Design Documentation

# 1. Overview

The Journaling Companion is a journaling app I built to combine simple note-taking with AI insights. At its core, it lets users write daily entries, track their streaks, and reflect on their mood over time. What makes it different is the AI layer: it can analyze each entry’s sentiment, highlight recurring themes, suggest reflective prompts, and summarize the week for you.  
  
The goal behind the design was to keep things modular, easy to use, and practical. I didn’t want a bloated app—I wanted something straightforward where the AI feels like a coach sitting on top of a clean journaling experience.

# 2. System Architecture

- Frontend (React/Vite): Handles the user interface: creating entries, searching, viewing insights, and running AI actions.  
- Backend (FastAPI): Exposes REST APIs for users, entries, insights, and AI features.  
- Database (SQLite): Stores users, entries, and AI-generated insights.  
- AI Services: Use Hugging Face transformers for sentiment analysis, sentence embeddings, and KeyBERT/YAKE for extracting themes.

# 3. Tech Stack

- Frontend: React, Vite, TypeScript, Tailwind, shadcn/ui, React Router, Axios, Recharts  
- Backend: FastAPI, Uvicorn, SQLite, JWT auth (python-jose + passlib)  
- AI: Transformers, Sentence-Transformers, KeyBERT, YAKE, Torch, Scikit-learn

# 4. Key Features

- User: register, login, profile editing, streak tracking  
- Entries: create, edit, delete, autosave drafts, search/filter  
- AI Coach: sentiment analysis, weekly summaries, reflective prompts, keyword-based themes  
- Analytics: sentiment trend chart, activity heatmap, tone summaries

# 5. Design Decisions

- DAO layer to isolate database code from logic  
- Service Layer: Ai logic isolated I services/ai modules for modularity  
- Frontend Separation: API calls centralized in services/api.ts for maintainability  
- Tailwind + shadcn/ui for fast but consistent styling

# 6. Future Enhancements

- Deployment: move to Postgres, deploy backend to cloud, frontend to Vercel/Netlify  
- AI upgrades: fine-tune models on journaling data, use instruction-tuned LLMs for more natural prompts  
- Sharing options: export to PDF, optional sharing with friends or therapists  
- Mobile: responsive PWA or React Native app  
- Gamification: badges, milestones, mood progress tracking  
- Privacy: stronger encryption and possible local-only AI

# 7. Conclusion

The Journaling Companion started as a simple journaling app, but the AI layer makes it more engaging and useful. It not only stores what you write but also helps you reflect, notice patterns, and stay consistent. The design is flexible enough to support new features later, whether that’s better AI models, mobile support, or more ways for people to track their progress.