AI Book Coach:

Unleashing the Power of Actionable Knowledge

Knowledge Transfer   AI Coach   QA/QC Bot

Introduction

- Do you ever read an informational book and find it difficult to connect all the information, or apply the lessons to your life?
- There are many books that are hard and long to go through, and this applies to course materials.
- We go through page by page of books that are hundreds of pages long and oftentimes we seek specific content when we go through books. We seek personalized content when we read.

Proposal: We propose to create a way for people to unlock and experience books in a different way, specifically the category of self help or instructional books since they are meant as books that are to help us and be tailor to our issues. Looking at the instructional types of books we have many different sections and snippets of information that is super relatable, but people like me with low attention spans forget about that piece of information when we move to a different chapter. Using an LLM model with the content of the book to act like a coach we could be able to achieve a more tailor experience of going through content like a instructional book, and instead of us forcing ourselves to remember all the content we are able to experience the content now too

Solution

- Introducing the AI Coach: a tool designed to personalize and simplify the information you consume, focusing on what's relevant for you
- The goals here to achieve is an Bot that can act as a personalized coach that acts based on the information of the book and keeping you in mind of how to tailoring this content to you
- With this there a couple things we keep in mind in development
  a. Making the coach and coaching based on the content itself. It has to teach based on the books and the knowledge of the book
  b. Working around the user, their needs and who they are. So it has to be conversational and want to get information about you to tailor your experience
  c. How can we QA/QC the results from the model to ensure that they are not only good results, but also they are good based on the situation at hand, the situation of the content and the information it has given. The QA/QC can't can't just be simply is the response good

Why Healing back pain?

There are many great books but I thought it would be good to start with Healing Back Pain as it is both an informational and very instructional book. There are many great books to choose from but these are the reasons why we start with Healing Back Pain first

- Chronic back pain is a widespread health crisis that affects individuals and economies.
- The costs associated with managing and treating chronic back pain in the US exceed those of cancer and heart disease combined.
- Approximately 80% of adults will experience back pain at some point in their lives.
- Current solutions for back pain often involve invasive procedures or provide only temporary relief.
- An innovative platform is being developed based on the principles of mindbody medicine to address chronic back pain.
- The platform includes an interactive course to help users understand how their mind and body interact and alleviate their pain.
- The platform features an AI coach that provides personalized guidance and support.
- A community space is integrated into the platform to allow users to share their experiences and learn from others.
- The platform aims to revolutionize chronic pain management by merging health education and advanced technology.
- The ultimate goal of the platform is to empower individuals to take control of their health and well-being.

In general the book is a guide to better one's health, so why not turn that guide into an interactive less and coach for you, so this is why we chose to make the project based on this book first

AI coach in action

- The model as of right now works off of the Healing back pain book
- Telegram is the main UI interface, but there was an incomplete chat UI created with Vercel
- To help with storing chat and also for storing embeddings of the chat conversations for especially long conversations we use Supabase with pgvectors for the embeddings.
- The conversations that you can have with the coach are both learning about back pain, how to make training sessions and reduction of back pain, as well making the content more specific for you.
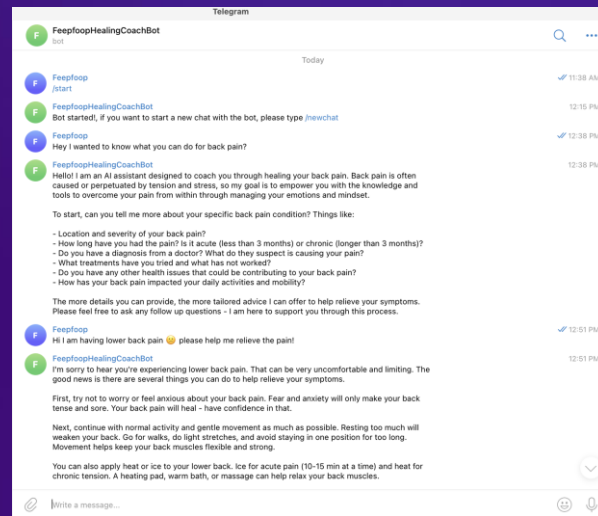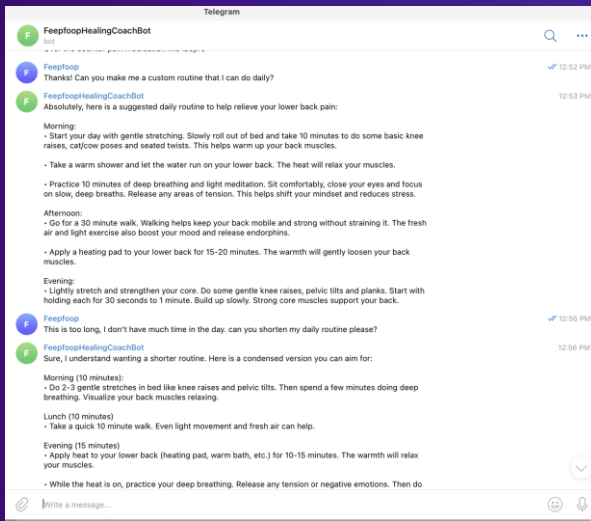
AI coach in action with QA/QC

- When the model creates the responses they always go through QA/QC
- 3 operations are performed
  a. It creates a score for the response based on the criterias
  b. It creates a suggestion on improvement when the score is low
  c. A new potential for an instruction for prompt is generated, this acts more like an additional instruction
- On authenticated users the new instruction is used to reprompt and improve the response right away.
- There are actually times when the new instruction can be used to edit the base and default prompt to be better

AI coach learning process and making information more digestible and actionable

- There are 3 big takeaways from the information you can obtain by using the AI Coach and those are the things we learned in the process of working and using it.
  a. The content can seem really engaging with you. The bot is giving an engaging tone that it is here for you
  b. The content is something you want to reply to, does it apply to you, how can you make it more responsive to you
  c. The content is now something tailor to you and something that is following how you learn
- Being able to make the content something you want to engage with and talk to makes the learning process not only something you are just trying to pull all the information from but something that is interactive.This gives another level of interaction with the content you are trying to learn
- Some of the parts that we had to learn and figure out with the model so it can get to this point
  a. Take and distilling the contents of the book in its entirety
  b. Taking the contents and creating structures and lessons for it to base responses later
  c. Creating a criteria with it based on the content on how to QA/QC the results
  d. Taking the QA results and using that to fine tune the original instructions to reinforce the models performance
- This has not only enabled for users to learn content on the go but for us to improve the models instruction on the go as well

Utility of the text

- The utility of the text for the book Healing Back Pain is really clear
  a. Giving the user the understanding of why back pain matters and learning about it
  b. Helping to erase the misconception back pain
  c. Reminding the reader/user that the power to enable them to get past this is all actually already in their hands
  d. Reminding the user of the importance of their actions to helping back pain relief
  e. Being able to create these courses and schedules for the users to follow
  f. Being able to create these tailored made courses for the users to follow and taking their feedback to helping adjust the course itself
  g. Taking the understanding of the user information to help narrow down the content to something for the user

One of the goals for the system is how to make it being able to follow up with the user more effectively

Future applications and Conclusion

- One of the results from the demo of the application is that processing large books is much more interesting than setting up a method for the model to work off of to act as a coach. It is better at discussing larger topics and more plan-like scenarios. This is super interesting for other kinds of books, specifically instructional ones, so potentially a way for it to act in a more specific manners for subject topic
- The applications of Claude model working as a QA/QC manner is super interesting because of its long context and also because of the way that Claude works better with super specific tasks. Constructing a manner and rubric for it to evaluate results is much better
- Overall this is a great way for people to not only learn about books that are super useful, but also a different way for people to experience and learn books. This is a great way for a person to review a book that they haven't read in a long time
- Thank you for giving us access to the Anthropic Claude model, this has been a great experience. Hopefully we can continue to have access since I view this as a way for us to unlock new ways of learning and building up new knowledge

What was enabled by Anthropic Claude

1. The preprocessing of the content has been much more streamlined making it easier and faster to extract the most salient information. Traditionally when pulling salient topic you have to batch it which has some issues with since it will pull more smaller salient topics instead of considering the entire text

2. Creating a criteria system for the prompting a bot has been much more interesting since you can construct these highly in depth prompts to use to prompt the models acting as coaches since claude can take the entire passage as context

3. QA/QC bot is much more effective since it can take a large amount of conversational data and more in depth rubric for evaluating the scoring which is super helpful until you can fine tune a model

Try it for yourself

1. **Jump on Telegram with the link below**
   a. t.me/FeepfoopHealingCoachBot

2. **Then ask it about back pain**

*The QA results cannot be seen from a demo perspective right now

Appendix A. Product Pitch

Jump start you healing journey

Our platform is dedicated to harnessing the restorative power of mindbody medicine and imparting it to users in an engaging and accessible format. The heart of our solution is an interactive and easily applicable guide that will enable users to start their healing journey right away; empowering them with the knowledge to address and alleviate their pain.

- Back Pain
- Mindbody Medicine
- AI Coach
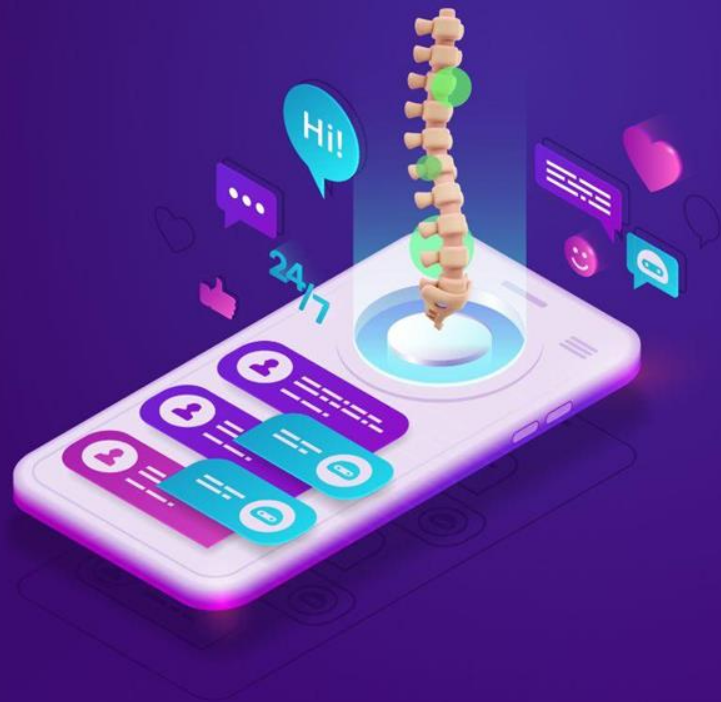
Back Pain Crisis

Chronic back pain has emerged as a widespread health crisis, inflicting a significant toll on individuals and economies alike. In the US, the costs associated with managing and treating this condition surpass those of cancer and heart disease combined, an alarming reality that underscores the magnitude of the issue. Approximately 80% of adults will encounter back pain at some stage in their lives, a statistic that highlights the vast reach and potential impact of this health challenge.

The existing solutions for back pain often involve invasive procedures or provide merely palliative relief. They frequently fail to address the root cause of the pain, offering temporary relief without a long-term solution. With an aim to transform this landscape, we are developing an innovative platform grounded in the paradigm-altering principles articulated in 'The Mindbody Prescription'.

AI Coach

At our core, we are committed to utilizing the revitalizing potential of mindbody medicine and effectively delivering it to individuals so that they can start immediately in their healing journey.

To bolster the effectiveness of our educational resources, our platform includes an AI coach which is engineered to guide users; providing step-by-step guidance, answering queries, and offering personalized advice and support tailored to each user's unique situation and needs. This AI assistance is designed to mimic the interaction with a human coach, providing real-time feedback and support to users.

healing Community

Recognizing the significance of shared experiences and community support in the healing process, we are integrating a community space into our platform. This virtual gathering spot will provide a safe and supportive environment where users can share their stories, learn from others' experiences, and build a network of individuals who are navigating similar paths towards healing.

By merging top-tier health education with advanced technology, our platform represents a significant step forward in chronic pain management. Our vision is to bring the life-altering potential of the mindbody approach to the broader population, pioneering a shift in how we perceive and manage chronic pain. Our ultimate goal is to empower individuals to reclaim control over their health and well-being, transforming their lives for the better.

QA Bot

We understand that the key to being able to provide our users with effective healing guidance is ensuring that the interaction with our AI coach is seamless and engaging; as consistent practice of mindbody medicine is imperative.

To ensure that the users are able to foster a meaningful and engaging relationship with their coach, we focused on implementing a robust QA bot that would enhance the conversation between our users and the AI coach. When user sends a message, the QA bot improves the user prompt to insure that user intent is clearly understood. Additionally, as the AI coach provides a response, the QA bot assesses the response, and provides feedback for the AI coach to improve their response upon.