

Practical AI Tools For Java Developers

Contact Info

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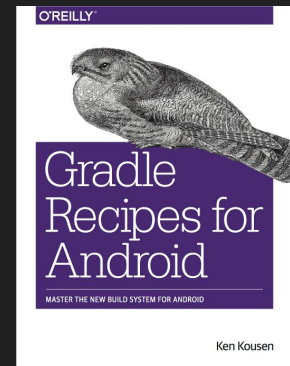
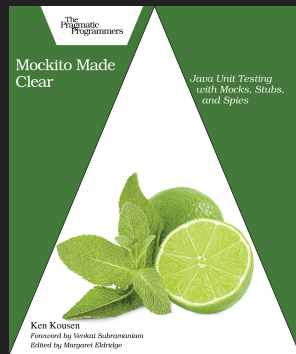
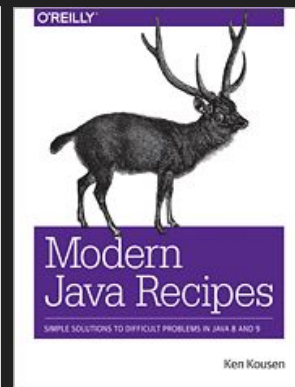
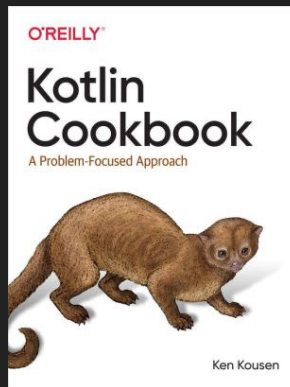
[@kenkousen](https://twitter.com/kenkousen) (twitter)

[@kenkousen@mastodon.social](https://mstdn.social/@kenkousen) (mastodon)

Tales from the jar side (free newsletter)

<https://kenkousen.substack.com>

<https://youtube.com/@talesfromthejarside>



ChatGPT

- OpenAI
- <https://chat.openai.com/>
- Cookbook: <https://github.com/openai/openai-cookbook>
- Chat Completions API:
<https://platform.openai.com/docs/guides/gpt/chat-completions-api>
- Examples: <https://platform.openai.com/examples>
- API Reference: <https://platform.openai.com/docs/api-reference>
- GPT-4 access also provides the **Code Interpreter** plugin

Models

- GPT 3.5
 - GPT 4
 - Many plugins available
 - **Code Interpreter** generates (and executes) Python
 - DALL-E
 - Whisper
 - Recently added **Custom Instructions**
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- Models only trained up to September 2021

Pricing

- All prices are per 1000 tokens (about 750 words)
- <https://openai.com/pricing>
- GPT-4:
 - 8K context: \$0.03 input, \$0.06 output / 1K tokens
- GPT-3.5:
 - 4K context: \$0.0015 input, \$0.002 output / 1K tokens

Claude AI

- <https://claude.ai>
- Handles much larger files. Can upload them, or copy and paste
- US and Europe only (will get better eventually)
- Free!

Bard

- AI from Google
- <https://bard.google.com/>
- Can read links
- Can access the internet (sometimes)
- Can upload responses to Google Docs
- Can incorporate into code, via Google Cloud projects

Llama 2

- Provided by Meta (Facebook)
- Open source, with weights
- <https://www.llama2.ai/>

Whisper

- Audio to video transcription and translation
- Can code to the API, but easy to use open source implementation:
 - <https://github.com/openai/whisper>
- Even better Mac implementation
 - **MacWhisper**: <https://goodsnooze.gumroad.com/l/macwhisper>

Descript

- Transcribes video (and audio) into text
- Cutting text cuts corresponding parts of video
- Special tools:
 - **Overdub** (stock voices and trained)
 - Shorten word gaps
 - Remove filler words
 - **Studio sound**
 - **Eye contact** (beta)

Canva

- Generate presentation
- Image tools:
 - **Magic eraser** → remove parts of images and fill in background
 - **Background remover** → make background transparent
 - Magic edit → can add items (a little flaky)
- **Beats sync** → Synchronize image transitions with music beats

GitHub Copilot

- <https://github.com/features/copilot>
- "Your AI pair programmer"
- Generates code from comments or method names
- Plugins for IntelliJ and VSCode (among others)
- Subscribe from GitHub (i.e., Microsoft)

GitHub Copilot X

- Copilot "leveling up"
- <https://github.com/features/preview/copilot-x>
- VS Code only
- Copilot for pull requests
- Copilot for CLI

GitHub Next

- <https://githubnext.com/>
- GitHub Copilot Labs (VS Code)
- Visualizing a codebase
(<https://githubnext.com/projects/repo-visualization/>)
- Many others (mostly waitlist)

AI Assistant

- JetBrains:
<https://blog.jetbrains.com/idea/2023/06/ai-assistant-in-jetbrains-ides/>
- Plugin for IntelliJ tools
- Best for:
 - Suggest refactoring
 - AI Chat
 - Explain Code
 - Generate documentation
 - Name suggestions
 - Commit message generation

YouTube Summary (Chrome plugin)

- Glasp YouTube summary with ChatGPT, <https://glasp.co/youtube-summary>
- Generates transcript and summary
- Can configure which GPT model
- 20 minute limit, but there are workarounds

Image Generators

- Midjourney → accessible by Discord group
- Stable Diffusion
 - API available at <https://platform.stability.ai/>
- DALL-E (part of OpenAI)
- Picogen (<https://picogen.io/>) provides REST access to all three

From AI Tool to Java

- Find a REST API
- Use **HttpClient** API (Java 11+)
- Select a **JSON parser/generator** (Gson, Jackson, ...)
- Map the request/response JSON data to Java **records**
- Use new Java features where helpful
 - **Pattern matching** (works with switch in Java 21)
 - **Switch** expressions
 - **Local Variable Type Inference**
 - **Sealed** classes and interfaces
 - **Text blocks**
- GitHub repository: <https://github.com/kousen/openaidemo>

Current Status

- **GitHub Copilot** can be very helpful
 - Copilot X and Copilot Next show what's coming
- **AI Assistant** useful for commit messages, refactoring, basic GPT questions
- OpenAI APIs pretty solid
- Some docs are misleading or wrong (SDXL)
- Lots of JSON parsers available
- Lots of HTTP clients available
- **Java owns the server side** -- let's add AI tools to it, rather than adapting our existing systems to the AI tools