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https://github.com/0SRAF0/TravelPlaner

Design Thinking

Empathize

User research plan

1. Who (Audience)
    a. Young adults (18-29 year olds) traveling in a group for leisure
2. How (Research)
    a. User interviews (1:1)
        i. Explore how individuals currently plan group trips, their frustrations, and what “ideal coordination” looks like.
    b. Group interviews
        i. Understand group dynamics and coordination pain points (decision-making, budgeting, communication).
    c. Survey
        i. Quantify how common certain behaviors and pain points are across a wider audience.
3. What (Focus Areas)
    a. Group Coordination Behaviors
        i. How do young adults split responsibilities when planning (e.g., budget, booking, itinerary)?
        ii. What tools or platforms do they use (e.g., shared docs, chats, polls)?
        iii. What are the biggest sources of friction (e.g., scheduling, budget alignment, indecision)?
    b. Decision-Making Dynamics
        i. How do groups reach consensus on destinations, activities, and spending?
        ii. Who tends to take the lead and how do others feel about that?
    c. Pain Points & Unmet Needs
        i. Common frustrations with current tools (e.g., scattered communication, missed payments, confusion over roles).
        ii. Emotional tension during coordination (e.g., feeling unheard, overwhelmed).
    d. Collaboration Features
        i. Preferences for shared itinerary editing, polls, or automated suggestions.
        ii. Expectations for notifications, accountability, and fairness in group input.

Interview Transcripts & Observation Notes

Key Moments from interviews conducted with friends and peers

Interview I

Us: What made it chaotic?

Interviewee: Our group chat had like three hundred messages and very few decisions. Someone would drop a link to an Airbnb, someone else would say, “Looks good,” and then two days later, someone would be like, “Wait, are we still going?”

Us: That’s a lot of back-and-forth. How did you keep track of everything during the trip?

Interviewee: We didn’t. Everything was scattered everywhere. We had one Google Doc for the budget, a WhatsApp poll in the group chat for dates and places, and a random Venmo thread for payments... it was very chaotic.

Observation: Information is scattered across platforms, which causes confusion and reduced efficiency. There is a need for a centralised system

Interview II

Us: How did you handle scheduling? Was that a non-issue?

Interviewee: Finding dates that work for everyone is a nightmare. We tried using a calendar app, but half the people didn’t update theirs, so it was useless. We wasted a lot of time syncing calendars and still ended up choosing a weekend that didn’t work for one person.

Observation: The User would find it valuable to be able to schedule dates.

Interview III

Us: What made the planning take so long?

Interviewee: Everything was scattered. One person was posting Airbnb links in the group chat, another had a spreadsheet for costs, and someone else started a poll for dates on a different app. I felt like I was piecing together a puzzle from five places.

Observation: Need for a centralised, organised system is echoed again.

Interview IV

Us: So communication wasn’t centralized.

Interviewee: Exactly. Who booked the rental car? Which flights did we agree on? And most annoyingly, how much are we spending/have already spent? You can't tell because half the messages get lost in the chat scroll.

Observation: There should be a tracking of what has been decided already vs what needs to be decided, etc. Additionally, information about cost needs to be readily available to avoid any confusion about it.

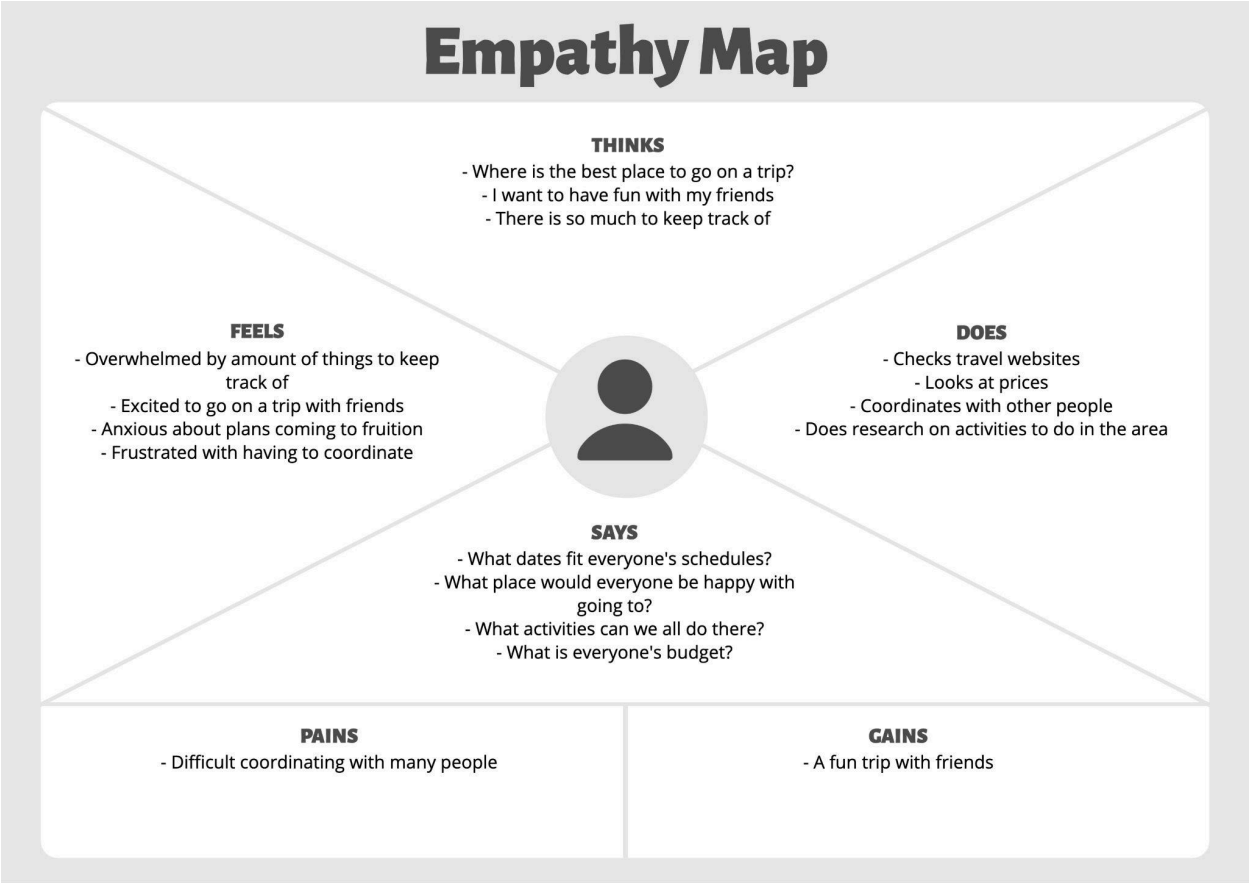
Interview V

Us: What was your biggest problem during the planning process for the trip?

Interviewee: Deciding on things! First, we would individually go look for places that we liked and then send them to the group. So we would essentially spam the group with places that were often repeating. Some people would opt out of voting due to overwhelm, and then on the day decide that they are not up for it. The others would bicker about how they are the ones always compromising and how unfair it is.

Observation: We need to make the decision process streamlined, simple and fair for everyone.

Empathy Map



Key Insights

1. Quotes
    - “Our group chat has like 300 messages and still no decisions.”
    - “Someone always misses a message or poll, and then we have to message them.”
    - “Everyone says ‘I’m fine with anything,’ but then disagrees later.”
    - “Finding dates that work for everyone is a nightmare.”
    - “We waste so much time syncing calendars.”
2. Pain Points
    - Information is scattered across multiple platforms.
    - Difficult to track what’s been decided and by whom.
    - Overload from too many options or vague preferences.
    - Group indecision due to conflicting preferences.
    - Conflicting schedules and missed availability updates.
    - Long delays before trip details are finalized.
    - Unclear expectations around spending.
3. Opportunities

- Create a centralized hub for group communication and decisions.
- Use AI summarization to track key points, decisions, and next steps.
- Enable polls, reminders, and summaries that keep everyone aligned automatically.
- Let the AI aggregate preferences and suggest balanced itineraries that satisfy most members.
- Include a consensus builder or voting system for destinations, dates, and activities.
- Add explainable recommendations so users understand how the AI reached its suggestions.
- Auto-sync group members' calendars to suggest optimal travel dates.

Define

POV Statement

- A social, budget-conscious young adult needs an easier and more transparent way to coordinate group trips because managing everyone's preferences, payments, and availability through scattered tools causes frustration and decision fatigue.
    - User: A young adult who loves traveling with friends but often ends up stressed coordinating logistics.
    - Need: A simple, fair way to plan and manage group trips without constant back-and-forth or confusion.
    - Insight: Group travel breaks down not because people don't want to go but because coordination fatigue (too many messages, mismatched schedules, unclear budgets) drains enthusiasm before the trip even starts.

HMW Questions

1. HMW help groups make collective decisions (dates, destinations, activities) fairly and efficiently?
2. HMW visualize trip plans in real-time so all members can see updates and provide feedback easily?
3. HMW empower an AI agent to mediate conflicts or indecision while keeping everyone's voice heard?
4. HMW reduce coordination friction so that planning together feels fun, not overwhelming?

Problem Framing Document

- The Situation
    - Three friends (Felix, Tanya, and Joe) decide to take a weekend trip to Seattle. Everyone's excited... at first.

- The Conflict
    - They create a group chat, but it quickly becomes messy: too many messages, no clear decisions.
    - Felix wants to camp, Joe prefers a cozy Airbnb downtown, Tanya's main concern is cost.
    - They each share links and polls on different apps (Google Docs, Venmo, Instagram DMs).
    - After weeks of planning, they're still undecided, and then enthusiasm fades.
- The Underlying Problem
    - Planning as a group breaks down when communication, decisions, and logistics are fragmented across tools and personalities. No single person wants to be the "leader," yet someone must organize.
- The Opportunity
    - An agentic AI travel planner could act as a neutral facilitator, gathering preferences, summarizing group votes, suggesting balanced options, and automating logistics, allowing the group to focus on excitement, not coordination stress.

User Personas

1. The Organizer – "Felix" (Age 24)
    - Traits: Responsible, planner, enjoys taking initiative but gets overwhelmed.
    - Goals: Wants everyone to be happy with the plan and to minimize chaos.
    - Pain Points: Feels like the "default travel mom/dad." Too much back-and-forth.
    - Needs: A shared system that automatically tracks responses, preferences, and tasks.
2. The Easygoing Friend – "Joe" (Age 22)
    - Traits: Social, flexible, spontaneous.
    - Goals: Just wants to go somewhere fun and avoid complex planning.
    - Pain Points: Misses messages or polls; doesn't like being forced to choose every detail.
    - Needs: A clear summary of decisions and an easy way to approve or give feedback.
3. The Budget Watcher – "Tanya" (Age 25)
    - Traits: Analytical, cautious, money-conscious.
    - Goals: Keep expenses fair and visible.
    - Pain Points: Confused about who owes what or how much things cost.
    - Needs: Transparent budget tracking integrated into trip planning.

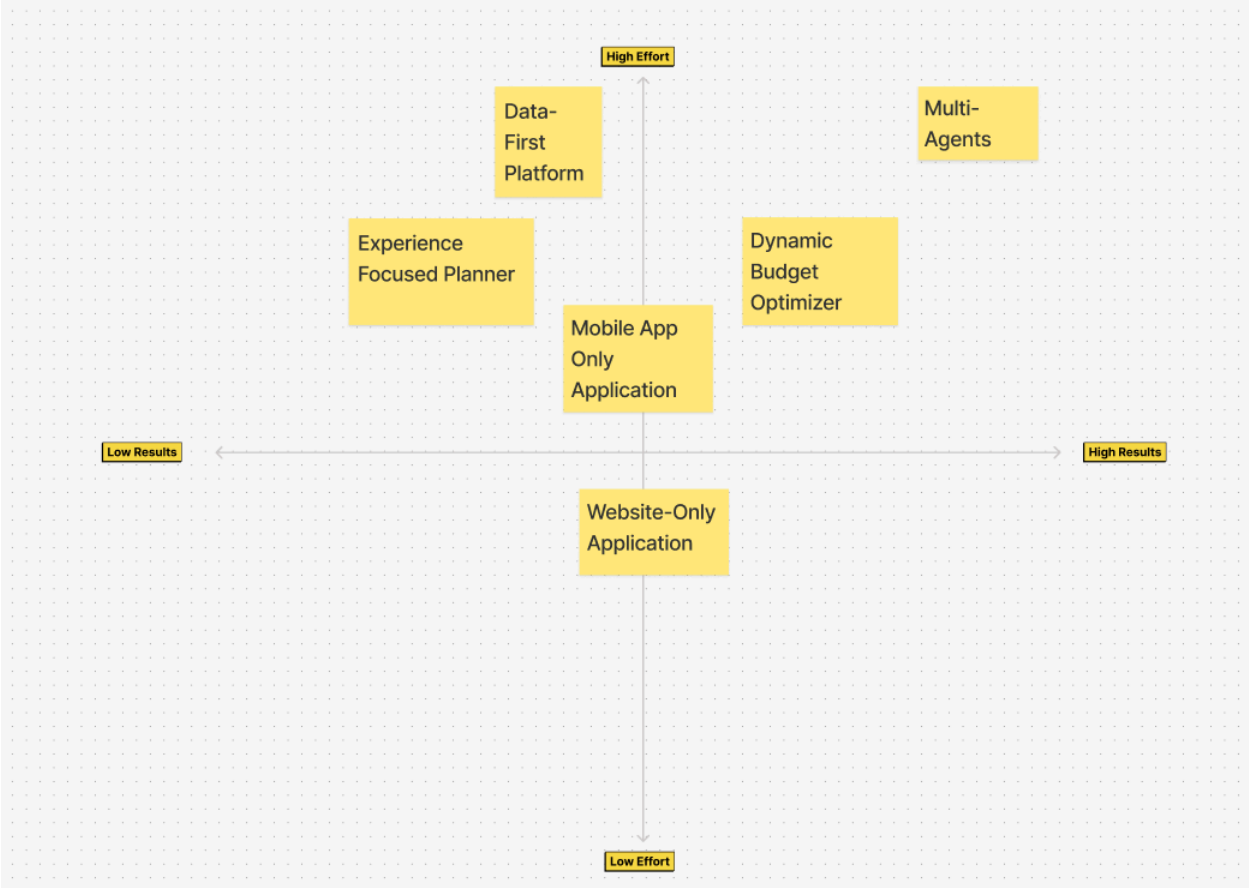
Ideate

Brainstorming outputs/idea sketches

- Multi-agent to handle the entire planning lifecycle from survey to booking links
    - Pros:
        - Delivers a complete, end-to-end AI-powered experience
        - Demonstrates advanced agentic capabilities
    - Cons:
        - Highly extensive + expensive to develop each agent
        - Harder to trace errors across independent agents
- A data-first platform that is highly personalized and large-scale to be used for training future models
    - Pros:
        - Clean + highly structured data foundation for future scalability
        - Reduced LLM dependencies
        - Reduce Bias in data
    - Cons:
        - Removes AI intelligence features
        - Requires significant time + effort for development
- Dynamics Budget Optimizer
    - Removes solutions for solving time/date issues to ensure the trip stays within budget
    - Pros:
        - Solves the issues of expenses within group trips
        - Clear value metric
    - Cons:
        - Finances require a higher level of security and compliance
        - Integration of payments requires regulatory nd compliance overhead
        - Errors in financial calculations are crucial
- Experience Focused Planner
    - Extracting travel ideas/information from media or conversation over Surveys
    - Pros:
        - Lowers the barrier to entry by replacing surveys with media uploads
        - Utilizes AI vision/audio models
        - Less user input
    - Cons
        - Higher API costs for Multimodel LLM calls
        - Results are ambiguous
        - Image/video processing can be slow
- Website-only application
    - Pros:
        - Removes SMS surveying
        - Removes handling of iOS vs. Android programming

        - Larger population of users
    - Cons:
        - Less likely to be used for younger generations
        - Not as fast/simple to utilize
            - E.g. on-the-go simplicity
- Mobile app only application
    - Pros:
        - Easier + faster for Users
        - Usersa
    - Cons:
        - The team has limited experience in developing mobile applications
        - Caters to the younger generation over the older generations

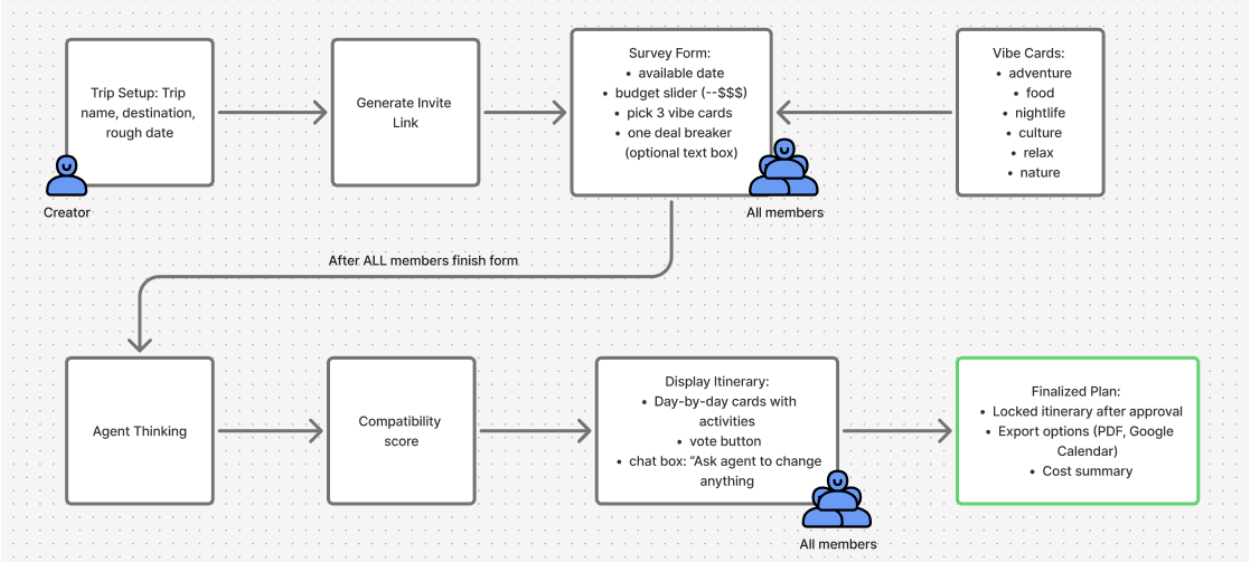
Concept Clusters or Prioritization Matrix (feasibility vs impact)



Storyboard or Concept Cards

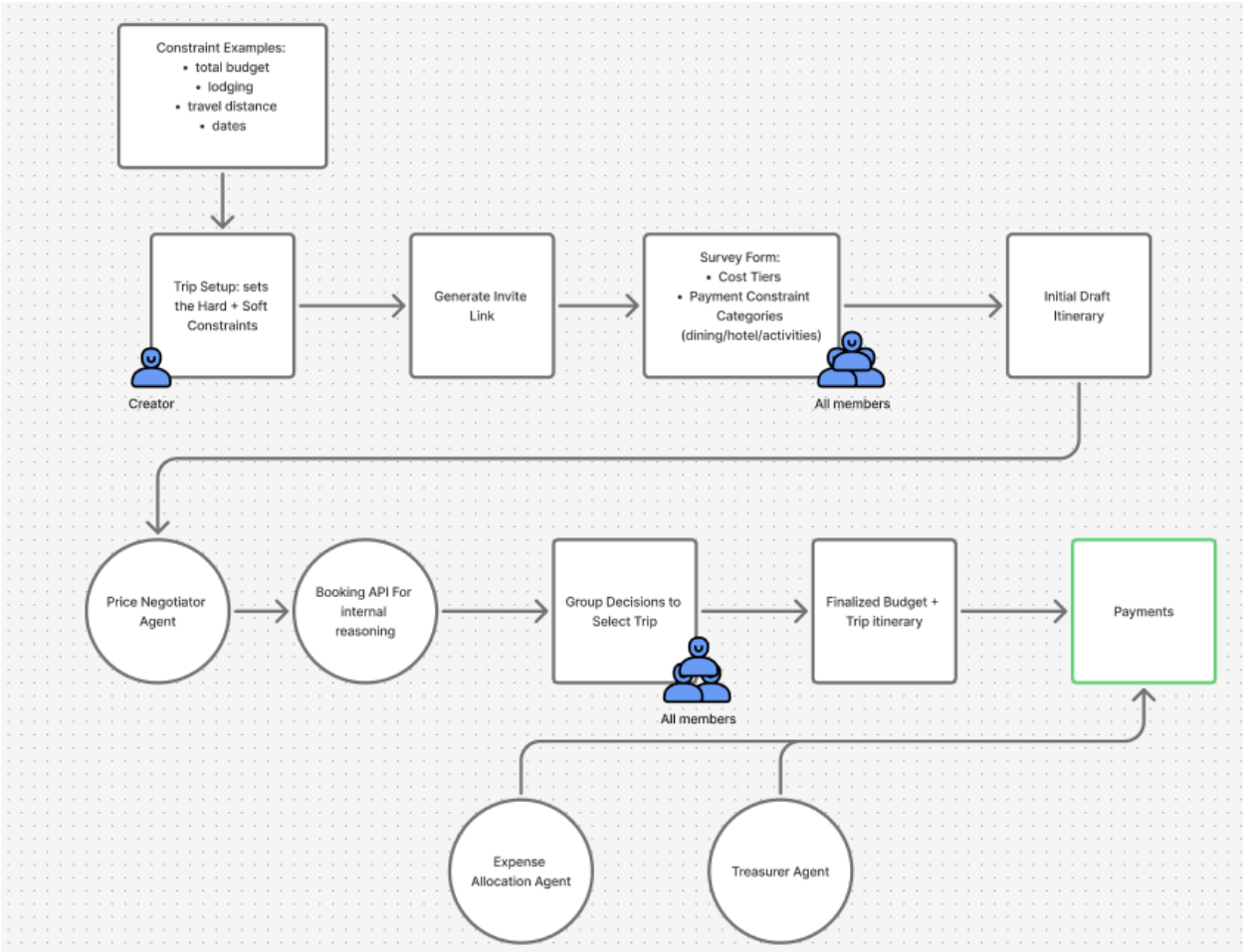
Multi-Agent:

- Implement a single framework to manage all agents sequentially
- Agents:
    - Preference Agent: processes survey information and embeds it in vectorDB for semantic matching
    - Destination Research Agent: queries vector DB for similar destinations
    - Real-Time pricing Agent: polls Amadeus/Skyscanner APIs and caches in Redis
    - Voting Coordinator Agen: runs instant runoff algorithms
    - Conflict Resolution Agent
    - Itinerary Generation Agent: uses Google Maps API for routing optimization
    - Budget Optimization Agent: reviews possible savings
    - Verifier Agent: validates timings, availability, accessibility



Dynamic Budget Optimizer

- Ignores date/time management or itinerary planning and focuses on costs + allocating expenses
- Agents:
    - Price Negotiation Agent: focus on the destination and itinerary generation + use real-time booking API for deals and alternative dates/vendors
    - Expense Allocation Agent: tracks participation in activity/meals + use original survey data to allocate costs
    - Treasurer agent: integrate payment API to track group payments and send automated summaries to each user


Constraint Examples:
• total budget
• lodging
• travel distance
• dates
Trip Setup: sets the Hard + Soft Constraints
Creator
Generate Invite Link
Survey Form:
• Cost Tiers
• Payment Constraint Categories (dining/hotel/activities)
All members
Initial Draft Itinerary
Price Negotiator Agent
Booking API For internal reasoning
Group Decisions to Select Trip
All members
Finalized Budget + Trip itinerary
Payments
Expense Allocation Agent
Treasurer Agent