

# Itiner-Ease

*Explore with ease—your itinerary, your way.*

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Spring 2025

**CS410 - Team Copper**



# Your Itinerary

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# 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.



**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 Tavarez** 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.



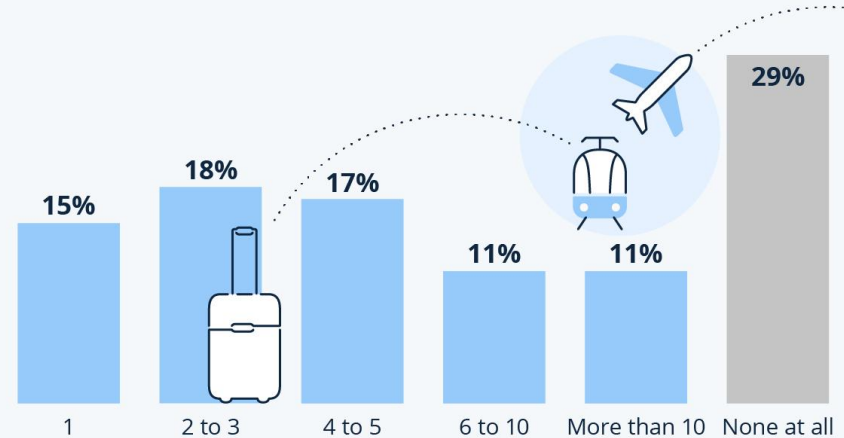
**Fredrick Terling** is a senior at ODU majoring in Computer Science. He is currently hoping to get his foot in the door for most tech job opportunities but dreams of being a Game Developer and ultimately a Game Producer.

# 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 graph 71% of Americans have taken at least 1 private trip in the last 12 months.
- 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**

# Why Travel?

- One of the main benefits of travel is collecting new experiences. They can be physical, emotional, or psychological.
- When we stay in our bubble for a long time, we get used to our own ways. We all have our rituals and best practices, a routine we follow on a daily basis.
- Something foreign will become easier to sympathise with. It will no longer be just a tale from another country or continent but a personal story - something you have seen or done. [12]
- 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]



# Why do People NOT Travel?



A 2023 survey conducted by Nerd Wallet asked users what their biggest barriers were when it came to traveling:

- Lack of money: 27%.
- Lack of time off from work or school: 26%
- Family and other commitments: 13% [13]

According to a NerdWallet analysis of data from the consumer price index issued by the Bureau of Labor Statistics, airfares in January 2023 are up 25.6% versus the same month in 2021, and up 3.7% versus the same month in 2019. January 2023 hotel prices are up 16.3% versus January 2020.[13]



# Challenges of Self-Booking Travel

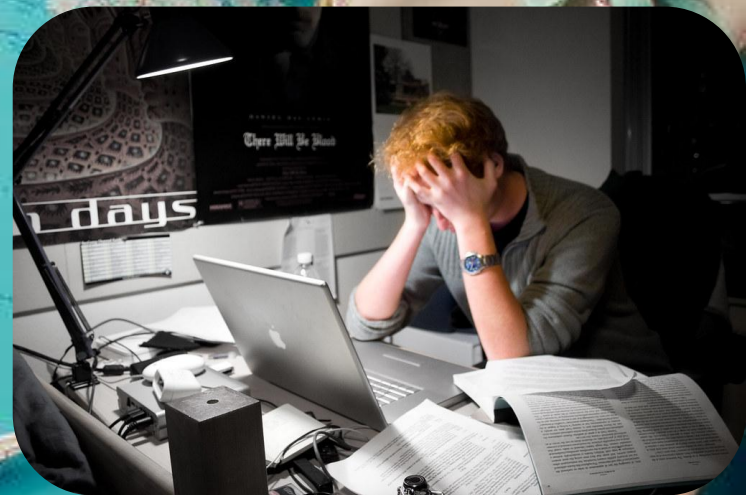
Planning trips on your own can pose many challenges:

## 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]





# Group Planning Chaos

- You're no longer only planning for yourself , but planning for a group of people with different likes, dislikes, and availability.
- Group travel can bring together people with different personalities and temperaments. It is not uncommon for conflicts to arise due to differences in opinion, communication styles, and personal habits.
- Group members may have different interests and priorities, and conflicting schedules can make it challenging to plan activities. This can lead to frustration and tension within the group.[15]



# A Demand for Tour Guides

- Of 1,000 U.S. individuals who traveled for leisure at least once in the past 12 months, 70% planned to book a guided tour for the next year, the survey found.
- Roughly two in five of Millennials and Gen Z travelers surveyed booked a guided tour in the past year, the results show – that's 40% of Gen Z and 42% of Millennials compared to 22% of Gen X and 22% of Boomers.[15]
- Guides who drive business have the responsibility to enhance the travel experience by keeping guests happy, safe and inspired. This is the person who can make or break a trip; therefore, finding the right match for your group is essential.[16]

## Why use a tour guide?

1. A guide will tailor a tour to your needs and tastes.
2. A guide can take you to places that you would never know about.
3. A guide will point out things that you would never notice.
4. Using a guide is the best use of your time.
5. A guide is educated and trained to guide and licensed.
6. A guide is your personal resource.
7. A guide is a new-found friend in a foreign country [17].

# 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]

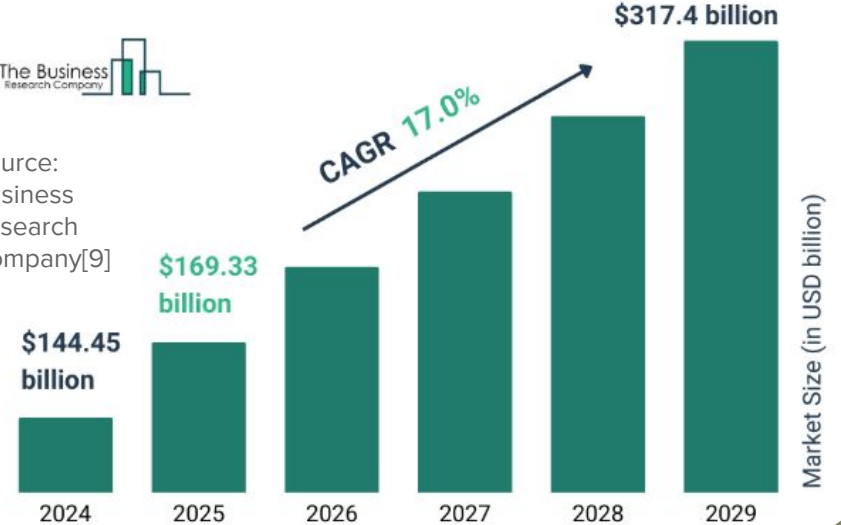
## PLANS SHIFT

- 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



Source:  
Business  
Research  
Company[9]





# 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. While the time and effort can be cut down with travel agents and tour guides they lack the personalized touch of planning yourself. 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.

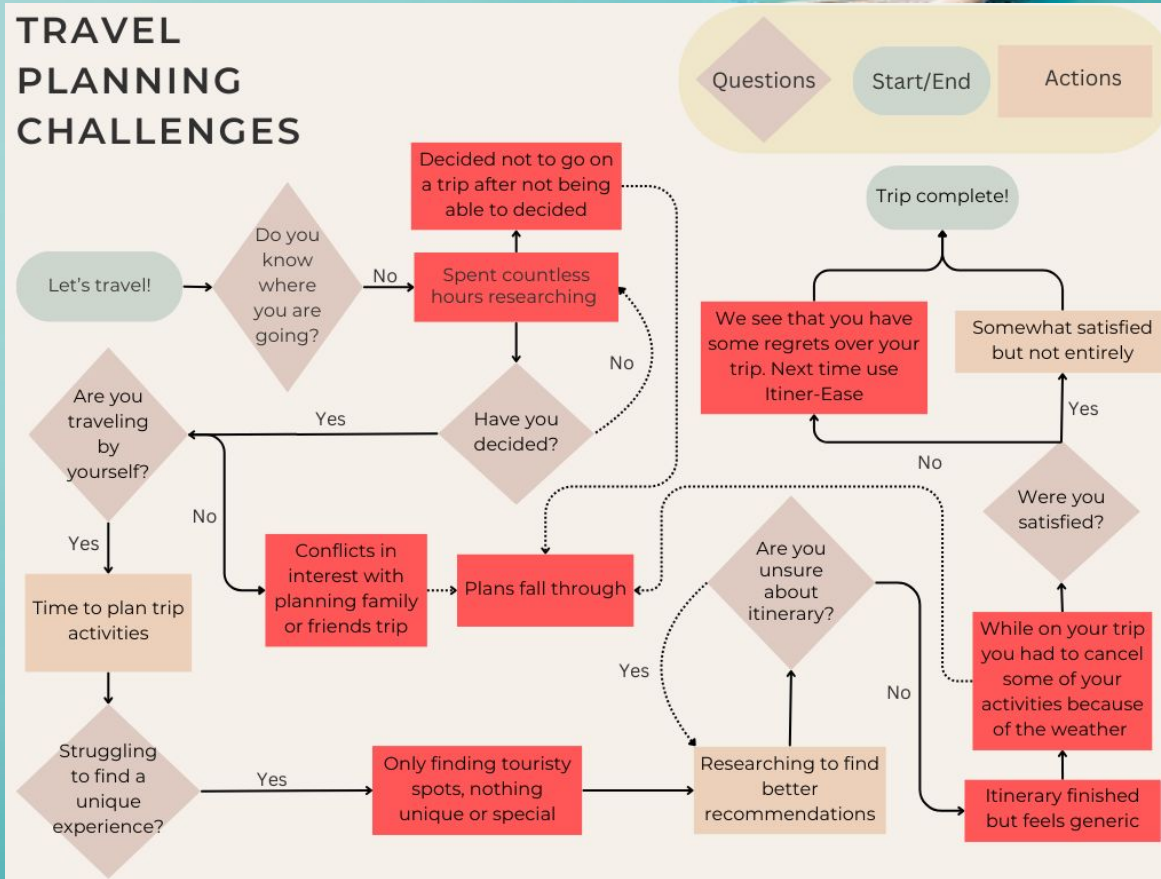
## Stakeholders

- Travel & Tourism Industry
- Event Organizers
- Local Businesses

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



# Current Process Flow



# 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 however, Itiner-Ease can pair you with our verified local experts to recommend you hidden gems and experiences that you would never find on your own.

# Upgrade With Local Expertise



- **Local Guidance** - Users might be satisfied with just the recommendations our AI creates them, but nothing beats the knowledge of people who actually know the area.
  - Travelers pay a nominal fee to have their itinerary looked over and upgraded by our local experts. Some local experts may offer further tiers for personal tours, an emergency contact or other benefits.
- **Why Become a Local Expert?** - These Local Experts are an integral part of the Itiner-Ease ecosystem, so it is important that they are incentivized properly.
  - The local experts will make the majority of the fee, with Itiner-Ease taking a small cut. Itiner-Ease will also take advantage of these local expert recommendations to refine our AI recommendation algorithm.



# Personalized Itineraries

## 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.

## AI-Driven Recommendations

- **Similarity Clustering:** Before our system can get a proper gauge on what exactly takes a place from simply good to one of your new favorites, we rely on users with similar reported interests to base Itiner-Ease's recommendations.
- **Learned Tastes:** As Itiner-Ease gets on your tastes, it gets even better at prioritising the options that you would enjoy the most.

# Collaboration and Dynamic Updates

## Group Profiles

- **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, constraints, and a group voting system 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.

## Dynamic Itinerary Updates

- **Avoid Disruptions:** It is impossible to plan for everything but that does not mean we cannot minimize it where possible. Itiner-Ease takes a proactive approach to monitor local conditions and notify you of any concerns.
- **Hot Spots:** Relying on reviews means you might miss out on the exciting new location that just opened. If users with interests similar to you are rating it highly recently we may recommend an optional switch in your itinerary.

# Explorer Rewards

**Local Discovery:** Users can create positive reviews for their favorite locations and earn rewards if other travelers also end up enjoying the experience.

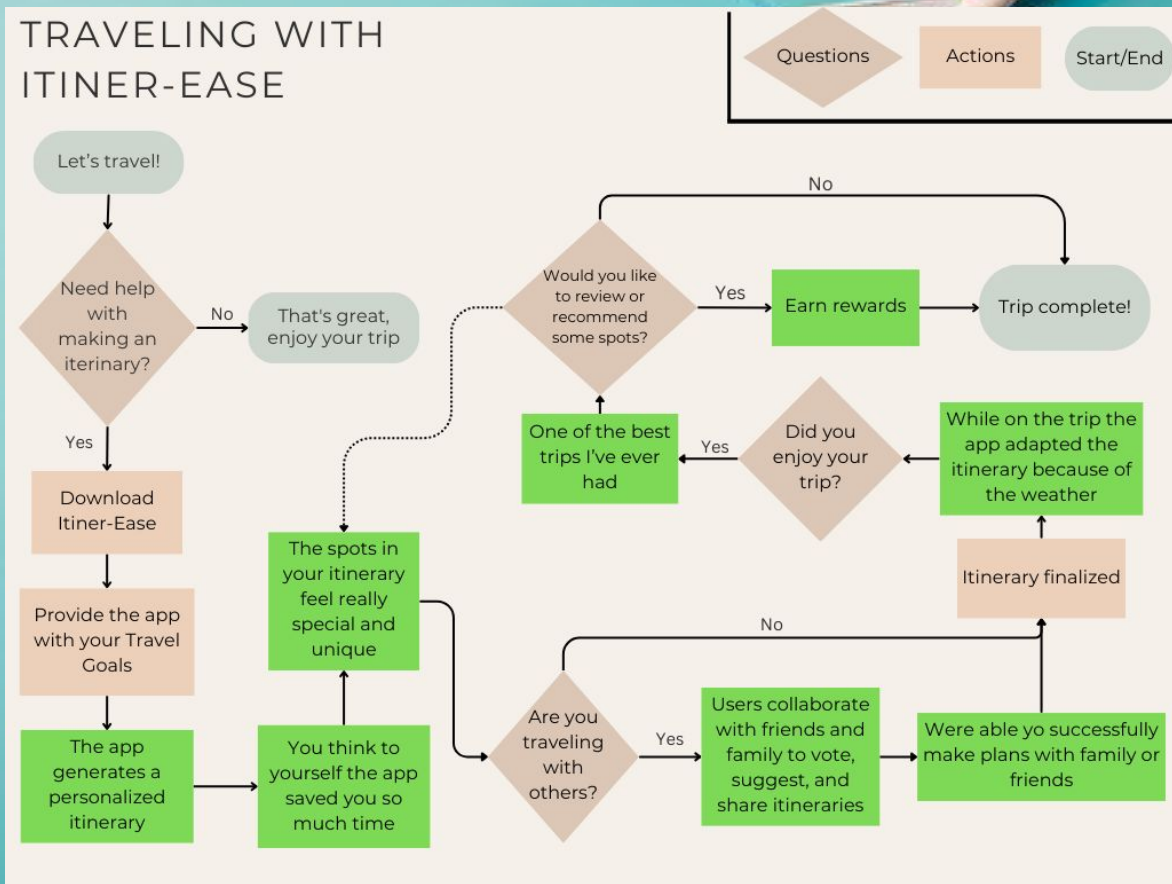
**Sponsored Businesses:** Itiner-Ease will partner with local businesses to increase their visibility in exchange for benefits to our rewards members.

**Reward Benefits:** Users can use their rewards to spend on our premium content such as discounts at participating locations, local expert guidance, and more.





# Solution Process Flow



# What It Will Do

## 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.

## Feel Like a Local

- Our baseline personalized itinerary experience is focused on giving you that unique-tailored experience, but users can take it one step further and pay to have verified local experts give them an experience reminiscent of someone visiting their home town and not a completely new place.

## Adapt Plans On the Go

- 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.

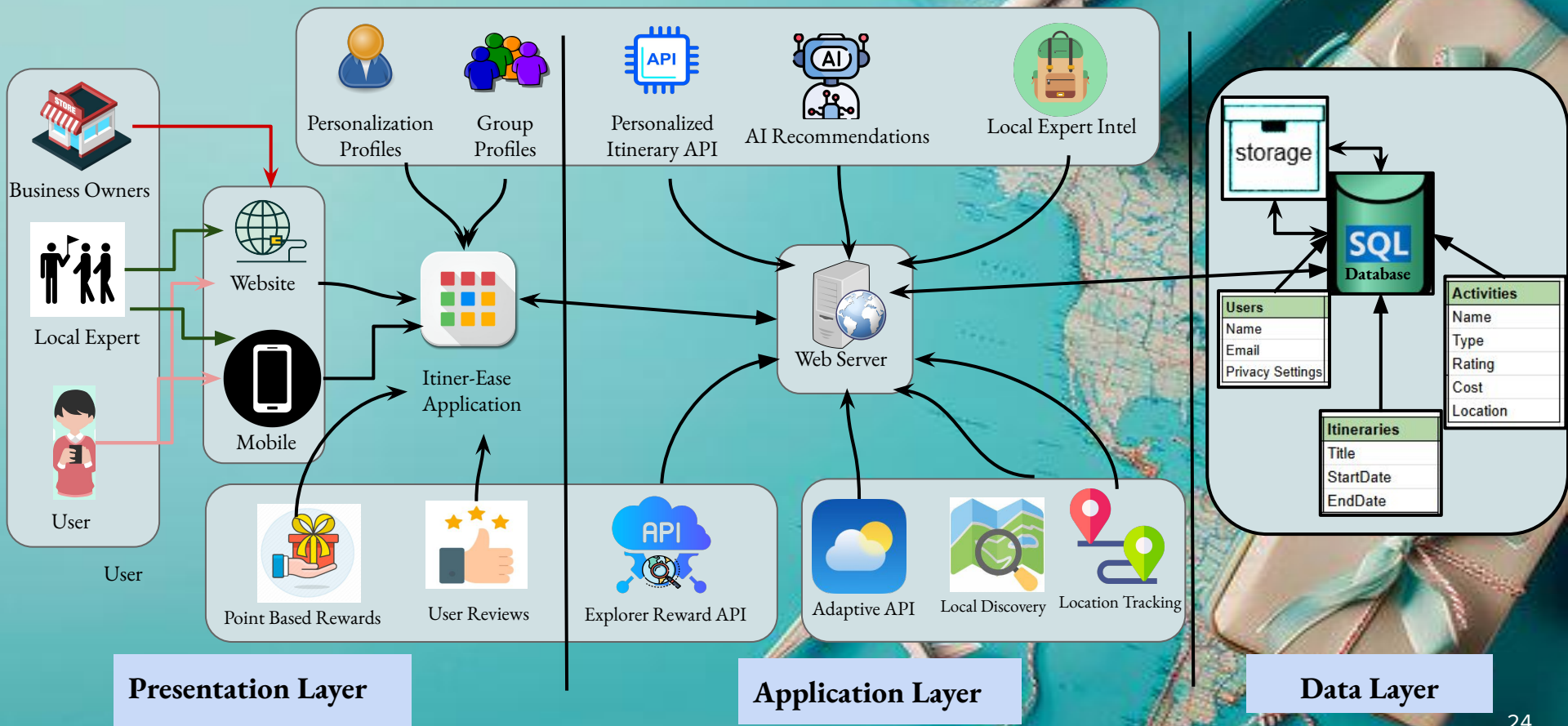
## Make Group Planning a Breeze

- Group Profiles will take into account all members' personalization profiles when making suggestions to minimize choice conflict. While also allowing you to input your own preferences for members who either cannot or do not want to make a profile.

## 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.

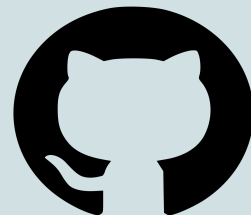
# Major Functional Components Diagram





# 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
Collaborative Itinerary Management	✓	✓	✓	✓		
Hidden Gems	✓	✓		✓		✓
AI-Driven Recommendations	✓	✓	✓	✓	✓	✓
Dynamic Itinerary Updates	✓					
On-Demand Local Expertise	✓					
In-App Booking System		✓			✓	✓

Implementation: full ✓ partial ✓

# Benefits to Customer Base

## Travelers

### Reduce Planning Overload

- AI Driven Recommendations simplify decision making.
- Collaborative grouping tools make trip planning with others effortless.
- Dynamic updates help avoid disruptions or provide suggestions for hot spots.

## Local Experts

### Monetization Opportunities

- Flexible engagement through itinerary verification or in-person tours.
- Increased visibility for verified locals to showcase their expertise.

## Businesses

### Targeted Traveler Insights

- Data driven analytics help businesses understand traveler preferences.
- Personalized recommendations drive potential customers to relevant experiences.

# User Risk Matrix

		Likelihood				
		Very Low	Low	Medium	High	Very High
Impact	Severe			R4		
	High		R3	R1	R5	
	Medium				R2	
	Low	M1	M2	M4 M5		
	Very Low			M3		

## Legend

Low Risk

Medium Risk

High Risk

## Risks

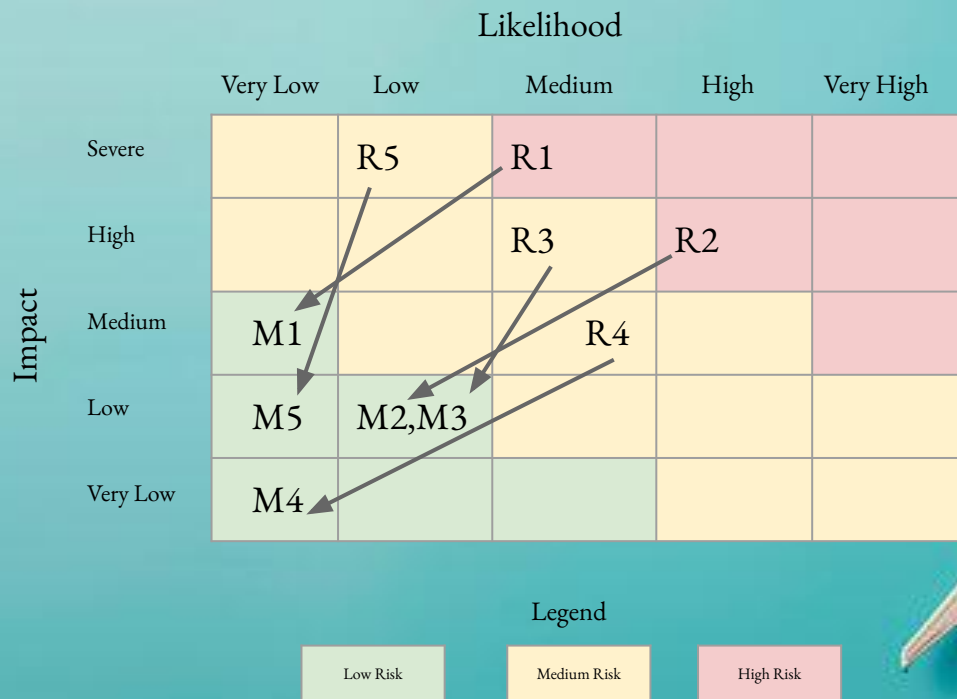
- R-1: User finds the app overwhelming or confusing to use.
- R-2: User receives recommendations that don't match preferences.
- R-3: User is in an area with poor internet connectivity.
- R-4: Users abandon the app due to lack of engagement.
- R-5: Users won't trust strangers to give advice and personalized tours.

## 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 like discounts to keep users engaged. Integrate these features with our premium services and our commercial partners to reward users and drive revenue.
- M-5: Provide local expert verification and reviews similar to Uber/Lyft.



# 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.

R-5: Local experts try to refund products to cut out Itiner-Ease.

## Mitigation

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

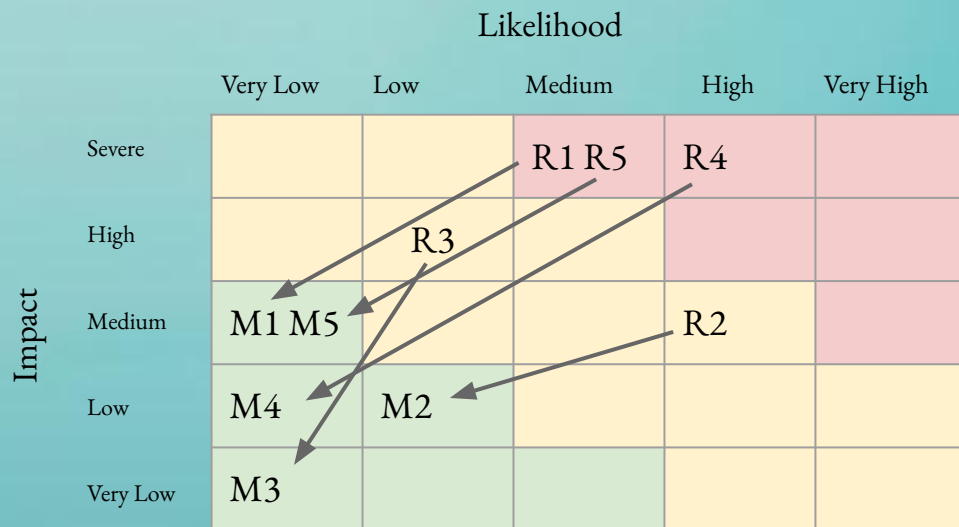
M-2: Offer analytics on user engagement, conversion rates, and ad performance to prove return on investment.

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.

M-5: Strict refund policy preventing unpaid use of itineraries.

# Technical Risk Matrix



## 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.

R-5: AI hallucinations and made up data.

## Mitigation

M-1: Integrate with existing services like Google Maps, employ web scraping, hire/incentivize local experts to gather data on obscure locations. 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.

M-5: Local experts provide human verification on paid products.

# Legal & Security Risk Matrix

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

Legend		
<div></div> Low Risk	<div></div> Medium Risk	<div></div> High Risk

## 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.

R-4: Users' events get cancelled after they already paid for a local expert.

## 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 physical injuries. Restaurants will be required to disclose allergen information to ensure user safety.

M-4: Itiner-Ease will only provide refunds for any cancellations with a minimum of 48 hours notice.

# Key Points

Itiner-Ease is designed to reduce planning overload, improve convenience, and create personalized travel experiences.

- AI-Driven Recommendations
- Group Collaboration
- Dynamic Itinerary Updates
- On-Demand Local Expertise



# 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," *Travel Wires*, 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](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](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>
- [12] Polok, Lucyna. "The Benefits of Travel: 14 Things Travel Teaches You." *Europe Language Jobs*, Oct.31,2024. [www.europelanguagejobs.com/blog/benefits-of-travel?t=1741038646146](http://www.europelanguagejobs.com/blog/benefits-of-travel?t=1741038646146)
- [13] French, Sally. "The No. 1 Reason Some People Aren't Traveling This Year." *NerdWallet*, 22 Feb. 2023, [www.nerdwallet.com/article/travel/why-people-arent-traveling-2023#:~:text=Lack%20of%20money%3A%2027%25,as%20I%20wanted%3A%2012%25](http://www.nerdwallet.com/article/travel/why-people-arent-traveling-2023#:~:text=Lack%20of%20money%3A%2027%25,as%20I%20wanted%3A%2012%25).
- [14] TheTravelPocketGuide. "Group Travel: The Benefits and Challenges of Travelling with a Group." *Travel Pocket Guide*, 24 Apr. 2023, [www.thetravelpocketguide.com/tips/group-travel/#:~:text=Travelling%20with%20a%20group%20can,plans%20at%20the%20last%20minute](http://www.thetravelpocketguide.com/tips/group-travel/#:~:text=Travelling%20with%20a%20group%20can,plans%20at%20the%20last%20minute).