Lab 2 – WiseTraveler Product Specification

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Version 2

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1. Introduction

WiseTraveler is a web-based travel platform designed to serve as an AI travel assistant providing personalized and comprehensive travel planning and guidance. The platform consolidates essential travel information, including safety guidelines, health advisories, and cultural insights, into a single, user-friendly interface. WiseTraveler leverages user preferences and real-time data to offer tailored recommendations, helping travelers to discover hidden gems while avoiding common tourist traps. By addressing key travel challenges such as fragmented information sources and lack of cultural context, WiseTraveler enhances the travel experience, ensuring a simpler planning process and a safer, more meaningful journey.

1.1. Purpose

The purpose of this document is to define the software requirements for WiseTraveler. This document is intended for stakeholders, developers, testers, and project managers to ensure a clear understanding of the software's functional and non-functional requirements.

1.2. Scope

WiseTraveler is a web-based application designed to enhance travel experiences by offering personalized recommendations, itinerary planning, and user-generated insights. The system will provide personalized travel recommendations, an interactive itinerary manager, user-generated reviews and insights, and integration with third-party APIs for AI integration, map functionality, and travel health and safety information.

WiseTraveler will not function as a booking service but will provide links to third-party travel platforms. Additionally, the system will not provide payment transactions, real-time flight tracking, legal assistance, or emergency services.

1.3. Definitions, Acronyms, and Abbreviations

Centralized Platform: A single location within WiseTraveler where all essential travel information is consolidated, minimizing the need to access multiple sources.

Cultural Insensitivity: disrespectful behavior towards local customs

Cultural Understanding: Information on local customs, traditions, and etiquette to foster respectful and immersive travel experiences

Data Aggregation Algorithm: Collects and integrates travel data from multiple sources, including third-party APIs.

Database Schema: The logical and visual configuration of the relational database

Hidden Gems: Lesser-known attractions, destinations, and experiences that provide an authentic and unique insight into the culture and environment of a location.

Itinerary Optimization: WiseTraveler's feature for organizing and scheduling destinations efficiently based on proximity and travel times, enhancing trip convenience.

Itinerary Optimization Algorithm: Arranges locations by travel proximity and schedules them efficiently.

Legal Assistance: WiseTraveler does not offer legal advice or representation; travelers are encouraged to seek professional legal help if needed.

Legal Issues: Potential liability risks WiseTraveler may face if users rely on the app's advice and encounter problems such as illness or injury.

Local Laws: Rules and regulations specific to a destination that may differ from those in travelers' home countries. WiseTraveler includes quick guides on local laws to help travelers avoid legal issues abroad.

Location Recommendation Algorithm: A feature to suggest destinations or spots based on user interests and travel history.

Medical Service: WiseTraveler does not provide medical care or advice; travelers are directed to local healthcare providers for medical issues.

Misinformation: Incorrect or outdated information, which WiseTraveler aims to mitigate by regularly updating content and verifying user contributions.

Personal Health: Alerts and guidelines on health risks such as prevalent diseases or pests in specific regions, along with tips for staying healthy during travel.

Personalized Recommendations: Travel suggestions tailored to users' preferences and past selections, allowing for a more personalized and enjoyable trip.

PII: Personally identifiable information including direct identifiers, such as full name, or indirect identifiers like gender or date of birth.

Real-Time Health and Safety Alerts: Notifications about region-specific health risks or other immediate dangers

Safety Concerns: Information about potential safety issues, such as high-crime areas or specific risks that travelers should be aware of when visiting new destinations.

Traveler: A user of the WiseTraveler application

Tourist Trap: An attraction that may be overly commercialized or lack authenticity, often with higher prices. WiseTraveler aims to help users avoid these in favor of more genuine experiences.

Trip Scheduling Algorithm: Logic that manages travel dates, allowing users to add locations to their itinerary.

User-Generated Content: Reviews, tips, and experiences shared by WiseTraveler users, enabling travelers to access authentic, community-based insights.

User Retention: *The process of maintaining active users on WiseTraveler, involving regular updates and new feature releases.*

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1.5. Overview

This document outlines the hardware and software configurations, system interfaces, and key features of the WiseTraveler application. The subsequent sections provide a comprehensive breakdown of each functional and non-functional requirement, detailing the specifications necessary for implementation. Section 2 will document the WiseTraveler program in general terms.

2. Overall Description

2.1. Product Perspective

WiseTraveler is a standalone web-based travel platform designed to serve as a comprehensive travel assistant. It integrates diverse data sources to deliver personalized recommendations tailored to user preferences and real-time conditions. The system is built upon three primary layers: a front-end, a backend, and a database.

The front-end, developed with Next.js, offers an intuitive and dynamic user interface. It allows travelers to search for destinations, view personalized recommendations, and manage their travel plans. Designed for responsiveness and accessibility, the front-end ensures a seamless experience across devices. User actions, such as signing up or logging in, initiate API calls to the backend, which authenticate user information and securely interact with the database.

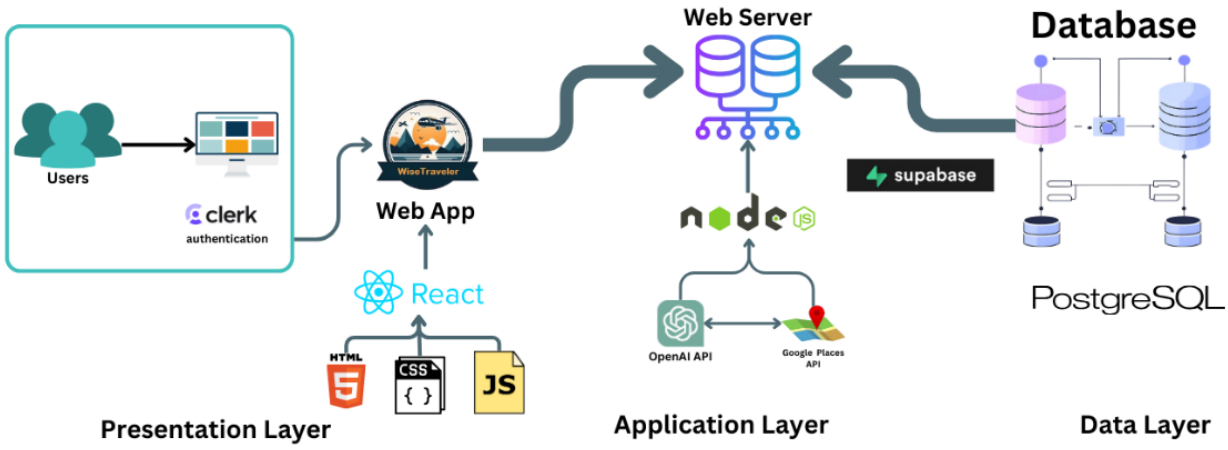
The backend, powered by Supabase and Node.js, manages the platform's core functionality. It processes user queries, integrates external data sources, and executes business logic to generate tailored recommendations. The backend serves as the intermediary between the front-end and the database, ensuring data is processed efficiently and securely.

The database is managed through Supabase, which handles both authentication and data storage. Supabase securely manages user sessions, roles, and sensitive information using its

built-in encryption capabilities. It also acts as the central repository for user preferences, travel histories, and metadata related to destination recommendations.

These layers operate together to provide a seamless user experience. The front-end communicates with the backend via API endpoints, transmitting user inputs and delivering results in real time. Supabase ensures secure and efficient data transactions between the backend and the database, while its authentication mechanisms validate identities and maintain access control. Together, these components enable WiseTraveler to act as an intelligent guide, empowering users to explore destinations safely, efficiently, and with cultural awareness.

Figure 1:
Major Function Components Diagram



2.2. Product Functions

WiseTraveler will be accessible on both mobile and desktop web browsers. The interface should allow users to input their travel preferences through a quiz-like form. If a traveler already has a destination in mind, they should be allowed to input that location directly.

A traveler should be able to retrieve an itinerary generated by a personalized AI. The traveler will be able to add, modify, or delete events within their itinerary. If a traveler already has an itinerary planned outside of WiseTraveler, they should be able to manually add each detail for efficient tracking and integration with the map.

The application should provide an interactive map that shows the locations of events within the itinerary. Travelers should be able to receive navigation assistance to travel between these locations. Nearby sites and attractions should be visible while travelers are browsing the map.

The landing page for a trip should show an overview of the health and safety risks for traveling to the included destinations. Within the trip page, a user should be able to view their current itinerary if one has already been created by the application. If no itinerary is present, an option to create a new itinerary should be available.

If there is a severe health or safety issue, an alert should be visible to a traveler informing them of the status of their intended location as well as any necessary details.

Travelers should be able to access a profile page where they can modify their user details. A traveler should be able to view their current preferences within their profile. If a traveler's preferences have changed, an option should be presented for a traveler to retake the preferences quiz.

Administrators of the app should have a separate interface to allow the moderation of reviews and the supervision of traveler accounts to prevent unauthorized usage. For example, if a traveler frequently posts negative reviews or explicit comments, an administrator will be able to restrict or remove the account in question.

User accounts should be secure from unauthorized access. PII should be encrypted to prevent mishandling and Secure user authentication and profile management are handled through Clerk.

Travelers should be able to receive language translation assistance in real-time to minimize cultural misunderstandings and reduce language barriers.

The prototype implementation includes core functionalities such as authentication, basic itinerary planning, and essential travel recommendations. Advanced AI-based suggestions and some third-party API integrations may be partially implemented or omitted in the initial prototype.

Table 1:
Prototype vs RWP

	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

2.3. User Characteristics

WiseTraveler is designed for a diverse range of travelers such as casual tourists, business travelers, and adventure seekers. Travelers are expected to have basic computer literacy and familiarity with online platforms. The system is designed for intuitive use, ensuring accessibility for individuals with varying levels of technical expertise.

2.4. Constraints

The system should run on any modern web browser (Chrome, Firefox, Edge, etc.) operating on a desktop or mobile device.

An active internet connection is required for full functionality, including real-time updates and AI recommendations. The system should permit travelers to save important trip information, such as the trip itinerary, for offline access when no internet connection is available.

With the various privacy laws in countries, only necessary PII should be collected. Any user data that is collected should be encrypted to prevent mishandling or unauthorized use.

Travelers should be at least 13 years of age to minimize liability issues.

2.5. Assumptions and Dependencies

WiseTraveler depends on Supabase for database management and user authentication, the OpenAI API for AI chat functionality, the Maps API for location and map data, and various travel-related APIs for real-time health and safety data.

The platform assumes that all travel data providers comply with international and regional travel regulations. Any changes to government policies or legal restrictions affecting travel data access may require adjustments to WiseTraveler’s services.

The quality of recommendations relies on accurate user preferences and input.