Smart Itinerary planner

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Live Demo: https://jp-morgan-ihack-visheshraheja.web.app/
GitHub:

Introduction

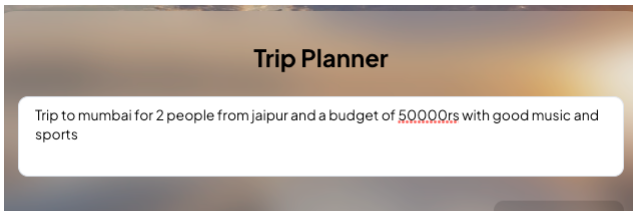
The Worldwide travel and entertainment industry is worth billions of dollars. Post pandemic travel has seen a huge resurgence. Time is limited and travellers often spend a lot of time researching and creating their own travel itineraries. Where to spend and what to spend always comes up on top.

Proposed Solution

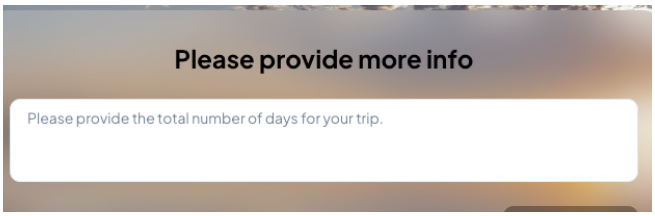
Fetching Details from the User:

The trivial approach to solve this problem would be to ask the information from the user in a Form based user interface but this is a very restrictive approach and doesn't leave room for add additional context.

For this, our proposed solution first takes a prompt in natural language and processes it into a structured JSON format.
Furthermore, it can ask questions if it needs additional context. It can also do basic logical reasoning like instead of providing total budget in the query if budget is given like 5000rs per person, it can automatically understand and calculate the total budget on the fly.



Provided Prompt (number of days missing)



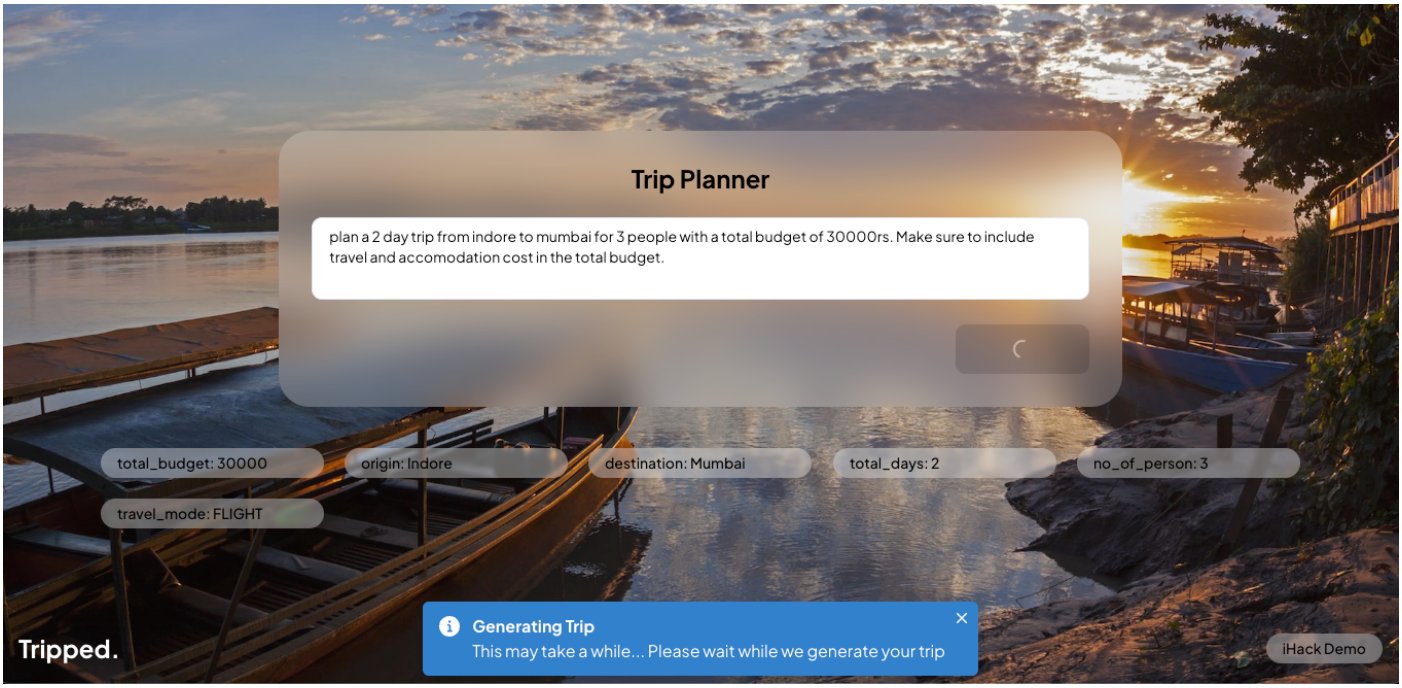
NLP Model asking for additional context

Fetching Live Events:

After the Travel data has been extracted into a structured JSON format.

```
{
    "total_budget": 50000,
    "origin": 'Jaipur',
    "destination": 'Mumbai',
    "total_days": 5,
    "no_of_person": 3,
    "event_preferences": ['music', 'sports'],
    "misc_preferences": []
  }
```

It can be used to build a search query for relevant events happening at the destination.
The live events are extracted using the SerpAPI.



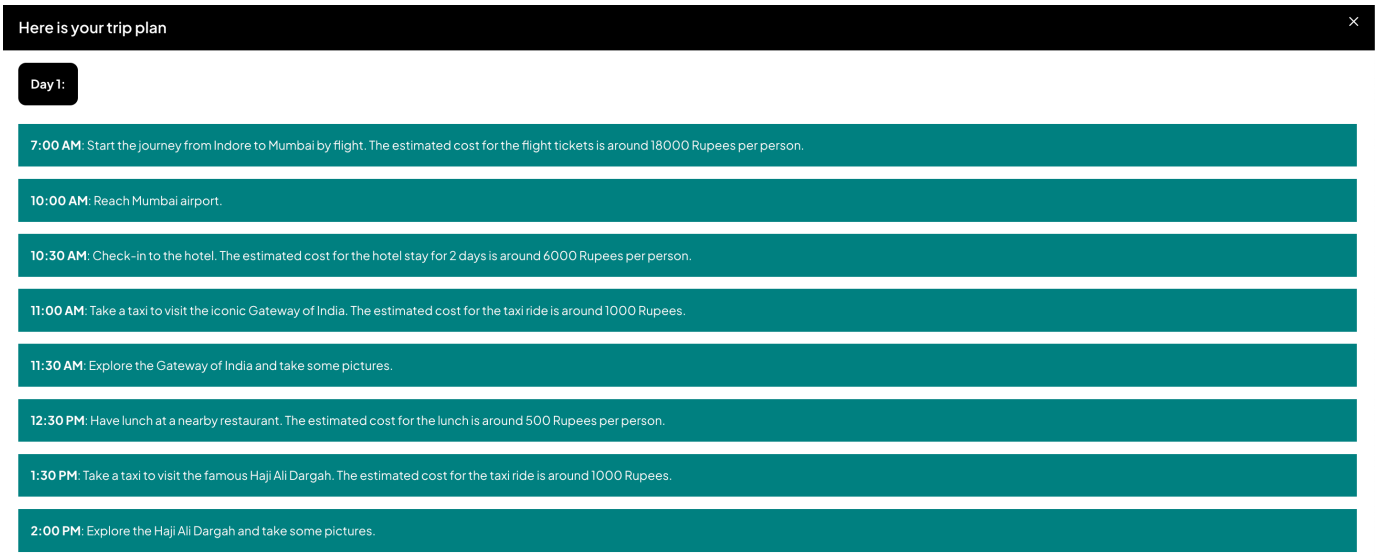
Extracted Parameters from Natural Language (Actual MVP Screenshot)

Generating Itinerary:

The generation of an itinerary for a trip typically involves the manual calculation of the various tourist attractions, their timings, and costs per person. This approach is prone to errors and lacks variability as it relies on a single source of information.

To overcome this limitation, our itinerary generation system employs an AI model that is built on top of OpenAI's GPT-3. This model is trained on a vast dataset and is capable of contextually generating itineraries within the specified time constraints, offering a high degree of variability.

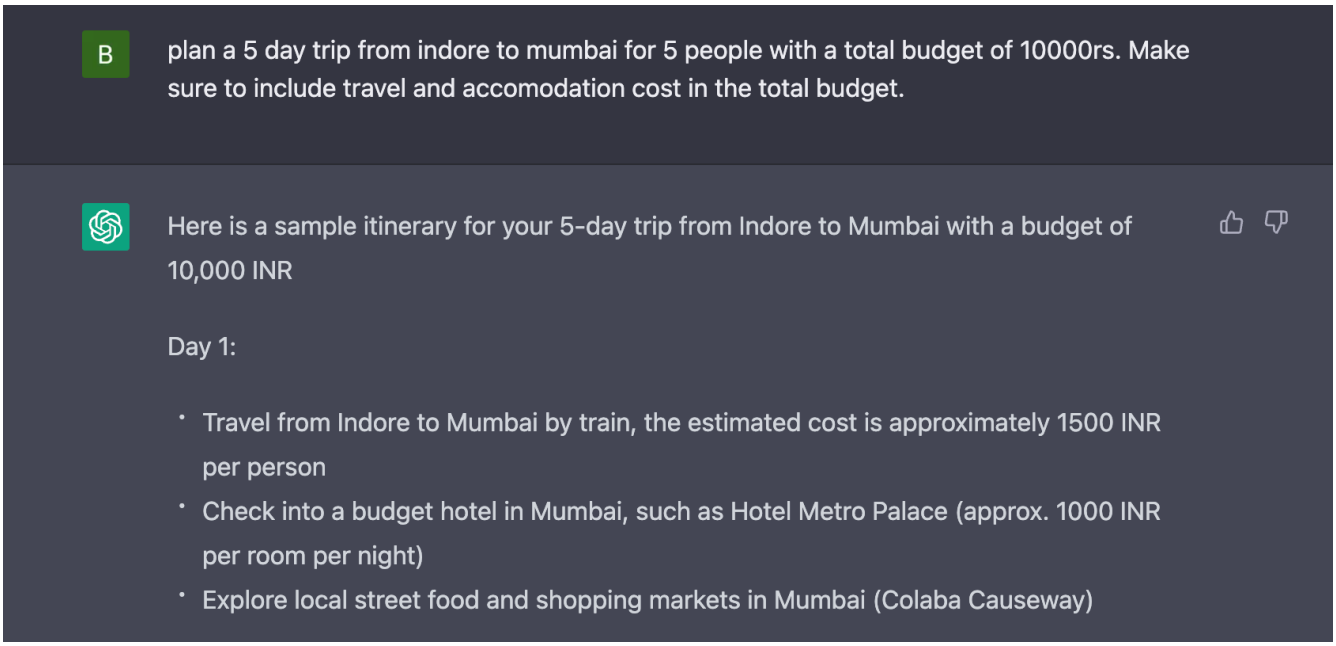
It is important to note that our model is distinct from other AI models such as ChatGPT or bare GPT-3. Our model has access to real-time information about events at the destination, since we are extracting that information in the previous step, and it is trained to adhere to budget constraints, unlike ChatGPT, which may fail to understand the feasibility of a trip within a given budget. Furthermore, our model is trained to produce output in a structured format, mitigating the variability in results commonly observed with ChatGPT or GPT-3.



Sample Generated Itinerary (Actual MVP Screenshot)

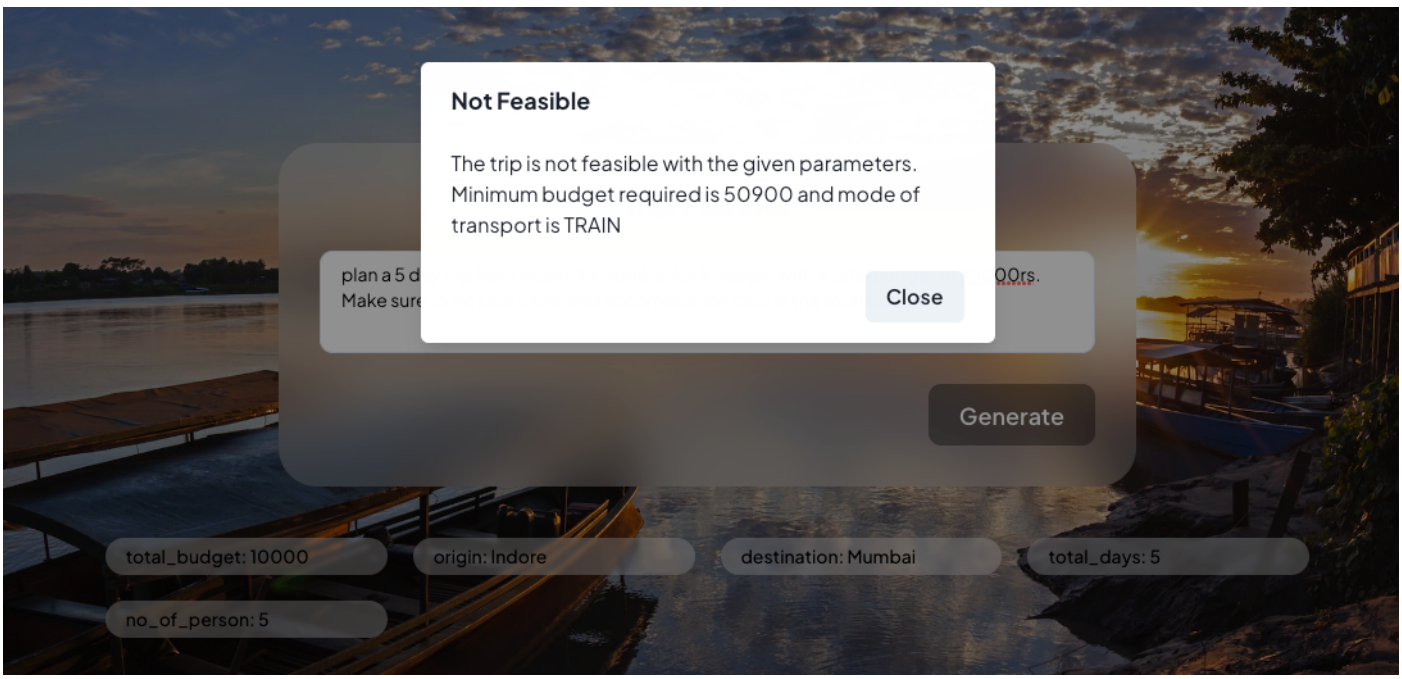
Checking if the trip is Feasible or not:

Calculating feasibility helps determine whether a trip is within budget. For example, if a 10-person trip from Indore to Bangalore for 7 days has a budget of 9000, it is possible to have a successful trip within this budget, but ChatGPT fails to understands that and calculates the trip with absurd budgets.



ChatGPT overshooting the budget without taking trip feasibility into account.

To mitigate this, we first calculate feasibility, we take into account the budget you provide, the number of travelers, the trip length, and the cities you're departing from and arriving at.



We calculate the feasibility and give a rough estimate required to make the trip feasible

We use this information to estimate the costs of travel (such as by train or flight), food, and accommodation. The cost of travel is determined by the distance between the two cities and the average cost per kilometer of the selected mode of transportation.

We also estimate the cost of food and accommodation by considering how much the average person spends per day. For example, we assume that the average cost of food is 800 per day per person, and the average cost of accommodation is determined based on the budget per person per day.

Finally, we check if your budget is enough to cover all these costs. If not, we calculate the minimum budget you need to make the trip feasible. If your budget is still insufficient, we adjust the travel mode (e.g. from train to flight) and recalculate the feasibility.

If the trip is feasible, our AI model generates an itinerary for you automatically and also add live events into the itinerary.