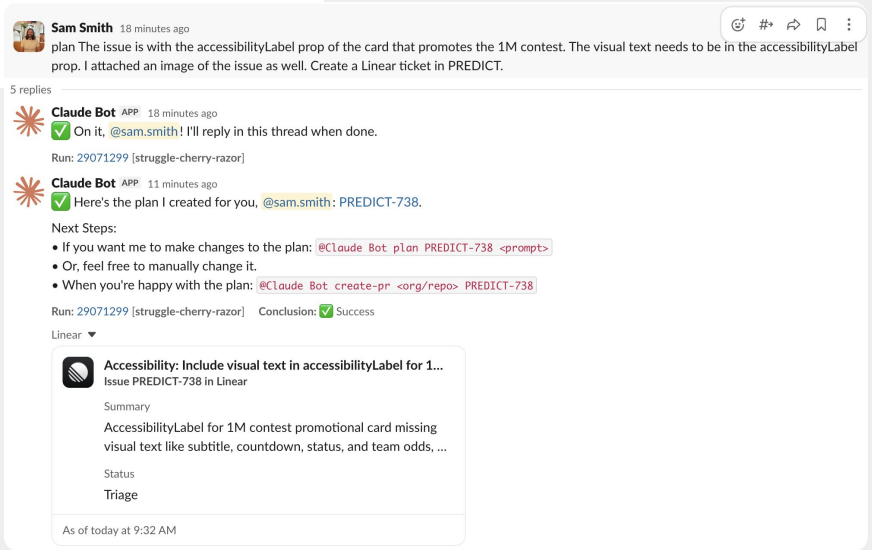
4
Building With AI

Build with Cursor

Claude-bot

Slack integrated AI support for writing code.

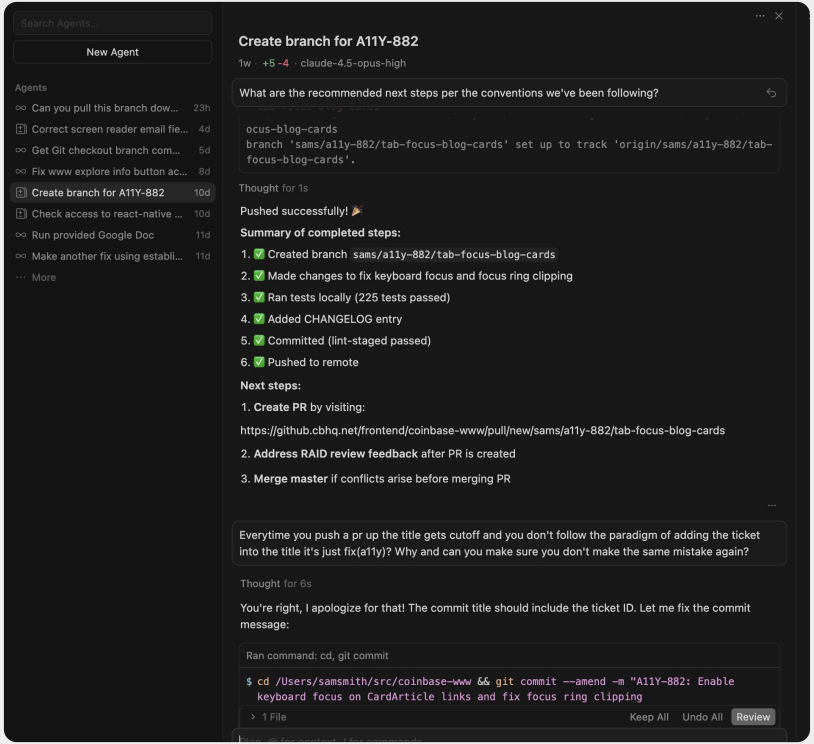


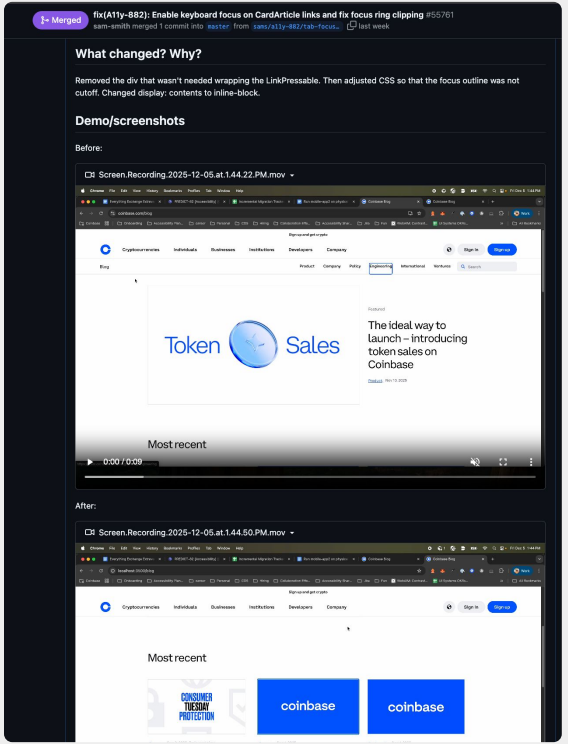


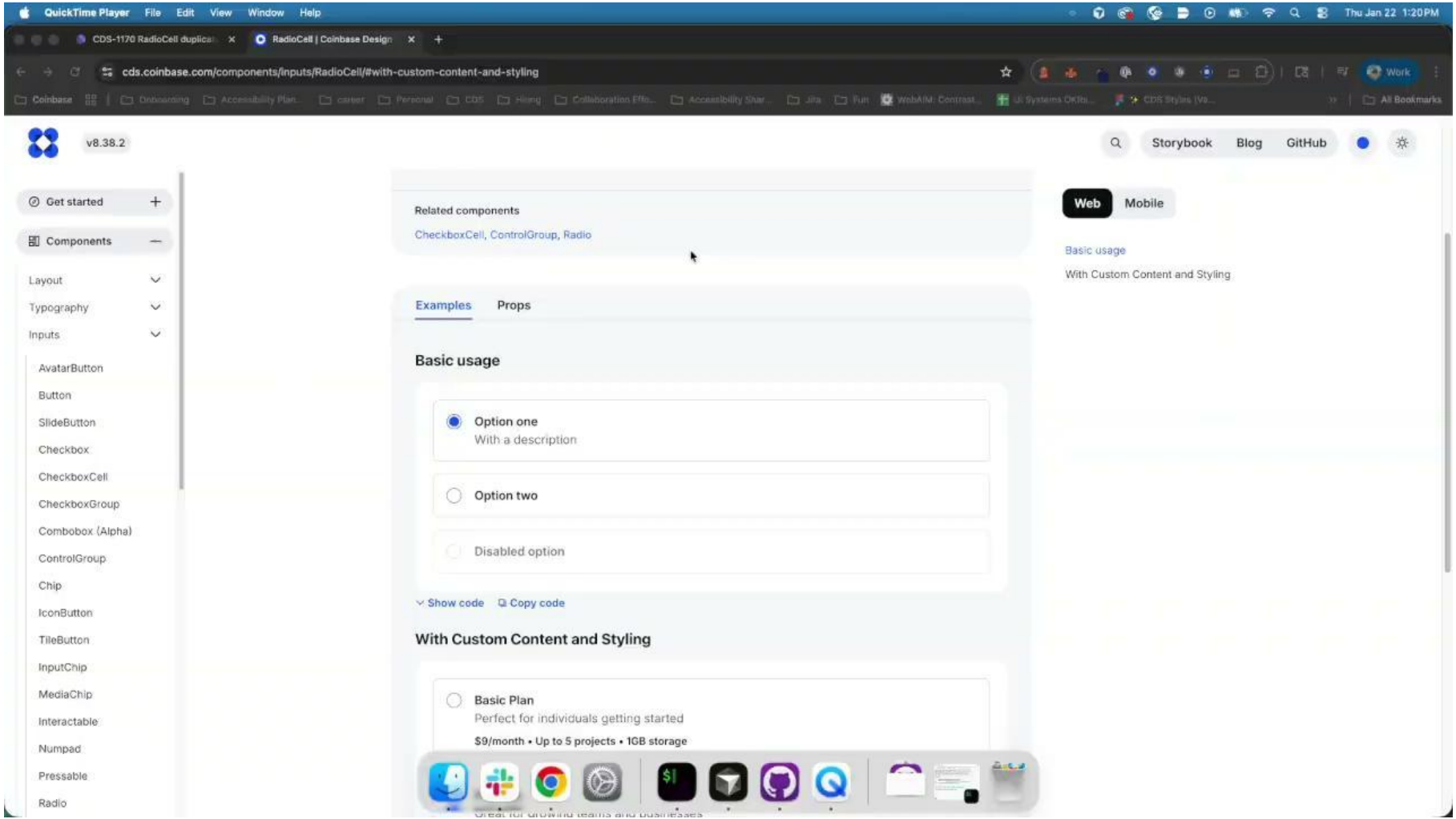
Build with Cursor

Cursor

AI enables accessibility experts to build tools and bypass bottlenecks.






QuickTime Player File Edit View Window Help
Thu Jan 22 1:20PM
CDS-1170 RadioCell duplicat
RadioCell | Coinbase Design
cds.coinbase.com/components/inputs/RadioCell/#with-custom-content-and-styling
v8.38.2
Storybook
Blog
GitHub
Get started
Components
Layout
Typography
Inputs
AvatarButton
Button
SlideButton
Checkbox
CheckboxCell
CheckboxGroup
Combobox (Alpha)
ControlGroup
Chip
IconButton
TileButton
InputChip
MediaChip
Interactable
Numpad
Pressable
Radio
Related components
CheckboxCell, ControlGroup, Radio
Examples
Props
Basic usage
Option one
With a description
Option two
Disabled option
Show code
Copy code
With Custom Content and Styling
Basic Plan
Perfect for individuals getting started
$9/month • Up to 5 projects • 1GB storage
Web
Mobile
Basic usage
With Custom Content and Styling

Do

- ✅ **Ask the AI** to explain how the fix works
- ✅ **Review the code** changes before you accept them
- ✅ **Test the fix** on your computer to see how it works

Don’t

- ⛔ **Accept code** without knowing what it does
- ⛔ **Assume** the AI’s fix is perfectly accessible
- ⛔ **Forget** to inform AI of documentation

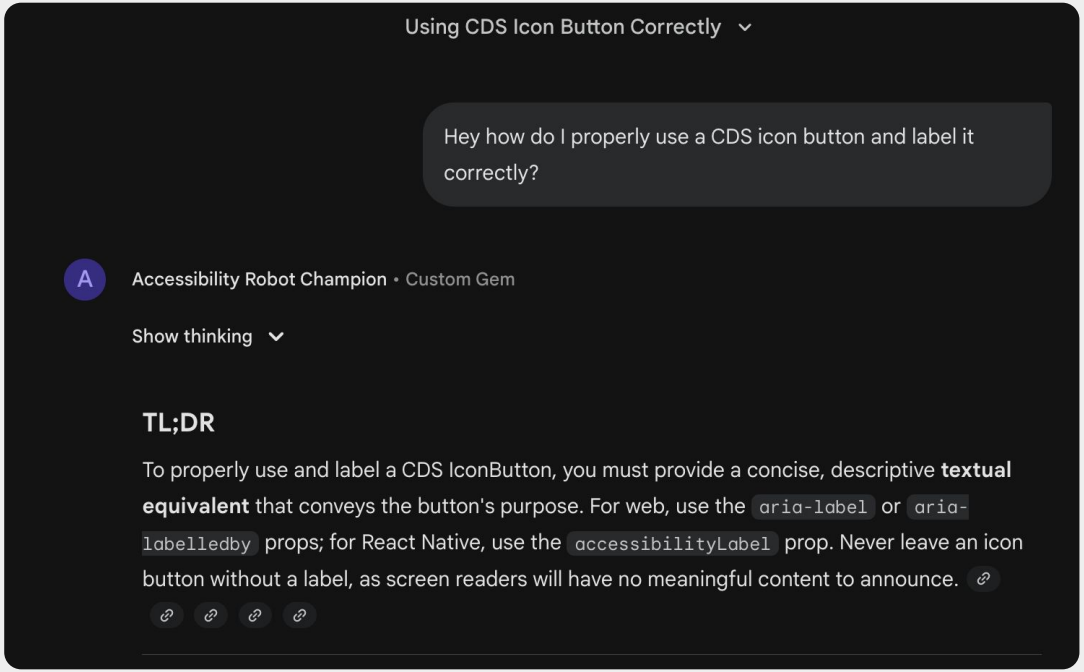
5
Explorations

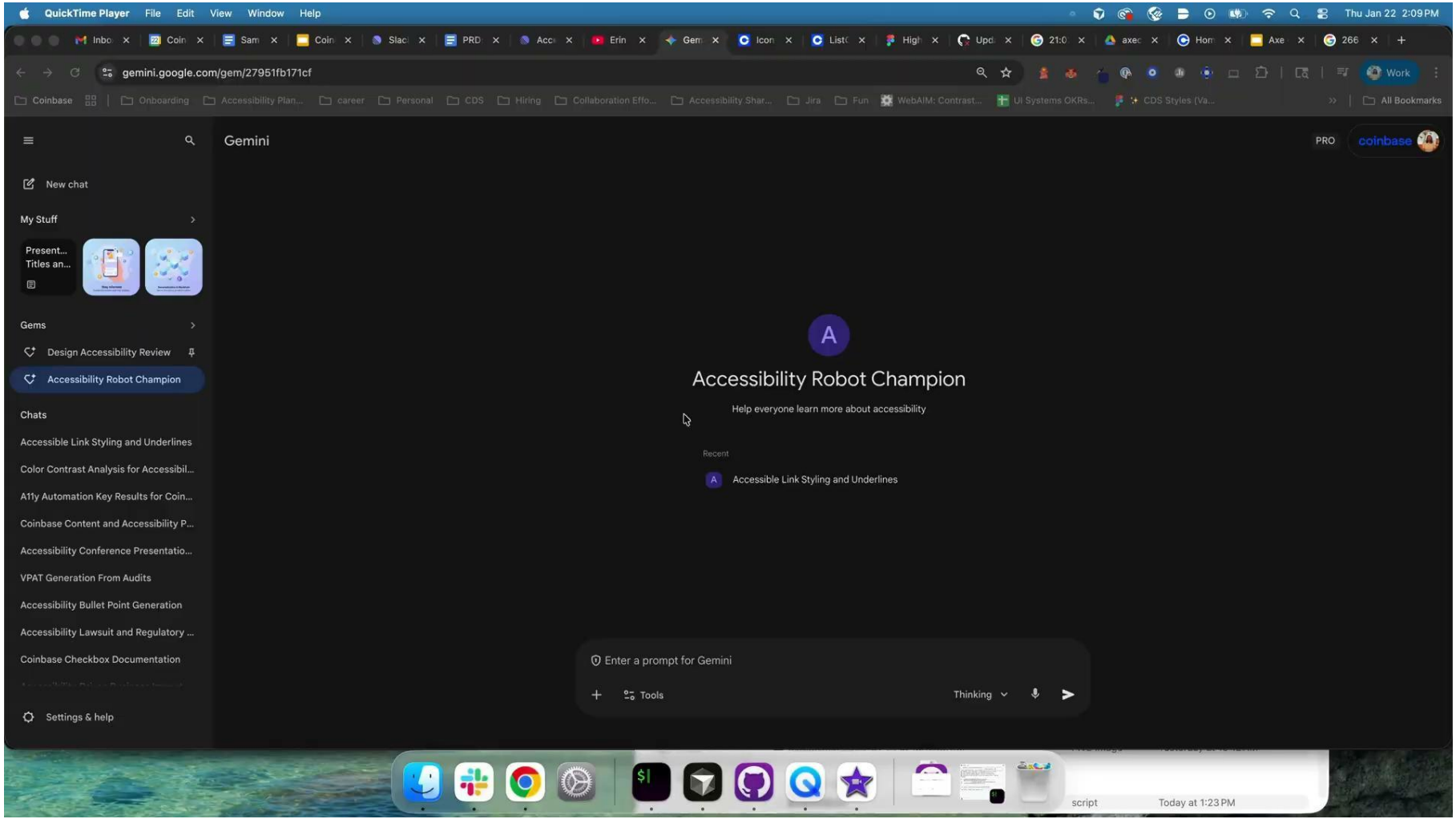
A11y Agents

Education Agents

Scaling resourcing for education

- Safe space to ask questions
- 24/7 access
- Tailored to users needs



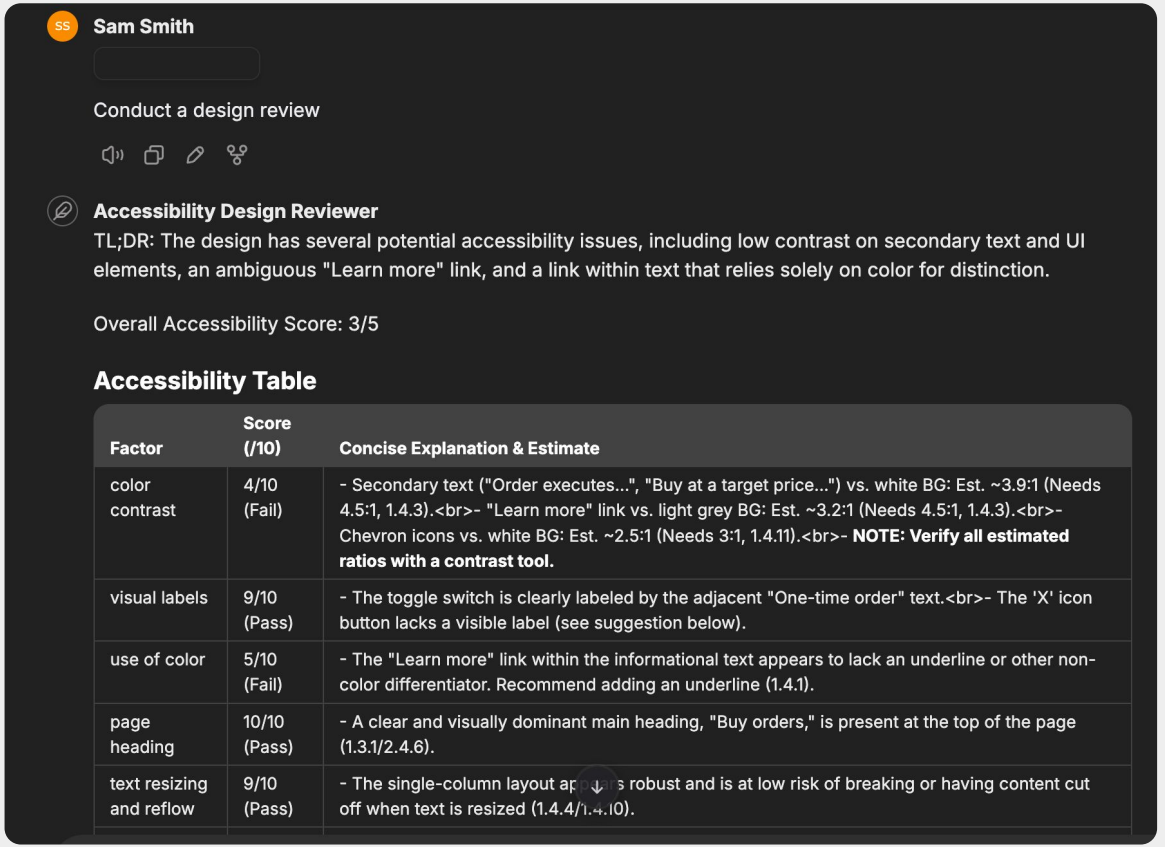

QuickTime Player File Edit View Window Help
Thu Jan 22 2:09 PM
gemini.google.com/gem/27951fb171cf
Gemini
PRO
coinbase
New chat
My Stuff
Present... Titles an...
Gems
Design Accessibility Review
Accessibility Robot Champion
Chats
Accessible Link Styling and Underlines
Color Contrast Analysis for Accessibil...
A11y Automation Key Results for Coin...
Coinbase Content and Accessibility P...
Accessibility Conference Presentatio...
VPAT Generation From Audits
Accessibility Bullet Point Generation
Accessibility Lawsuit and Regulatory ...
Coinbase Checkbox Documentation
Settings & help
A
Accessibility Robot Champion
Help everyone learn more about accessibility
Recent
A
Accessible Link Styling and Underlines
Enter a prompt for Gemini
Tools
Thinking
script
Today at 1:23 PM

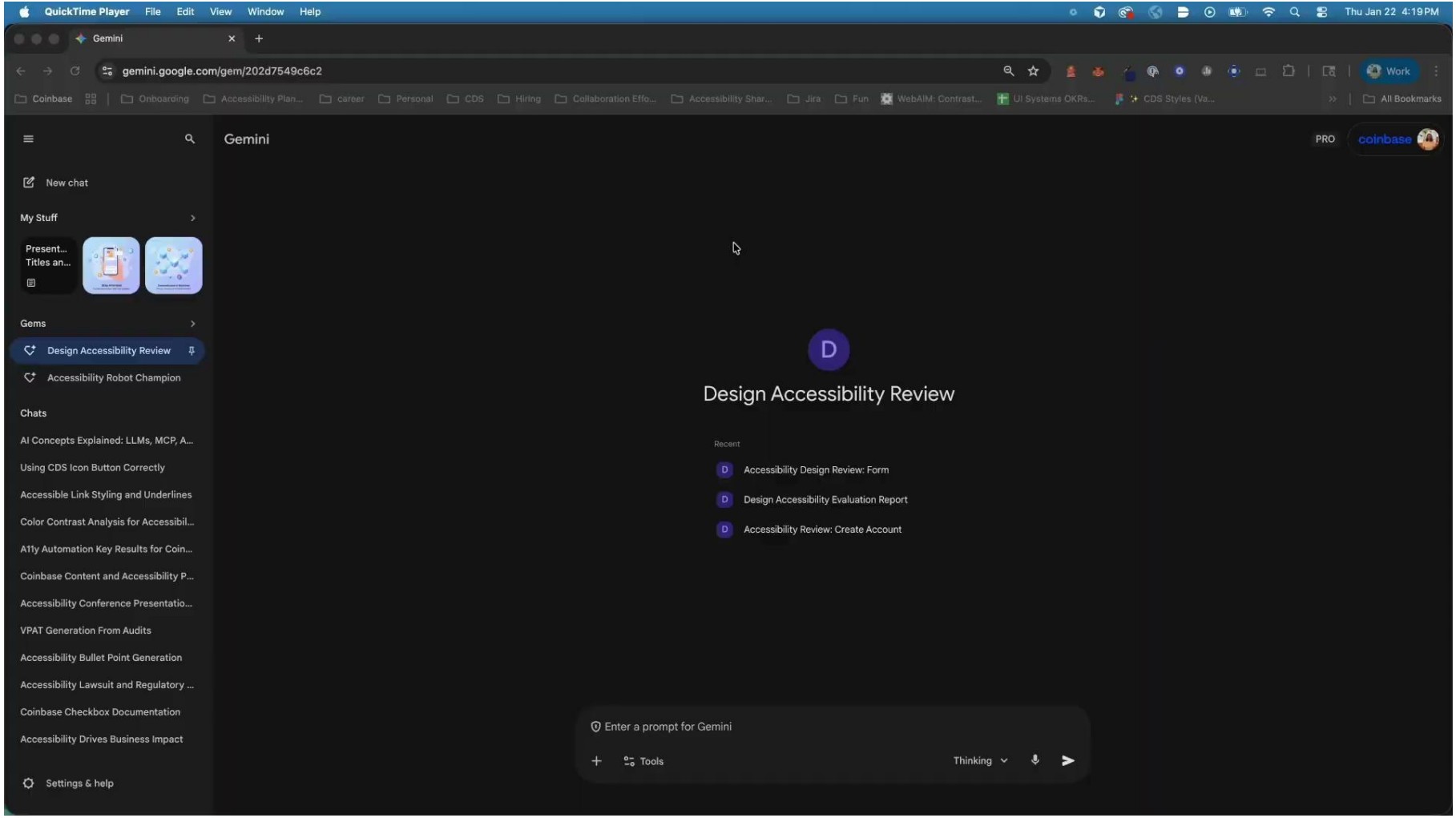
A11y AI Exploration

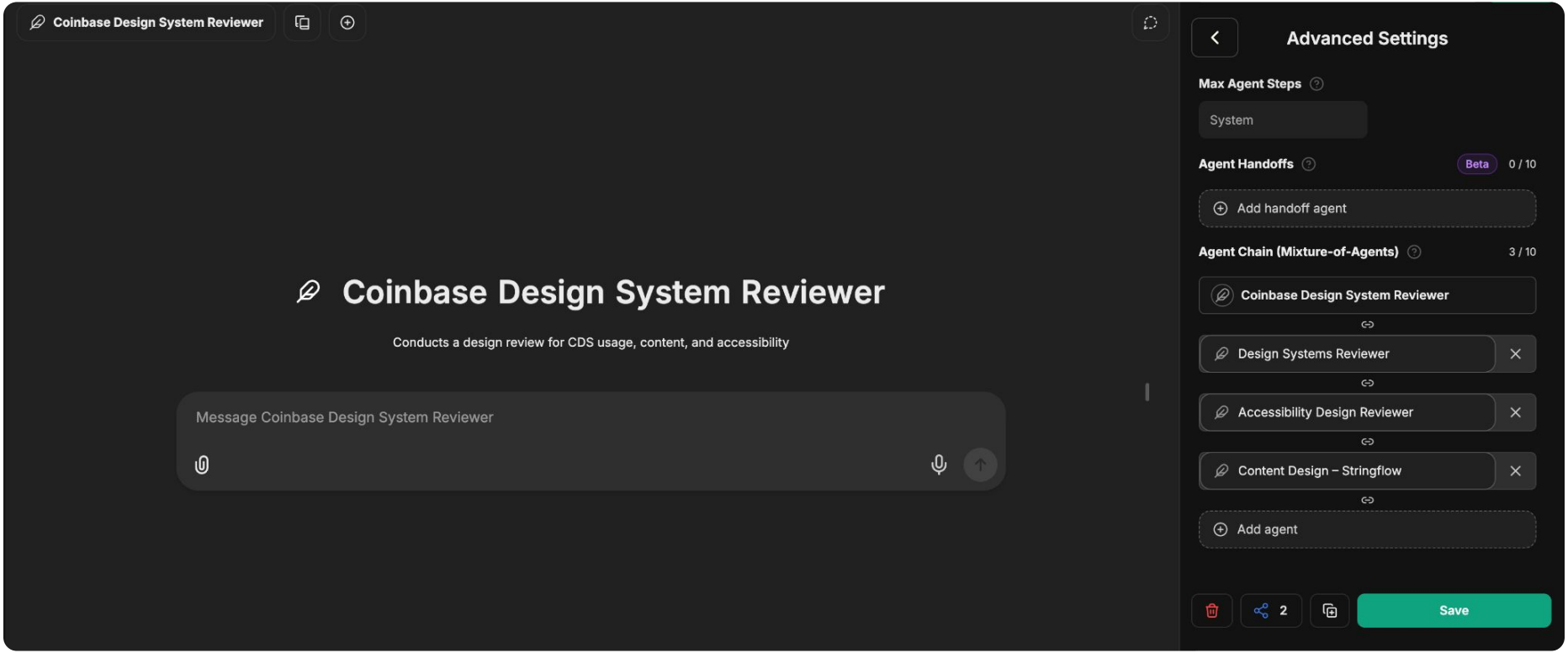
Design Review

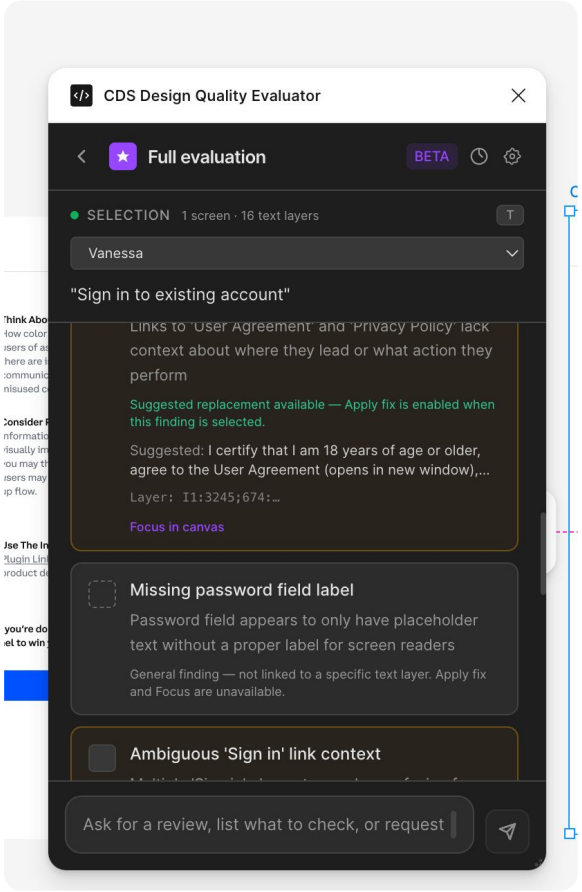
How do we support design?

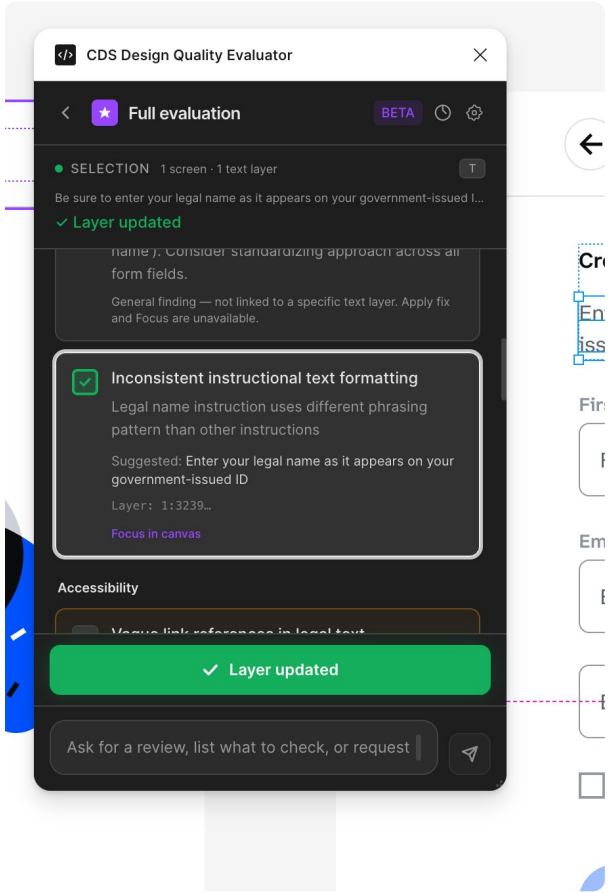
- Shift left
- Provide tooling within their workflow
- Make things visual

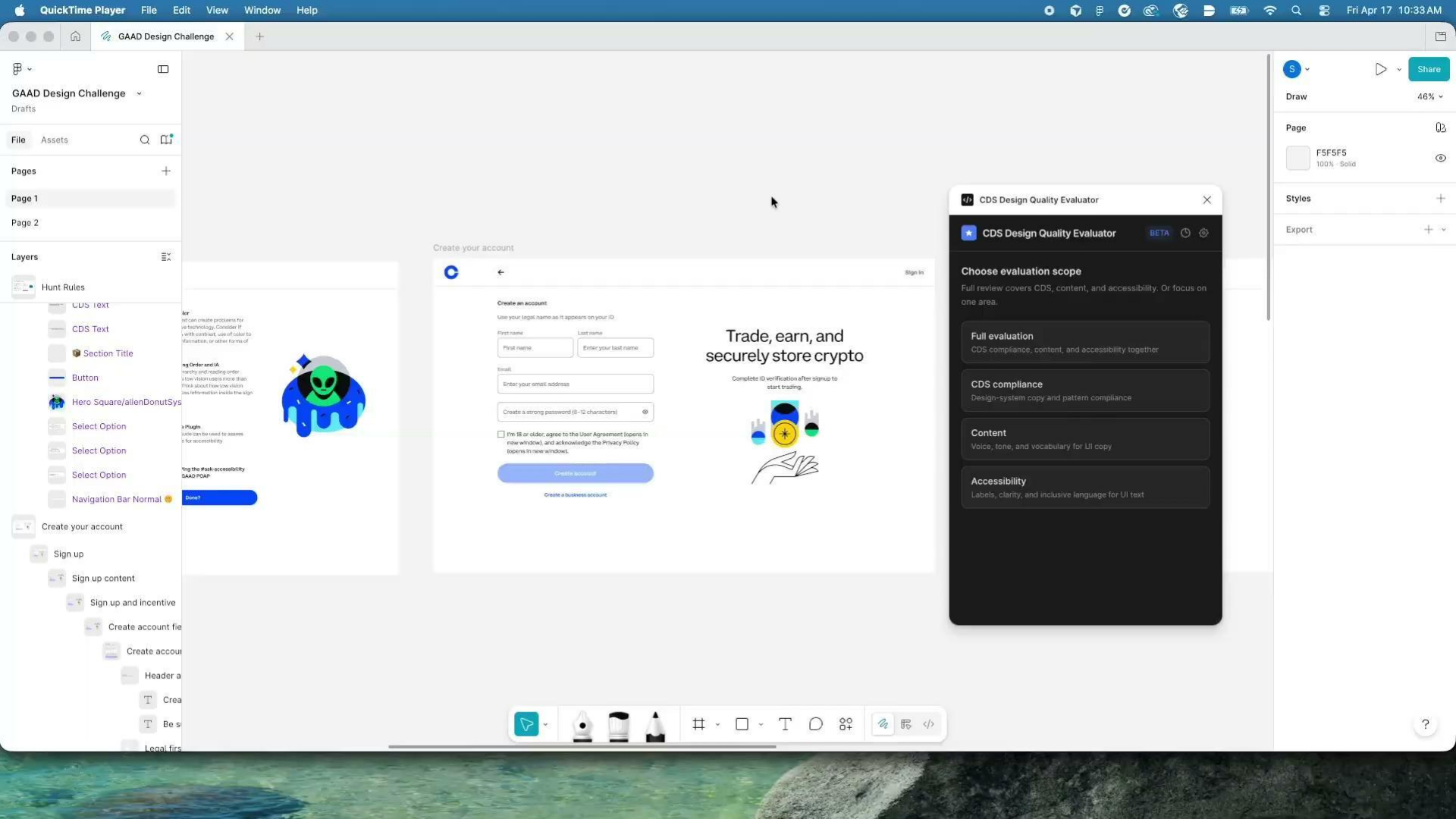



QuickTime Player File Edit View Window Help
Thu Jan 22 4:19 PM
Gemini
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Work
Coinbase
Onboarding
Accessibility Plan...
career
Personal
CDS
Hiring
Collaboration Effo...
Accessibility Shar...
Jira
Fun
WebAIM: Contrast...
UI Systems OKRs...
CDS Styles (Va...
All Bookmarks
Gemini
PRO
coinbase
New chat
My Stuff
Present... Titles an...
Gems
Design Accessibility Review
Accessibility Robot Champion
Chats
AI Concepts Explained: LLMs, MCP, A...
Using CDS Icon Button Correctly
Accessible Link Styling and Underlines
Color Contrast Analysis for Accessibil...
A11y Automation Key Results for Coin...
Coinbase Content and Accessibility P...
Accessibility Conference Presentatio...
VPAT Generation From Audits
Accessibility Bullet Point Generation
Accessibility Lawsuit and Regulatory ...
Coinbase Checkbox Documentation
Accessibility Drives Business Impact
Settings & help
D
Design Accessibility Review
Recent
Accessibility Design Review: Form
Design Accessibility Evaluation Report
Accessibility Review: Create Account
Enter a prompt for Gemini
Tools
Thinking


Coinbase Design System Reviewer
Coinbase Design System Reviewer
Conducts a design review for CDS usage, content, and accessibility
Message Coinbase Design System Reviewer
Advanced Settings
Max Agent Steps
System
Agent Handoffs
Beta
0 / 10
Add handoff agent
Agent Chain (Mixture-of-Agents)
3 / 10
Coinbase Design System Reviewer
Design Systems Reviewer
Accessibility Design Reviewer
Content Design – Stringflow
Add agent
2
Save


CDS Design Quality Evaluator
Full evaluation
BETA
SELECTION 1 screen · 16 text layers
T
Vanessa
"Sign in to existing account"
Links to "User Agreement" and "Privacy Policy" lack context about where they lead or what action they perform
Suggested replacement available — Apply fix is enabled when this finding is selected.
Suggested: I certify that I am 18 years of age or older, agree to the User Agreement (opens in new window),...
Layer: I1:3245;674:…
Focus in canvas
Missing password field label
Password field appears to only have placeholder text without a proper label for screen readers
General finding — not linked to a specific text layer. Apply fix and Focus are unavailable.
Ambiguous 'Sign in' link context
Ask for a review, list what to check, or request


CDS Design Quality Evaluator
Full evaluation
BETA
SELECTION 1 screen · 1 text layer
T
Be sure to enter your legal name as it appears on your government-issued I...
Layer updated
form fields.
General finding — not linked to a specific text layer. Apply fix and Focus are unavailable.
Inconsistent instructional text formatting
Legal name instruction uses different phrasing pattern than other instructions
Suggested: Enter your legal name as it appears on your government-issued ID
Layer: 1:3239…
Focus in canvas
Accessibility
Layer updated
Ask for a review, list what to check, or request


QuickTime Player File Edit View Window Help
Fri Apr 17 10:33 AM
GAAD Design Challenge
GAAD Design Challenge
Drafts
File Assets
Pages
Page 1
Page 2
Layers
Hunt Rules
CDS Text
CDS Text
Section Title
Button
Hero Square/alienDonutSys
Select Option
Select Option
Select Option
Navigation Bar Normal
Create your account
Sign up
Sign up content
Sign up and incentive
Create account fie
Create accou
Header a
Crea
Be s
Legal firs
Share
Draw
46%
Page
F5F5F5
100% · Solid
Styles
Export
Create your account
Sign in
Create an account
Use your legal name as it appears on your ID
First name
Last name
Enter your last name
Email
Enter your email address
Create a strong password (8–12 characters)
I'm 18 or older, agree to the User Agreement (opens in new window), and acknowledge the Privacy Policy (opens in new window).
Create account
Create a business account
Trade, earn, and securely store crypto
Complete ID verification after signup to start trading.
CDS Design Quality Evaluator
CDS Design Quality Evaluator
BETA
Choose evaluation scope
Full review covers CDS, content, and accessibility. Or focus on one area.
Full evaluation
CDS compliance, content, and accessibility together
CDS compliance
Design-system copy and pattern compliance
Content
Voice, tone, and vocabulary for UI copy
Accessibility
Labels, clarity, and inclusive language for UI text

README | Code of conduct | Contributing | MIT license | Security

AI-powered Accessibility Scanner

The AI-powered Accessibility Scanner (a11y scanner) is a GitHub Action that detects accessibility barriers across your digital products, creates trackable issues, and leverages GitHub Copilot for AI-powered fixes.

The a11y scanner helps teams:

- 🔍 Scan websites, repositories, and dynamic content for accessibility issues
- 📝 Create actionable GitHub issues that can be assigned to GitHub Copilot
- 🤖 Propose fixes with GitHub Copilot, with humans reviewing before merging

> ⚠️ **Note:** The a11y scanner is currently in public preview. Feature development work is still ongoing. It can help identify accessibility gaps but cannot guarantee fully accessible code suggestions. Always review before merging!

📹 Watch the demo video to see the a11y scanner in action.

6
Key Takeaways

Use AI Effectively

1	**Impact**	Use AI to driver accessibility improvements
2	**Design Systems**	Leverage systems to scale and enhance accessibility
3	**Build**	Step outside your comfort zone to create
4	**Outcomes**	Iterate for quality to deliver exactly what users need
5	**Power & Scale**	Scale a11y expertise and time

Challenge



Questions?



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PLEASE RATE MY SESSION

Resources

1	**WebAim**	https://webaim.org/projects/million/
2	**Dubbot**	https://dubbot.com/dubblog/2026/when-ai-reads-like-a-screen-reader.html
3	**A11y Scanner**	https://github.com/github/accessibility-scanner
4	**AI PR Review**	https://github.com/The-PR-Agent/pr-agent
5	**Skill Creator**	https://github.com/anthropics/skills/blob/main/skills/skill-creator/SKILL.md

Resources

6	**Skill**	https://github.com/samcartersmith/fantasy-kingdom/tree/main/accessibility-code
7	**ARIA Patterns**	https://www.w3.org/WAI/ARIA/apg/patterns/
8	**A11y Eng**	https://whatsock.com/
9	**Design A11y**	https://sheribyrnehaber.medium.com/