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HolidayPlannerAI SWOT Analysis

Introduction

We will present the SWOT analysis for our application, HolidayPlannerAI. A short description of our strengths, weaknesses, opportunities and threats can be seen at figure 1.

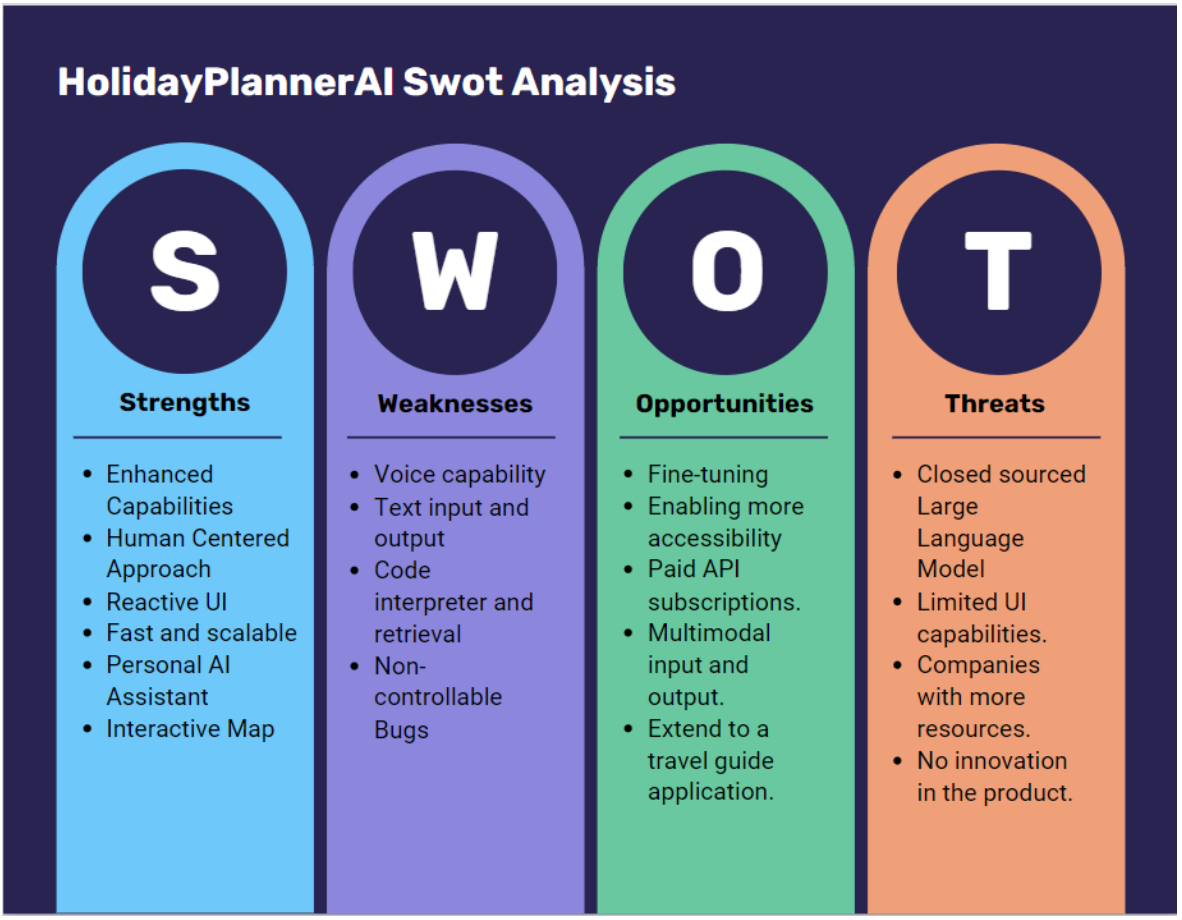

Fig. 1. Visual representation of the SWOT analysis for HolidayPlannerAI

Strengths

Enhanced Capabilities. The AI Assistants that are available on the market at the moment either have parameters that are needed to be imputed in order to receive some information, so there is no communication between the user and the assistant, or have a chat interface but no other capabilities. With our application, we decided to combine the best of both worlds and have a chat interface where the human has a natural conversation with the AI Assistant and is not constrained to put any parameters at the beginning and a map where the user can have a visual representation of what the assistant is writing about.

Human Centered Approach. We developed the app to be as minimalistic as possible and intuitive for the user. The idea was that for every iteration to have as little documentation or no documentation if possible for the application. Until this moment, no users asked how to use it.

Reactive UI. Because we use the Solara framework, which has the same API as React, the app was developed to be as reactive as possible.It has many data sources through it's API's (Wikipedia, Amadeus, etc.) and updates the map in real-time once function calling is enabled from a user query.

Fast and scalable. We used docker containerization and fly.io for deployment. With Docker, this means we can make changes to our app and deploy it in a few minutes without having any errors, and we can scale them by using fly.io app deployments, which have load balancers integrated.

Personal AI Assistant. The app is integrated with chat history, so the AI Assistant knows users' preferences in food, hotels, places to visit and so on. This means that the assistant will recommend different things for every user, if the user expresses their preferences in the chats before.

Interactive Map. This component enables the user to have an idea about what the assistant is suggesting, which helps in the case that first it gives a visual representation of the text and then it tells the user how far are the points of interest of one another.

Weaknesses

Voice capability. As it is not implemented it is a big minus because this would mean a big addition in accessibility for blind people. Also, for some users, it would be easier to use it in this way.

Text input and output. In the last few months,Large Language Models have become multimodal meaning that they could take both text, images and even videos if read by frame. This means new capabilities for our application

Code interpreter and retrieval which can add document description for our app such as when booking flights, hotels or reserve restaurants.

Non-controllable bugs that appear because we use a proprietary Large Language Model and because the architecture itself is non-deterministic.

Opportunities

Fine-tuning open-sourced models using algorithms such as Direct Preference Optimization (DPO) can be useful in order to escape from the constraints of close sourced AI and to create a better experience for our users. This can be done by providing feedback buttons in the chat interface such as like and dislike buttons. In this way we can know what answers are useful and what are not as much. Then using this data we can do a fine-tuning of one of the more capable open sourced models, for example Mixtral.

More accessibility with the addition of voice and camera integration we can make a better user experience and for people with disabilities. Also the addition of voice both as input and output can be beneficial for our app.

Paid API subscriptions because now we are not paying for apps that retrieve hotels, weather, points of interest and airports. Also we want to add the ability to book flights, hotels and museums

Multimodal input and output that would enable us to add image understanding that would enable capabilities that we described before.

Travel guide application that can be enabled by the camera accessibility, so we can take a picture of a monument and the chat interface will make a short history of it, or if we see a restaurant the application will make a summarization of their reviews.

Threats

Closed sourced LLM which is good if we start to develop an application but after a while it would scale horrible, especially if we have a large number of users, both as time but also as a cost.

Limited UI capabilities provided by Solara that is still a young framework and can change a lot over time, but now it does not have voice integrated for example.

Resourceful companies that have a lot of talent and budget can build such an integration. Also Tripadvisor or Booking.com can make a better iteration of their current products to act like ours. A recent innovation is Rabbit r1 that is described as a pocket companion that can already do all the capabilities described before.

Product without innovation because it was made of an idea taken from OpenAI Dev Day made by the guys at OpenAI to showcase their product.