



Software Requirements Specification (SRS)

Travel Network Mobile Application

To solve the problem:

Searching the meaningful travel information accurately

Student's Name: 李舒羽

Student's Number: 2009853D-B111-0034

Course Code: ST1903

Class: DE5

Instructor: Mr. Cheng

December 18, 2022

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Revisions

Version	Primary Author(s)	Description of Version	Date Completed
Draft 0.1	Li Shuyu	This document is the initial draft Software Requirements Specification (SRS) for version 0.1 of the Travel Network APP. The purpose of this SRS is to provide a basic description of the functional requirements for the APP, which will include features such as user authentication, search engine, interactive platform, and real-time recommendation. The SRS will also provide an incipient description of the system architecture and user interface. The SRS will serve as the basis for the development of the Smart Tourism project.	12/14/2022
Draft 0.2	Li Shuyu	This document is pasted in references, performance requirements, and usage scenarios. Added interface requirement, UML use case diagram, and non-functional requirement for version 0.2 of the Travel Network APP.	12/18/2022

Review & Approval

Requirements Document Approval History

Approving Party	Version Approved	Signature	Date
Project Manager			
XXX			

Requirements Document Review History

Reviewer	Version Reviewed	Signature	Date
XXX	Draft 0.2	XXX	12/18/2022
XXX	Draft 0.2	XXX	12/18/2022

1. Introduction

1.1 Purpose of this document

This document's purpose is to offer a comprehensive explanation of the requirements necessary to successfully construct the Travel Network application for the benefit of the project management and development team. The Travel Network application is designed to build a system for travel resource management which can make a stronger travel search engine that can support users to get the meaningful travel information that they really want more accurately. This document will include a broad description of the project, the application's functionality, interface, and performance requirements, a list of other pertinent application characteristics, application usage scenarios, and use case diagrams..

1.2 Scope of this document

The Travel Network is a mobile application that helps people search for accurate travel information. After inputting some searching keywords, the APP will find out several blogs most relative and meaningful to these keywords. This can be supported by the blog network inside this APP which adds each blog as a factor of influence in one of its related blog networks. The blogs can be provided by users or official publishers.

1.3 Overview

The Travel Network application is intended to provide people who are interested in traveling with an online community to post their own travel blogs and discover or find the travel content they need conveniently and quickly. The application will maintain a platform for users to write and show their travel experience and ideas which will be posted as blogs. Each of the standard blogs will include in a blog network, with its factor of influence. The user can find the relative blogs and easily get the most influential blog in the blogs network. Based on the blogs network, some algorithms can be used such as page rank or even a recommender system to help users recognize the most trustworthy publisher. After that, online community interactive social networks can be built as Travel Moments. Additionally, the app can real-time answer travel questions from users by AI trained with the blogs network, for example, the GPT AI model. If the user is not satisfied with the answer, he or she can post the question in the Q&A block to ask other users, especially the users in a Travel Moment. Travel news and popular travel resources will be provided on the APP's home page.

1.4 Business Context

The development of this software system is sponsored by the members of the Travel Network team. The Travel Network team is intended to produce more useful smart traveling applications for large, wide types of users. The application provides some new ideas for smart traveling and is committed to helping people get a better traveling experience.

2. General Description

2.1 Product Functions

The Travel Network APP will help people who want to search for travel information accurately and make the travel information resource more effective through the blogs network. The APP has both iOS and Android front-end UI for the client and connects to a centralized back-end server. The finished application will provide a way for users to search for useful travel information in an online commentary focused on travel. Users can sign up for their accounts and publish their blogs with tags. The blogs can cite and relatively connect to other blogs to make several blog networks. With the network, a factor of influence can be calculated for a blog. In consequence, more useful blogs and more relative travel information can be searched by users easily.

2.2 Similar System Information

Little Red Book is a lifestyle platform APP that provides a similar blog publish-and-search system. It is similar in ways such as users can write blogs, blogs can have tags that help categorize them, and users can search with keywords. One advantage is that Little Red Book is a huge information platform that many different types and a large amount of travel information can be searched. And the blogs in Little Red Book are more lithesome that are easily for users to publish. On the other hand, our APP will make a stronger search system focus on travel blogs, which Little Red Book is not capable of.

2.3 User Characteristics

The Travel Network APP is intended to be used by people who are interested in traveling. A typical user should have some experience using the mobile APP to search for information and write blogs or articles. Basic knowledge of the iOS and Android operating systems on a mobile device as well as the ability to real name authenticate will be sufficient to use the application effectively.

2.4 User Problem Statement

Although there exist many APPs designed as online commentary to help the user write articles and blogs and search for travel information, there are currently no solutions that are designed specifically for people interested in traveling. Other apps require that users should search travel information through many blogs and article that are not so relative to the travel information the user hope to search, whereas an application that is targeted at people who like traveling and is integrated with travel-relative blogs and articles search system would allow significantly more automation and greater ease of use.

2.5 User Objectives

After signing in with the particular username and password, the application should show the home page for the user with the blog network that this user may be interested in. The application should allow the user to search interesting blogs and articles by inputting key words, add interesting tags, edit and publish their own blogs, and group teams as Travel Moments for sharing, discussing, and making friends. The APP should focus users on travel information and should make it easy to quickly search what blogs are more useful to users. The user should also be able to get some answers or recommendations from the AI trained with the blog network.

2.6 General Constraints

The APP has two front-end UI interface one run on the Android mobile operating system and another run on the iOS mobile operating system. A user's mobile device must provide a network connectively (both hardware and software) for the application to fully function. The system must use blogs, articles, discussions, and other information which is already in place and provided by users in this APP.

3. Functional Requirements

Criticality Scale

Non-Critical	Non
Less Critical	Less
Critical	Normal
Very Critical	Very
Extremely Critical	Extreme

1. The application shall maintain a blog platform for the user

a. Description - The application will support a blog editor for the user. The user should be able to edit, publish and share blogs. Blogs can be commented on and read by other users. The associated attributes of a blog are described in subsequent additional requirements.

b. Criticality - **Extreme**

c. Technical issue - The APP must provide a rich text editor that can be used online for users. Users can input text by typing or pasting, and adding videos, links, and images in it. Users can choose the tags of a blog and cite other blogs. Some model is provided by the APP. The editor should have real-time saving and the editing blog should be stored in the user's local device so that the blog edition is persistent if the application is terminated and restarted.

d. Risks - Low risk- technical implementation is relatively straightforward and there is no dependency on network or remote database connectivity.

e. Dependencies - none

2. A blog shall connect with relative blogs and calculate its factor of influence (The APP shall show a relative blog network when user searching)

a. Description - One attribute of a blog is connected with relative blogs in the blog network. For example Travel notes of Macao's famous tourist attractions (Author 1) connect to Venetian Hotel 3 Days (Author 2).

b. Criticality - **Very**

c. Technical issue - This attribute must be generated from users' blogs which are stored in a remote server database as a web service. According to the features for blogs such as tags, keywords, and relative blogs. A visual blog network connection graph should be given as the first part of the user search result. Some graphs and recommendation algorithms should be added to help the user find a more suitable result.

d. Risks - A blog network can be density - if a user's search or a showing blog network may have too many connections that will show a very density visual blog network because of screen real-estate concerns, only the blogs with the highest factor of influence will be shown in the visual blog network. Others

will be shown as the second part of the user's search result as a list of relative blogs.

e. Dependencies - 1

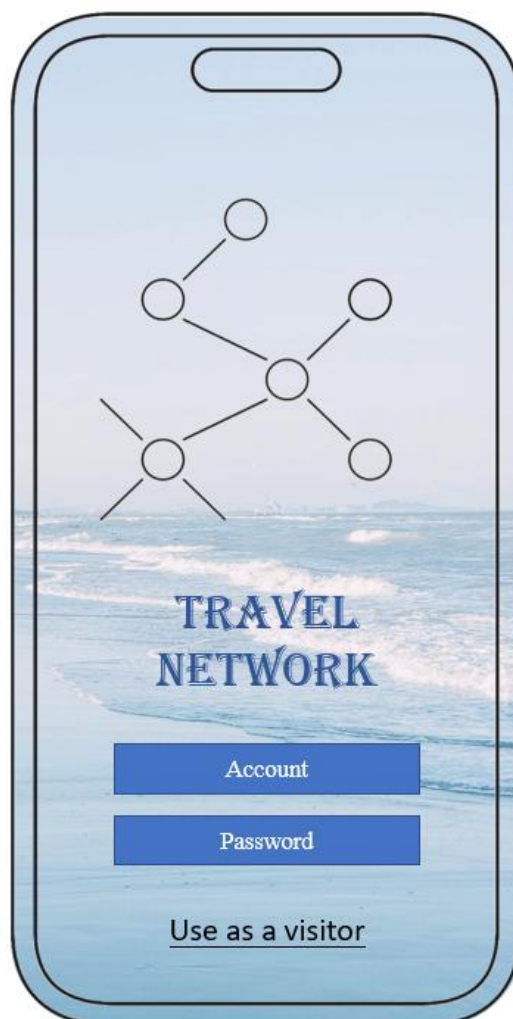
4. Interface Requirements

4.1 User Interfaces

The interface begins with a cover page for login and sign-up. After login, the interface has four pages: Home, Moment, Chat, and Mine. Here list some screen mockups:

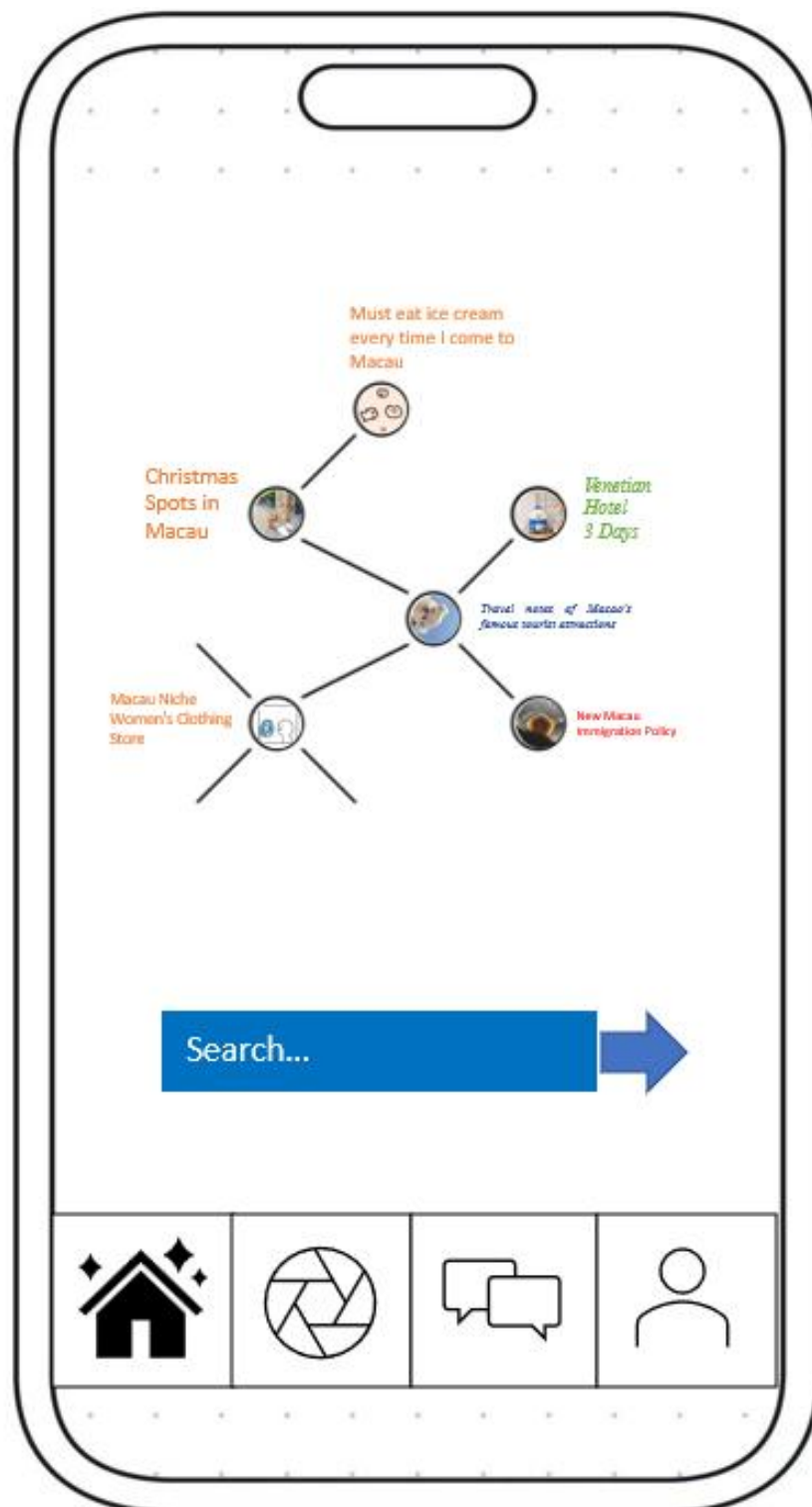
4.1.1 Cover Page

The cover page is just a initial interface face for users to login.



4.1.2 Home & Search GUI

On the home page, a visual popular blog network will be shown basic on the recommendation system that predicts what the user may be interested in. Under the visual blog network, users can type keywords in the search text box and search for relative travel information.



4.1.3 Moment GUI



4.2 Hardware Interfaces

The APP is designed for the Android and iOS phone and market.

4.3 Communications Interfaces

The application will utilize the networking hardware of the user's device through network communications service provided by the iOS or Android operating system. Network communications capability will be used to connect to remote databases and web services for authentication and support user communications and other online interactions.

4.4 Software Interfaces

The APP will use recommender system frameworks to strengthen the search engine and benefit the push message to users. Some AI framework especially some chat and computer vision AI frameworks will be utilized. For example, OpenAI's ChatGPT framework is used as the AI customer service to interactively give out some answers about what the user is searching for.

5. Performance Requirements

5.1 System

The APP will run on all Android devices running 5.0 (Lollipop) or later, and on all iOS devices running 11.0 or later. It will be around 400 MB in size. The APP will respond to the size of the screen and/or the window the application is running in.

5.2 Response Time

The APP should take less than 6 seconds to response to a user on an Android or iOS phone and less than 10 seconds when on an emulator or tablet(iPad). The application will run fine until the user begins to multi-task between 5 or more processes.

5.3 Workload

The application must support approximately 50,000 daily active simultaneous online users and must have over 1,000,000 emergent users.

5.4 Scalability

The application will be able to scale to the size of the users as it increases.

5.5 Robust and Flexibility

The application needs to be strong enough to withstand peak usage and malicious attacks. It should be designed to be easy to update, maintain, and add functionality, and to strictly avoid major failures and crashes.

6. Other non-functional attributes

6.1 Security

Users can log in through the account password, or the third-party platform account. Users can only post content after authenticating with their real names by face recognition.

6.2 Reliability

Most functionality will require network connectivity. System components will function as long as the network connectivity between the terminal and server is available and the back-end APP server's system and database are working well.

6.3 Maintainability

The development team will adhere to the highest standards of coding practices, utilizing clean and modular code to ensure maximum maintainability of the application. This will help ensure that the application is as efficient and reliable as possible. The design of the application should make it easy to add new features and publish new sections.

6.4 Portability

Users can access the application anytime on as many types of mobile devices as possible, requiring only an Internet connection and a graphical interface.

6.5 Extensibility

The application will be highly extensible in terms of adding new activities, views, or content sections. However, this application generally has high extensibility.

6.6 Re-usability

An application instance shall be able to be reusable every year for different APP ecosystems. The user will be able to update their content, rich their interaction, and search their flavor travel information by using a new version of this application with new functions. The future application components include new functions, interfaces, and so on that will be able to be integrated into the Travel Network APP. And the application should be able to use on the future version of operating systems.

6.7 Application Affinity/Compatibility

The application shall be compatible with Android 5.0 (Lollipop), iOS 11.0 or any later version. But future releases may require a higher version of the operating system.

7. Operational Scenarios

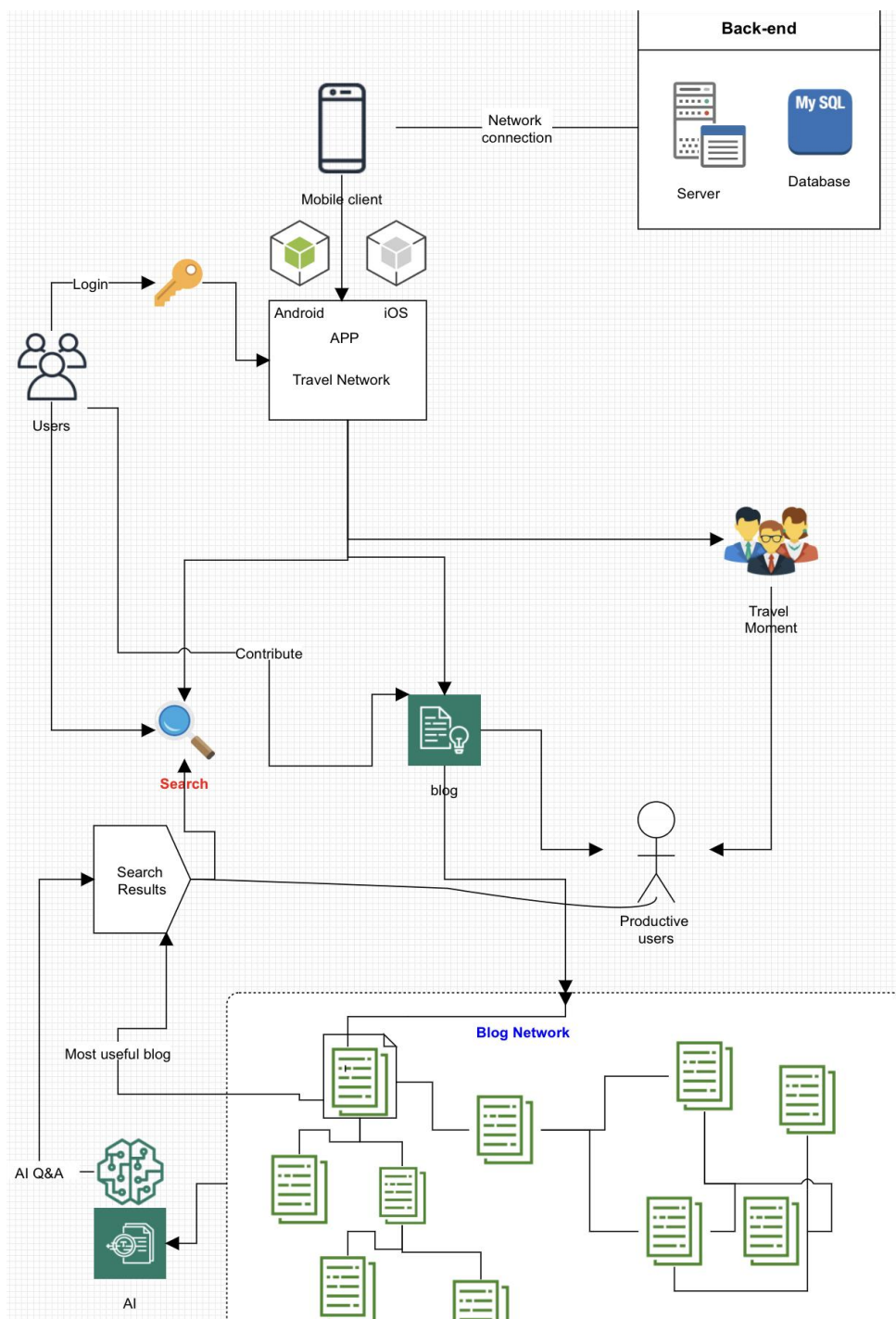
- 1) The original users are initially introduced by the application developer to introduce the superiority of Travel Network as an application in targeting information sharing among travel circle users through friends, advertisements, forums, and social platform promotions. Initially willing original users can provide their travel tips, experiences, etc. as initial blog posts.
- 2) After accumulating certain quality original blog posts, we can attract users interested in these travel information resources by reprinting quality blog posts on big social platforms, etc., gradually establish and expand travel information social circles, enrich the travel information network in Travel Network, especially the blog post network system, and continuously build up Travel Network's travel information search resource base.
- 3) After accumulating certain user groups and developing into a small circle of travel interest enthusiasts exchange APP, analyze the content, especially the blog post network, through algorithms to continuously filter out more meaningful content, strengthen the influence of users with high quality productivity, and form more travel interest circles Travel Moment, in order to stabilize users and strengthen relevance. After that, Travel Network's travel information retrieval capability will be further strengthened.
- 4) After Travel Network's travel resource system is established, the refined travel information search function will find four major types of results for them.
 - a. The blog post network type, a visualized network of related contents expanded by a blog post with the strongest relevance, where users can clearly and accurately see the contents related to their searched travel keywords and effectively associate the found travel information together through this form of network.
 - b. Below the visualized network of blog posts, users will see a list of specific content, which is sorted by default by the relevance and influence of the blog posts and authors, and users are also free to choose the time and readership.
 - c. In case of dissatisfaction with the above results, users can directly talk to the chat AI, which will generate new judgments and travel information recommendations as the user's search results through the learning of pairs in the blog post network. In this search session, users do not have to be stuck with keyword searches, but can engage in emotional Q&A with the AI, such as "Is it a good idea to visit a certain

attraction next week? What is the recommended way to visit this attraction next week?" .

- d. When users cannot find the travel information they want through the above shortcuts, they can post questions directly to Travel Moment or users related to the key questions and wait for other users to answer them.

8. Preliminary Use Case Models and Sequence

Use Case Model



9. Appendices

9.1 Definitions, Acronyms, Abbreviations

“App” - Application

“UML” - Unified Modeling Language

9.2 References