

- **Frontend (Android Studio - Java)**
 - **Backend (FastAPI - Python)**
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FRONTEND (Android App)

- Java (Android SDK)
 - XML (for UI layouts)
 - Retrofit (HTTP API calls)
 - Firebase Authentication (Login/Register)
 - PDFDocument (Generate downloadable trip itinerary)
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Modules Implemented

1. TripDetailsActivity.java

- Allows users to enter:
 - City
 - Budget
 - Start & End Dates
- Calculates number of days
- Sends data to next screen

2. PlaceCategoryActivity.java

- UI with checkboxes:
 - Adventure, Nature, Historical, Shopping, Museum, etc.
- Converts categories to Google Place API compatible types
- Passes selected place types and calculated days to next screen

3. FoodPreferenceActivity.java

- Checkboxes for:
 - Indian, Chinese, Italian, Street Food
- Radio buttons for Veg/Non-Veg
- Passes food preferences, cuisine list, food budget

4. ItineraryActivity.java

- Displays:
 - Summary of daily plans
 - Timeline of attractions
 - Static map with markers
 - Generates a **PDF itinerary** with text and embedded map
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Retrofit Integration

- RetrofitClient.java: Initializes Retrofit instance with `http://10.0.2.2:8000/`
 - TravelPlannerService.java: Defines `/generate-itinerary` API interface
 - API response mapped using:
 - ItineraryResponse.java
 - DayPlan.java
 - Place.java
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BACKEND (FastAPI)

- Python 3.10+
 - FastAPI
 - Google Places API
 - Uvicorn (ASGI server)
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Backend Route

/generate-itinerary

- Accepts:
 - city: str
 - days: int
 - place_types: List[str]
 - cuisine: List[str]

- Process:
 1. Uses Google Geocoding to get city coordinates.
 2. For each place type, fetches top places using Places API.
 3. Distributes ~2-3 places per day.
 4. Adds one hotel and one restaurant per day.

- Returns:

```
{  
  "city": "Bangalore",  
  "days": 3,  
  "itinerary": [  
    {  
      "day": 1,  
      "places": [...],  
      "restaurant": {...},  
      "hotel": {...}  
    },  
    ...  
  ]  
}
```

Google API Integration

- Uses Nearby Search, Geocode, and Static Map APIs
 - API Key stored in main.py (can be moved to .env file)
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Features Completed

Feature

City & Date Input	: Done
Place Category Selection	:Done
Food & Cuisine Preference	: Done
Dynamic API Integration	:Pending
Daily Itinerary Distribution	:Done
Restaurant & Hotel Suggestions	:Done
Static Map with Markers	:Pending
PDF Generation of Itinerary	:Pending
Firebase Login/Register	:Done
Error Handling & Input Validation	:Pending

Folder Structure

Android:

com.example.travelapp
auth: Login, Register
model:Place.java, DayPlan.java, ItineraryResponse.java
ui: All activities
utils: RetrofitClient.java, TravelPlannerService.java
res/layout/:XML UI layouts

Backend (FastAPI):

backend/
main.py:FastAPI application
.env: API Key storage

