Lab 2: Product Description Draft

Balemual Ymamu

CS411W

Dr. Sarah Hosni

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1. Introduction

The purpose of this document is to provide a detailed Software Requirements Specification (SRS) for *Itiner-Ease*, a travel itinerary planning application designed by Team Copper. This SRS follows the IEEE 830-1998 standard and is intended to clearly define the objectives, scope, functions, and constraints of the system. Itiner-Ease seeks to address common challenges faced by travelers such as lack of personalization in itineraries, difficulties in group coordination, and the absence of dynamic updates when conditions change. By combining artificial intelligence, group collaboration, and local expertise, Itiner-Ease aims to provide a comprehensive and adaptive travel-planning experience.

This document will serve as a reference for developers, stakeholders, and evaluators by describing the system's goals and features in a structured format. It outlines what the prototype currently demonstrates as well as what is expected in the real-world product (RWP). The intended audience includes project team members, instructors, and any external evaluators reviewing the requirements of the Itiner-Ease system.

1.1 Purpose

The purpose of this Software Requirements Specification (SRS) is to define the requirements for Itiner-Ease, a mobile and web application that simplifies and personalizes itinerary planning for travelers. This SRS will serve as a reference for developers, testers, and

stakeholders by providing a structured outline of the system's objectives, features, and limitations. Itiner-Ease is designed for travelers, local experts, businesses, and administrators.

1.2 Scope

Itiner-Ease addresses the common frustrations of trip planning, including choice overload, generic itineraries, rigid schedules, and group coordination issues. The prototype offers personalized AI-driven itineraries, local expert insights, dynamic updates, and an Explorer Rewards system. The prototype will demonstrate core features such as account creation, itinerary generation, reviews, group planning, and rewards. Itiner-Ease will not serve as a booking engine.

1.3 Definitions, Acronyms, and Abbreviations

- AI – Artificial Intelligence
- API – Application Programming Interface
- GUI – Graphical User Interface
- MFCD – Major Functional Component Diagram
- RWP – Real World Product
- Prototype – Initial version of the system demonstrating key features
- User Roles – Travelers, local experts, businesses, and administrators

AI Recommendations – Algorithm suggesting activities and locations based on preferences and clustering.

Group Profiles – Shared itineraries created from multiple users' preferences.

Local Expert – Verified resident who provides paid itinerary upgrades or guidance.

Explorer Rewards – Points earned for reviews and engagement, redeemable for perks.

RWP – Real World Product (final system).

Prototype – Partial implementation of system features for demonstration.

SQLite – Lightweight database used in the prototype.

Laravel – Backend web framework used for development.

Docker – Containerization tool for deployment.

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1.5 Overview

The remainder of this document outlines the overall description of Itiner-Ease. Section 2 details the system's product perspective, functions, user characteristics, constraints, assumptions, and dependencies. Supporting diagrams and tables, such as the Major Functional Component Diagram (MFCD) and the Feature Implementation Table, are included.

2. Overall Description

2.1 Product Perspective

The Itiner-Ease system is designed as a web and mobile-based platform that integrates user profiles, AI-driven recommendations, group collaboration, and local expert input into one unified travel-planning tool. It serves as an intelligent companion for travelers who wish to generate personalized itineraries and dynamically update them in response to real-time conditions. The system architecture supports multiple roles, including travelers, local experts, businesses, and administrators, ensuring that features are tailored to different user needs.

The product fits into the larger ecosystem of digital travel tools by focusing not only on itinerary generation but also on personalization, collaboration, and interaction with local communities. Unlike generic trip planners, Itiner-Ease combines AI recommendations with

human insight from experts, ensuring a balance of automation and authentic local knowledge. The inclusion of reward systems and business dashboards also positions Itiner-Ease as a platform that connects travelers with businesses
and incentivizes engagement.

2.2 Product Functions

Account Creation and Authentication: Provides secure account creation and login for travelers, experts, and businesses with role-based permissions.

Account Management: Allows users to update preferences, personal info, or delete accounts, keeping data accurate and user-controlled.

Personalized Profiles: Enables travelers to input preferences (activities, budgets, allergies, dislikes) for itinerary customization.

AI Recommendations: Suggests activities and destinations based on traveler data; partially implemented in prototype.

Itinerary Creation and Customization: Allows travelers to generate and edit itineraries automatically or manually.

Business Reviews: Lets travelers share reviews, ratings, and photos of businesses.

Group Profiles (Joint Itineraries): Combines traveler preferences into one shared group itinerary.

Plan Sharing: Enables itineraries to be shared internally or externally.

Group Voting: Allows group members to vote on activities; partially implemented.

Local Expert Selection: Connects travelers with verified local experts for customized input.

Two-Way Expert Communication: Supports messaging between travelers and experts; limited in prototype.

Expert Reviews: Enables feedback exchange between travelers and experts.

Dynamic Updating – Weather: Alerts users about weather changes and suggests alternatives.

Dynamic Updating – Congestion Tracking: Identifies crowded areas and recommends alternatives.

Dynamic Updating – Hot Spots: Recommends trending destinations based on community activity.

Explorer Rewards – Earn Points: Gamifies engagement with points for reviews, visits, and referrals.

Explorer Rewards – Coupons/Discounts: Planned but eliminated from prototype; connects businesses and travelers.

Business Interface: Enables businesses to verify ownership, promote services, and connect with users.

Admin Dashboard: Provides admins with tools for security, monitoring, and data management.

Analytics (Business/Expert): Planned for RWP; provides insights on engagement trends; eliminated in prototype.

Feature	Description	Prototype Implementation
Account Creation & Authentication	Users (traveler, local expert, business) can create accounts, log in securely, and manage their profiles.	Fully Implemented
Account Management	Users update preferences, edit info, or delete accounts.	Fully Implemented
Personalized Profiles	Travelers input preferences for AI itinerary generation.	Fully Implemented
AI Recommendations	AI suggests activities based on preferences.	Partially Implemented
Itinerary Creation & Customization	Travelers generate and edit itineraries.	Fully Implemented

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Business Reviews	Travelers leave/view reviews with ratings/photos.	Fully Implemented
Group Profiles	Shared itineraries created from multiple users	Fully Implemented
Plan Sharing	Travelers share itinerary links.	Fully Implemented
Group Voting	Group members vote on activities.	Partially Implemented
Local Expert Selection	Travelers view and request local experts	Fully Implemented
Two-Way Expert Communication	Experts suggest changes; travelers ask questions.	Partially Implemented
Expert Reviews	Travelers leave feedback on experts.	Partially Implemented
Dynamic Updating – Weather	Weather notifications and alternatives.	Partially Implemented
Dynamic Updating – Congestion	Detects crowded locations and suggests options	Partially Implemented
Dynamic Updating – Hot Spots	Recommends trending new locations.	Partially Implemented
Explorer Rewards – Earn Points	Users earn points via reviews and exploration	Fully Implemented
Explorer Rewards – Coupons/Discounts	Businesses provide discounts and promotions.	Eliminated
Business Interface	Businesses manage profiles and promotions	Partially Implemented

Admin Dashboard	Admins manage database, monitor system health	Fully Implemented
Analytics (Business/Expert)	Businesses and experts see engagement trends.	Eliminated

2.3 User Characteristics

The primary users of Itiner-Ease include travelers, local experts, businesses, and administrators. Travelers are expected to have basic digital literacy, enabling them to use web or mobile applications effectively. Local experts may range from casual guides to professionals and should be able to navigate communication and itinerary tools. Businesses will primarily use dashboards to manage promotions and services, requiring familiarity with standard data entry and profile management. Administrators, who oversees the platform's health and security, are expected to have technical expertise.

2.4 Constraints

The system is constrained by data privacy regulations, the need for secure authentication protocols, and potential limitations of third-party APIs for weather and congestion tracking. Environmental constraints include internet access requirements, while technical constraints include the scalability of AI recommendations.

2.5 Assumptions and Dependencies

The system assumes that travelers will have access to smartphones or computers with internet connectivity. It also assumes that businesses and experts are willing to engage with the platform actively. Dependencies include reliable integration with third-party APIs for weather, location data, and potentially social media for trend analysis.

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