Software Requirements Specification

for

CSCI3100 Group Project

First Draft

Prepared by

Group D3

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Revisions

| Version | Primary Author(s) | Description of Version | Date Completed |
| --- | --- | --- | --- |
| First Draft | All Members | First Draft of the SRS | 09/02/25 |

# 

# Introduction

## Document Purpose

This document serves as the first draft of SRS for our software which is one social platform for matching travelers.

## Product Scope

Our software is a web-based social platform that matches travelers with the same destination and creates a community for matched travelers to share their plans, preferences and tips. Users may suggest destinations, dates and lodging within a group. Besides, Users may post their traveling experiences, comment on destinations and receive recommendations.

## Intended Audience and Document Overview

This document is intended for developers who participate in the development of the software. The rest of this SRS contains functionalities to be implemented in this software and specific requirements. Readers may start by reading section 2.1 Product Overview, and then proceed in sequential order.

## Definitions, Acronyms and Abbreviations

The software (software): refer to the web-based social platform our group develops for travelers.

Users: refer to the intended users, mainly people who travel or seek traveling ideas.

SRS: refer to Software Requirements Specification.

## Document Conventions

This document follows the IEEE formatting requirements. Use Times New Roman size 11 throughout the document for text. Use italics for comments. Use bold letters for titles. The document text is single-spaced and maintains the 1” margins.

## References and Acknowledgments

We would like to thank the Department of Computer Science, George Mason University for the SRS template this file is based on and the Department of Computer Science and Engineering, The Chinese University of Hong Kong for CSCI3100 course materials.

# Overall Description

## Product Overview

The website incorporates the key elements of social networking, trip planning, and expense management into a single platform designed for both solo and group travelers. The software allows users to create profiles, and post trip details to find travel mates, receive AI-based travel recommendations, and manage group expenses collaboratively.

## Product Functionality

|  |  |
| --- | --- |
| **Functionalities** | **Description** |
| User Profile Management | The system manages user registration, login, and profile creation to ensure users' security via email verification and password control. |
| Trip Posting Feed | Users can create and browse trip posts, including trip details like destination, duration, and estimated budget. Plus, search filters will help users to facilitate browsing their desired posts. |
| AI-Driven Recommendations | Users can input trip preferences, and the website will help prompt the ChatGPT API to suggest destinations and activities aligned specifically to user needs. |
| Expense Management | Group members can add log expenses, categorize them (e.g., meals, housing), and automatically calculate cost-sharing. Summarized expense reports are available for download. |

## Design and Implementation Constraints

|  |  |
| --- | --- |
| **Constraints** | **Description** |
| COMET Methodology | The website must be developed using the COMET software design process, ensuring modularity, scalability, and adaptability to future versions. |
| Performance Constraints | The app must provide responses for basic operations and generate AI recommendations in a short time. |
| Security Requirements | Sensitive data (e.g., passwords) must be encrypted to assure security. |

## Assumptions and Dependencies

This document is based on the following assumptions.

|  |  |
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| **Assumptions** | **Dependencies** |
| Users have stable internet access while using the app. | Users may experience delays or unavailability in accessing the website’s features |
| External APIs (e.g., ChatGPT API) are accessible without significant downtime. | AI-driven recommendations may become temporary unavailable during the third-party downtime period. |
| Users access by supported web browsers (e.g., Chrome, Firefox, Edge) and released within the last 5 years. | Users may get delayed performance or inaccessible for some features. |
| Users access via Linux, Windows, and Android released within the last 5 years. | Users may get delayed performance or inaccessible for some features. |

# Specific Requirements

## External Interface Requirements

### User Interfaces

Users can use a PC or mobile phone to interact with the system and other users online.

### Hardware Interfaces

This website can be logged in on devices like PCs, laptops or mobile phones. And historical data in the website will be stored on a centralized database. Users only need keyboards to type and mouses to click on this website and no more devices are needed on the PC side. If the user uses a mobile phone, it should support the touchscreen.

### Software Interfaces

This software should fetch data from existing travel websites so that the users can allocate their traveling time better. Data highly related to travel like weather information, population flow and some brief venue descriptions should also be included in the related info link of each post.

## Functional Requirements

### Main Page

The main page should serve as a forum for posts that feed the user based on his/her interest in order that users can match their will more swiftly. Users can manage the order of posts based on time, country, activity, etc. Filters will be highlighted. Users can have their own mailbox to send and receive invitations. Users can send their posts with a ‘+’ button at the right place. In the menu, users’ profile management and reminders for matching should be included.

### User Profile Management

* The system shall allow new users to register by providing their name, email address, and password.
* The system shall validate the email address by sending a verification link to the provided email.
* The system shall ensure that the password meets security requirements (e.g., minimum length, diverse characters).
* The system shall allow registered users to log in using their email and password.
* The system shall provide a "Forgot Password" feature to reset passwords via email verification.
* The system shall allow users to create and edit their profiles, including profile picture, bio, travel preferences (e.g., preferred destinations, travel styles).

### Trip Posting

* The system shall allow users to create trip posts with the following details: destination, trip dates, estimated budget, and travel preferences (e.g., fixed itinerary, adapted, luxury).
* The system shall display a feed of trip posts.
* The system shall allow users to filter trip posts by destination, trip dates, or budget range.
* The system shall allow users to "like" trip posts.
* The system shall allow users to view trip posts they have liked.
* The system shall allow users to comment on trip posts.

### AI-Driven Recommendations

* The system shall allow users to input their trip preferences, including desired destinations, travel dates, budget range, and preferred activities, then the system shall use a large language model API to generate personalized travel recommendations based on user preferences.

### Expense Management

* The system shall allow users to create expense groups for specific trips and invite other travelers to join the group.
* The system shall allow the group members to log expenses with expense categories (e.g., meals, housing, transportation), amount, time, and description (optional).
* The system shall automatically or custom calculate cost-sharing among group members based on logged expenses.

# Other Non-functional Requirements

## Performance Requirements

1. **Response Time for Trip Search:** The system shall respond to user queries and display forum posts within 2 seconds after the user submits a query.
2. **Correctness of Matching:** The system must be able to match and recommend people with the same preference correctly and quickly.
3. **AI Recommendation Generation:** The AI recommendation system shall provide results within 5 seconds.
4. **Detect Unusual Activities:** The system must be able to detect spam activities (ex. Spam posts, Spam joining trips) so as not to overload the system.
5. **Notification Timing:** Notification for scheduled trips must be sent at least 1 day before the schedule and notification for scheduled activity in the trip must be sent at least 15 minutes before the scheduled time.
6. **Concurrent Users:** The system shall support up to 1000 concurrent users without performance degradation.

## Safety and Security Requirements

1. **Data Encryption:** The system shall encrypt all sensitive user data.
2. **Email Confirmation:** The system must have a confirmation email when registering for an account to verify if the email exists.
3. **Activities Confirmation:** The system must have a confirmation email when activities are done (Ex. after joining a group, making a payment, or leaving the group)
4. **AI API Key:** API keys for the ChatGPT integration shall be securely stored.
5. **Notification Permission:** The users must explicitly grant permission to receive notifications, and they should have control to opt out when desired.

## Software Quality Attributes

### Usability

**Requirement:** The user interface must be intuitive and require no more than 5 interactions for common actions such as searching for a trip and posting a trip.

**Approach:** Use familiar UI patterns for forms, search bars and notifications.

### Maintainability

**Requirement:** The code must be easy to understand and adjustable by every developer and also include comprehensive documentation for developers

**Approach:** Use a version control system (Git) for collaborative development, follow consistent coding standards and conduct code reviews regularly.

### Robustness

**Requirement:** The app must handle invalid inputs (e.g., incorrect trip data) by showing error messages that are easy for users to understand instead of crashing.

**Approach:** Implement input validation and error handling, and show error notifications for debugging without showing sensitive information to users.

# Other Requirements

Appendix A – Data Dictionary

Appendix B - Group Log

09/02/2025: Finished the first draft of SRS in a group meeting