

Food&Drug App: Harnessing AI for Safer Medication Usage

Introduction

Greetings esteemed judges,

We are excited to introduce our innovation, the Food&Drug app, a unique solution to the pressing issue of food and drug interactions. As a team of two, Nikola and myself, we thrive on challenges and the opportunities they present for learning and growth.

Our application utilizes cutting-edge technology such as the Python programming language, LangChain library, OpenAI's GPT-3 model, and the FastAPI framework. We've leveraged our previous experience building web applications for diverse projects including Kampnagel (German theatre), Pentagon Logistics, and the Vader mortgage app in Ireland, to deliver this innovative solution.

About Food&Drug App

The Food&Drug app addresses a critical healthcare problem - interactions between food and medication, and their potential side effects. Our solution leverages user input to generate personalized medical insights and surface potential drug interactions or side effects. Specifically, users enter a drug or medication they are taking. Our system then algorithmically generates up to 5 other types of drugs or products that may interact with the input drug. For each generated drug interaction, we display the possible side effects that may result from taking those drugs together. This provides a convenient, customized way for individuals to understand potential risks associated with their unique mix of medications and supplements. By promoting awareness of potentially dangerous drug interactions, our solution aims to improve health outcomes and give users information to have more productive discussions with their healthcare providers. Overall, this can contribute to more effective treatment plans and smarter, safer ways of combining different medical products.

This knowledge not only provides a value-add to healthcare consumers by empowering them to manage their health more effectively, but also helps healthcare providers improve patient counseling.

Technical Overview

Our app is built using Python and FastAPI, a modern, fast (high-performance), web framework for building APIs.

Our solution utilizes advanced artificial intelligence technologies to provide customized medical insights and recommendations to users. Specifically, we have integrated OpenAI, a leading AI research lab's language model, with a technology called LangChain. LangChain enables us to generate additional relevant responses based on a user's initial query. In practice, if a user enters a drug they are taking, our system first provides up to 5 foods or products they should avoid due to potential interactions. We then use LangChain and OpenAI to generate follow-on responses with more details on why those interactions could be dangerous. Responses are concise to ensure efficient use of resources. To further enhance our solution over time, we plan to connect it to a vector database. This database would store all information generated through user queries as well as

data gathered from pharmaceutical companies' product websites. With this integrated data, our system can provide the most robust, customized recommendations for each user's unique situation. By leveraging advanced AI in this way and combining it with a data-rich knowledge base, we aim to create what could ultimately become a trusted, comprehensive medical reference tool. Our goal is to give users critical information to help avoid dangerous drug interactions and side effects through tailored insights which their doctors or pharmacists may not have time to provide. The integration of these technologies ensures a seamless and intuitive user experience. Overall, this solution has the potential for huge health benefits through more informed, and thus safer, use of medication.

Future Vision and Monetization

While we've made substantial strides with the current version, we envisage the Food&Drug app to become even more versatile and useful in the future. We plan to enhance the app's features by allowing multiple drug inputs and providing an extended list of interactions and side effects. Moreover, we will add personalized recommendations on the best times to take specific medications and which foods to avoid. These additions will create an increasingly tailored user experience, catering to the unique needs of each individual.

In terms of technological integration, we plan to leverage the power of the Monday platform for advanced functionalities. Monday's robust capabilities will allow us to streamline our workflows, enhance user engagement, and improve our data management systems. This integration will support our mission to deliver a comprehensive solution to our users, giving them accurate information about their medication interactions at their fingertips.

To sustain this endeavor, we plan to introduce a subscription model, which will provide a steady revenue stream while offering our users additional premium features and benefits. To ensure the safety and confidentiality of our users' information, we will incorporate user authentication and authorization, reinforcing our commitment to data privacy and security.

By combining our innovative vision with the dynamic capabilities of Monday platform and our monetization strategy, we aim to take the Food&Drug app to the next level, providing a crucial tool in safe and informed medication usage.

Conclusion

Our passion for creating meaningful solutions to real-world problems has led us to the development of the Food&Drug app. Our experience, technological prowess, and commitment to continuous learning positions us to make significant contributions to the healthcare industry through this tool. We're excited to take the next steps and further develop this application into an essential tool for safe medication usage.

Thank you for considering our application. We appreciate your time and look forward to any feedback you might have.

Team Food&Drug