SoloDev Documentation

English Version

SoloDev is an AI-powered learning platform built to help users explore and master software development topics in a simple, efficient, and structured way. It integrates curated YouTube tutorials, Google search results, AI-generated summaries, and exercises in a seamless learning experience.

Features

Search any topic and get:

- A relevant YouTube tutorial
- Top Google search results (official docs, guides, articles)
- AI-generated summary (copyable and editable)
- Practice questions to reinforce learning
- Authentication with Clerk
- Fast API response with server caching
- Light mode UI focused on learning

How It Works

1. **Authentication**
   - Users log in via Clerk authentication.
   - Only authenticated users can access `/search` and dynamic topic pages.

2. **Search Flow**
   - Users go to `/search`
   - After submitting a search term, users are redirected to `/topic/[topic]`.
   - The server component fetches API data based on `params.topic`.

3. **API Integration & Server-Side Fetching**
   - External APIs used: YouTube, Google Custom Search, OpenAI.
   - All requests are centralized in a Route Handler: `/api/topic?query=...`
   - Components involved: `fetchGoogleResults`, `fetchYoutubeVideo`, `generateAiContent`.

4. **Caching**
   - Server response headers:
     ```
     Cache-Control: public, s-maxage=300, stale-while-
     revalidate=59
     ```
   - Client-side fetch:
     ```
     fetch(..., { next: { revalidate: 300 } });
     ```
   - Cache TTL: 5 minutes.

5. **Protected Routes**
   - Clerk middleware protects:
     - `/search`
     - `/topic/[topic]`

UI & Pedagogical Design
- **Video**: visual reinforcement
- **Text links**: broader context and depth
- **Notes**: users can copy summaries or write personal notes
- **Practice**: reinforce retention through exercises

Users are encouraged to save or export summaries using the copy button.

Project Structure
```
/app
  /search
  /topic/[topic]
  /api/topic
/components
  /ContentLoader (AiContent, GoogleResults, YoutubeVideo)
  /LayoutComponents (Header, Footer, etc.)
  /MainPageSections (Hero, Concept, CTA)
/lib
  fetchGoogleResults.ts
  fetchYoutubeVideo.ts
  generateAiContent.ts
/styles
/types
middleware.ts
```

Stack

- Next.js 15 (App Router)
- TypeScript
- Tailwind CSS
- Clerk.dev for authentication
- OpenAI, YouTube API, Google Custom Search API

Possible Improvements

- Add user history and saved searches
- Support editable personal notes
- Add support for dark mode
- Internationalization (i18n)

Summary

SoloDev delivers a fast, SEO-friendly, and educational experience using server-rendered content, caching, and a pedagogically grounded interface.