AI Tools for User Interface

A Developer Excellence Workshop

Agenda Outline

- Overview
- Bolt.new
- v0
- Replit Agent
- Live Demos
- Questions?

We'll start with a brief overview of this class of tools and why these three tools were chosen for today's workshop. Next, we'll delve into the specific features and capabilities of each tool, followed by live demos of some or all tools (depending on time), and there will be time for questions at the end.
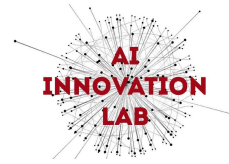
Overview

The landscape of AI-powered coding tools is evolving and growing at an unprecedented pace. You may already be familiar with AI coding assistants like GitHub Copilot or Cursor's AI Editor. However, today, we'll shift our focus to a unique category of web-based AI tools designed to empower front-end and full-stack developers.

Specifically, we'll explore Bolt.new, v0, and Replit Agent. These cutting-edge tools excel in tasks like rapidly prototyping components and applications. They also accelerate the learning curve when working with unfamiliar technologies, making them invaluable tools for modern development workflows.

In my experience, while some of the tools can write and test basic Python, they do best when working with JavaScript and TypeScript. All three tools do best when producing front-end components, SPAs, or full-stack applications that use frameworks they're already familiar with. They tend to lean towards React, Tailwind CSS, among others, if not asked for something specific.
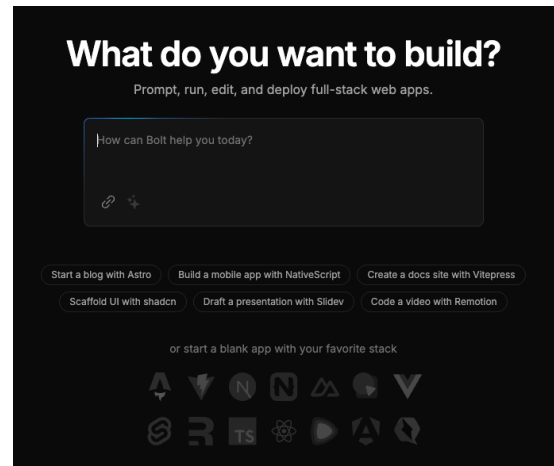
Let's jump in, we'll start with a closer look at Bolt.

Bolt.new

Bolt.new

- About/overview
- Supported technologies
- Notes/tips
  - .bolt/prompt

Bolt.new is made by a company called Stackblitz. Stackblitz is probably best known for their in-browser development environment. They also developed WebContainers (the first WebAssembly-based micro operating system which boots entire development environments in milliseconds, securely within your browser tab).
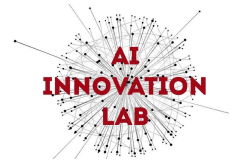
In their own words, Stackblitz describes Bolt as "an AI-powered web development agent that allows you to prompt, run, edit, and deploy full-stack applications directly from your browser—no local setup required."

I won't be getting into it today but Stackblitz recently released a self-hosted/community version called Bolt.diy. There will be a link to their GitHub repo in the slide deck.

Bolt.new supports most popular front-end JavaScript frameworks and tools like Next.js, React, Svelte, Astro, Vite, Vue, and Remix. Bolt. It can write client or server components. A general rule of thumb is if it can run on Stackblitz then it will work on Bolt.

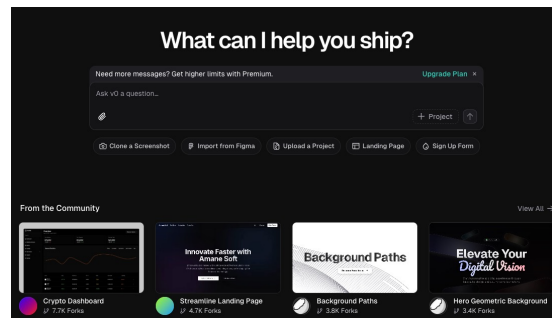I found that Bolt does a great job of identifying errors that it generates, as well offering to fix them.

The code produced can be downloaded, copied/pasted, or opened in Stackblitz. The last thing I want to call out about Bolt is that they recently released the ability to include a prompt file that defines some rules for a project that the agent will always follow. If you have used Cursor's AI Editor this is similar in concept to the .cursorrules file. To use this, you must open your project with Stackblitz, add ~/.bolt/prompt to your project and then add instructions to your prompt file. Save the project, reopen in Bolt and you should be good to go.

v0

v0

- About/overview
- Supported technologies
- Notes/tips

v0 is made by a company named Vercel. Vercel is pretty well known in the web development world for several of their products. Perhaps best known as the creators of the Next.js framework, they are also the maintainers of a popular library for working with various AI providers (Vercel AI SDK).
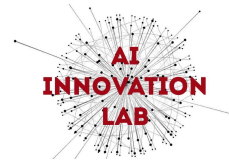
Vercel describes v0 by saying that with "Vercel's AI-powered pair programmer, anyone can participate in prototyping, building on the web, or expressing new ideas."

Like Bolt, v0 supports most popular front-end frameworks. With Vercel being the creators of Next.js, v0 is especially competent with that framework and always kept up to date with the latest Next.js features.

I didn't experiment with this but it was recently announced that v0 can execute scripts in Python (with access to third-party libraries like Matplotlib, Pandas, and NumPy).

Additionally, v0 recently introduced the ability to run and preview full-stack Next.js applications. This means v0 can run and preview Route Handlers, Server Actions, dynamic routes, and React Server Components. (It can also access environment
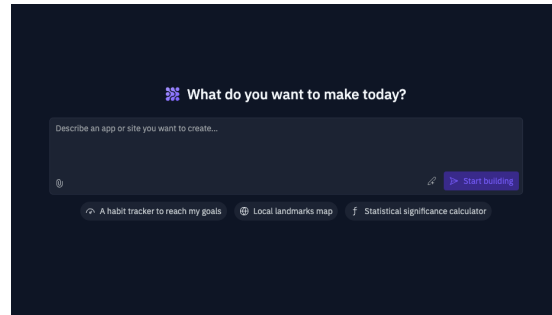
variables on Vercel to securely connect to databases, APIs, and other external services.)

Replit Agent

Replit Agent

- About/overview
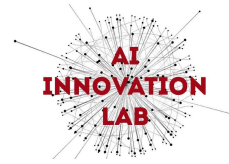- Supported technologies
- Notes/tips

Replit Agent is produced by Replit. Replit original product was a full in-browser development environment. It's especially strong when being used for live collaboration with others.

In their own words, Replit describes Replit Agent as "an advanced AI making programming accessible to everyone. Build at the speed of thought and launch in minutes."

One big difference between Replit Agent and the other tools is that it works in more of a feedback-loop-oriented way. In other words it works by generating plans based on your ask, usually gives some optional choices of features that might work well and then asks for your approval to proceed. I want to call out that I worked with Replit Agent a bit less than the others because it has a less generous free tier.

Replit Agent seems to support most common front-end technologies as well as Node.js or Python for backend work. I saw it mentioned that Replit Agent also supports the Streamlit framework for Python and a very quick test proved this to be true (although it would only return screenshots of the app vs running it directly).

Live Demos

Questions?

Thank you!

Relevant Links

Bolt.new
- Main - https://bolt.new
- Docs - https://support.bolt.new/welcome
- Repo - https://github.com/stackblitz/bolt.new
- Stackblitz - https://stackblitz.com/
- WebContainers - https://webcontainers.io/
- Bolt.diy - https://github.com/stackblitz-labs/bolt.diy

v0
- Main - https://v0.dev
- Docs - https://v0.dev/docs
- Vercel - https://vercel.com
- Vercel AI SDK - https://sdk.vercel.ai/
  - Repo - https://github.com/vercel/ai
- Next.js - https://nextjs.org/
  - Repo - https://github.com/vercel/next.js

Replit Agent
- Main - https://replit.com/ai
- Docs - https://docs.replit.com/category/replit-ai
- Replit - https://replit.com/