

Software Requirements Specification

PRJ566 – Summer 2025

PRJ566 – Team No: 4

Name of Project: TravelWise

Project Leader: Collins Olokpedje

Last updated: 7th of June, 2025

Team Members:

- 1. Collins Olokpedje**
- 2. Cynthia Fotso**
- 3. Justin San Pedro**
- 4. Ola Adeoba**
- 5. Rehat Preet Kaur**

Table of Content

1 - Introduction/Overview - Document Information.....	4
1.1 Document Authors.....	4
1.2 Revision History.....	4
1.3 Document Conventions.....	5
1.4 Document Purpose.....	6
1.5 Intended Audience.....	6
1.6 Group Agreement.....	7
2 - Project Overview.....	9
2.1 Project Proposal.....	9
2.2 Stakeholders and Users.....	9
2.3 Functional Requirements.....	10
2.4 Nonfunctional Requirements.....	10
2.5 Project Scope.....	10
2.6 System Risks.....	10
2.7 Operating Environment.....	11
2.8 UI/UX Interface Mock-ups.....	11
3. Process and Data Modeling.....	11
3.1 UML/DFD Modeling and Data Modeling.....	11
Activity Diagrams and Data Flow diagram.....	11
3.2 Business Rules.....	11
3.3 Use Case Specifications with corresponding interface mockups:.....	12
4. Domain Class Diagram.....	13
5. Database.....	13
6. Work Breakdown Structure (WBS).....	13
6.1 Work Breakdown Structure.....	13
7. Milestones and Acceptance Criteria.....	14
8. Implementation Schedule.....	14
9. Client / Faculty Sign-off.....	14

1 - Introduction/Overview - Document Information

1.1 Document Authors

Collins Olokpedje - Project Manager/Back-end Developer

Cynthia Fotso - Front-end Design/Front-end Developer

Justin San Pedro - Front-end Developer/Back-end Developer

Ola Adeoba - Back-end Developer

Rehat Preet Kaur - Front-end Design/Front-end Developer

1.2 Revision History

Week 03	Sections of this document that were completed/updated this week, example: completed/updated 1. Introduction/Overview 1.1 Document Authors 1.2 Revision History 1.3 Document Conventions 1.4 Document Purpose 1.5 Intended Audience 1.6 Group Agreement 2. Project Overview 2.1 Project Proposal
Week 04	2.2 Stakeholders and Users 2.3 Functional Requirements 2.4 Nonfunctional Requirements 2.5 Project Scope 2.6 System Risks 2.7 Operating Environment 2.8 UI/UX Interface Mock-Ups
Week 05	3.1 UML/DFD Modeling
Week 06	TO BE DETERMINED (TBD)
Week 07	TO BE DETERMINED (TBD)
Week 08	TO BE DETERMINED (TBD)
Week 09	TO BE DETERMINED (TBD)
Week 10	TO BE DETERMINED (TBD)

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Week 11	TO BE DETERMINED (TBD)
Final	PROJECT MILESTONE REACHED

1.3 Document Conventions

Any text **in red** indicates an exception or error.

Any text **in blue** is in-progress.

Any text highlighted **in yellow** is an important point.

Any text **in green** was recently added.

Any text *italicized* represents definitions.

Any text with ~~strike-through~~ is deleted.

Terminology:

Shall – Indicates a mandatory requirement.

Should – Indicates a recommended best practice.

May / Can – Indicates optional or discretionary elements.

Naming Convention

Source code uses camelCase

Database tables use snake_case

Screens, wireframes, and assets named based on functionality (e.g., home_screen, booking_flow)

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1.4 Document Purpose

This document details the functional and non-functional requirements of the project. This includes defining the expected functionalities, features and performance of the software, and how these will be implemented. This also describes how this product will fulfill the needs of each of its stakeholders, ensuring a mutual understanding between the developers and the clients.

1.5 Intended Audience

Development Team – To serve as the authoritative guide for software development, system architecture, UI/UX design, and database modeling. This document provides technical direction and serves as a reference during implementation and testing phases.

Stakeholders and Clients – To ensure the software features align with user needs and project expectations. Their feedback is vital during requirement validation, UI reviews, and user testing.

Project Sponsor – To monitor the progress, feasibility, and alignment of the project with business objectives. This document allows the sponsor to evaluate the return on investment, timeline, risk exposure, and overall project viability.

This document is structured to be understandable by both technical and non-technical audiences, supporting collaboration and transparency across all roles involved in the TravelWise project.

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1.6 Group Agreement

Team Agreement – TravelWise (Team 4)

Project Duration: May 2025 – December 2025 (8 months)

Team Commitment & Roles

Each member is committed to contributing equally and professionally toward the project's goals. Roles are divided based on technical strengths, and tasks are managed collaboratively using GitHub and Google Docs.

Team Leadership

The team leader ensures:

- Timely submission of deliverables
- Conflict mediation
- Task monitoring and accountability

Collaboration Tools

- Communication: MS Teams (daily messaging & weekly calls)
- Task Management: GitHub Issues & Projects
- Documentation: Google Docs / Google Drive
- Version Control: Git / GitHub Repositories
- Project Management: Jira for monitoring and controlling the project.

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Meeting Structure

- Weekly meetings (30–60 minutes with possibility for extension if the need arise)
- Additional sessions as needed for major deliverables
- Each meeting ends with a clear set of action items and deadlines

Conflict Resolution

Conflicts will be addressed with professionalism, direct communication, and mediation through the team leader when needed.

Signatures (Agreement of Commitment)

Name	Date Signed
Collins Colokedje	May 23, 2025
Cynthia Fotso	May 23, 2025
Justin San Pedro	May 23, 2025
Ola Adeoba	May 23, 2025
Rehat Preet Kaur	May 23, 2025

2 - Project Overview

2.1 Project Proposal

Project Background

TravelWise is an all-in-one travel app providing the necessary features that people usually need when planning their trip. The main features include providing the cheapest flights and hotels, managing itineraries, tracking expenses, splitting costs for groups, and recommending best places to visit in terms of both how safe the area is and how many popular spots are in the area. TravelWise seeks to make the travel experience more convenient and efficient by offering itinerary management, expense tracking, and curated destination guides into a single user-friendly app.

Problem Statement

The Problem of:	Needing to use different apps when preparing for a trip
Affects:	People who travel, especially those new to travelling or those who travel in groups and are concerned about how to split costs
The impact of which is:	Being overwhelmed with the different sites and applications needed to plan and budget their trip
A successful solution would:	Be to create an application that will offer features that will streamline all the usual procedures people go through when planning for a trip

Product Vision

For	Travel-enjoyers or First-time travelers
Who	Wants a convenient way to plan and budget their trip
TravelWise	Is an all-in-one travel application
That	Provides all the necessary features needed when planning and budgeting for a trip
Unlike	Single-purpose apps like Expedia, Google Travel, and Splitwise
Our product	Have these features all in one application with a sleek and user-friendly interface

2.2 Stakeholders and Users

TravelWise

Stakeholder Name / Identifier	Category
Project Sponsor	Administration, Sponsor
Project Leader (Collins Olokpedje)	Administration, Developer
Development Team (Team Members)	Developers
End Users (Travelers)	User
Local Guides/Service Providers	User
Business Partners/Affiliates	Business Partners/Affiliates
Quality Assurance Tester	User

2.3 Functional Requirements

- User Registration and Authentication (Users can create an account, log in, and log out securely.)
- Trip Creation and Management (Users can create new trips by specifying destinations, dates, and titles.)
- Itinerary Planning (Users can add events/activities, and view itineraries in both list and calendar format)
- Destination Search and Suggestions (The system should allow users to search for destinations with autocomplete suggestions.)

2.4 Nonfunctional Requirements

Operational Requirements:

- The website must be accessible via modern web browsers
- The system must be accessible and fully functional on both desktop and mobile browsers (responsive design).
- The system should support integrations with third-party services
- The system should be designed to scale horizontally to accommodate increased users and data over time.

Performance & Security Requirements:

- All user passwords should be **hashed** before storing in the database
- Pages should load within 2 seconds under standard conditions.
- API requests (e.g., itinerary updates, trip creation) should respond within **500 ms** on average.
- The system must support **1,000 concurrent users** without degradation in performance.
- Implement **JWT** or **secure session tokens** with expiration times.
- Lock accounts temporarily after multiple failed login attempts

TravelWise

2.5 Project Scope

2.5.1. In-Scope:

The following features will be included in the project:

- Web application (NextJS)
- Third-party API integration (Skyscanner, RapidAPI, Numbeo, OpenAI/GPT)
- AI Recommendations (OpenAI/GPT)
- Scalable in supporting more locations (NodeJS for backend, NextJS for front-end)

2.5.2 Out-of-Scope:

The following features will not be included in the project, but can be implemented upon expansion after the initial project launch:

- Mobile application for both iOS and Android (React Native)
- Include more countries aside from Canada and Europe
- Offline mode
- Booking Partnerships for flights and hotels
- Member subscription for additional perks and deals

2.6 System Risks

Risk	Response
Third-party API rate limiting may impact app performance	Implement caching mechanisms and load balancing, and monitor API usage to switch to paid plans or alternatives as needed for scalability
Reliability on API can be bad if it becomes discontinued or deprecated or has downtime	Monitor API and also have a backup api in case of downtime or an API becoming discontinued
Load Performance	Implement load balancer so that the web applications scales on the off chance of overloading the server.
Development Architecture	We chose to implement the web application with a microservice architecture to ensure that each service is independent and does not have an effect on the overall application, if one part fails, the rest will still work

TravelWise

Injection attacks	We are using input validation and parameterized queries and ORm security features recommended by MongoDB team
Language Barrier	We added internationalization to ensure that the website has support for multiple languages increasing our market presence
Package dependency	We are using a version of a package to ensure that our app does not use future versions that may break our application in the future

2.7 Operating Environment

Development Stack:

- Front-End: NextJS (Chosen for the sole purpose of fostering search engine optimization)
- Back-End: Nodejs (Express Server made with Javascript)
- Database: MongoDB (NOSQL) hosted on MongoDB Atlas

API and Services:

- Skyscanner API (Flights and hotel)
- Rapid API (Currency conversion)
- Open AI / GPT(TravelGuide)

Deployment:

- Cloud Hosting : Vercel, Netlify, AWS (for scalability)
- Continuous integration/ Continuous development: Github Action (Workflows)
- Development IDE: Visual Studio Code, Xcode

Version Control:

- Git / GitHub
- OneDrive/ Google Docs for document collaboration

2.8 UI/UX Interface Mock-ups

Sign Up Page

The screenshot shows the 'Create your account' form on the TravelWise website. It includes input fields for Name, Email, Password, and Confirm password, each with a placeholder text. A large blue 'Sign up' button is at the bottom, and a small link below it provides terms and conditions.

TravelWise

Home Explore Trips Inbox Log in

Create your account

Name

Full name

Email

Email address

Password

Password

Confirm password

Confirm password

Sign up

By continuing, you agree to Travelwise Terms of Service and acknowledge that you have read our Privacy Policy.

Sign In Page

Welcome Back

Email

Password

[Sign In](#)

By continuing, you agree to Travelwise Terms of Service and
acknowledge that you have read our Privacy Policy.

TravelWise

Dashboard

TravelWise

Welcome back, Sophia

 Homepage

 Dashboard

 Itinerary Management

 Expense Tracking

 Local Guide Booking

 Destination Recommendations

Upcoming Trips



Hiking in the Alps
July 15 - July 22



Relaxing Beach Getaway
August 5 - August 12



City Exploration in Tokyo
September 1 - September 10

Expense Tracking

Trip Expenses

\$2,500

Last 30 Days +15%



Food Accommodation Activities Transportation

Personalized Recommendations



Explore the Grand Canyon



Discover the Ancient Ruins of Rome



Experience the Northern Lights in
Iceland

TravelWise

Trip Page

TravelWise

Homepage

Dashboard

Itinerary Management

Expense Tracking

Local Guide Booking

Destination Recommendations

New Trip

Help

Feedback

My Trips

New Trip

Upcoming Past Drafts

European Adventure
10 days · 12/15/2024 - 12/25/2024
[View Trip](#)



Southeast Asia Backpacking
21 days · 01/05/2025 - 01/26/2025
[View Trip](#)



South American Exploration
14 days · 02/10/2025 - 02/24/2025
[View Trip](#)



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Expense Tracking Page

 Sophia Carter
Last updated 2 days ago

 Homepage

 Dashboard

 Itinerary Management

 Expense Tracking

 Local Guide Booking

 Destination Recommendations

Expense Tracking

Track and categorize your expenses from departure to return.

All Categorized Uncategorized

Trip Summary

Total Spent

\$1,250

Remaining Budget

\$750

Average Daily Spend

\$125

Expense Breakdown

Date	Category	Description	Amount
2024-07-15	Accommodation	Hotel stay	\$500
2024-07-16	Food	Restaurant dinner	\$75
2024-07-17	Activities	Museum tickets	\$50
2024-07-18	Transportation	Taxi fare	\$25
2024-07-19	Shopping	Souvenirs	\$100

Local Guide Page

TravelWise My Trips Explore Guides Support Search Profile

Homepage Dashboard Itinerary Management Expense Tracking Local Guide Booking Destination Recommendations

Local Guides in Paris

Search for guides or tours

Top Guides



Alexandre Dubois
Expert in Parisian history and architecture



Sophie Martin
Food and wine tour specialist



Jean-Pierre Moreau
Photographer and city explorer

Popular Tours

4.8 • 120 reviews
Parisian Food Tour
Explore the best local eateries and taste authentic French cuisine.

[Book Now](#)



4.9 • 150 reviews
Historical Walking Tour
Discover the rich history of Paris with a guided walking tour of iconic landmarks.

[Book Now](#)



4.7 • 90 reviews
Seine River Cruise
Enjoy a relaxing cruise along the Seine River with stunning views of the city.

[Book Now](#)



AI Recommendation Page

TravelWise

- Homepage
- Dashboard
- Itinerary Management
- Expense Tracking
- Local Guide Booking
- Destination Recommendations

AI Recommendations

Based on your preferences and travel context, we've curated some personalized suggestions for you.

Accommodations



The Grand Retreat
Luxury hotel with stunning views



Cozy Mountain Lodge
Rustic lodge in a serene mountain setting



Seaside Resort
Beachfront resort with direct access to the sea

Attractions



The Ancient Citadel
Explore the ruins of an ancient civilization



City Museum of Art
Discover a vast collection of art from around the world



Central Park
Relax in a sprawling urban park with walking trails

Restaurants



The Gourmet Bistro
Fine dining experience with a modern twist



Local Eatery
Authentic local cuisine in a casual setting



Seafood Grill
Fresh seafood with ocean views

Activities



Mountain Hiking
Hike through scenic mountain trails with breathtaking views



Guided City Tour
Explore the city's landmarks with a knowledgeable guide



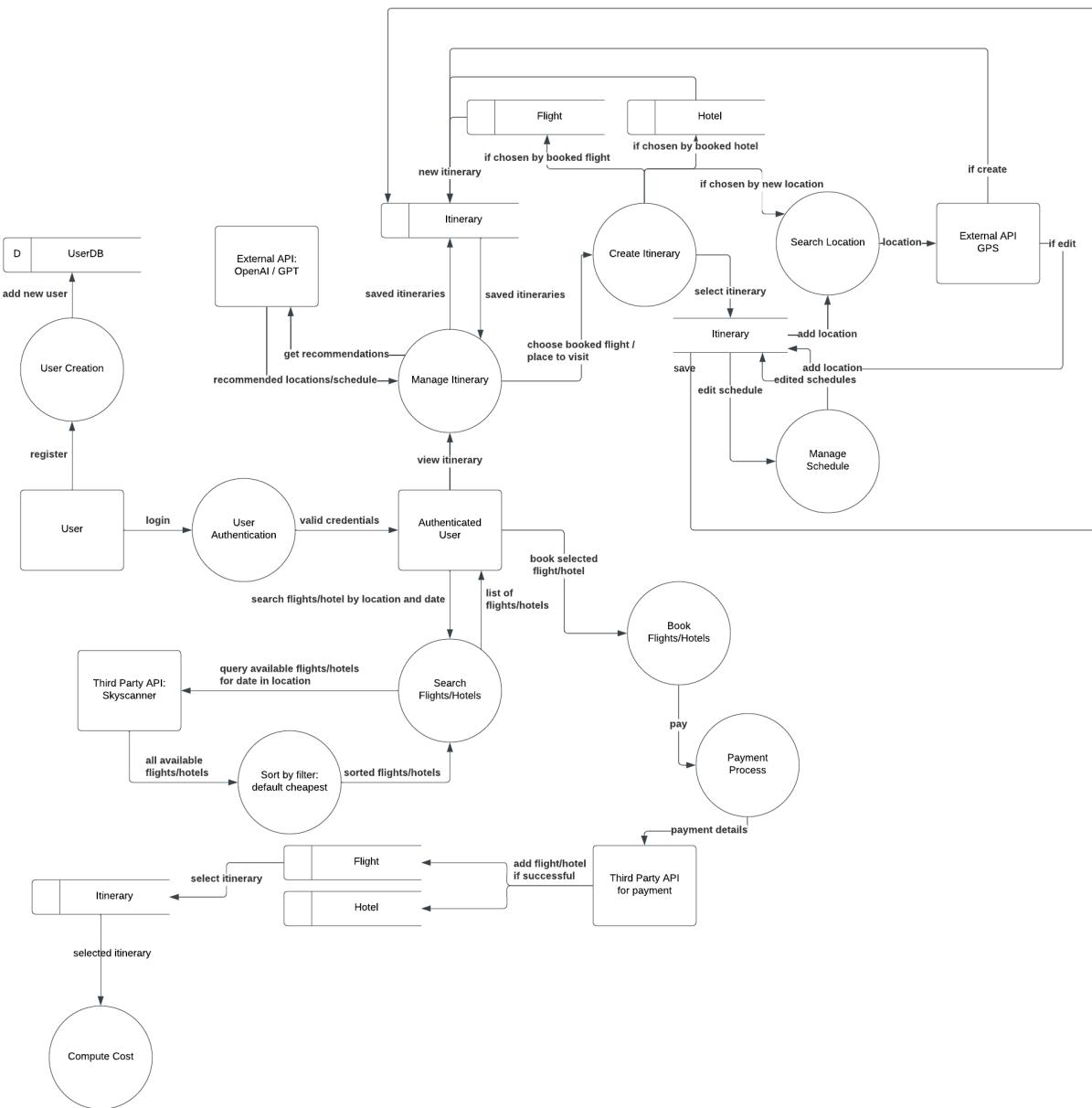
Water Sports Adventure
Enjoy thrilling water sports activities on the coast

3. Process and Data Modeling

3.1 UML/DFD Modeling and Data Modeling

Activity Diagrams and Data Flow diagram

3.1.1 Data Flow Diagram



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3.1.2 Data Flow Diagram Description

Data flow diagrams are used to graphically represent the flow of data in a business information system. They describe the processes that are involved in a system to transfer data from the input to the file storage. Our DFD describes the flow of data through a system to perform certain functionality of our business.

Our data flow has the four basic symbols used in a DFD which are; process (represented by a rounded rectangle which receives input data and produce output with a different form), data flow, data store (labelled D, used when the system needs to retain data) and an external entity (A user in our current project).

The process starts with a user opening our app. He has the possibility to register (if it is a new user) or login (old users). Once this is done, the user is authenticated and he can search for flights and/or hotels by location and date from our API. All available flights/hotels will be sorted by cheapest and displayed to the user together with recommended locations/schedule. He will then book them and proceed to the payment.

3.2 Business Rules

3.3 Use Case Specifications with corresponding interface mockups:

Each use case needs to have the following:

1- Business Rules.

2- System Use Case Diagrams.

3- Use Case Descriptions.

4- Corresponding Mockups

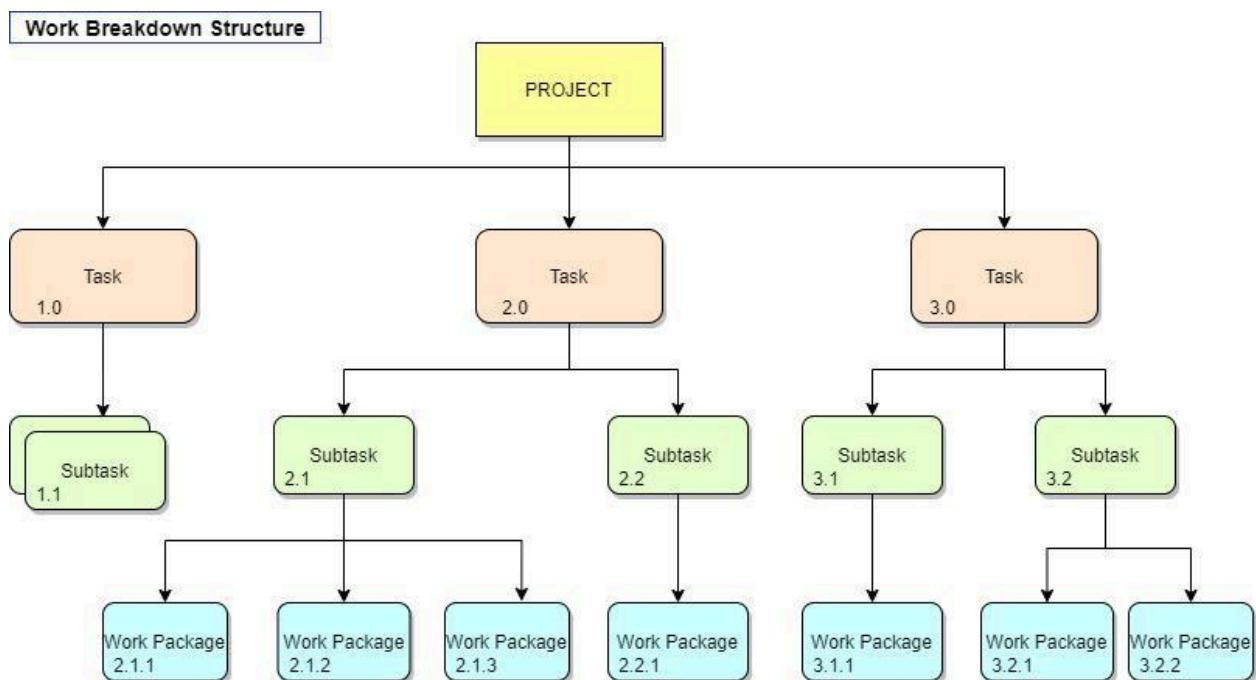
4. Domain Class Diagram

5. Database

6. Work Breakdown Structure (WBS)

6.1 Work Breakdown Structure

Sample WBS:



7. Milestones and Acceptance Criteria

7.1 Milestone one

 Definition

 Acceptance Criteria

- ...
-
-

7.2 Milestone Two

7.3 Milestone Three

7.4 ..

7.5 ...

7.6 ...

7.7 ..

7.8 ..

7.9 ...etc.

7.10

8. Implementation Schedule

Implementation Schedule using MS Project (Waterfall)

OR

Product Backlog (Agile-Scrum)

9. Client / Faculty Sign-off

Date: _____

X

Name of Client/Rep/Professor