

Intermediate Hand-In Protocol

Sofia Ginalis, Julia Pabst

Git repository: <https://github.com/JuliaPabst/TourPlanner>

Description of project structure

In our JavaFX project TourPlanner, we structured the application according to the MVVM (Model-View-ViewModel) architecture pattern. This approach enabled us to cleanly separate the responsibilities of business logic, presentation logic, and the user interface. Furthermore, we made extensive use of the Observable Pattern to enable reactive UI updates.

Model Layer

We created the model package to hold the core domain entities of our application in the form of records. These include:

- Tour
- TourLog

To represent enumerated types relevant to tours and logs, we added:

- Difficulty
- TransportType
- ModalType

The model layer is kept free of any JavaFX dependencies and focuses purely on data representation. We used Java record classes for the entities, ensuring immutability and conciseness.

Service Layer

In the service package, we implemented some parts of the business logic of the application. Specifically, we created the following services:

- TourManager – manages operations related to tours (creation, update, deletion)
- TourLogManager – handles similar operations for tour logs
- TourMetricsCalculator - calculates derived metrics like:
 - Popularity (based on number and quality of tour logs)
 - Child-friendliness (based on difficulty, distance and time)

This reflects a design decision based on code review feedback to decouple calculated domain logic from UI controllers and ViewModels.

ViewModel Layer

The viewmodel package contains all ViewModel classes. This layer serves as the bridge between our view and model.

We created ViewModels for all major UI components:

- MainViewModel
- SearchBarViewModel
- TourInputViewModel
- TourListViewModel
- TourLogInputViewModel
- TourLogListViewModel

In these ViewModels, we used JavaFX Properties (e.g. StringProperty, ObjectProperty, IntegerProperty) to expose observable state. This allows the views to bind directly to the ViewModel and automatically react to changes.

View Layer

The view package, together with the resources/org.tourplanner folder, contains the user interface definition. The view layer consists of two main parts:

1. FXML Files

We defined the UI structure using reusable FXML components in files like:

- main-view.fxml
- tour-list.fxml
- tour-detail.fxml
- tour-log-list.fxml
- and others

2. Controllers

For each FXML file, we implemented a corresponding controller (e.g.

TourListController, TourInputController, SearchBarController) that connects the UI to the ViewModel. The controllers are responsible for handling UI interactions and calling ViewModel methods.

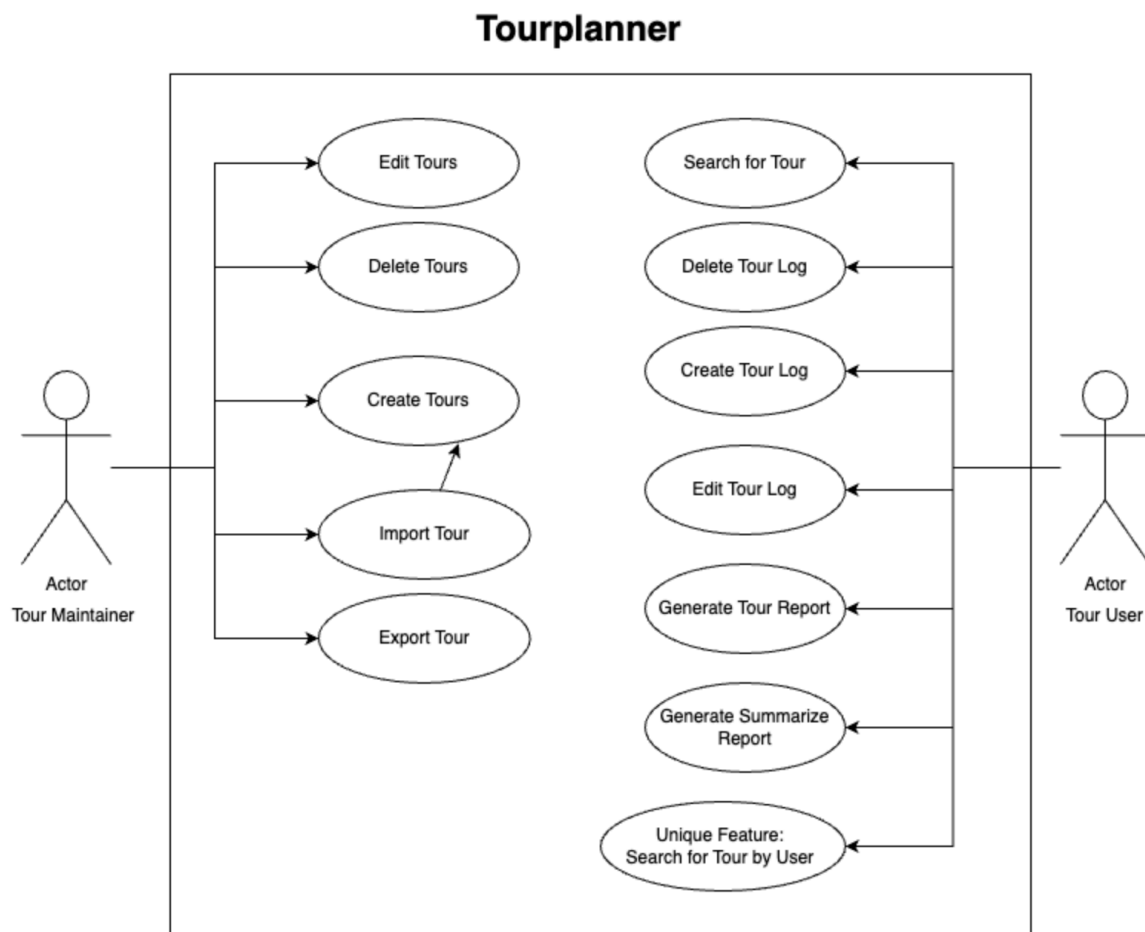
In line with the observable pattern, we used data binding between controls and ViewModel properties, so changes in state are automatically reflected in the user interface.

We also implemented ModalController and ModalService to handle modal dialogs (e.g. confirmation windows).

Application Entry Point

We created the TourPlannerApplication class as the JavaFX entry point. This class loads the main-view.fxml and sets up the initial scene graph.

Use Case Diagram



Wireframes

These wireframes were used as a rough plan and were adjusted when we figured out how the layout would be the most feasible concerning our current skill set.

Tour Planner

Q Search tours and logs...

Tours

+ New Tour

Vienna City Walk

From: Stephansplatz
To: Schönbrunn Palace

5.2 km | 120 min Popularity: ★★★★★

Danube River Trail

From: Klosterneuburg
To: Vienna

12.5 km | 90 min Popularity: ★★★★★

Alpine Adventure

From: Semmering
To: Rax Summit

8.7 km | 210 min Popularity: ★★★

Vienna City Walk

Edit

Delete

Route

From: Stephansplatz
To: Schönbrunn Palace

Transport Type

Walking

Stats

Distance: 5.2 km
Est. time: 120 min

Metrics

Popularity: ★★★★★
Child-friendly: ★★★

Description

A scenic walk through the heart of Vienna, passing by many historical landmarks and beautiful architecture. The tour starts at the impressive St. Stephen's Cathedral and ends at the magnificent Schönbrunn Palace.

Map

Vienna City Walk Map

Tour Logs

+ Add Log

5/10/2025

by Max

Beautiful walk through Vienna!

5.4 km | 130 min Rating: ★★★★★

5/1/2025

by Sarah

Amazing views along the way!

5 km | 110 min Rating: ★★★★★

4/22/2025

Data Management

Import Tours

Export Tours

Reports

Tour Report

Summary Report

Create New Tour

Enter the details for your new tour plan.

Tour Name

Enter a name for the tour

From

Starting location

To

Destination

Transport Type

Select type

Distance (km)

0.0

Estimated Time (min)

0

Description

Describe your tour...

Route Map

Choose File No file chosen

Cancel

Create Tour