

## Success Story

# Transforming a digital health platform by integrating semantic search and conversational AI capabilities

### Customer

Synergy  
Homeopathic

### Country

USA

### Industry

Healthcare

## About The Client

Based in California, USA, Synergy Homeopathic is an information technology and services company founded in 1986. Their main objective is to simplify the complex process of homeopathic case analysis through an intuitive software application, thus enhancing the expertise and therapeutic capacities of homeopaths globally. Their digital platform, VitalQuest, offers practitioners a comprehensive resource for diagnosing and treating patients effectively and efficiently.

## Technology Stack

Vector Database



## Business Situation

Having been a long-standing client, Synergy first partnered with Unthinkable to resolve issues with latency, slow loading speed, and low concurrency on their platform, VitalQuest. This digital platform assists homeopaths in the critical process of case taking and analysis, wherein each word is meticulously examined against a vast database, yielding results tailored to solve each case.

Nevertheless, the absence of robust search filters significantly hindered application performance. Search outputs took notably longer, significantly impacting user experience. Despite these challenges, we successfully overcame them and launched the solution, earning praise from respected practitioners and educators in the global homeopathy community.

Impressed by our past achievements, Synergy has once again turned to us for further platform enhancements. Their current search system, reliant on traditional text-based methods, proved insufficient for the nuanced requirements of homeopathic remedies. Practitioners struggled with constructing intricate search strings, resulting in frustration and workflow inefficiencies.

Recognizing the pressing need for improvement, the Unthinkable team proposed harnessing advanced technologies such as semantic search and conversational AI to elevate Synergy's platform capabilities.

The key requirements were to:

- ✓ Modernize VitalQuest's platform to enhance the overall user experience by providing an intuitive interface and seamless interaction with the application.
- ✓ Develop and integrate semantic search capability to provide more accurate and relevant results based on user queries.
- ✓ Incorporate an intuitive chatbot interface for natural language interaction within the application.
- ✓ Ensure scalability of the database infrastructure to accommodate a large volume of data from numerous homeopathic books.
- ✓ Implement robust security measures to safeguard user data and maintain privacy and confidentiality.

To initiate our project, our team began by thoroughly understanding the requirements of all stakeholders involved. Following this crucial initial step, our software architects designed the platform's architecture, prioritizing scalability, performance, and security throughout the development process.

In alignment with Synergy's future expansion strategies, business model, and service offerings, our team meticulously selected the most efficient technology stack. This included Python for backend operations, GPT 3.5 for pre-trained AI models, and Vector DB for robust database management.

## The Solution

### **Retrieval Augmented Generation(RAG) implementation**

In response to the challenges faced by Synergy, our primary focus was to enhance the existing search functionality to provide authoritative and contextually relevant information to homeopathic practitioners. We achieved this by implementing a cutting-edge Retrieval Augmented Generation approach. This technique combines the power of information retrieval with natural language generation to enhance content relevance and quality dynamically.

To facilitate retrieval-augmented generation, we integrated state-of-the-art semantic search algorithms with advanced text generation models. Leveraging pre-trained language models such as OpenAI's GPT 3.5, we developed a system capable of understanding user queries.

Now, users can easily access remedies associated with various issues such as brain, vertigo, head, heart, nose, face, respiration, cough, and over 150 related problems. Moreover, they have access to additional relevant details like sub-rubrics, authors, and categories from an extensive database comprising 1500 books.

Additionally, the retrieval-augmented generation process incorporates a real-time adaptation mechanism driven by user feedback. As users interact with the VitalQuest platform, providing input, feedback, and corrections, the system continuously learns and adapts its content generation capabilities. Through iterative refinement and optimization, the platform evolves to better understand user intent, language nuances, and domain-specific terminology, thereby improving the accuracy and relevance of generated content over time.

### **Conversational AI integration**

To improve user interaction, we designed and developed a conversational chatbot interface for the homeopathy application. Powered by advanced NLP capabilities, this chatbot served as a virtual assistant for homeopaths, enabling intuitive interaction using natural language. This not only simplified the search process but also made it more accessible to users of varying technical proficiency levels.

To further enhance user experience, we incorporated features within the VitalQuest application that allow users to customize search parameters such as proximity, threshold values, and weightage. This enabled practitioners to tailor results based on patient-specific parameters, fostering deeper trust and rapport between users and the application.

To ensure seamless performance and scalability, we deployed a robust architecture and cloud infrastructure for the homeopathy application. This solution was designed to handle large volumes of concurrent users and data processing tasks without compromising speed or reliability. Advanced caching mechanisms and distributed computing techniques were implemented to optimize performance and reduce latency, ensuring real-time search results even under heavy loads.

## The Impact

The implementation of the chatbot with semantic search functionalities had a transformative impact on VitalQuest's business and the homeopathy community at large. The solution significantly enhanced the efficiency and accuracy of symptom analysis and remedy selection for practitioners. With the user-friendly interface, practitioners could now quickly find relevant remedies for their patients' symptoms, saving valuable time and reducing errors. The cost-effective nature of the solution made it accessible to practitioners with limited resources, democratizing access to advanced technology in homeopathy practice.

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