

WiseTraveler

Navigate with Knowledge
Explore with Confidence

CS 410 Fall 2024
Team Yellow
Old Dominion University





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Meet The Team



**Robert
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**Ethan
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**Justin
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Problem Background

When people travel, whether domestically or abroad, their main goals are usually enjoyment, discovering new cultures, and relaxation. In 2023, approximately 48.98 million U.S. residents ventured overseas⁽³⁾

According to UN Tourism, international tourist arrivals hit 96% of pre-pandemic levels in January-July 2024, 790 million tourists travelled internationally in the first seven months of 2024, about 11% more than in 2023.⁽¹⁵⁾



What is the Problem



Travelers often have to search multiple sources for information, leaving them with insufficient research on their destination. This lack of knowledge can expose them to law, safety, and health risks, which can diminish their trip enjoyment. They may also encounter challenges like crime, unsafe water, poor sanitation, along with language barriers and cultural differences that make finding help difficult. As a result, many stick to crowded, well-known spots or fall into tourist traps due to uncertainty about where to explore.



Problem Characteristics

Multiple resources: Travellers currently have to check multiple sources to find complete information relating to their destination

Cultural Understanding: Detailed information about local customs and cultures is often omitted by popular travel guides, yet “75% (of travelers) seek authentic experiences that are representative of the local culture.”⁽¹⁾

Local Laws: Some countries have unfamiliar laws that travelers may not be aware of.⁽¹⁴⁾

Safety Concerns: Certain travel destinations are prone to having crime targeting tourists and travellers

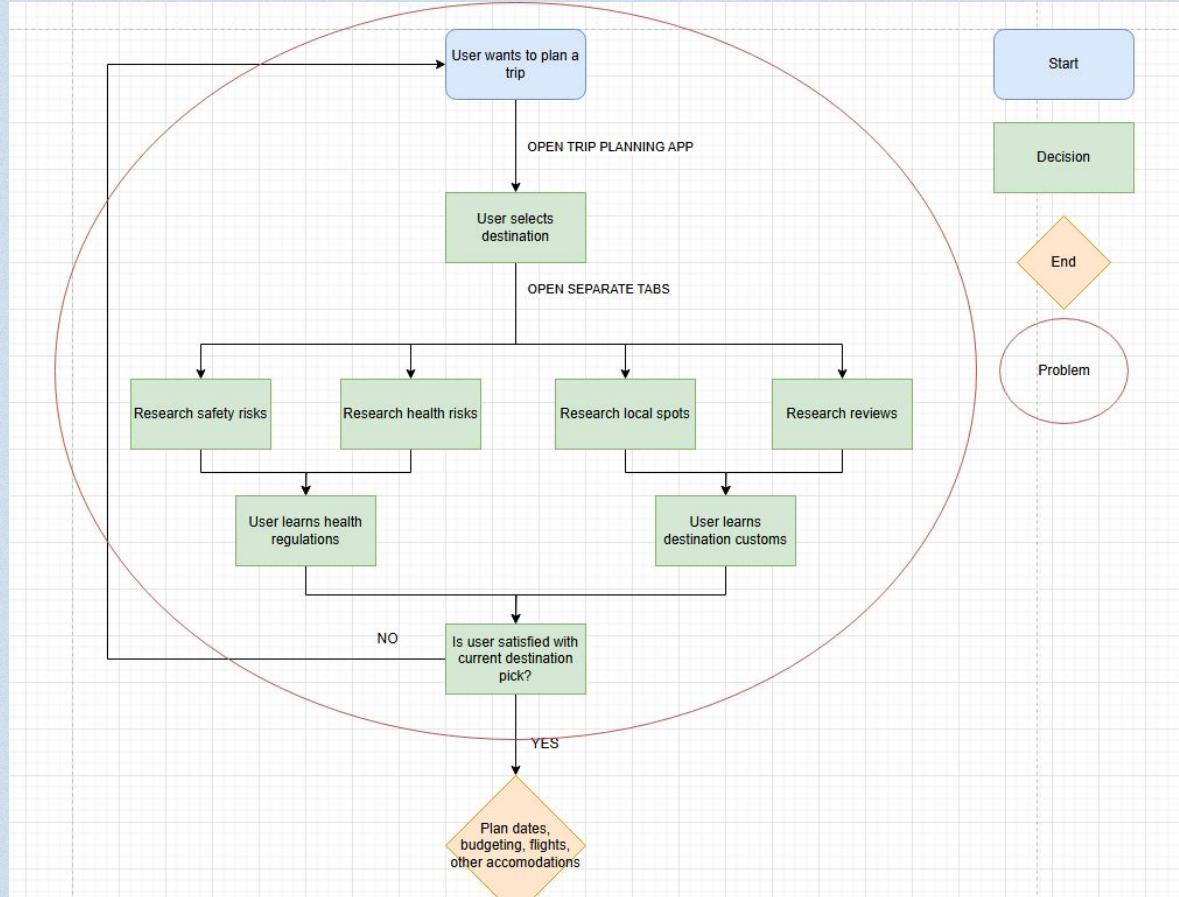
Personal Health: Travellers are unaware of illness and pest issues

Tourist Trap: About 89% of Americans have visited a tourist trap more than once in the past two years.⁽¹³⁾





Current Process Flow



User Roles and Stakeholders

- The primary users of this software will encompass anyone interested in enhancing their travel experiences, learning about new cultures, and better understanding other countries, such as:
 - Tourists
 - Individuals attending business-related trips
 - Students on study abroad programs
- The primary customer base of this software will be travelers
 - Families
 - Business travelers
 - Individual people
- The primary stakeholders of this software are resort companies
 - Local resort companies
 - Business owners
 - Airbnb owners



WiseTraveler Solution Statement



This Centralized AI Travel Guide provides a hassle-free, comprehensive experience, allowing travelers to focus on the journey itself without the stress of navigating multiple sources for information. It also encourages exploration beyond mainstream tourist spots, offering unique, culturally immersive experiences while keeping travelers informed and safe.

Solution Characteristics

- **AI Integration:** Assists in the researching and planning for trips
- **Centralized Platform:** Consolidates all essential travel information, so users avoid juggling multiple sources of information
- **Hidden Gems and Local Experiences:** Offers a map feature for discovering lesser-known spots and local events
- **Real-Time Health and Safety Alerts:** Sends alerts for region-specific risks, keeping travelers informed
- **Personalized Recommendations:** Delivers tailored suggestions for destinations, attractions, and activities based on user preferences, making trip planning easier and personalized



WiseTraveler Characteristics

- Safety & Health



- Using WiseTraveler, users can do the following:
 - Access quick, concise guides on local laws and potential health risks for foreign visitors
 - Understand the safety concerns and risks associated with the country they are visiting
 - Read information about local wildlife and any harmful diseases that they might carry
 - See contact information to local medical centers and police stations



WiseTraveler Characteristics



- **While using WiseTraveler, users can do the following:**
 - Better understand the customs and traditions of the country they are visiting
 - Share travel experiences and tips with other users
 - Discover local tourist attractions
 - Rate and review various attractions, restaurants, and hotels
 - See hidden gems and lesser-known spots that the destination has to offer
 - Discover local events or activities that are occurring during their visit
 - View user reviews and ratings for attractions, restaurants, and hotels
 - A map highlighting lesser-known spots for a truly unique and authentic travel experience

Mapping Problem Characteristics to Solution Characteristics

Multiple Resources

Problem: Travelers struggle to find complete information by using miscellaneous websites.

Solution: WiseTraveler provides a single platform for complete destination information.

Local Experiences

Problem: Travelers often miss out on local hidden gems and attractions.

Solution: WiseTraveler will feature a map that highlights unique spots for an authentic travel experience.



Mapping Problem Characteristics to Solution Characteristics

Local Laws

Problem: Legal information on local laws is often unknown to tourists.

Solution: WiseTraveler will provide easy to understand legal documents explaining the local laws specific to each country.

Safety Concerns

Problem: Travelers are often unaware of safety concerns with their travel destinations.

Solution: WiseTraveler will automatically send users alerts detailing any diseases, dangerous animal sightings, or safety concerns that tourists need to be aware of.



Mapping Problem Characteristics to Solution Characteristics

Communication Issues

Problem: Tourists often have difficulty in communicating with the locals due to language barriers.

Solution: WiseTraveler will provide language translation tools and common phrases for easier communication.

Cultural Misunderstanding

Problem: Travel guides usually do not contain detailed information about local customs, traditions, and cultures.

Solution: WiseTraveler will offer concise guides on local customs and traditions to help users fully immerse themselves in the culture.

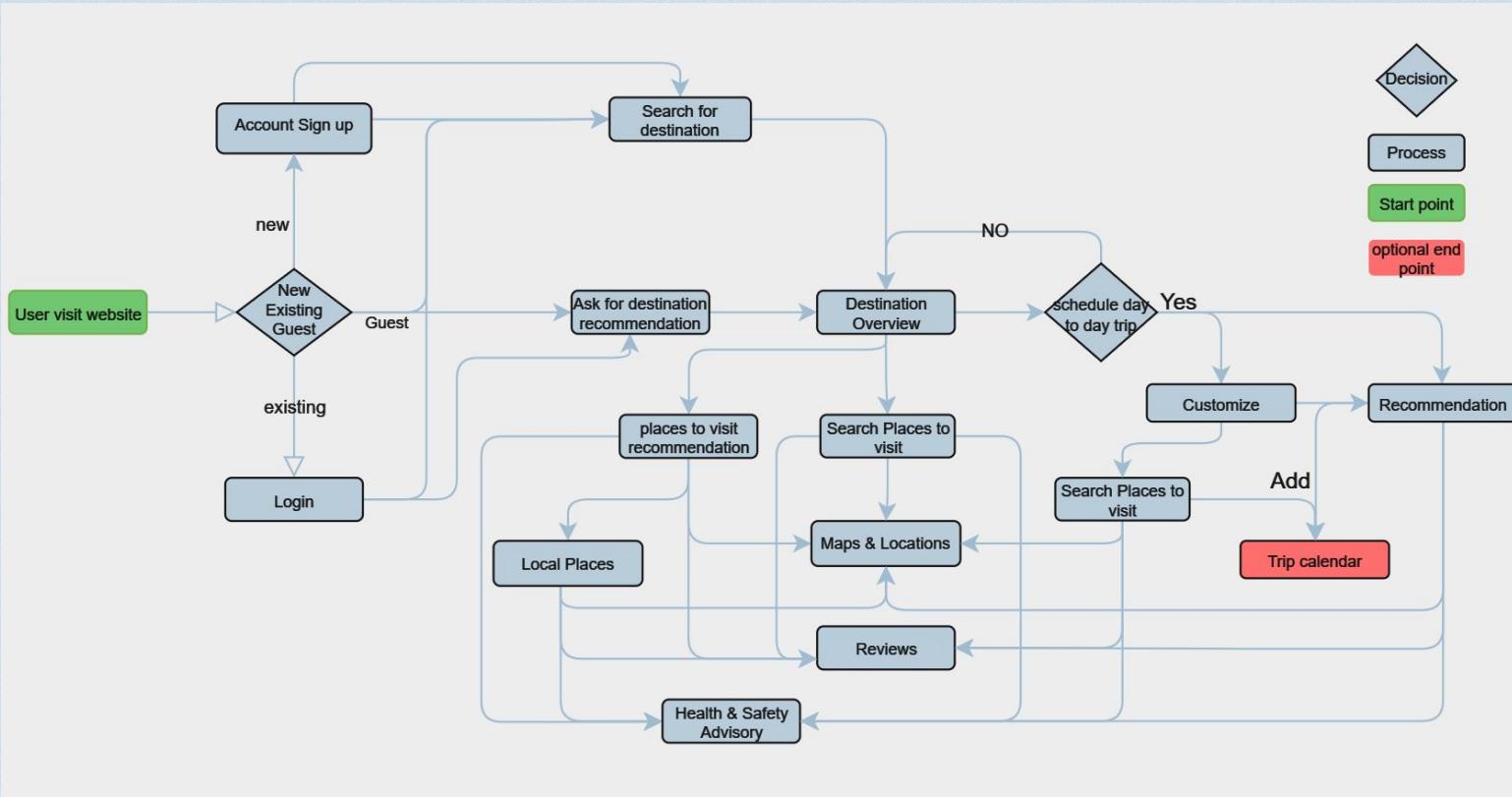
Tourist Trap

Problem: Travelers often fall into tourist traps due to a lack of reliable information.

Solution: WiseTraveler will provide user reviews to spots where the traveler is, to better understand the place.



Solution Process Flow



Decision

Process

Start point

optional end point

What it Will Do

A Map to Discover Hidden Spots for a Truly Unique Travel Experience:

- Hidden Travel Gems: Discover underrated and hidden travel destinations for 2024. For example, Bolivia offers unique experiences like the Salar de Uyuni and Lake Titicaca. Other hidden gems include Sardinia in Italy, the Faroe Islands in Denmark, and the Namib Desert in Namibia, off the beaten path sites and travel destinations.
- User Recommendations: Get insights from other verified users on hidden gem destinations like Eleuthera in the Bahamas, the Peloponnese in Greece, and lesser-known spots in Europe such as Villajoyosa and Ares del Maestre.
- User-Generated Content: Leverage a community of travelers who share their experiences and tips on hidden gems, ensuring you get the most authentic and off-the-beaten-path experiences.



What it Will Do

Wildlife: Be aware of local wildlife and avoid contact with animals that may carry diseases like rabies, and cultural differences, for example in Hawaii it is up to a \$100k fine to get close to sea turtles and touch them

Political and Social Unrest: Avoid participating in or being near protest and demonstrations, stay informed about the local political climate

Level 1: Exercise Normal Precautions⁽¹⁶⁾

Level 2: Increased Caution⁽¹⁶⁾

Level 3: Reconsider Travel⁽¹⁶⁾

Level 4 : DO NOT Travel⁽¹⁶⁾

By integrating these features, WiseTraveler aims to provide a comprehensive travel companion that not only enhances your travel experience with insider tips but also ensures your safety and preparedness, making every adventure more enjoyable and secure.



What it Will Do



- Warnings about crime
 - Users can find out and be aware of high crime areas, and cultural differences for Ex: taking pictures of temples is not allowed and is an arrestable offense in Japan
- In regions with high risk of diseases like malaria or dengue fever, the software will alert the user of this information and provide tips on how to avoid these illnesses, such as:
 - Use insect repellent
 - Sleep under mosquito nets
 - Avoid consuming tap water
 - Be cautious with street food to prevent foodborne illnesses



What it Will Do

Trip Planning: Develop an overall itinerary for your trip by setting your specific dates and times.

- Selection a location that you want to see and find nearby spots. Add the locations to your itinerary to manage your overall trip.
- Specify lengths of time in every location to make sure you are not overbooking your trip.
- Plan out travel routes and times to ensure you are on time when necessary and not make repeated trips back and forth.
Increasing overall efficiency of your trip



What it Will Not Do

Real-Time Emergency Assistance : WiseTraveler will not provide real-time emergency assistance or rescue services; travelers should contact local authorities or their embassy/consulate

Legal Assistance: WiseTraveler will not offer legal advice or assistance; travelers should consult with legal professionals or their embassy/consulate for legal matters

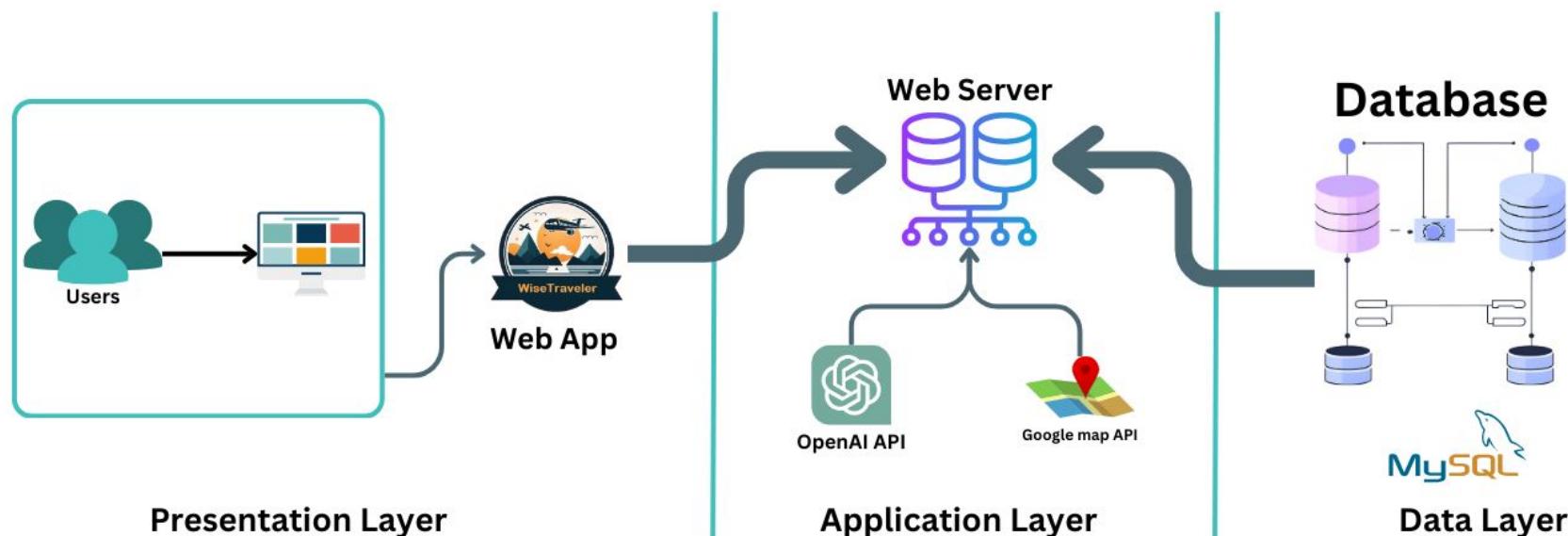
Medical Service: WiseTraveler will not provide medical services or emergency medical care. Travelers should seek medical attention from local healthcare providers

Booking: WiseTraveler will not Book the entirety of your stay, including flights, hotel accommodations, and rental accommodations; however, It will guide the traveler by displaying top-rated hotels, local accommodations, and rental accommodations





Major Functional Components Diagram



Competition Matrix



	Wise Traveler	TripAdvisor	Lonely Planet	Expedia	YouTube
Safety Concerns (dangerous animal sightings, criminal activity, etc.)	Yes	Limited to user reviews	Details about the most common concerns	N/a	Limited to personal experiences
Health Risks	Yes	N/a	Provides details about the most common concerns	N/a	Rarely covers health risks
Cultural Discovery	Yes	Most popular locations only	Provides details about must see and can skip locations	N/a	Varies by vlogger
Local Customs	Yes	Yes, limited information	Limited information	N/a	Varies by vlogger
User Reviews	Yes	Yes	No	Yes	Yes
Centralized Information	Yes	N/a	N/a	N/a	N/a
Personalized Recommendations	Yes	Yes	N/a	N/a	N/a

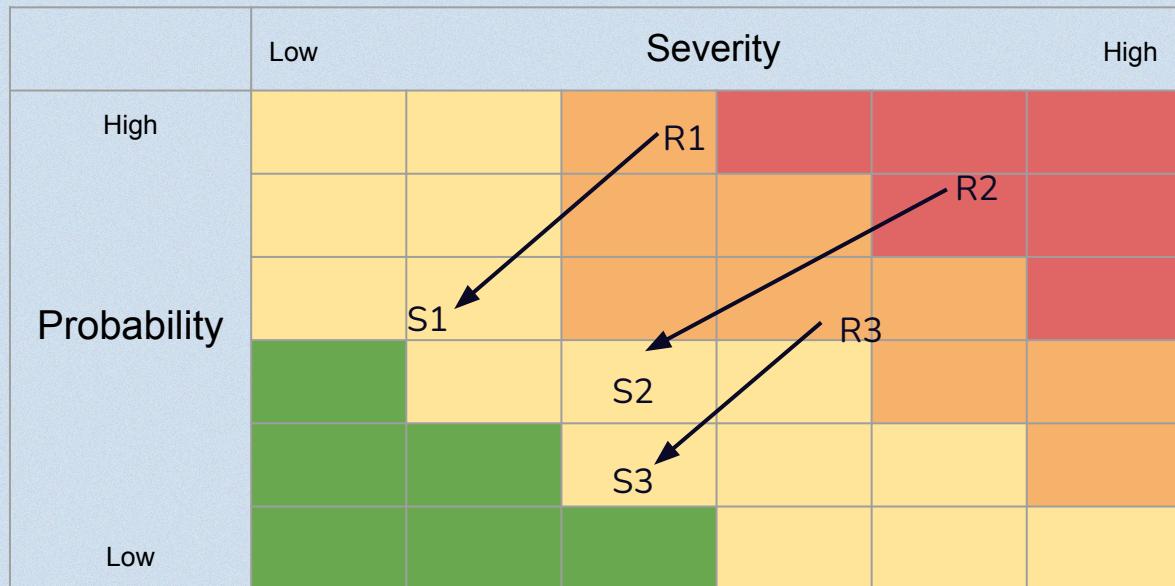
Risks



- Security
 - If proper security measures are not taken, customer information can be leaked from the database, such as names, birthdates, phone numbers, etc.
 - Payment information can be leaked if hacking occurs.
- Legal Issues
 - If a user gets injured or sick due the advice given on the app, the user might attempt to pursue legal action
- Misinformation
 - Relying on user contributions for hidden gems and famous spots may result in misinformation
 - If information is not constantly updated, this can lead to outdated information
- Cultural Insensitivity
 - If a users provides advice that lacks cultural understanding, this can lead to disrespect towards the locals
- User Retention
 - Continuous updates and new features may be required to keep users engaged long-term



Technical Risks



R1: Features may be inaccessible without an internet connection

S1: Provide offline capabilities for essential features

R2: Issues with third-party APIs could break features

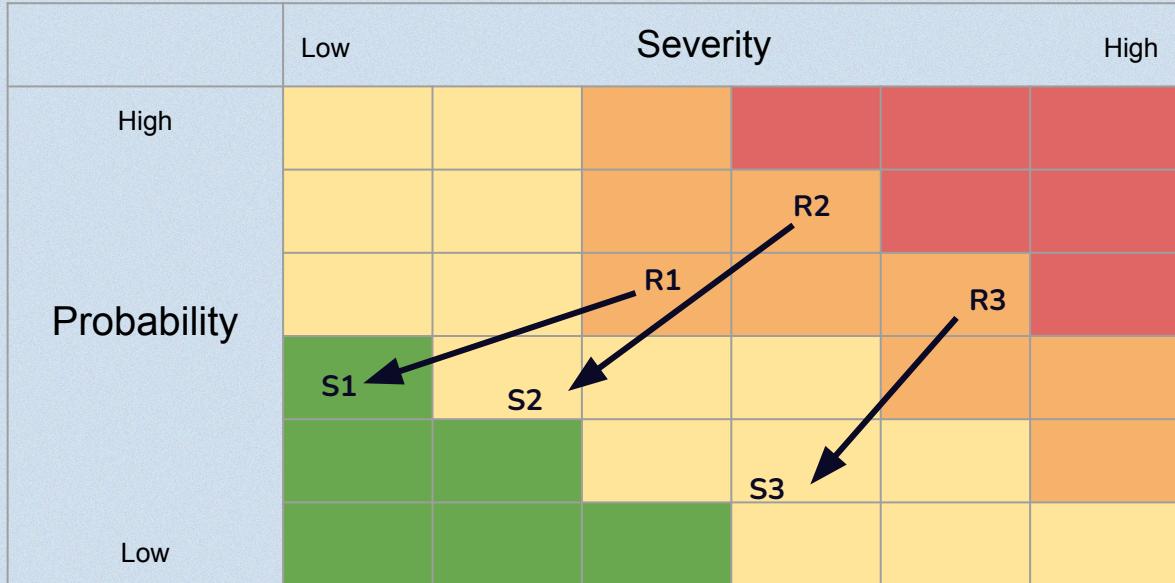
S2: Monitor third-party services and implement redundancies as a fallback

R3: The platform may struggle to handle a growing user base

S3: Use best practices for implementing scalable infrastructure



Customer Risks



R1: User receives bad information from the app

S1: Maintain quality service by ensuring that the information WiseTraveler provides is accurate and clear.

R2: User loses interest in using the app

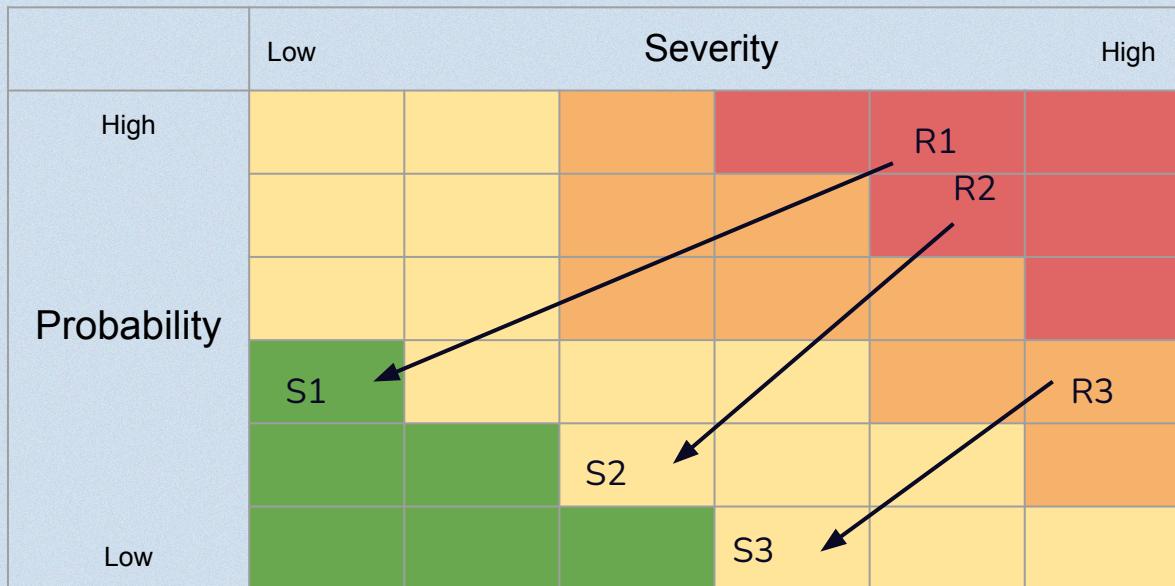
S2: Provide new features and updates to entice continued use

R3: Users are dissatisfied with the recommendations

S3: Provide a way for users to submit feedback about their experiences



Security Risks



R1: Attempts may be made to hack or hijack users' accounts.

S1: Implement multi-factor authentication and require strong, unique passwords

R2: User data could be compromised

S2: Encrypt data in transit via HTTPS and conduct thorough security assessments, such as penetration testing

R3: Users may encounter malicious links or files that could lead to security breaches.

S3: Display security warnings when users attempt to click on links redirecting away from WiseTraveler content.





Work Breakdown Structure Overview

Tools and Roles:
Module 1

User Interface:
Module 2

Algorithms:
Module 3

Database & Data Management:
Module 4

Testing & Sprints:
Module 5

Risks & Prototype:
Module 6

The first stage of the Work Breakdown Structure for WiseTraveler will be to discuss the hardware tools, software tools, development tools, and user roles..

The second stage of the Work Breakdown Structure for WiseTraveler will be to discuss the UI.

The third stage will be to discuss the algorithms that WiseTraveler will utilize.

The fourth stage will be to discuss the creation of the database tables and how data will be managed in the application.

The fifth stage of the Work Breakdown Structure will be to discuss how the testing that will be conducted, along with how the software will be divided into sprints.

The final stage will be to discuss the risks, risk matrices, and the prototype vs real world product.

Software/Hardware Tools

Front End

- Languages
 - HTML
 - Javascript
 - CSS

Back End

- Node.js
- Express.js

Databases

- AWS
- Amazon aurora

Testing

- Jest
- Mocha and Chai
- Gitlab CI/CD

3rd Party Software

- OpenAI API
- Google Map API

Hardware

- Desktop Computer

Development Tools



- **Integrated Development Environment (IDE):** VSCode
- **Version Control:** GitHub
- **Continuous Integration (CI) and Continuous Deployment (CD):** GitHub Actions & Workflows
- **Frontend Languages:** HTML, CSS, & JavaScript
- **Backend Language:** Node.js, Express.js
- **Database:** SQL
- **Testing Framework:** Jest
- **Documentation Tool:** JSDoc
- **Formatters & Linters:** Prettier, ESLint

User Roles



User Roles

Administrator

Guest User

Registered Traveler

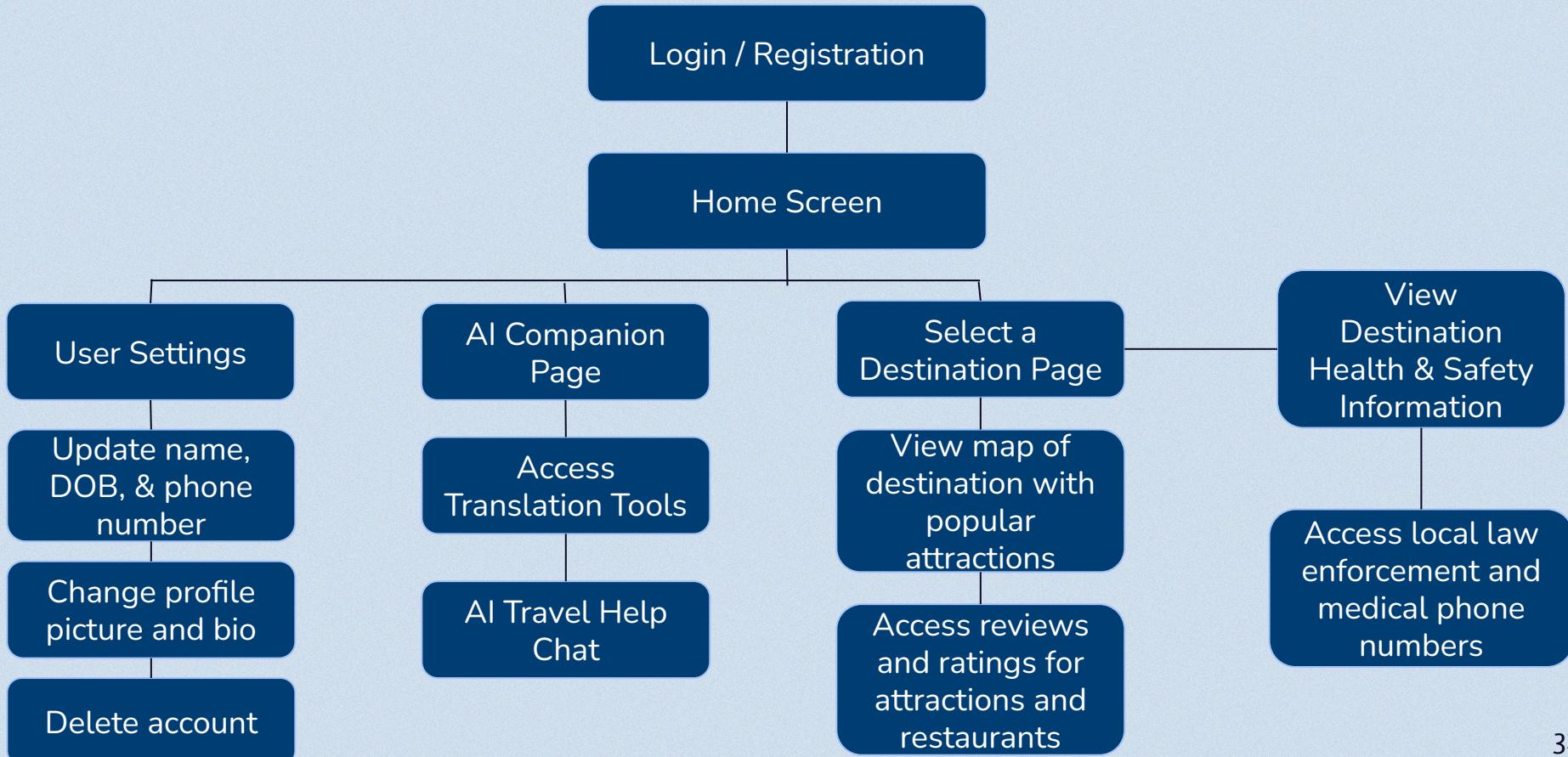
The WiseTraveler Admin is responsible for managing content and ensuring quality of WiseTraveler



A guest user is a user who does not have an active WiseTraveler profile.



WBS - User Interface Design



Sample User Interface



Sign up

Begin your travel journey with us

Your full name

First Last

Email

Enter your email address

Username

Choose a username

Set up your password

*****

Confirm your password

*****

By signing up, you agree to our [Terms](#) and [Privacy Policy](#).

Join now

Already a member? [Log in](#)



Traveler

Welcome Back!

Username

email_address

Password

[Forgot your password?](#)

Log In



Top Destinations



Paris, France

Discover the charms of Paris with its iconic landmarks and vibrant culture.



Rio de Janeiro, Brazil

Experience the vibrant energy and stunning beaches of Rio de Janeiro.



Sydney, Australia

Explore Sydney's stunning harbor and iconic opera house.

View All

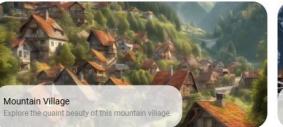
Trending Hidden Gems



Secret Waterfall

Discover the tranquility of this hidden waterfall in the forest.

Explore More



Mountain Village

Explore the quaint beauty of this mountain village.



Hidden Lake

Find peace by this hidden lake surrounded by mountains.

Safety & Health Alerts

Travel Advisory

Stay informed about current travel advisories in your destination.

Get Alerts

Health Guidelines

Follow the latest health guidelines to ensure a safe journey.

AI Travel Planner

Get personalized travel plans with our AI Travel Planner.
Enter your preferences and let our AI do the rest.

Plan Your Trip

Discover



Here, you'll embark on a journey to explore new and exciting content tailored just for you. Whether you're looking for inspiration, knowledge, or entertainment, our curated selection is designed to spark your curiosity and broaden your horizons.

Discover More



Sample User Interface



Destinations Hidden Gems Alerts



Top Destinations Overview



Safety & Health Alerts



Discover Hidden Treasures



Explore New Horizons



Save changes

Home



Edit name
Edit date of birth
Turn on/off notifications
Manage phone number

Profile settings



Change profile picture

Name

First and Last

Email

Your email address

Location

City, Country

Bio

Share about your travel experiences. #adventure #explore

Account Security

Current password

Enter current password

New password

Enter new password

Confirm new password

Re-enter new password

Update password

Notification Preferences

Receive updates on top destinations



Get notified about hidden gems



Stay informed on safety alerts



Receive community announcements



Sample User Interface



WiseTraveler

Home



Customize Your Travel Preferences

Preferred Destination

Enter Destination...

Type of Trip

Solo Trip

Couples Trip

Friends Trip

Family Vacation

Company Retreat

Event

Other

Preferred Activities

Local Food

Luxury

Outdoors

Popular Attractions

Nightlife

Wildlife

Art

Beach

History

Wellness

Placeholder

Wine

Museums

Adventure/Sports

Your Personalized Travel Recommendations



Santorini, Greece

Experience the mesmerizing sunsets and vibrant culture.



Tokyo, Japan

Explore the bustling cityscape and enjoy exquisite cuisine.



Fjords of Norway

Discover the serene beauty of Norway's natural landscapes.

Translation Tool

Select Language To Translate From

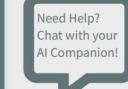
Language

Enter Text...

Select Language To Translate To

Language

Translation



Search destinations, hidden gems, alerts



Welcome

Destinations



Top Destinations



Hidden Gems



Safety & Health



AI Travel Planner



Explore Now



Discover More



Plan Your Trip



Personalized

Trending Destinations

Explore

Plan

Top Destinations

Paris, France

Santorini, Greece

Tokyo, Japan

Bali, Indonesia



Sample User Interface

WiseTraveler

Home



Map of Popular Attractions: Santorini, Greece



- 🔍
- ✈️
- 📍
- 🛡️



WiseTraveler

Home



Safety & Health Alerts

Alert: Tropical Storm Warning

A tropical storm warning has been issued for the Caribbean islands. Travelers are advised to stay updated with local news.

Read

Health Alert: COVID-19 Update

New guidelines have been issued for travelers returning from high-risk areas. Ensure you follow the protocols.

Read

Safety Alert: Civil Unrest

Protests are ongoing in the capital city. Travelers should avoid large gatherings and stay informed.

Read

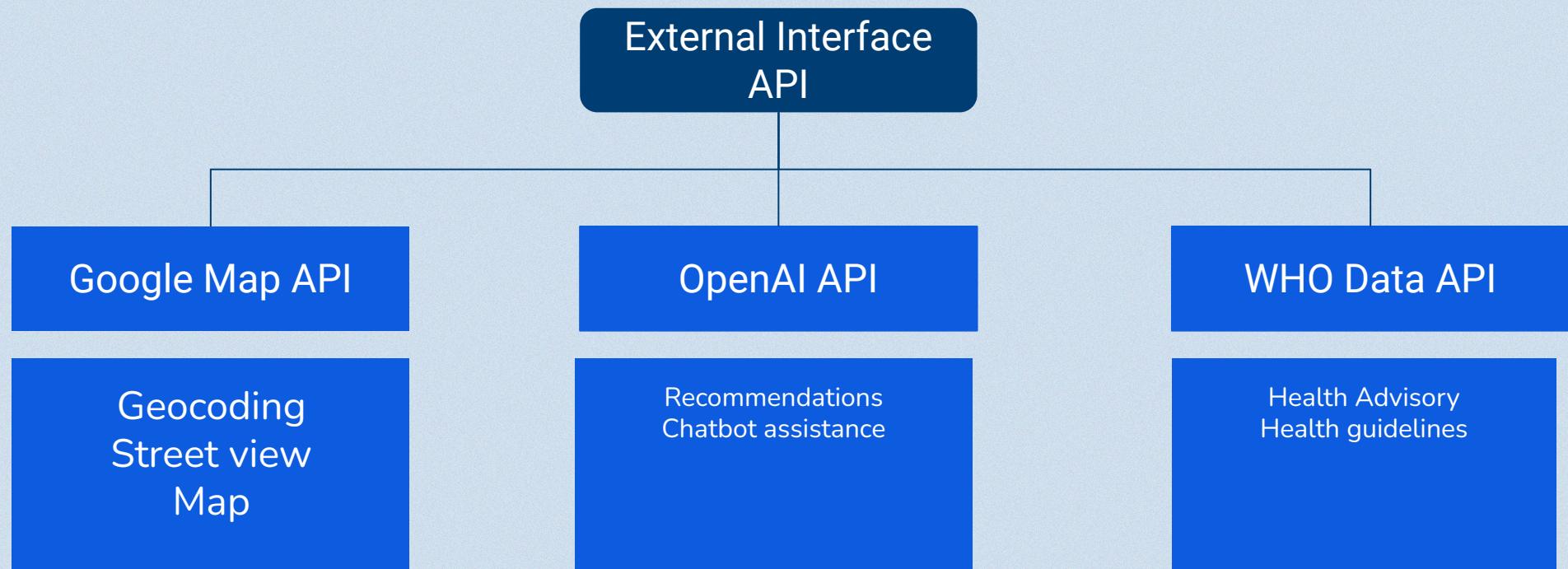
Travel Tips

Pack a basic first aid kit including any personal medications.

Ensure your passport is valid for at least six months from your return date.

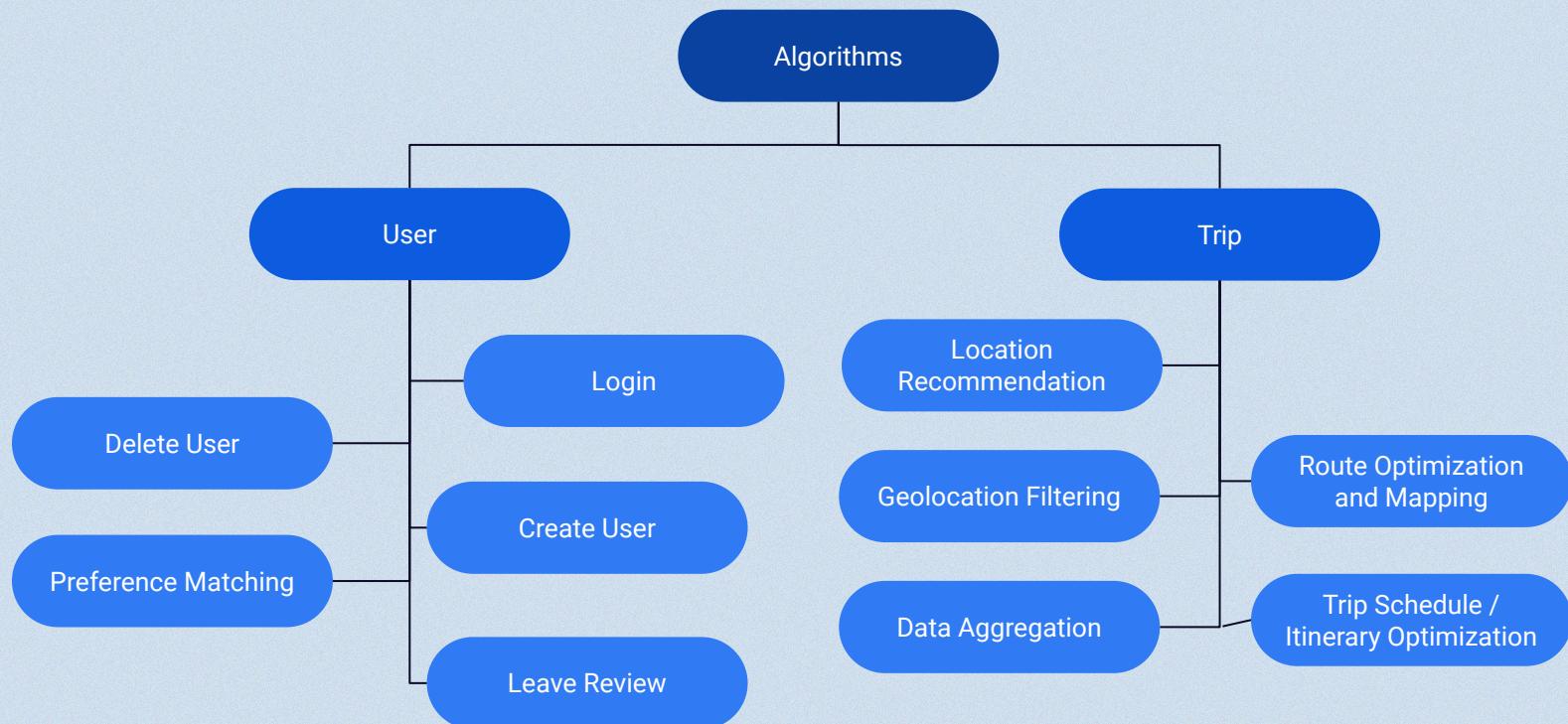


WBS - External Interface/API

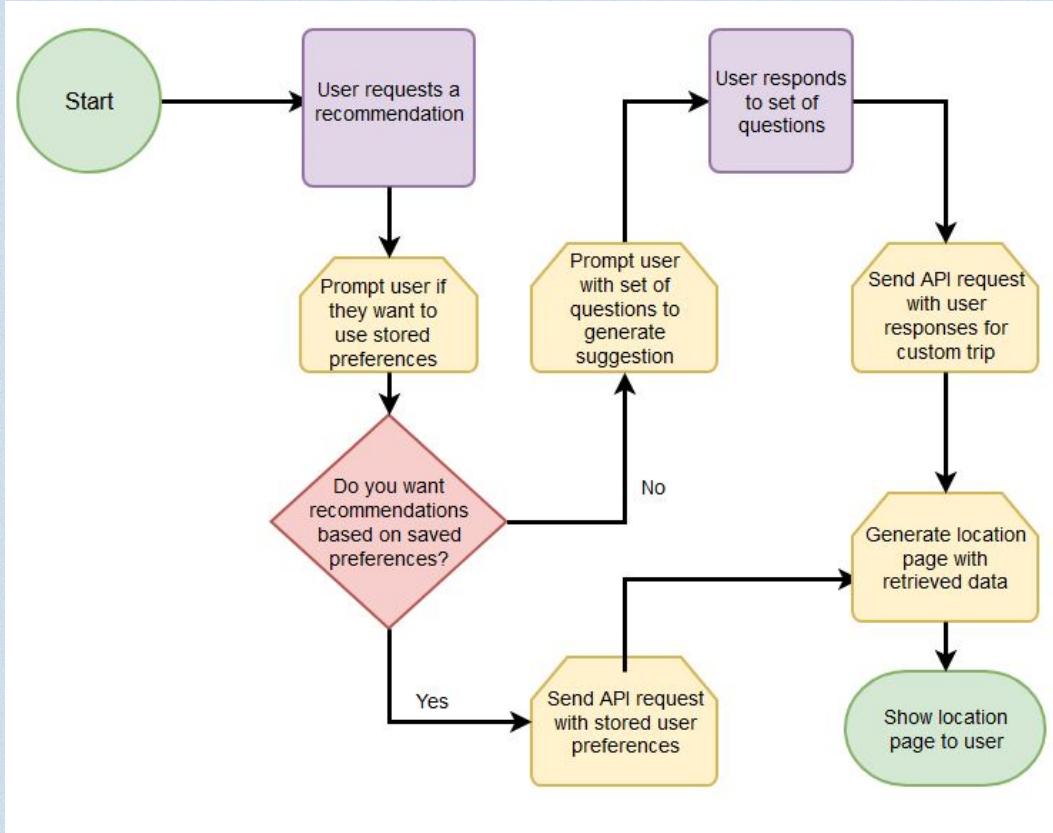




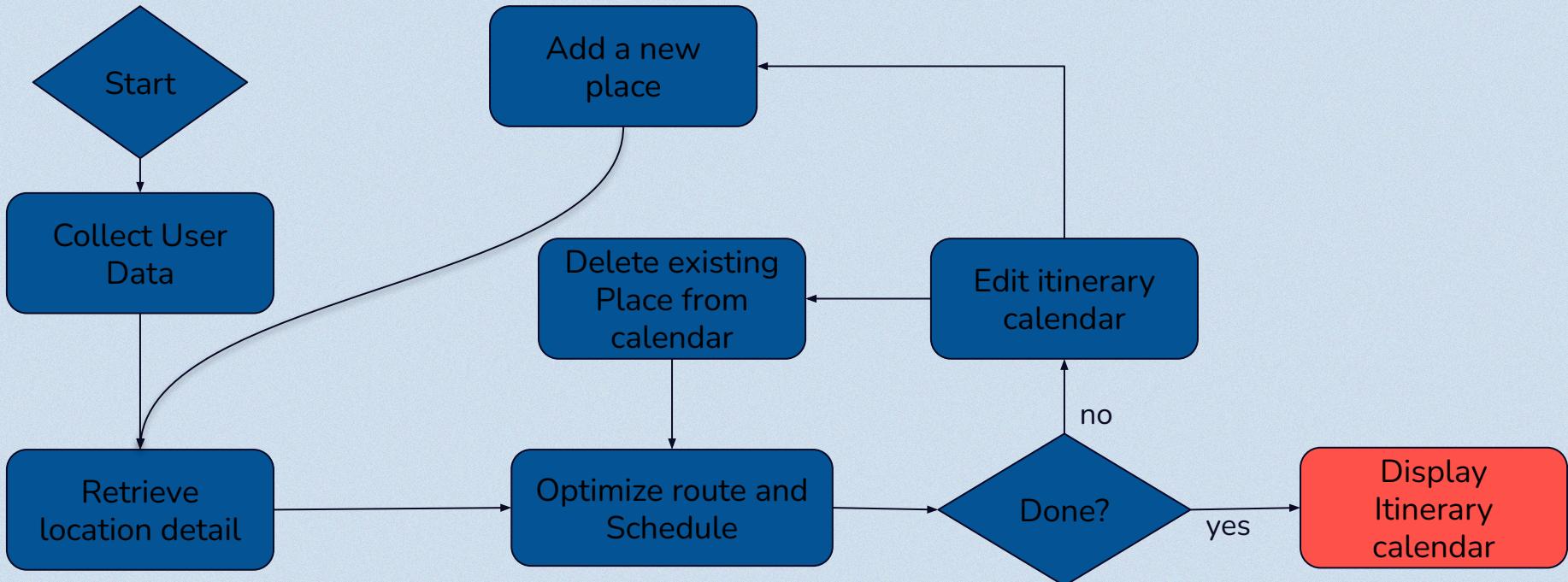
WBS - Algorithms



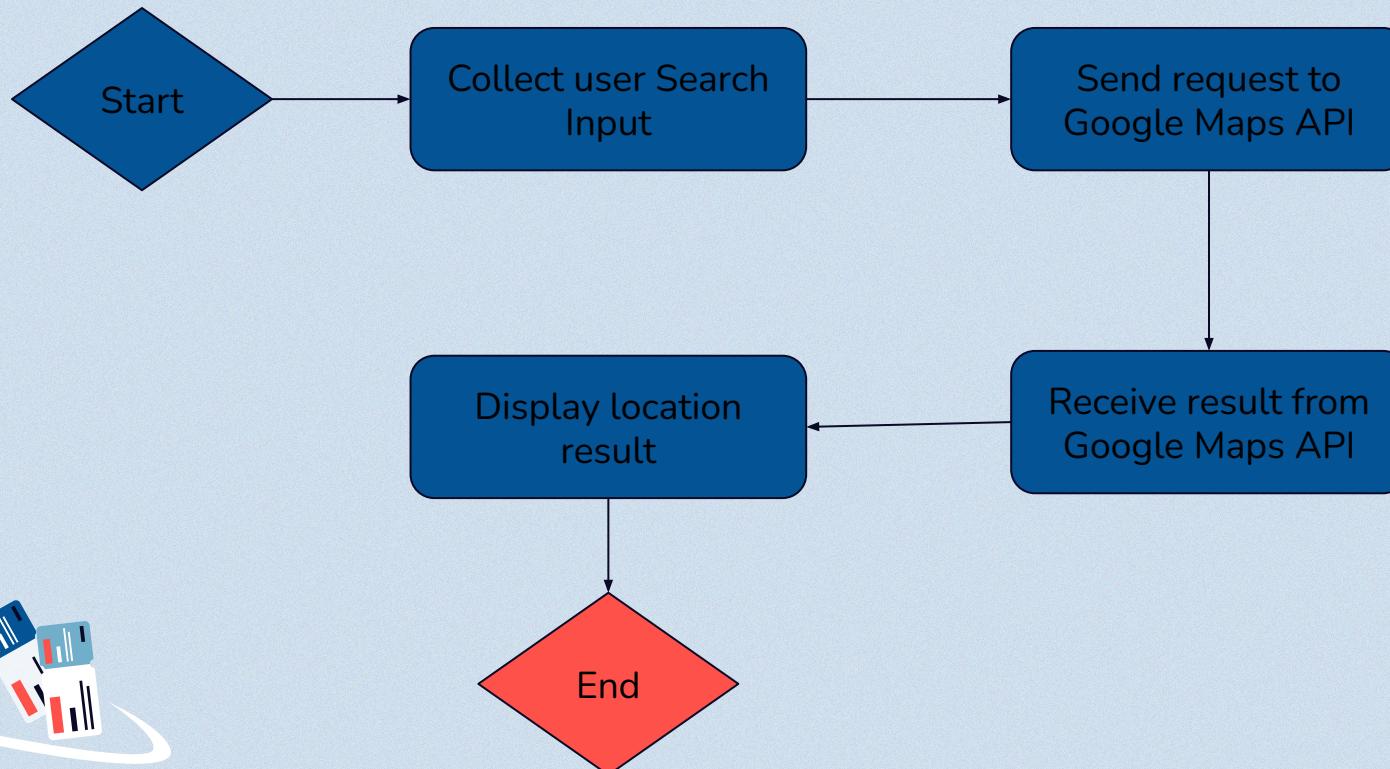
Algorithm: Location Recommendation



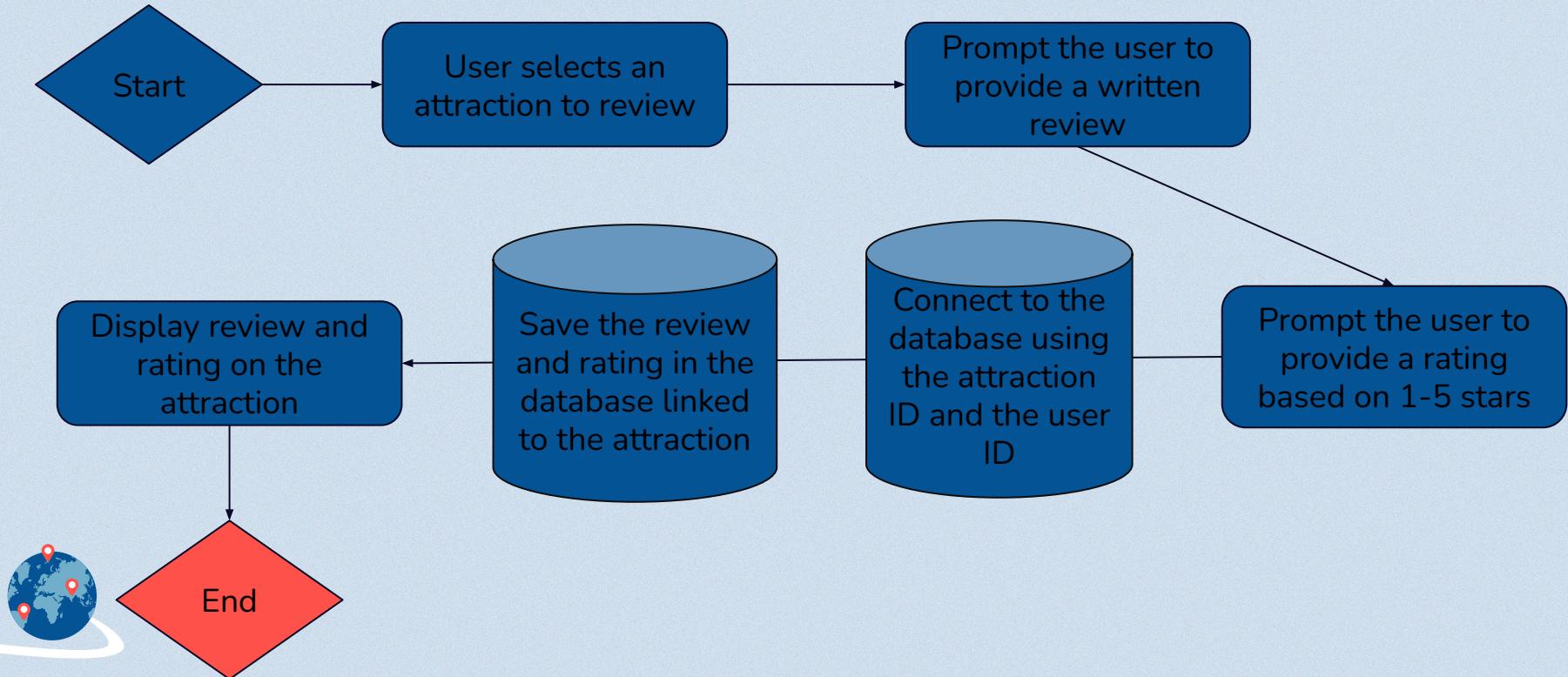
Algorithm: Trip Scheduling & Itinerary Optimization



Algorithm: Data Aggregation

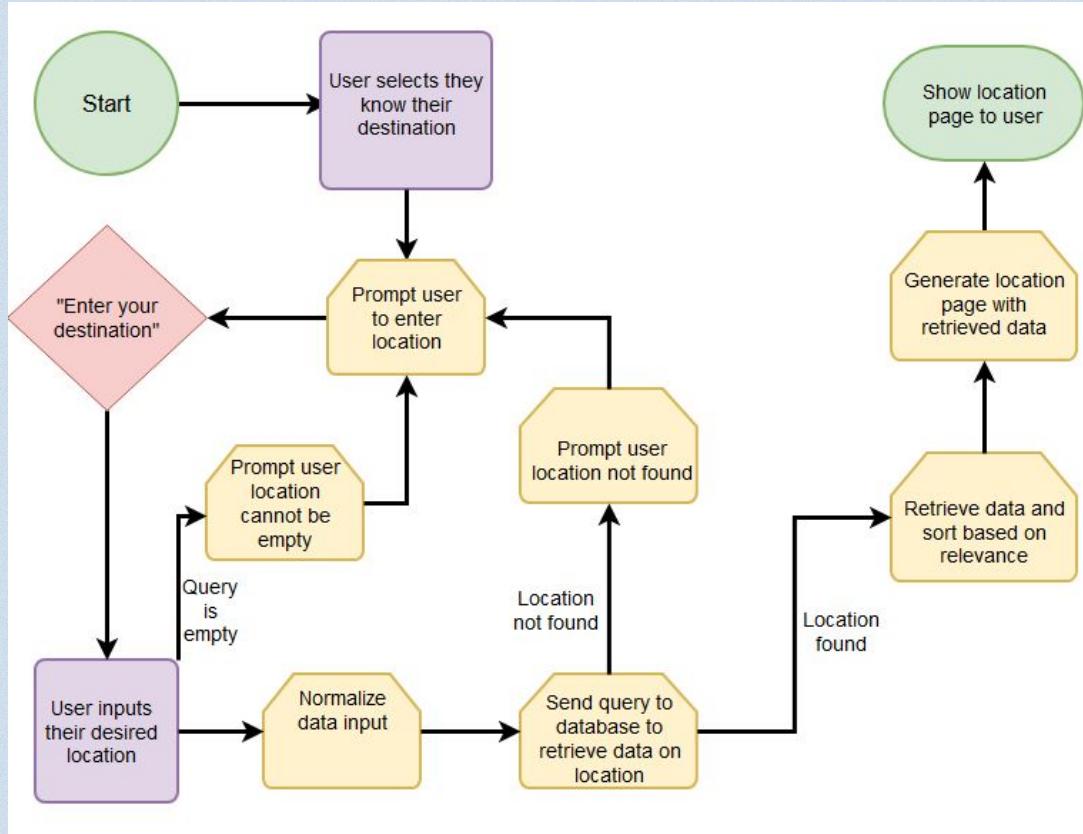


Algorithm: Review & Rate Attractions

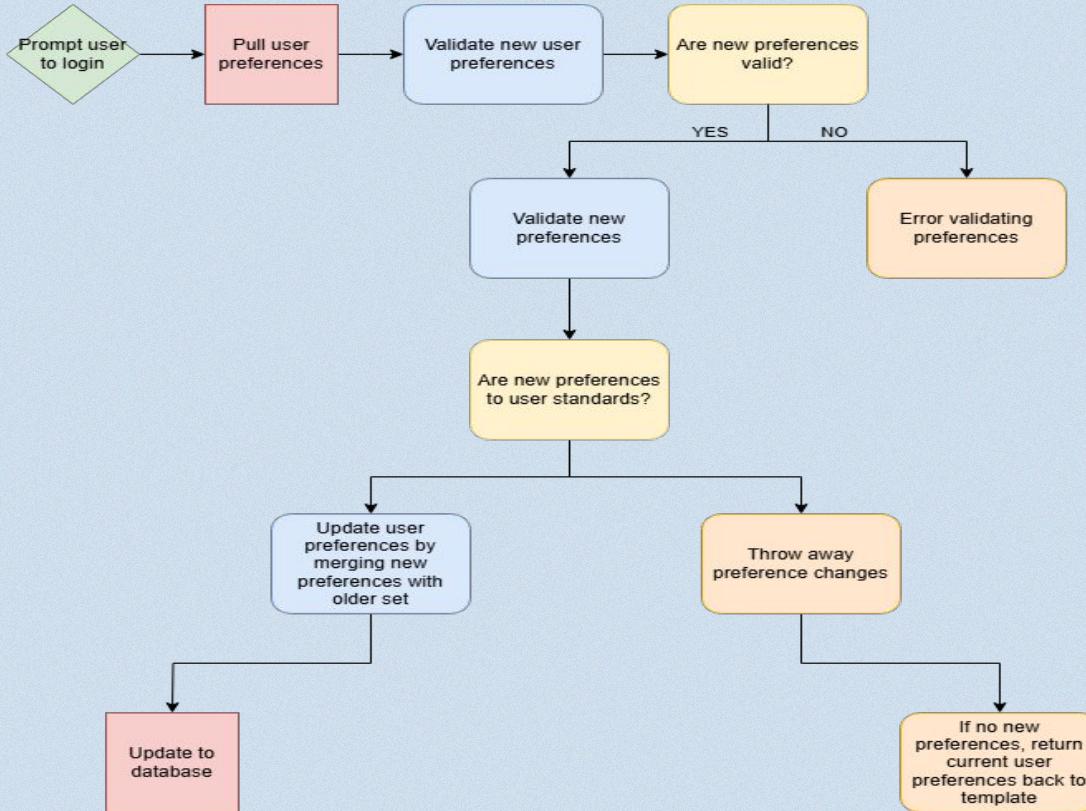




Algorithm: Geolocation Filtering

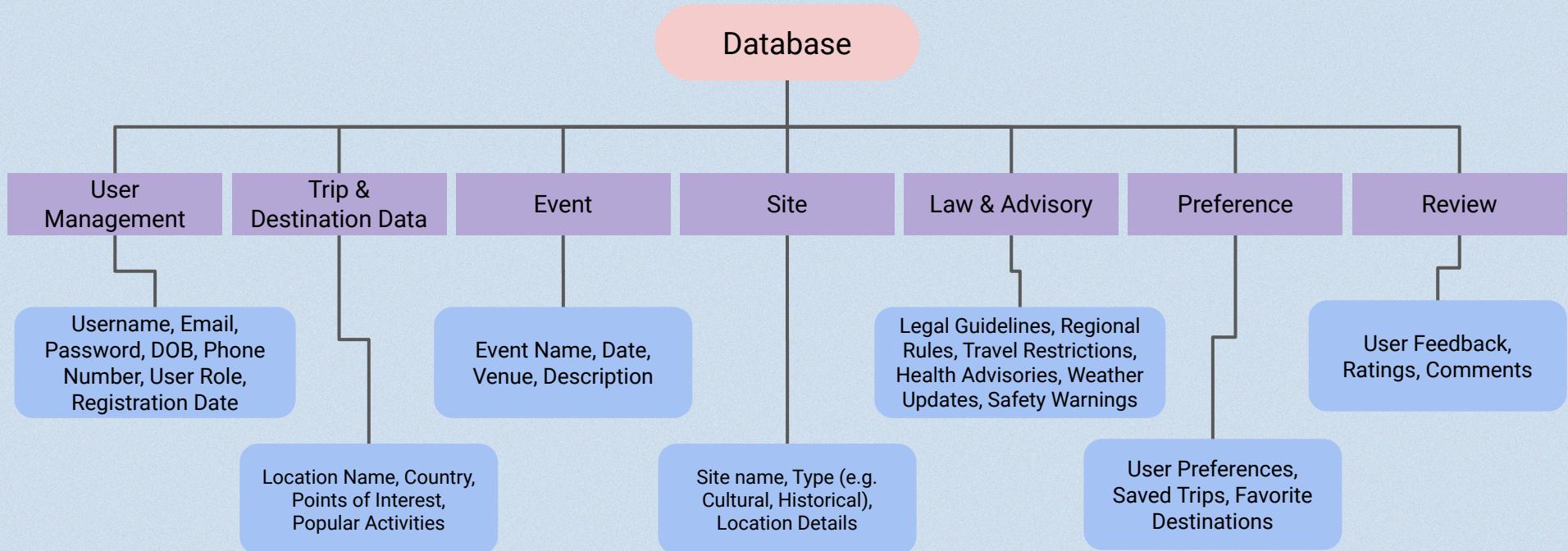


Algorithm: Preference Matching



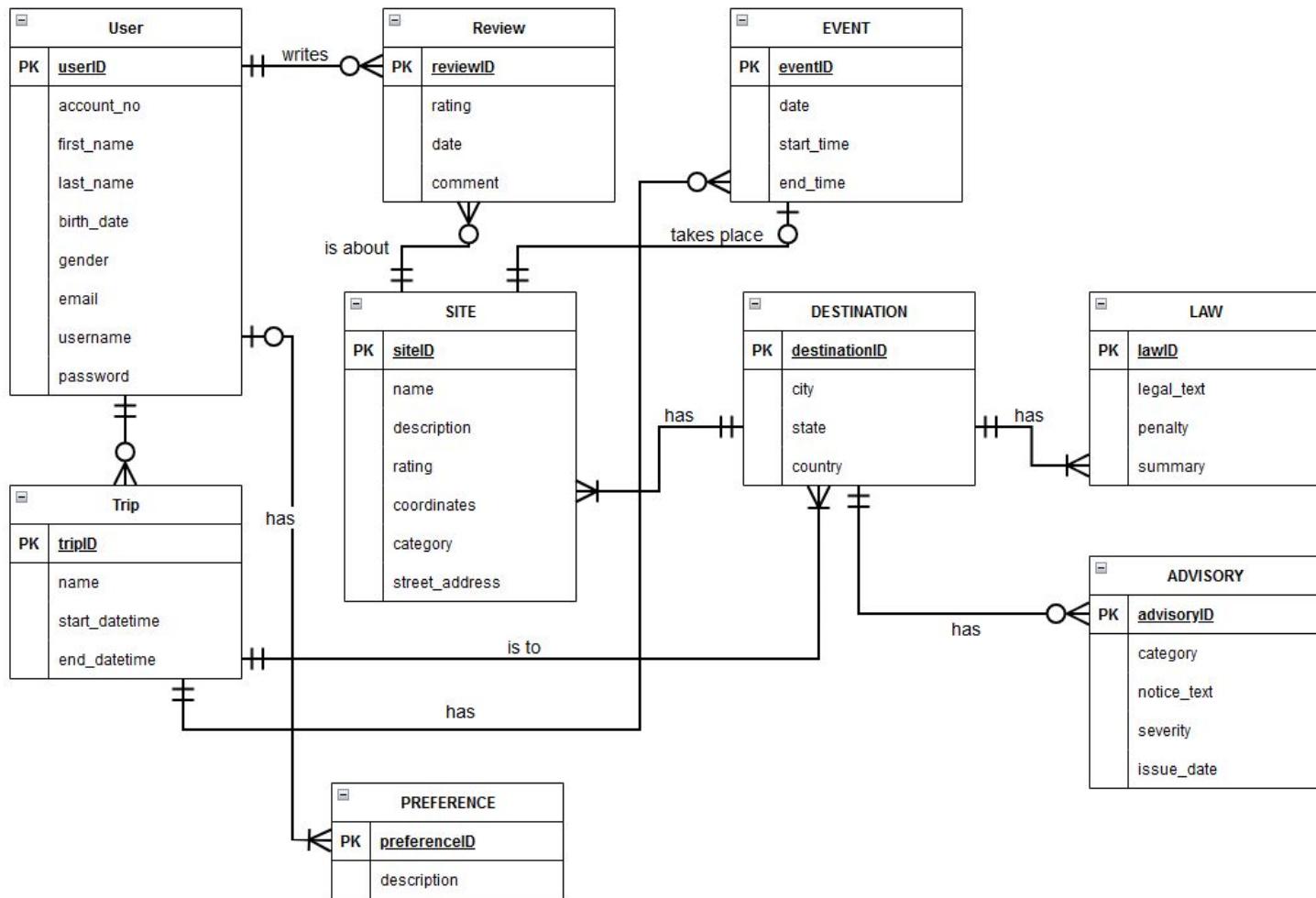


WBS - Database





Database Schema: ERD



Data Management



Data Sources

- **User Data** : Data from user registration, location information, preferences.
- **Logged Activity** : User activity and errors in execution.
- **External Integrations** : Data obtained from external sources such as API.

Storage Locations

- **Database** : AWS Cloud Storage



Collected Data

- User information
- Location information
- Reviews
- Trip details

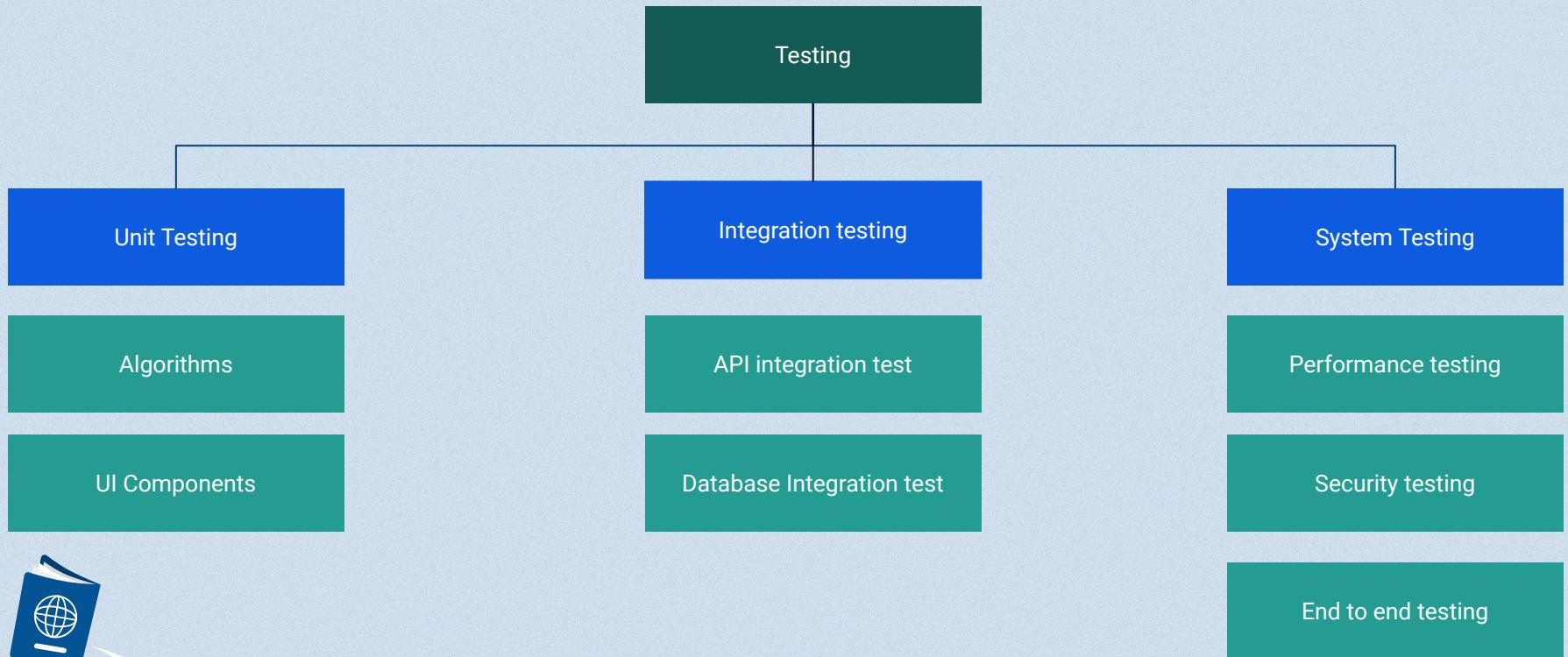
Data Encryption

- **Encryption:** Any sensitive data such as user login information and API keys.

Data Recovery

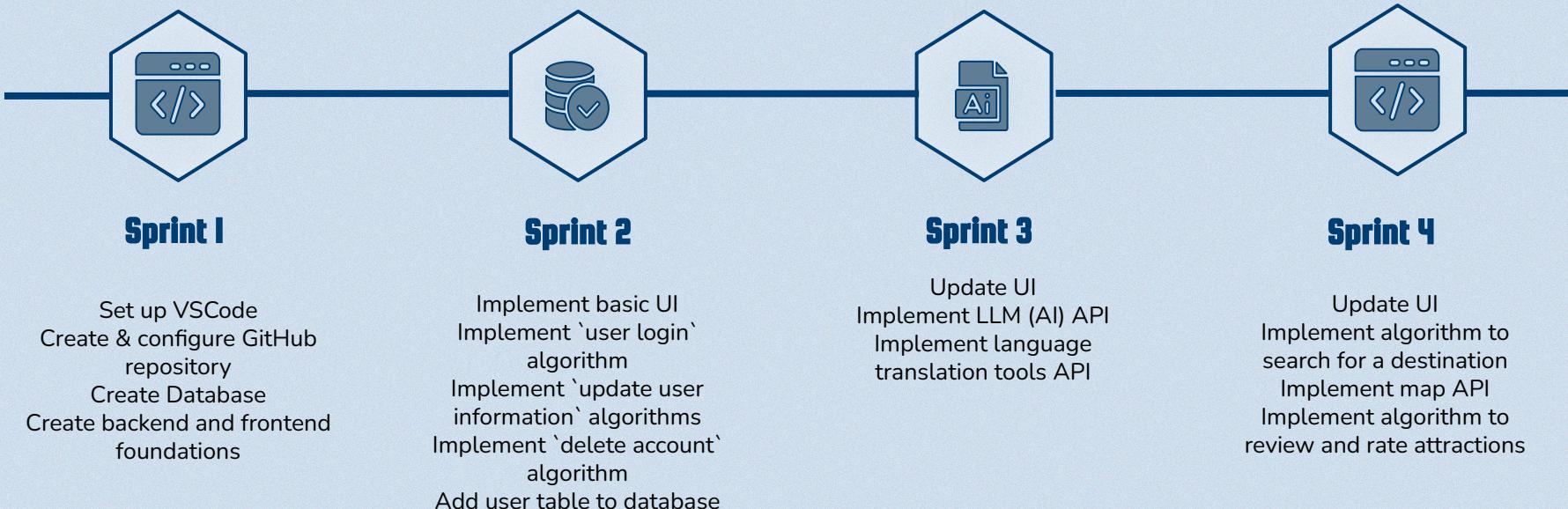
- Recovery solutions offered by AWS to retrieve lost data

WBS - Testing





Sprints



Sprints



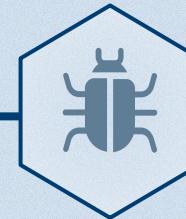
Sprint 5

Update UI
Add functionality to access health and safety information
Add functionality to view local law enforcement contact information
Implement notifications algorithm



Sprint 6

Finish UI
Add mobile responsive design
Implement security features
Password hashing
Database security
HTTPS



Sprint 7

Debug
Perform testing
Publish application

Prototype vs Real World Product

	Prototype	Real World Product
User Interface	Basic, Limited Functionality	Full Design and Function
Data	Static Data from Sources	Live Data from API
Calendar	Limited, Manual Entry	Robust and Integrated
Map	Basic Location Points	Location and Travel Time



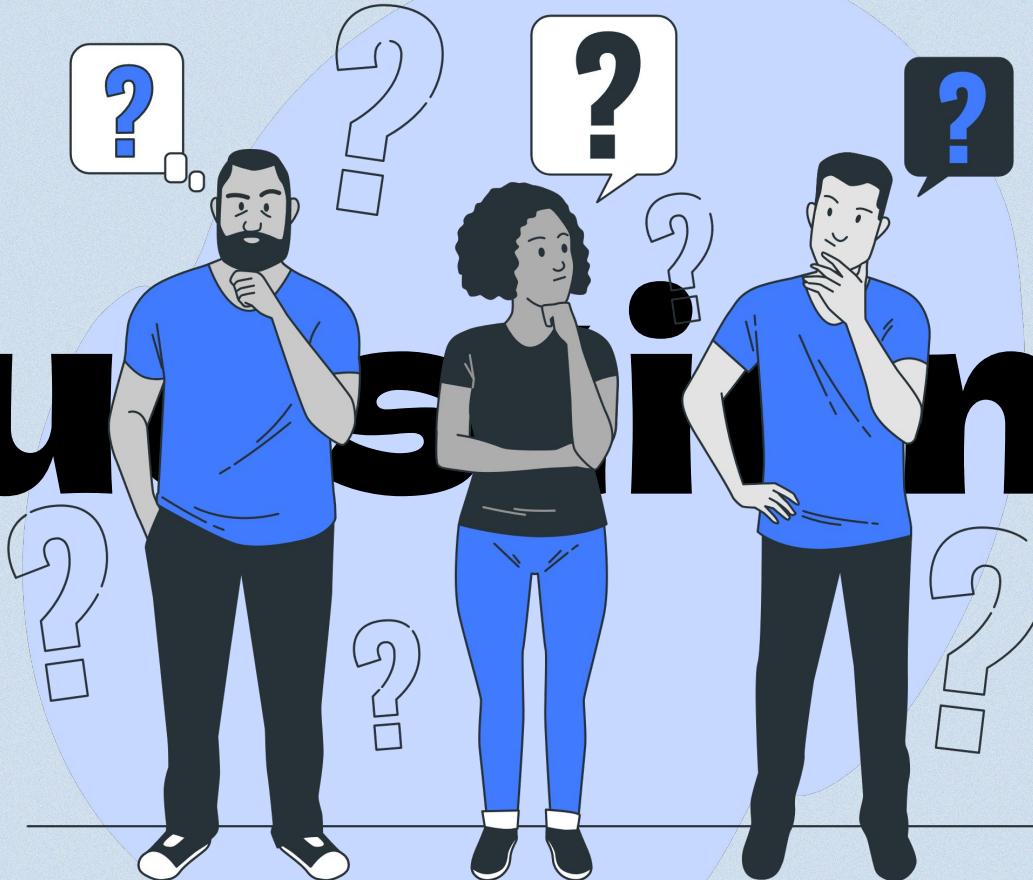
Conclusion



- **Centralized AI Travel Guide:** WiseTraveler Offers a hassle-free, all-in-one platform for travel planning.
- **Stress-Free Experience:** Eliminates the need to navigate multiple sources for information.
- **Beyond Mainstream Tourism:** Encourages exploration of unique, culturally immersive destinations.
- **Traveler Safety and Information:** Keeps users informed and ensures safe, well-prepared journeys.
- **Focus on the Journey:** Allows travelers to concentrate on enjoying their adventures.
- **Personal Travel Assistant:** Helps you navigate unfamiliar destinations while uncovering authentic, off-the-beaten-path experiences.
- **Cultural Immersion and Safety:** Ensures a safe, well-prepared journey and facilitates deep engagement with local culture.
- **Unforgettable Adventures:** Transforms trips into extraordinary experiences filled with unique discoveries.



Questions?



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User Stories - Traveler

As a traveler, I want to view a comprehensive overview of my destination, including local laws, health advisories, and cultural tips, so that I am well prepared and can avoid potential risk.

As a traveler, I want to know the areas with high crime rates or health risk so that I can make informed decision about where to stay and visit.

As a traveler, I want guidance on local sanitation practices, safe drinking water options, and food safety, so I can minimize health risks during my trip.

As a traveler, I want to create a personalized itinerary with recommendations based on my interests.

As a traveler, I want suggestions for lesser known spots to avoid crowded tourist areas.

As a traveler, I want to know about popular tourist traps so I can avoid them and discover more genuine, locally recommended places.

As a traveler, I want to read reviews from other users who have visited my destination to get additional insights and tips from past travelers.



User Stories - Curious Traveler

As a curious traveler, I want to explore destinations tailored to my interest to get ideas for where to travel next.

As a curious traveler, I want to browse recommended itineraries for different destinations to visualize what my days could be like.



Thank YOU

