

Itiner-Ease

Explore with ease—your itinerary, your way.



Spring 2025

CS410 - Team Copper



Your Itinerary

Team Biography.....	3-4
Background.....	5-8
Problem Statement.....	9
Problem Characteristics.....	10
Itiner-Ease Users.....	11
Current Process Flow.....	12
Solution.....	13-15
Why Itiner Ease?	16-18
Major Functional Components/ Diagram	19
Development Tools.....	20
Competition Matrix.....	21
Benefits to Customers.....	22

User Risks.....	23
Customer Risks.....	24
Technical Risks.....	25
Legal & Security Risks.....	26
Key Points.....	27
References.....	28



Team Biography



Crystal Rivas is a second degree seeking student in Computer Science at ODU with a background in math education. Her expertise in problem solving drives the transition and aims to develop innovative and impactful solutions.



Stephen Usselman is a senior at ODU majoring in computer science. He is looking to pursue a career as a Software Developer after university.

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William Mbandi is a senior at ODU majoring in computer science with a minor in cyber security. Wants to work as a Software Developer after he graduates.

Team Biography



William Poston is a senior at ODU majoring in computer science with a minor in data science. After school, he dreams of being an AI prompt engineer.



Jandra D. Arias Tavaréz is a second degree seeking student at ODU working on her bachelor in Computer Science. She aspires to work as a Software Developer after graduating.



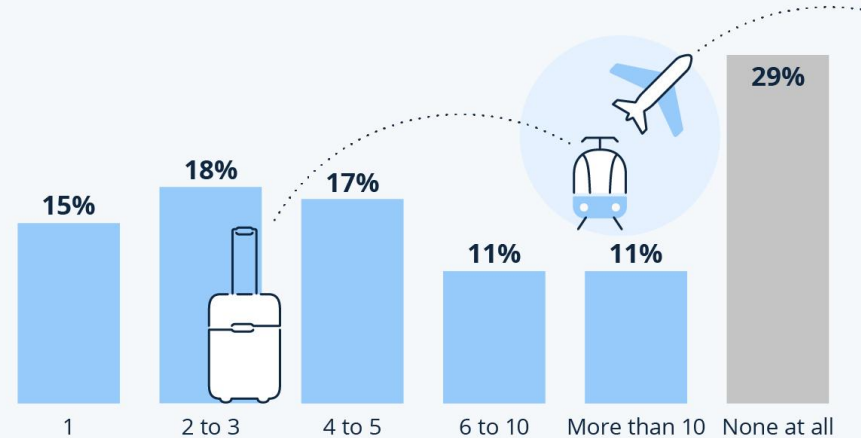
Frederick Terling is a senior at ODU majoring in Computer Science. He is currently hoping to get his foot in the door for most tech job opportunities but dreams of being a Game Developer and ultimately a Game Producer.

Background - Tourism

- When considering how to spend your time off, traveling is often the first idea that comes to mind making tourism an area worth investing in.
- According to the latest World Tourism Barometer from UN Tourism, an estimated 1.4 billion tourists travelled internationally in 2024. [1]
- 2024 Economic Impact Trends Report, has revealed the U.S. as the world's most powerful Travel & Tourism market, contributing a record-breaking \$2.36 TN to the nation's economy last year. [2]

How Often Do Americans Travel?

Share of U.S. respondents who have embarked on the following number of private trips in the last 12 months



10,138 respondents (18-64 y/o) in the United States; Jan.-Dec. 2024

Source: Statista Consumer Insights



Source: Statista [3]

statista

Benefits of Traveling

- Besides the enjoyment you get from creating memories, traveling has been found to improve your health.
- A study by the Global Commission on Aging, the Transamerica Center for Retirement Studies and the U.S. Travel Association found that travel helps prevent depression, dementia and Alzheimer's Disease.[4]



What Makes It Difficult?

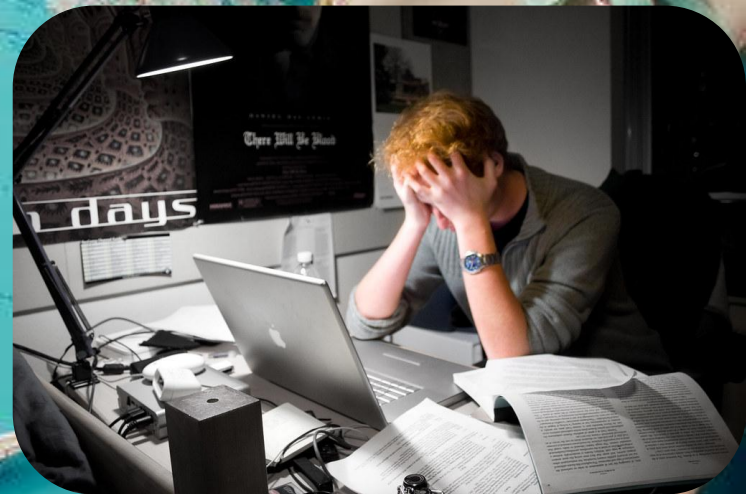
Planning trips on your own can pose many challenges:

TIME

Travelers spend an average of 303 minutes, or more than 5 hours per day on travel content during the 45 days before booking. The research showed that in the 45-day period before booking an online trip, travelers are consuming a significant amount of content to help them make a decision. In the seven countries that were surveyed, travelers spent an average of 45 days before booking a trip online.[5]

CHOICE OVERLOAD

On average, the travelers said they spend over four hours comparing and looking for the best deal, the report found. In 2013, people browsed through 38 webpages before booking their trip while now, it's up to 277 webpages – from third-party booking platforms to the official airline or hotel website. [5]



Issues Continue to Arise

BEYOND GENERIC ITINERARIES

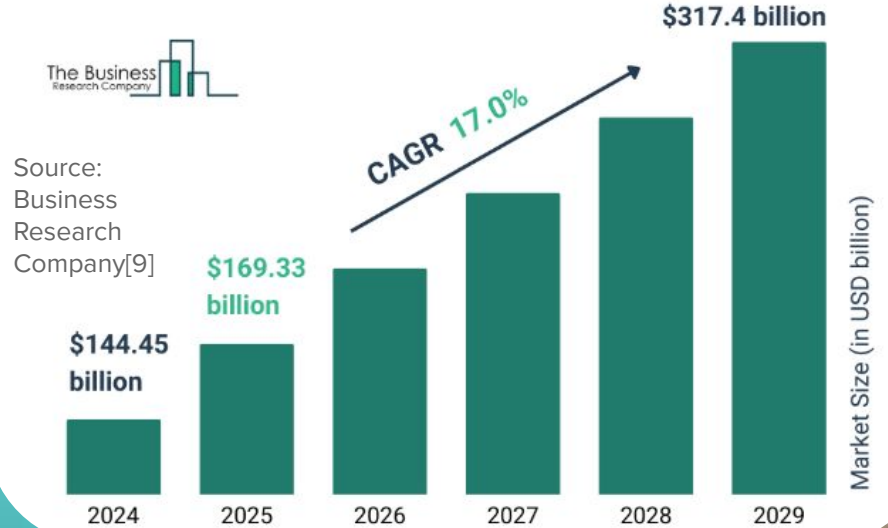
Today's travelers crave personalized journeys that resonate with their unique interests and immerse them in local cultures.

- 57% of travelers believe brands should customize information based on personal preferences or past behaviors.[6]
- 62% feel a trip is wasted if it doesn't include authentic local cultural experiences.[7,8]

PLANS SHIFT

- Even though we try to plan as best as we can, unforeseen circumstances can make us change our plans.
- Among 80% of travelers, 60% of them experienced some type of travel disruption.[10]

Personalized Travel And Experiences Global Market Report 2025



Problem Statement

When travelers plan their own trips, all the time, effort, and stress- compounded further by the constraints of group travel- can sour the experience. 76% of travelers turn to planning applications and websites to make the experience easier, but they only provide generic itineraries that lack personalization and flexibility.[11] These leave out the hidden gems that make a trip memorable and also adapt poorly to unforeseen complications.

Problem Characteristics

Choice Overload

- Consumers are given simply way too many options with no easy way to narrow them down.
- Even after you choose one option you find yourself having to make many more choices over the duration of your trip.

Generic Itinerary

- Whether planning it themselves or otherwise, individuals are lead to the most popular locations and attractions, not necessarily the ones the consumer would most prefer.
- Finding that great local spot or hole in the wall location can be a major highlight of any trip.

Rigid Plans

- An unexpected circumstance can throw all your carefully laid plans into disarray and leave you scrambling if you do not already have a backup.

Group Frustrations

- Groups need a way to coordinate and share their plans to prevent conflicts and make suggestions.

Who is Affected?

Users

- Solo Travelers
- Friend Groups & Families
- Frequent travelers
- Adventure Seekers

These target groups face planning overload, decision fatigue, group conflicts, and lack of personalized/localized recommendations.

Customers

- Users
- Parks & Attractions
- Restaurants
- Local Tour Providers

These groups need better ways to reach travelers without solely relying on mainstream booking platforms.

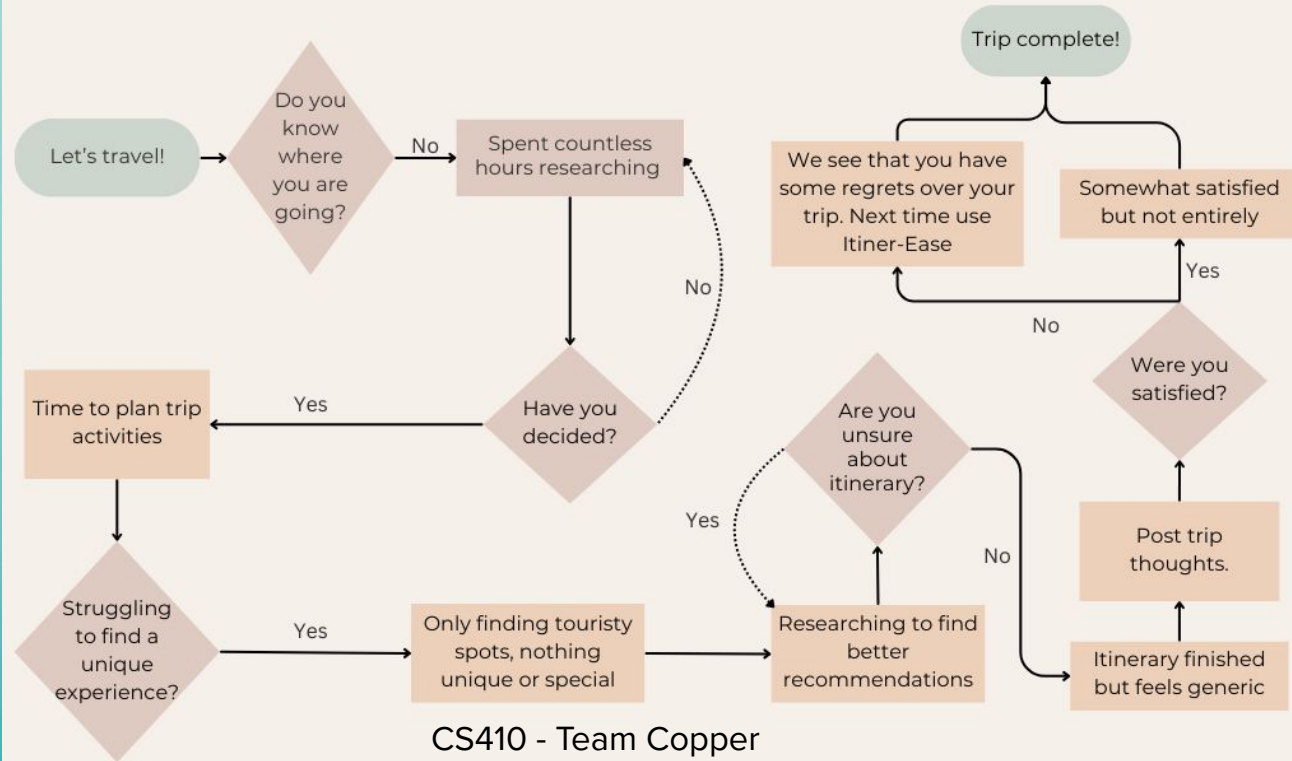
Stakeholders

- Travel & Tourism Industry
- Event Organizers
- Local Businesses

These entities face challenges in attracting travelers who are overwhelmed by mainstream options.

Current Process Flow

TRAVEL PLANNING CHALLENGES



Solution

Itiner-Ease is a mobile application designed to simplify and personalize itinerary planning for travelers, new residents, and spontaneous adventurers. Itiner-Ease allows users to generate custom itineraries based on their location and preferences. Users can filter activities, discover overlooked local treasures, and adjust plans in real time. Unlike existing solutions, Itiner-Ease emphasizes user-generated content to give recommendations tailored to your specific interests.

Solution Characteristics

AI-Driven Recommendations

- Through the use of our AI-trained on data and reviews from users with similar interests, Itiner-Ease will narrow down the options to the ones that most accurately fit your desired experience.

Travel Off the Beaten Path

- By creating a user profile, making use of our recommendations, and the help of our Explorer Rewards to connect you with that perfect location you would never have found on your own.

Adaptable Itinerary

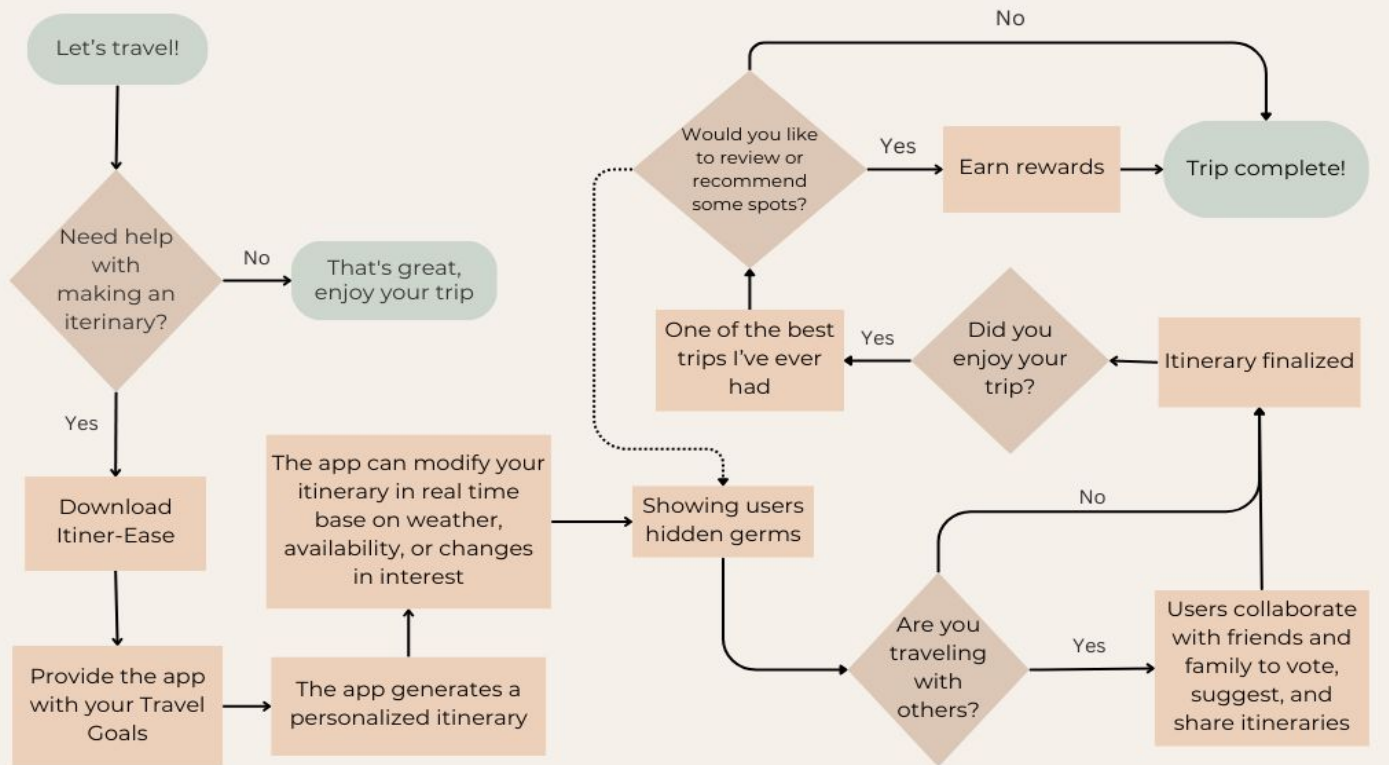
- Itiner-Ease monitors disruptive factors such as weather or local holidays and uses a flexible structure to easily propose new options to prevent schedule vacancies.

Collaborative Group Planning

- Recommendations will take into account all members' preference profiles when making suggestions to minimize choice conflict.
- Personal itineraries, lodging data, and budgeting are just some of the factors that will be considered to decide on events and activities that are most suitable for all parties.

Solution Process Flow

TRAVELING WITH ITINER-EASE



What it Will Do

Personalization Profiles

- **Preferred Activities:** Whether you are a picky eater, looking for a more niche activity, or want to experience the local's favorites we take all these preferences into account when building your itinerary.
- **Customization Options:** Perhaps you want to eat a different kind of food each day or you have specific budgetary restraints you are trying to work under. We have options to modify the recommendations to account for these concerns.

Group Planning

- **Joint Itineraries:** Going on a family trip or even just a trip with friends? Itiner-Ease can use multiple user profiles to generate an itinerary, taking all your preferences and constraints to develop a plan that works for all parties.
- **Plan Sharing:** Itiner-Ease can share all or only part of your itinerary to coordinate activities with others in the app or outside it.

Explorer Rewards

Local Discovery: Users can create positive reviews for their favorite locations. If other travelers also end up enjoying the experience.

Sponsored Businesses: Itiner-Ease will partner with local businesses to increase their visibility in exchange for benefits to our rewards members.

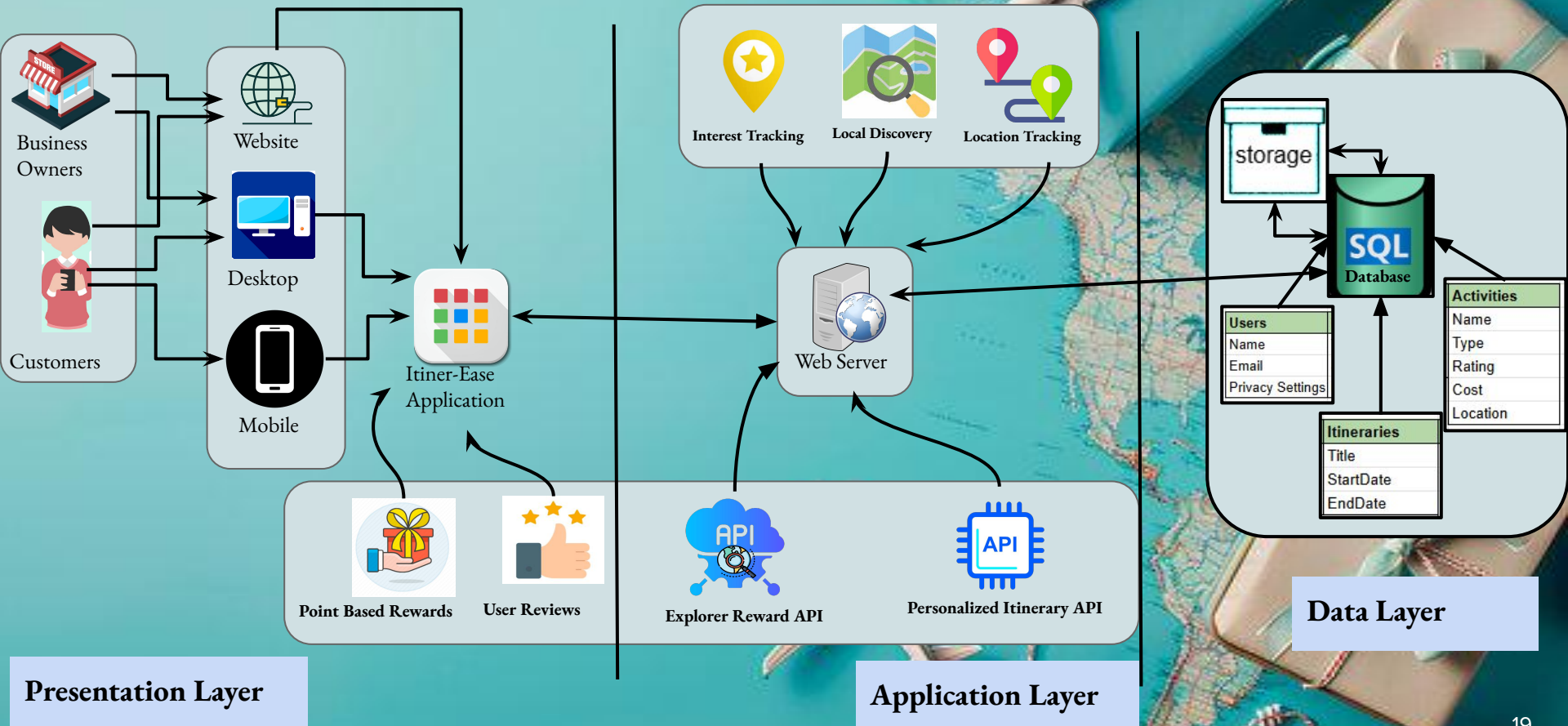
Reward Benefits: Users can use their rewards to gain access to a premium ad-free version of the application or on discounts and coupons with our commercial partners.



What it Will Not Do

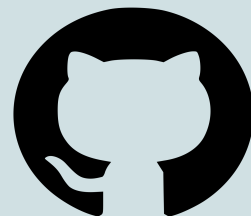
- **Itiner-Ease will not provide a way to book flights or hotels:** The user can upload their flight and lodging info to the itinerary.
- **Itiner-Ease will not make reservations or otherwise interact with businesses on the user's behalf:** Entry and reservation requirements will be displayed prominently.
- **Itiner-Ease will not focus on social networking:** Users can invite other users to itineraries but can otherwise not share or publicize their activities in-app.
- **Itiner-Ease will not make generic recommendations:** The recommendations will be primarily based on the user's preferences and not just general popularity.

Major Functional Components Diagram



Development Tools

- We have decided to use **Visual Studio Code** as our Integrated Development Environment.
- Our version control will be through open source system **Git** hosted on **GitHub**.
- To host our website and provide seamless integration, we have opted to use **GitHub's Actions and Workflows** feature.



Competition Matrix

Feature	Itiner-Ease	 wanderlog	 TROUPE	 FRIENZY	 TripIt <small>from Concur</small>	 B. Booking.com
Group Planning with Voting & Collaboration	✓	✓	✓	✓	✓	
AI-Driven Personalized Itinerary	✓		✓	✓		✓
Local Insights & Hidden Gems	✓	✓	✓	✓	✓	✓
Adaptive Itinerary (On-the-Go Adjustments)	✓					
User Feedback Integration	✓					

Implementation: full ✓ partial ✓

Benefits to Customer Base

- **Personalized Travel Insights:** Travelers gain access to AI-driven recommendations.
- **Reduced Planning Overload:** Collaborative tools, voting features, and adaptive itineraries, customers have fewer decision making conflicts and are more likely to complete bookings.
- **Improved Data Insights for Targeted Marketing:** Through the rewards based feedback system, customer preferences are collected, providing valuable data that can inform targeted promotions.

User Risk Matrix

		Likelihood				
		Very Low	Low	Medium	High	Very High
Impact	Severe			R4		
	High		R3	R1		
	Medium				R2	
	Low	M1	M2	M4		
	Very Low			M3		

Legend

Low Risk

Medium Risk

High Risk

Risks

R-1: User finds the app overwhelming or confusing to use

R-2: User receives recommendations that don't match preferences

R-3: User is in an area with poor internet connectivity

R-4: Users abandon the app due to lack of engagement

Mitigation

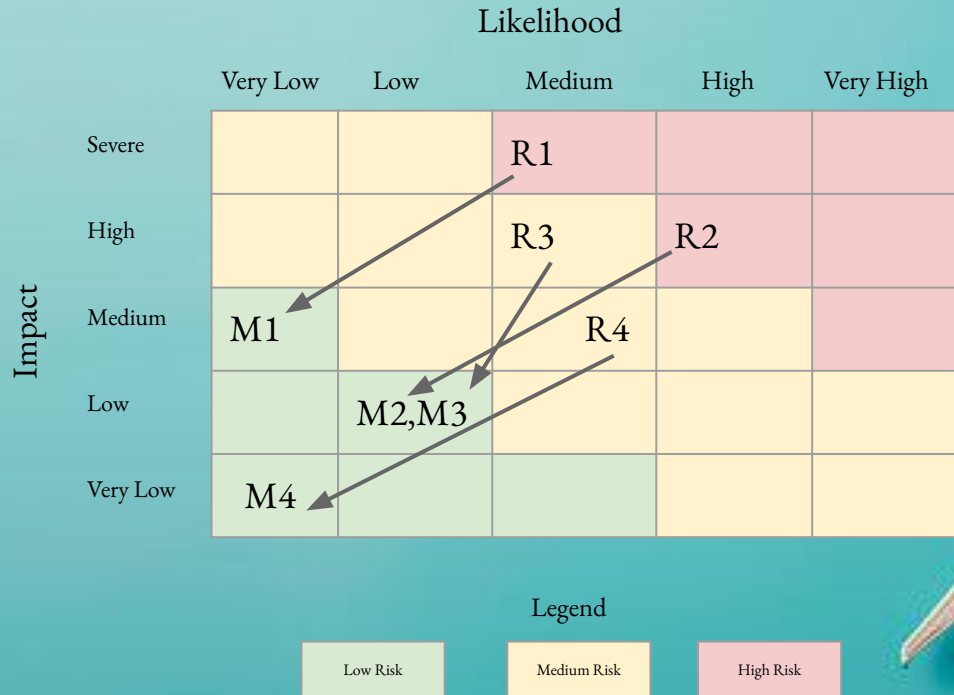
M-1: Ensure an intuitive UI/UX with guided onboarding and simple navigation

M-2: Allow users to personalize preferences and provide feedback to improve recommendations

M-3: Implement offline mode with cached recommendations and maps

M-4: Implement push notifications, gamification, or incentives to keep users engaged

Customer Risk Matrix



Risks

R-1: Investors see the app as too niche or risky to fund

R-2: Businesses/advertisers don't see value in paying for promotion

R-3: Businesses feel underrepresented or struggle to get visibility on the platform

R-4: Advertisers worry about ad placements being ineffective or intrusive

Mitigation

M-1: Present clear market research, growth potential, and revenue streams (ads, partnerships, premium features)

M-2: Offer analytics on user engagement, conversion rates, and ad performance to prove return on investment

M-3: Provide affordable listing options, featured spots, and local partnerships

M-4: Use non-intrusive native ads and give businesses targeting options to reach the right audience

Technical Risk Matrix

Impact	Likelihood				
	Very Low	Low	Medium	High	Very High
		R2	R1	R4	
		R3			
	M1				
	M4	M2			
Very Low	M3				

Legend

Low Risk

Medium Risk

High Risk

Risks

R-1: Not enough local support to find obscure locations

R-2: Application software issues

R-3: User declines to share location/GPS services

R-4: Security breach or data leak

Mitigation

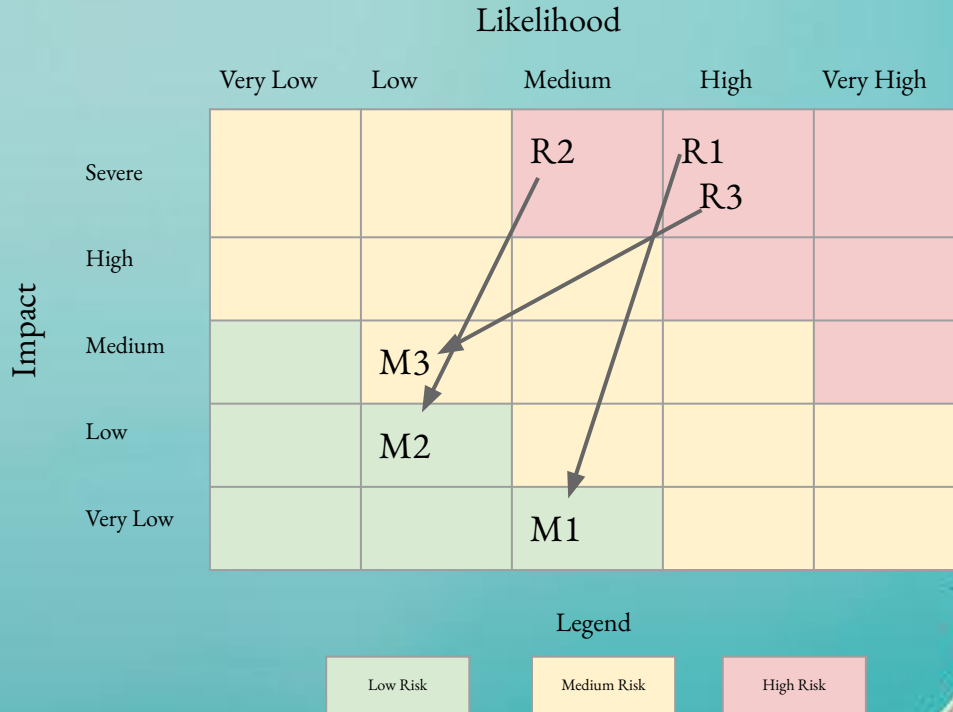
M-1: Offer deals with local businesses

M-2: Prioritize application performance

M-3: Allow users to search by city/zip code

M-4: Practice cybersecurity hygiene

Legal & Security Risk Matrix



Risks

R-1: Unauthorized sharing of sensitive user data, including age, location, and preferences.

R-2: Potential legal issues arising from differences in religious beliefs, customs, and local laws.

R-3: Health risks related to pre-existing medical conditions, such as allergies or injuries from recommended activities.

Mitigation

M-1: Itiner-Ease will collect only the necessary data with explicit user consent and will discard it after the itinerary is generated.

M-2: Users will be encouraged to research local laws, while the app will provide relevant legal and cultural information.

M-3: Itiner-Ease will not be liable for injuries incurred during trips. Restaurants will be required to disclose allergen information to ensure user safety.

Key Points

- AI-Drive Personalization
- Discover Hidden Gems
- Adaptive Itinerary
- Collaborative Group Planning
- User Engagement & Rewards



References

- [1] UNWTO, “International Tourism Recovers Pre-Pandemic Levels in 2024,” *Unwto.org*, Jan. 25, 2025. <https://www.unwto.org/news/international-tourism-recovers-pre-pandemic-levels-in-2024>
- [2] WTTC, “U.S. Remains the World’s Most Powerful Travel & Tourism Market,” *Wttc.org*, Apr. 09, 2024. <https://wtcc.org/news-article/us-remains-the-worlds-most-powerful-travel-and-tourism-market>
- [3] A. Fleck, “How Often Do Americans Travel?,” *Statista Daily Data*, Feb. 17, 2025. <https://www.statista.com/chart/31152/share-of-us-respondents-who-have-taken-private-trips/>
- [4] K. Gilbert, “Do Travelers Live Longer? 5 Health Benefits of Traveling,” *Gocollette.com*, Sep. 02, 2016. <https://www.gocollette.com/en/traveling-well/2016/09/do-travelers-live-longer>
- [5] M. Swanson, “This Is How Much Time Travelers Spend Researching Before Booking a Trip,” *TravelWires*, Jul. 27, 2023. <https://www.travelwires.com/this-is-how-much-time-travelers-spend-researching-before-booking-a-trip>
- [6] M. Turner, “Survey: Travelers Want to Experience Destinations as Locals, Crave More Authenticity,” *Travel Agent Central*, Nov. 23, 2022. <https://www.travelagentcentral.com/your-business/survey-travelers-want-experience-destinations-locals-crave-more-authenticity>
- [7] J. Loo, “The Future of travel: New Consumer Behavior and the Technology Giving It Flight,” Google, Nov. 2017. Available: https://www.thinkwithgoogle.com/_qs/documents/4687/1121-Future-of-Travel-Download.pdf
- [8] M. Blutstein, D. Quinby, and C. Eisel, “The U.S. Leisure Traveler: Understanding Consumer Lifestyle Behavior,” *Phocuswright*, Sep. 13, 2017. <https://www.phocuswright.com/Free-Travel-Research/The-US-Leisure-Traveler-Understanding-Consumer-Lifestyle-Behavior>
- [9] The, “Personalized Travel and Experiences Global Market Report 2025,” *Thebusinessresearchcompany.com*, Jan. 2025. <https://www.thebusinessresearchcompany.com/report/personalized-travel-and-experiences-global-market-report>
- [10] Aon, “Navigating the Storms: Weather Risks Reshaping How Americans Travel | Aon,” *Aon.com*, Jan. 23, 2025. https://www.aon.com/travel_blog/blog_posts/navigating-the-storms-weather-risks-reshaping-how
- [11] Hilton, “Connectivity & Personalization | 2024 Trends Report,” *stories.hilton*, 2024. <https://stories.hilton.com/2024trends-connectivity-personalization>