

Read Me

Team Members

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1. Prerequisites

- Python 3.9+
- Node.js 18+ and npm
- Access to a GMU Hopper for running Mistral-7B
- A Google Places API key

2. Backend Setup (FastAPI + Models)

2.1 Create and Activate Virtual Environment

From the project root:

```
cd backend  
python3 -m venv .venv  
source .venv/bin/activate
```

Install dependencies:

```
pip install -r requirements.txt
```

2.2 Environment Variables

Create a .env file inside backend/ with:

```
GOOGLE_PLACES_API_KEY=#####
```

google_places.py reads GOOGLE_PLACES_API_KEY to call the API.

2.3 Add Fine-Tuned Models

Create the models/ directory

```
mkdir -p models/bert_pref_extractor  
mkdir -p models/mistral7b_lora_itinerary
```

Then:

- Copy **fine-tuned BERT classifier** into models/bert_pref_extractor/
- Copy **Mistral-7B LoRA adapter** into models/mistral7b_lora_itinerary/

2.4 Run the Backend

```
uvicorn main:app --host 0.0.0.0 --port 8000
```

3. Frontend Setup (React)

3.1 Install Dependencies

From the project root:

```
cd frontend  
npm install
```

In frontend/src/App.js, the API_URL constant should be set to the currently running backend endpoint on GMU Hopper (this URL changes for each session).

```
const API_URL = "#####"
```

3.2 Production Build for ORC OnDemand Proxy

```
npm run build  
cd build  
python3 -m http.server 3000
```

3.3 Run Frontend

```
python3 -m http.server 3000
```

The UI Displays:

1. Text box to type travel query.
2. Generate Itinerary Button.
3. View:
 - o Extracted preference (Budget / Style / Destination / Days).
 - o Day-by-day itinerary in a scrollable panel, with real venue names and addresses.

The screenshot shows a web browser window with the URL <ondemand.orc.gmu.edu/mode/gpu018.orc.gmu.edu/43663/proxy/3000/>. The page title is "Travel Itinerary Planner" with the subtitle "One prompt away from your next adventure".

Describe your dream trip:
Mention things like **destination, days, budget, or style** (luxury, romantic, foodie, adventure...)

Input field: Create a 3-day relaxing beach vacation in Bali with spa and sunsets.

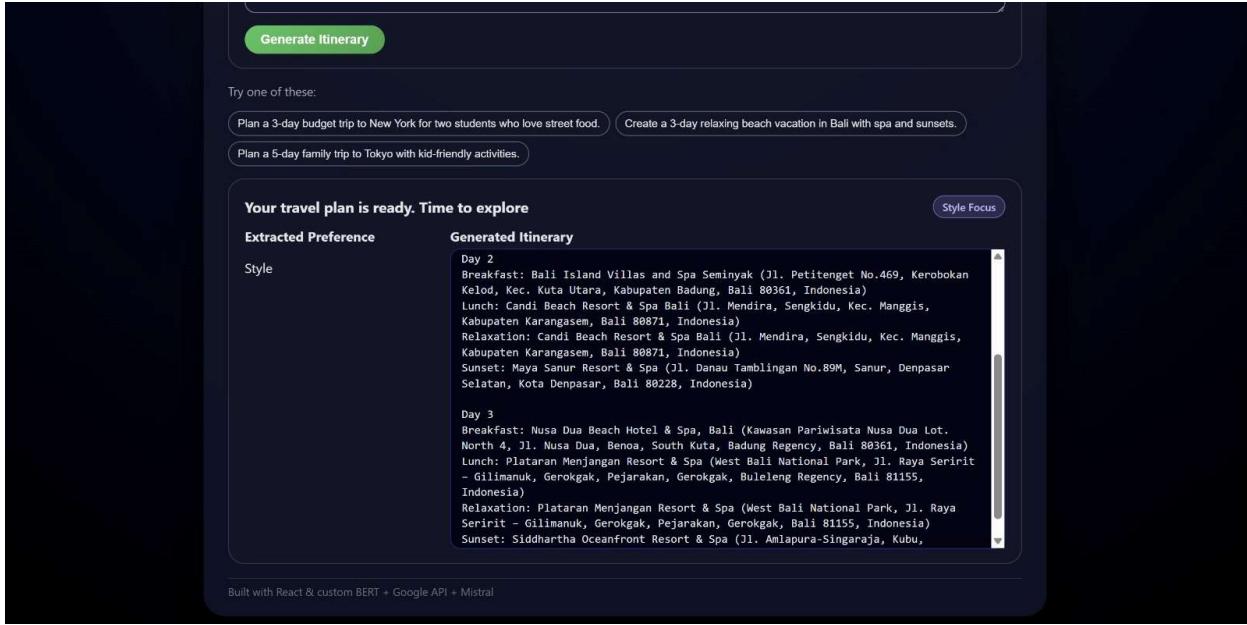
Generate Itinerary button.

Try one of these:

- Plan a 3-day budget trip to New York for two students who love street food.
- Create a 3-day relaxing beach vacation in Bali with spa and sunsets.
- Plan a 5-day family trip to Tokyo with kid-friendly activities.

Your travel plan is ready. Time to explore

Extracted Preference	Generated Itinerary	Style Focus
Style	Day 1 Breakfast: La Joya Balangan Resort (La Joya Balangan Resort, Jl. Pantai Balangan, Jimbaran, Kec. Kuta Sel., Kabupaten Badung, Bali 80361, Indonesia) Lunch: The Seminyak Beach Resort & Spa (Pantai Seminyak, Kuta, Jl. Kayu Aya, Seminyak, Kec. Kuta, Kabupaten Badung, Bali 80361, Indonesia) Relaxation: The Seminyak Beach Resort & Spa (Pantai Seminyak, Kuta, Jl. Kayu Aya, Seminyak, Kec. Kuta, Kabupaten Badung, Bali 80361, Indonesia) Sunset: Puri Santrian Beach Resort & Spa (Jl. Comara No.35, Sanur, Denpasar Selatan, Kota Denpasar, Bali 80228, Indonesia)	



4. Running Evaluation Scripts

```
cd scripts
python evaluate_task_metrics.py
```

This script:

- Loads the fine-tuned Mistral-7B + LoRA model with extracted preference and google places.
- Evaluates on a subset of the osunlp/TravelPlanner **test** split.
- Reports:
 - **Delivery Rate (DR)** – fraction of queries where a structured itinerary with “Day 1 / Day 2 / ...” is produced.
 - **Final Pass Rate (FPR)** – fraction of queries where destination, days, budget, and style constraints are satisfied.

By default, it runs on the first 50 test examples to keep runtime and Google Places cost manageable.

```

130     def satisfies_constraints(example, plan: str) -> bool:
131         if dest:
132             dest_str = str(dest).lower()
133             if dest_str not in text_lower:
134                 return False
135
136             days = example.get("days")
137             if days is not None and str(days) != "":
138                 if str(days) not in plan:
139                     return False
140
141             budget = example.get("budget")
142             if budget:
143                 budget_str = str(budget).lower()
144                 if budget_str not in ["", "none", "unknown"]:
145                     if budget_str not in text_lower:
146                         return False
147
148
149
150

```

Setting 'pad_token_id' to 'eos_token_id':2 for open-end generation.
Setting 'pad_token_id' to 'eos_token_id':2 for open-end generation.

Task-Level Evaluation Results
Delivery Rate (DR): 94.00%
Final Pass Rate (FPR): 74.00%
Samples evaluated: 50
Delivered plans: 47
Passed constraints: 37

4.1 Training Scripts

`python scripts/train_bert_classifier.py`

`python scripts/train_mistral_lora.py`

Here each script saves the best-performing model checkpoints automatically into the corresponding directory under backend/models/ (e.g., backend/models/bert_pref_extractor/ and backend/models/mistral7b_lora_itinerary/), so that the updated weights are picked up by the FastAPI backend without additional configuration.