Lab 2 – WiseTraveler Product Specification

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1 Introduction

In 2023, approximately 48.98 million U.S. residents ventured overseas (3) to discover new cultures, visit family and friends, or attend to business. Additionally, within the first seven months of 2024, 79 million U.S. residents traveled internationally, which is approximately 11% more than in 2023 (15). While many travelers seek authentic cultural experiences, preparing such a trip can be daunting.

To plan a trip, travelers must conduct large amounts of research from multiple sources. Additionally, this information can be incomplete, outdated, or superficial paid reviews, leaving travelers with insufficient information on their destination. This insufficient information can expose tourists to great dangers involving the law and their health and safety, not to mention it can also lead to a less fulfilling trip. Furthermore, even if tourists are area of these risks, they are unsure how to combat them. As a result, when traveling to a foreign country, many travelers stick to crowded, popular cities and fall victim to tourist traps due to uncertainty about where to explore. Therefore, WiseTraveler, a new type of application, aims to help travelers obtain complete information from a single source, avoid tourist traps, and better plan their trips altogether.

1.1 Purpose

The purpose of this Software Requirements Specification (SRS) is to provide a detailed technical document that explains the development of the WiseTraveler application. This SRS aims to define the functional and non-functional requirements of the WiseTraveler application, state the specifications of the application’s features and behaviors, assist in guiding the software development process, and facilitate an understanding of the project scope and objectives. Ultimately, this document helps to ensure that all team members, stakeholders, project managers,

and developers have a thorough understanding of the WiseTraveler application's goals, features, and technical specifications.

1.2 Scope

The WiseTraveler prototype will be an AI-driven travel application that provides a hassle-free, comprehensive experience, allowing travelers to focus on their journey. The prototype will encourage exploration beyond mainstream tourist spots, offering unique, culturally immersive experiences while keeping travelers informed and safe. WiseTraveler will consolidate all essential travel information so users can avoid juggling multiple sources of information. WiseTraveler will also allow travelers to sign up for accounts and store data about various trips. Ultimately, the application will help inform users about various travel related data and deliver tailored suggestions for destinations, attractions, and activities based on user preferences, making trip planning more straightforward and personalized.

1.3 Definitions, Acronyms, and Abbreviations

Tourist Trap: An unfulfilling, and generally expensive, foreign attraction, activity, or event.

AI (Artificial Intelligence): A program that can perform tasks that normally require human intelligence.

API (Application Programmable Interface): A predefined piece of code that can be changed or manipulated to mold to a specific software application.

Centralized Platform: An application that concentrates large amounts of data in a single location.

Geolocation: The identification of the real-world geographic location of an object.

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1.5 Overview

This SRS is organized into the following sections:

1. **Introduction**: States the introduction of the WiseTraveler project.
    - **1.1 Purpose**: States the purpose of the SRS itself.
    - **1.2 Scope**: States the goals and benefits of the WiseTraveler application.
    - **1.3 Definitions, Acronyms, and Abbreviations**: Glossary Section
    - **1.4 References**
    - **1.5 Overview**: The structure of the SRS sections.
2. **Overall Description**: Offers a high-level view of the product.
    - **2.1 Product Perspective**: Describes what is being built.
    - **2.2 Product Functions**: Describes the main features of the software.
    - **2.3 User Characteristics**: Discusses and defines the various user roles for the application.
    - **2.4 Constraints**: Defines any technical, legal, or environmental constraints.
    - **2.5 Assumptions and Dependencies**: Lists dependencies, such as third-party services, APIs, or required software frameworks.

2 Overall Description

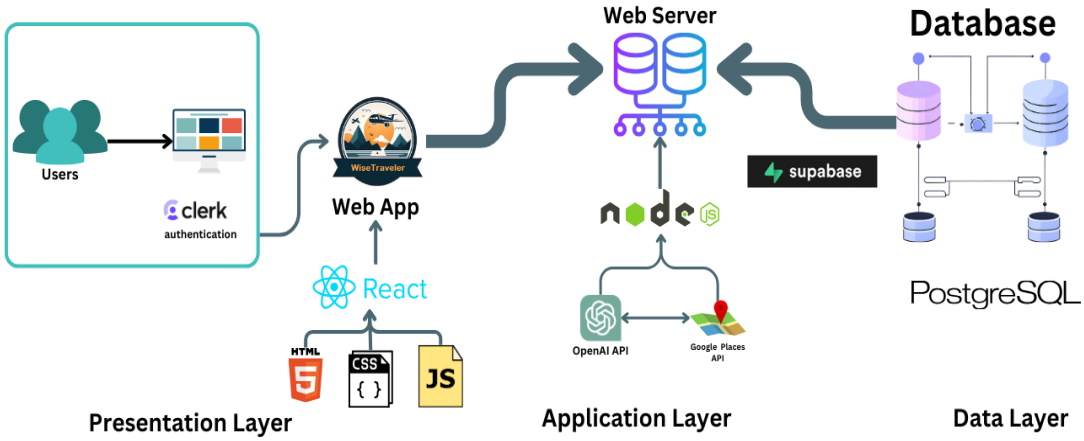
WiseTraveler represents a solution to the challenges of travel planning. By integrating artificial intelligence, accessible information, and user-centric design, the platform aims to help travelers prepare for their travels. The software will help address critical gaps in current travel resources, which prioritizes safety, cultural understanding, and personalized exploration. As millions of people worldwide are constantly traveling, WiseTraveler will provide travelers with the knowledge needed to explore the world better and more authentically.

2.1 Product Perspective

The WiseTraveler application offers many key product features and capabilities. For example, WiseTraveler will be equipped with an AI feature, which users can use to help research and plan for trips. This AI assistant will be in the form of a chatbot that users can talk with. Users can ask this AI assistant travel related questions, and the AI chatbot will respond with tailored recommendations, as it will have access to information from each user's profile. An interactive map will also be featured on the web application. This map will help aid in discovery of the country that each traveler is visiting. Moreover, WiseTraveler aims to help users stay safe on their trips. Therefore, real-time health and safety alerts are another key feature of the web application. Each health and safety alert will be specific to the country that the user is visiting. Additionally, WiseTraveler will also feature a quiz that helps users determine what country they should visit; this quiz will aim to help users narrow down which destination they should visit.

Finally, WiseTraveler will utilize a review system that allows users to rate and review local attractions, as well as view other users' reviews for various types of attractions. The program will provide this type of review system to ensure that users do not fall into any tourist traps, and instead, they can visit the best attractions that the country has to offer.

Figure 1: Major Functional Components Diagram



The WiseTraveler prototype will be a web application with a responsive mobile and desktop design, ensuring that the application can be utilized across diverse types of smartphones, tablets, laptops, and desktops. When the user accesses the website, they will directly interact with the presentation layer. This presentation layer encompasses the UI/UX of the website, and the UI/UX will be developed using a React.js framework. On the application layer, the OpenAI API and the Google Map API will be implemented using Node.js. The user will be able to directly interact with the OpenAI API to discuss any travel related questions, and the user will be able to interact with the Google Map API to view various travel destinations. The data layer will encompass the PostgreSQL database; all user-related information will be directly sent to and stored in the database using Supabase. The database will utilize various tables that help store information relating to user accounts, trip planning, event information, site details, advisory data, user preferences, and reviews.

2.2 Product Functions

The prototype features for the WiseTraveler application will be user registration and login pages, the interactive location recommendation quiz, the AI travel chat, the health and safety alerts feature, information on local customs and various cultures, the user reviews feature, a calender, and the interactive map. These accomplishments are significant for the prototype. Together, the goals and objectives of the WiseTraveler application offer an engaging, secure, and personalized experience for users. These features meet both technical and functional requirements for travel planning.

Table of Comparison Between Prototype and Real-World Product

	Feature	**Prototype**	**RWP**
User Interface	AI assistance for planning and research	Fully functional	Fully Functional
	Safety Concerns (dangerous animal sightings, criminal activity, etc.)	Partially functional	Fully Functional
	Health Risks	Partially functional	Fully Functional
	Cultural Discovery	Partially functional	Fully Functional
	Local Customs	Partially functional	Fully Functional
	User Reviews	Partially functional	Fully Functional
	Centralized Information	Fully functional	Fully Functional

	Language translation tools	Eliminated	Fully Functional
	Personalized Travel Recommendations	Fully Functional	Fully Functional
	Calendar	Partially Functional	Fully Functional
Testing	Unit Testing	Fully Functional	Fully Functional
	System Testing	Fully Functional	Fully Functional
	Integration Testing	Fully Functional	Fully Functional
Account Manager	Web Application	Partially Functional	Fully Functional
	Account Creation	Fully Functional	Fully Functional
	Login	Fully Functional	Fully Functional

2.3 User Characteristics

The main users for WiseTraveler are tourists and travelers of any nature with low expertise levels about traveling, such as families, couples, solo travelers, people who are traveling for business, or any other type of traveler. The WiseTraveler prototype aims to adderess the ever-changing needs of travelers and tourists by utilizing technology to solve various types of travel preparation challenges. As travelers seek more authentic experiences, the demand for complete

and user-friendly travel apps continue to grow. Therefore, WiseTraveler will be developed to fulfill these needs of travelers and tourists alike.

WiseTraveler's target users will consist of a diverse collection of people from different backgrounds. Most users are expected to frequently travel internationally, and they will consist of students studying abroad, solo travelers who are seeking authentic cultural experiences, and young professionals who are traveling for business. After the Real-World Product is launched, the application will appeal to a wider variety of users from more diverse backgrounds. These users may consist of travel agencies who will utilize the web application to assist their clients, travel bloggers, tour guides, and educational institutions that are organizing study abroad programs. Ultimately, the goal of the WiseTraveler application is to create a product that appeals to a wide audience and that individuals can easily use to assist in their voyages.

2.4 Constraints

There are several technical, legal, and environmental constraints for the development of the WiseTraveler application. The integration of the OpenAI API and Google Maps API, along with developing a responsive design for mobile and desktop applications will consist of the technical constraints. Furthermore, the legal constraints consist of maintaining compliance with data privacy regulations and properly handling user account information. Finally, the environmental constraints are the dependence on stable internet connectivity and maintaining up to date travel information.

2.5 Assumptions and Dependencies

The third-party services and APIs for the WiseTraveler application consist of the OpenAI API for AI-travel planning assistance, Google Maps API for an interactive map, and supabase for

database management. Furthermore, the software frameworks and technologies will consist of Next.js for frontend development, Node.js for backend implementation, and PostgrSQL. The data dependencies will be continuous updates from travel advisory sources and providing accurate information on current local events. Finally, the external dependencies will be ongoing maintenance of integrated APIs and reliable internet connectivity.