LABORPROTOKOLL

im Studiengang Informatik/Computer Science
Lehrveranstaltung Software Engineering Labor 2

Arbeitsprotokoll

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Wien, 06.07.25

FH University of Applied Sciences
TECHNIKUM WIEN

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1 App Architecture

This project is based on the layering according to standard Model-View Controller + Service + Repository architecture, with additional components for Export/Import, PDF export and JavaFX UI integration.

1.1 Layers & functionalities

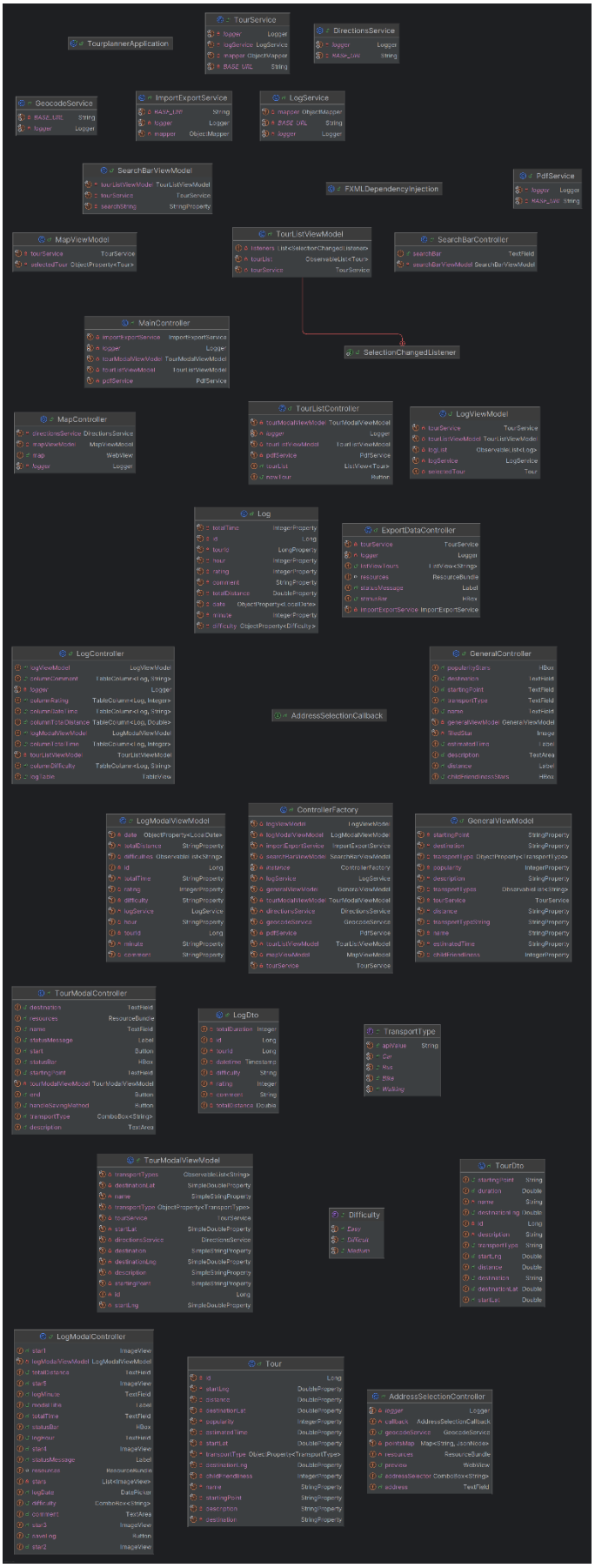
- **Presentation layer:** JavaFX and Viewmodel patterns to bind UI with business logic
  - Controllers: interact with UI components and handle user interactions, pass data from Viewmodels and trigger service actions
  - Viewmodels: store UI state and expose observable properties, bridge between UI controllers and services
- **Business Logic Layer:** handles main application like CRUD operations and report generation
- **Data Access Layer (Repository Layer):** interacts with data storage
  - Model/Entity Layer: represents the data structures of the system
- DTOs: simplified representations for transferring data between layers
- PDF and Export functionality for generating PDFs
- Utility & configuration: thymeleafconfiguration
- Enums for Transporttype, Difficulty
- Application Entrypoint: TourPlannerApplication

How does it work?

1 User interacts with UI
2 Controller captures that and calls corresponding ViewModel
3 ViewModel validates/manages state and calls a Service
4 Service performs business logic and persists data via a Respository
5 Entities are stored or retrieved and changes back to UI

1.2 Class diagrams

TourPlanner Frontend

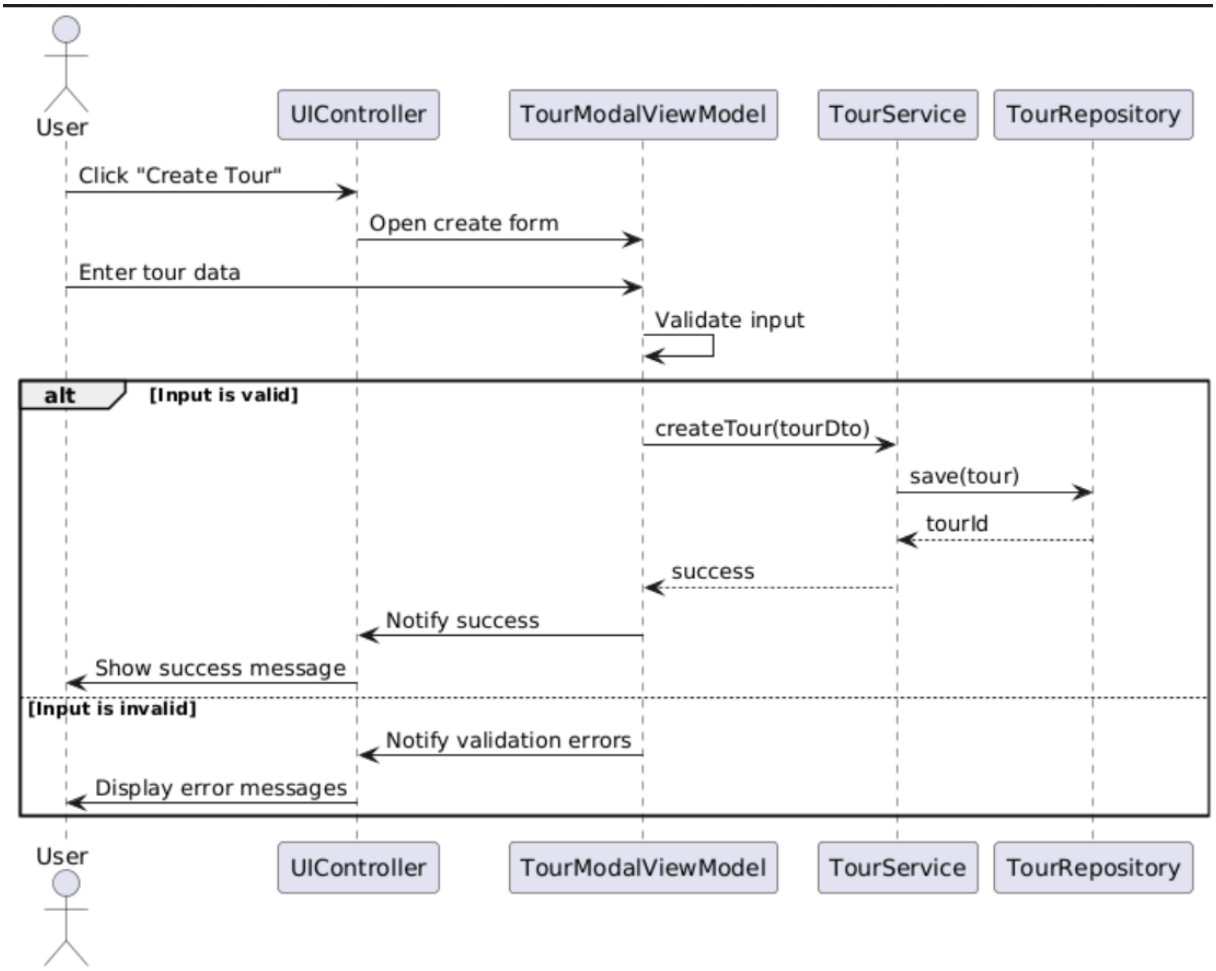


Tourplanner Backend:

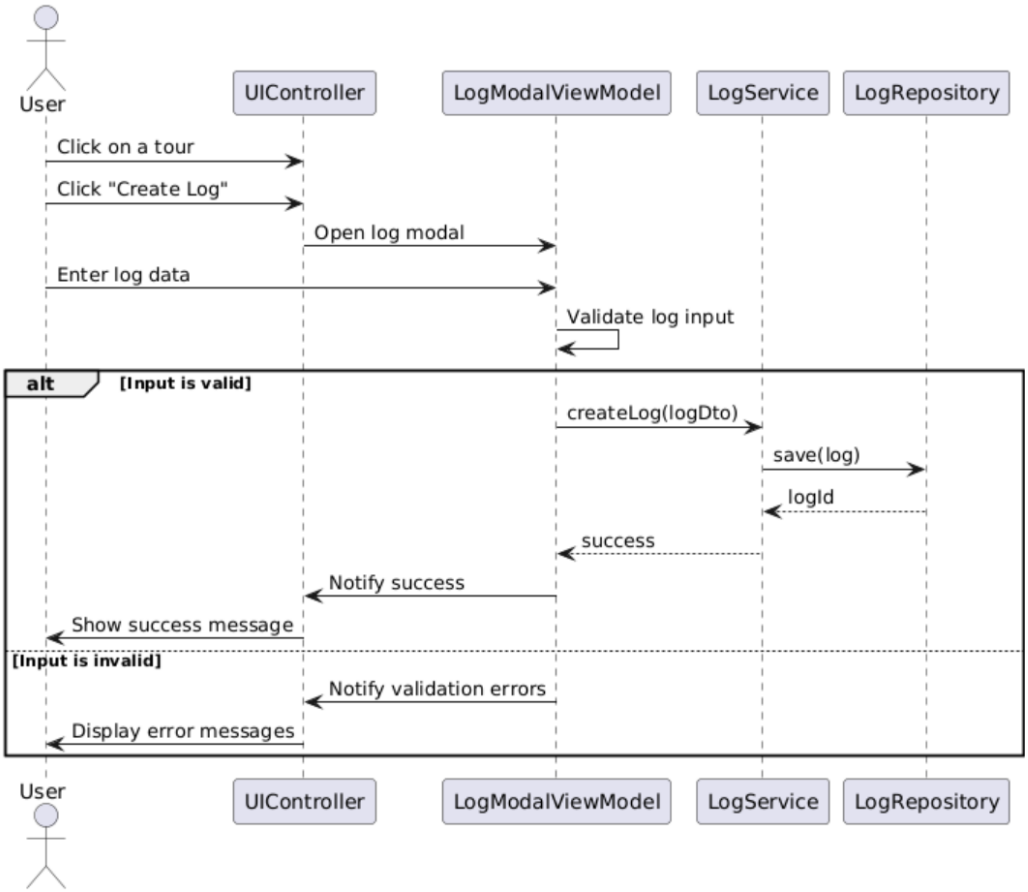
2 Use cases & sequence diagram

We prepared 4 use-cases and created a sequence diagram for each via PlantUML.

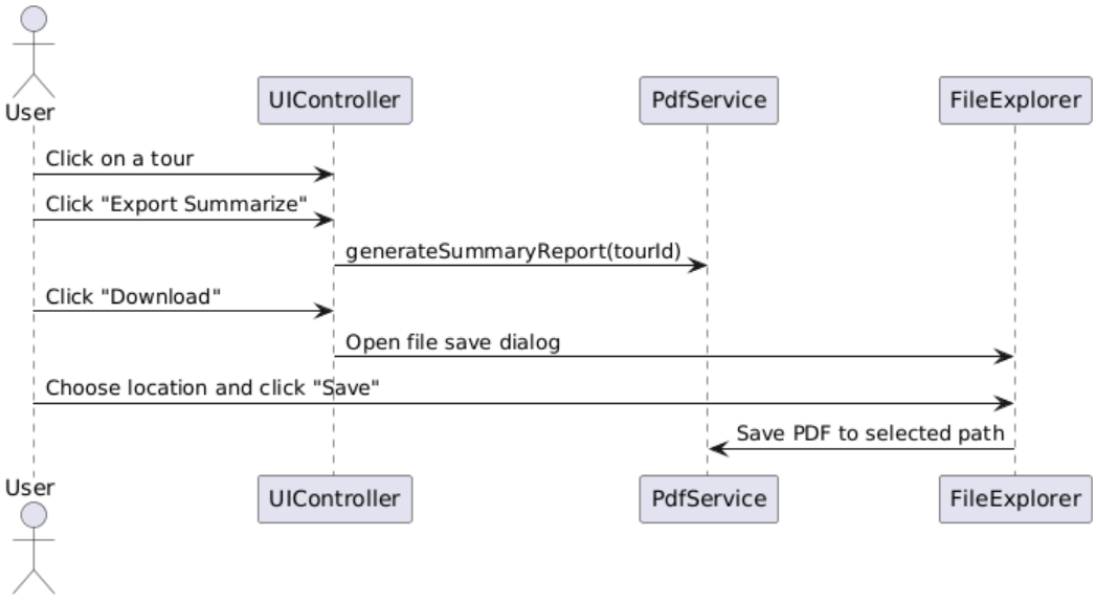
2.1 Create Tour



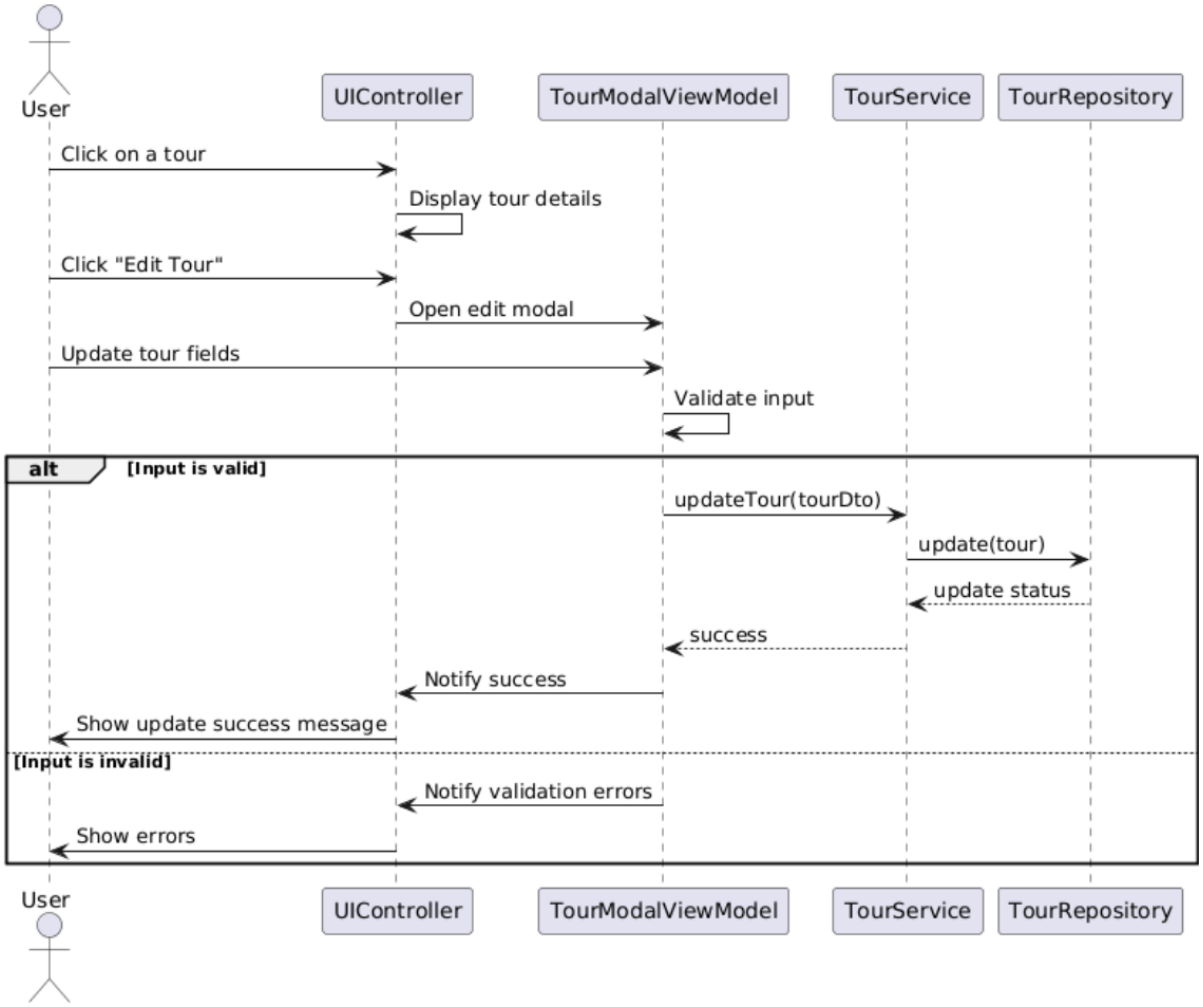
2.2 Create Log for a Tour



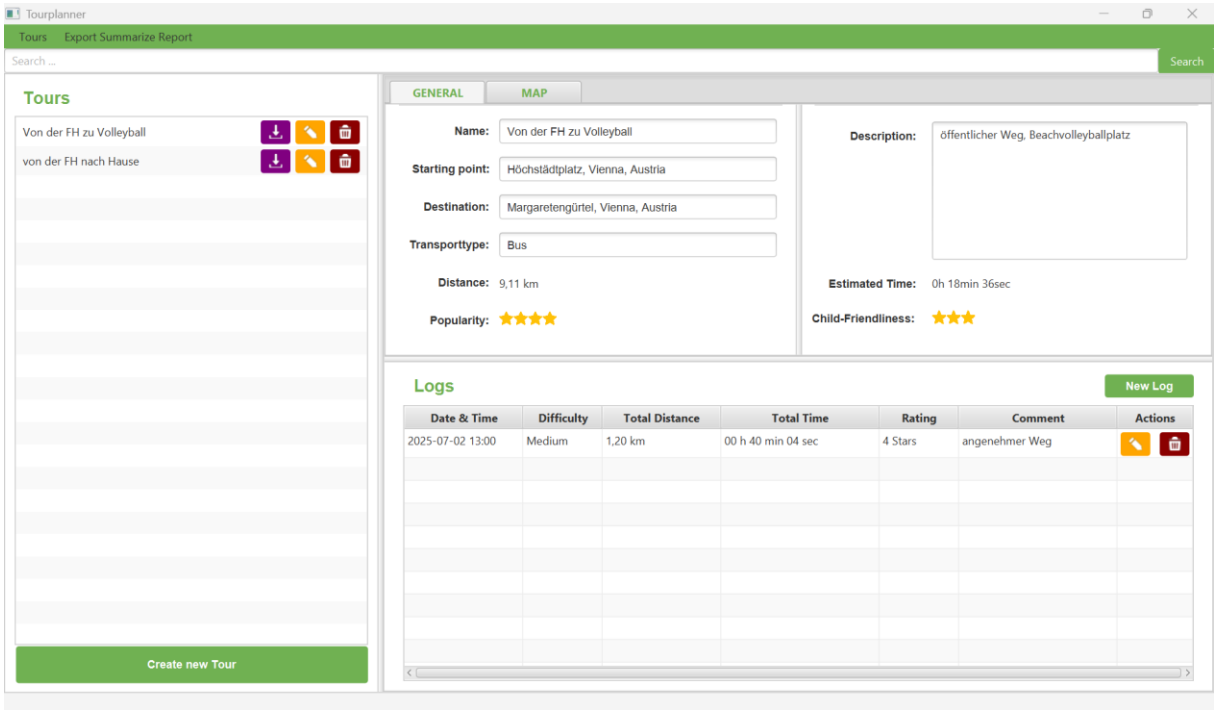
2.3 Export summarized report

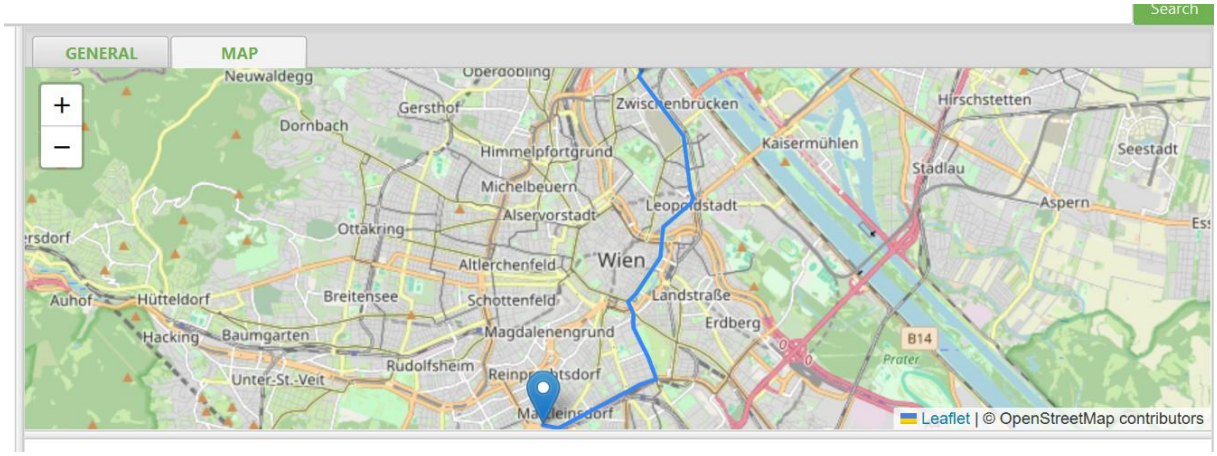


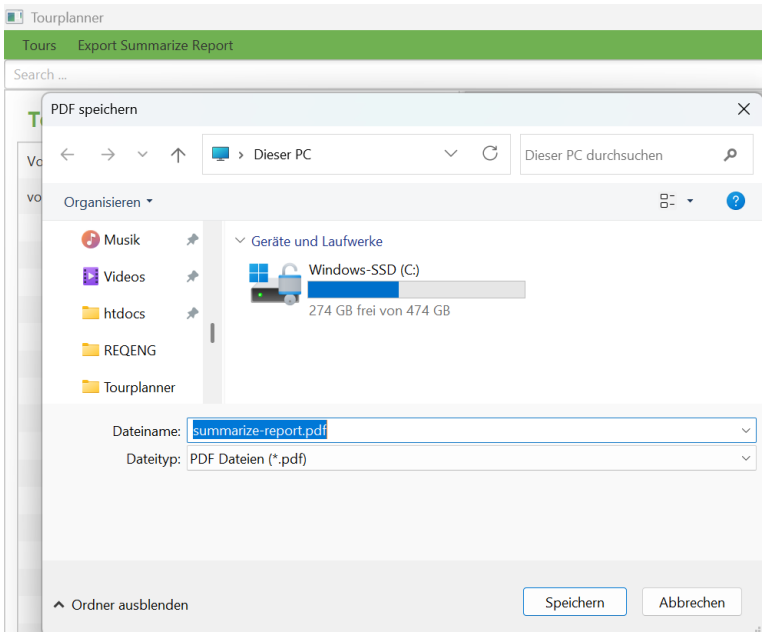
2.4 Edit Tour Details

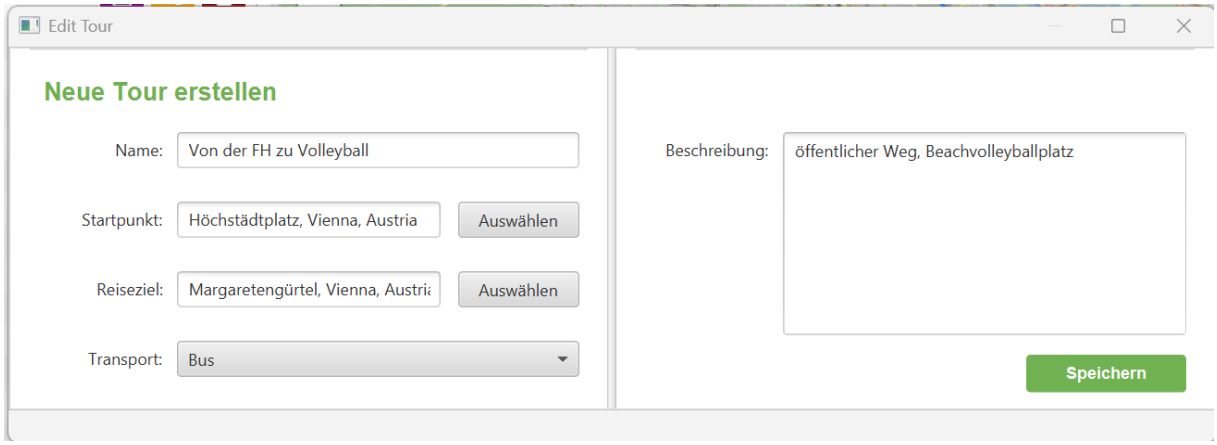


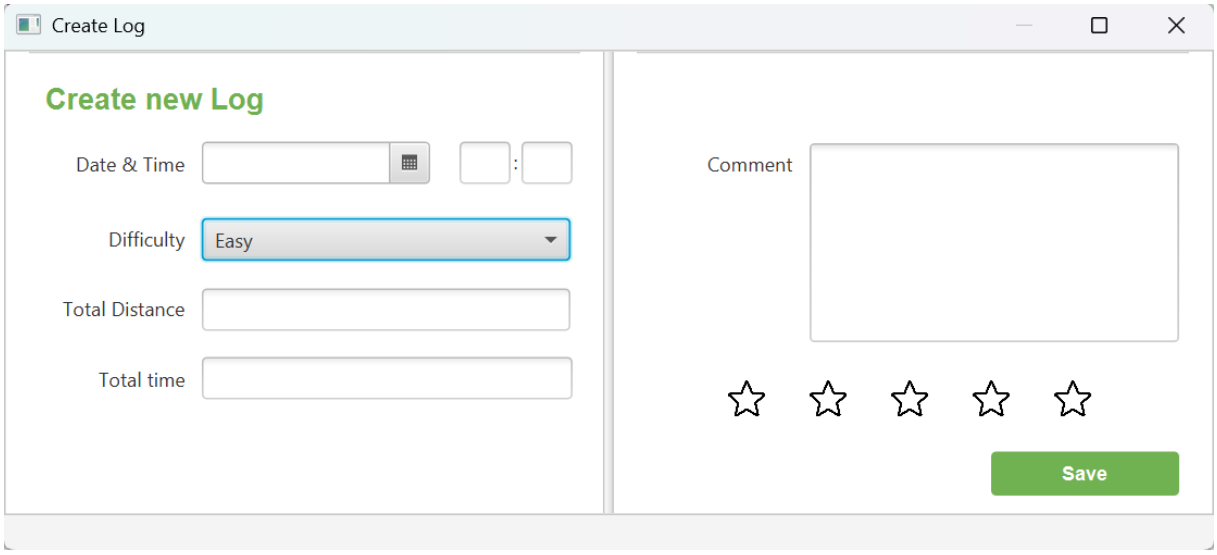
3 UX – wireframes






Tourplanner
Tours
Export Summarize Report
Search ...
PDF speichern
Dieser PC
Dieser PC durchsuchen
Organisieren
Musik
Videos
htdocs
REQENG
Tourplanner
Geräte und Laufwerke
Windows-SSD (C:)
274 GB frei von 474 GB
Dateiname:
summarize-report.pdf
Dateityp:
PDF Dateien (*.pdf)
Ordner ausblenden
Speichern
Abbrechen


Edit Tour
Neue Tour erstellen
Name:
Von der FH zu Volleyball
Startpunkt:
Höchstädtplatz, Vienna, Austria
Auswählen
Reiseziel:
Margaretengürtel, Vienna, Austri
Auswählen
Transport:
Bus
Beschreibung:
öffentlicher Weg, Beachvolleyballplatz
Speichern


Create Log
Create new Log
Date & Time
Difficulty
Easy
Total Distance
Total time
Comment
Save

4 Library decisions

4.1 Frontend

1) JavaFX (modules javafx-base, javafx-controls, javafx-fxml, javafax-graphics, javafx-media and more)
- Modern UI toolkit for Java
- Supports FXML, enabling separation of UI and logic
- Includes rich UI components

2) Lombok
- Eliminates code like getters, setters, constructors

3) Logback/log4j
- Powerful logging for debugging and monitoring

4) Jackson
- Handles JSON serialization
- Automatically maps Java objects to JSON

5) TestFX + Junit + Mockito
- Automated UI testing
- Allows mocking dependencies for isolated unit testing

4.2 Backend

1) Springboot
- Framework for building Java backend applications
- Auto-configured, dependency injection, web server support and REST APIs
- Easily integrates with databases, templating engines

2) PosgreSQL JDBC Driver
- Allow the Java app to connect to a PostgreSQL database

3) Hibernate / JPA
- Is the OR-Mapper framework that maps Java object to database tables
- JPA (=Jakarta Persistence API) is the standard used with Hibernate
- Simplifies database operations like CRUD

4) Jackson
- Converts Java objects to JSON and back

5) Thymeleaf
- Server-side Java template engine
- HTML rendering power

6) Flying saucer PDF (XHTMLRenderer)
- Converts HTML & CSS to PDF

5 Implemented design pattern

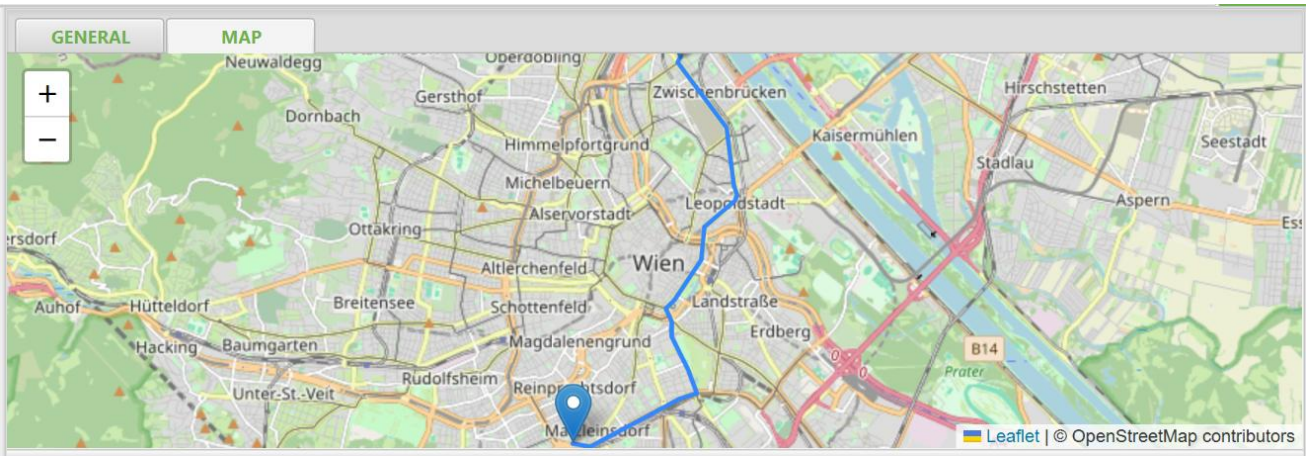
- MVC pattern → model, view, controller
- Dependency injection → injects services automatically
- Repository pattern → encapsulates data access logic

6 Unit testing decisions

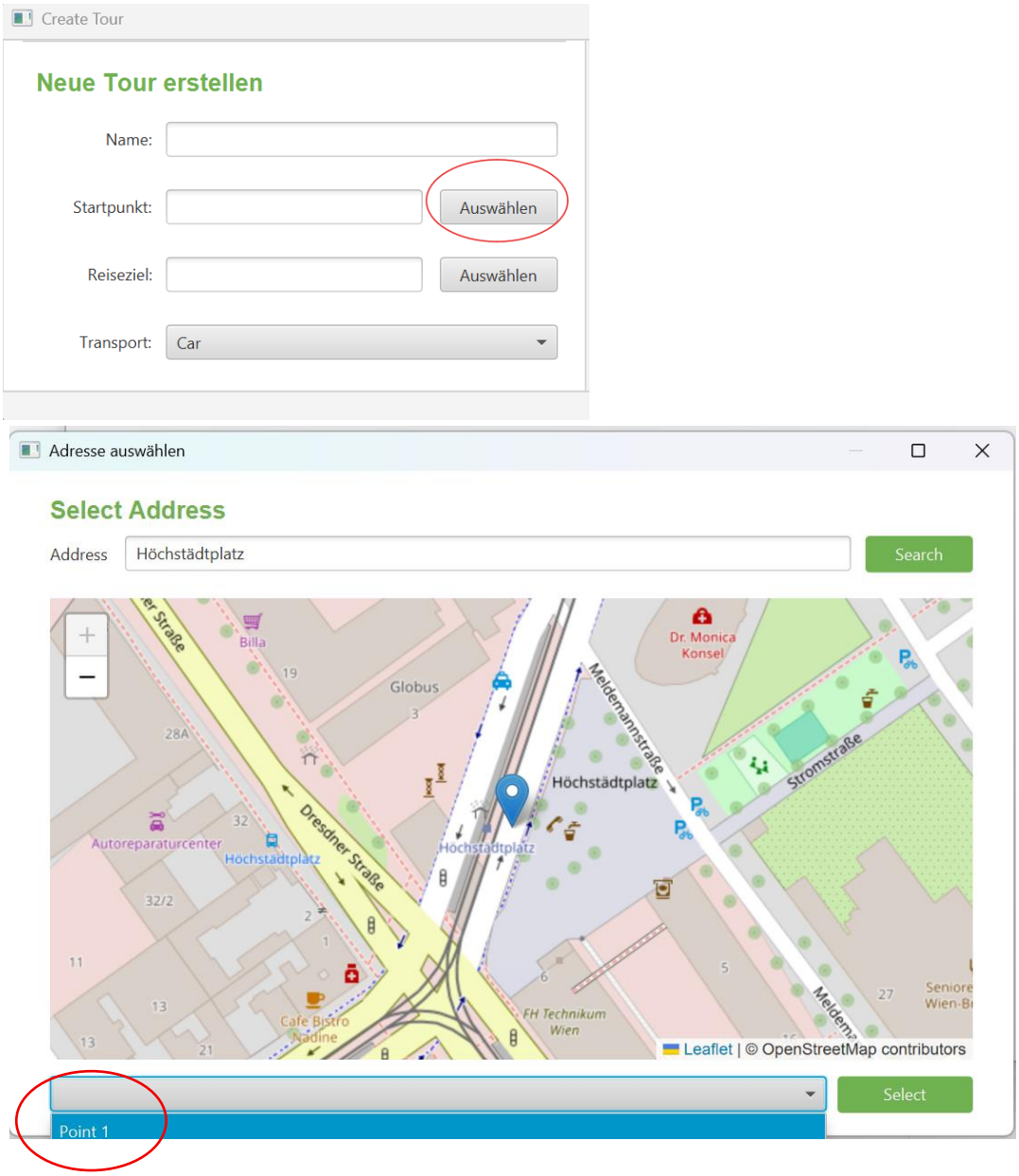
➔ Separation into Frontend and Backend
  - UI testing with mocks
  - Controller testing
  - Service testing

7 Unique feature

Our unique feature revolves around the map!
There are two tabs: “General” where the general information of a tour is displayed and one where the map is displayed. There are 2 pins at the chosen starting location and at the destination and a blue line connecting them.



Another unique feature of our project is that you can click on the button “Auswählen” when the TourCreation-Modal opens. The new modal shows the map with a search bar above where you must put in an exact address that gets searched. The map puts in a box-border of all the points / pins with that address name. Now you can click on the specific point that you need.



8 Tracked time

This project was an ongoing process for the last months. Although our commits show specific dates or weeks where there was more intense work, we have worked on this project continuously.

Frontend commits: git log --since=5months

commit e33553e6cd30b38c9fc1f7f44bf75805297aa99e (HEAD -> main, origin/main, origin/HEAD)
Author: Johanna Nasr <if23b284@technikum-wien.at>
Date: Sat Jul 5 10:40:36 2025 +0200
change error message

commit 62f9f3a7e664e32ee243a92b1dce0423a7e25779
Author: Johanna Nasr <if23b284@technikum-wien.at>
Date: Sat Jul 5 10:40:15 2025 +0200
correcting unit test

commit 1cc1c2f4dee147e88a7fe29972881bbbebafc89b
Author: if23b288 <if23b288@technikum-wien.at>
Date: Fri Jul 4 19:53:18 2025 +0200
working Import/Export

commit 3eb72abe92bbfc961d038aa6c6c53bcf8f0b8cc9
Author: Johanna Nasr <if23b284@technikum-wien.at>
Date: Fri Jul 4 15:06:06 2025 +0200
starting with import json file of tour data

commit a27803a1f4c83fa72ea3e50fb32f687e194c1696
Author: Johanna Nasr <if23b284@technikum-wien.at>
Date: Fri Jul 4 01:10:56 2025 +0200
add unit tests (20+)

commit 32bebf5cd0e80d95431e7b71de9e70615c644736
Author: Johanna Nasr <if23b284@technikum-wien.at>
Date: Fri Jul 4 00:56:46 2025 +0200
add logging log4j

commit 2d0f6967c1849df0bd29143dfeaaecb0c7b44e2b
Author: Johanna Nasr <if23b284@technikum-wien.at>
Date: Wed Jul 2 16:08:42 2025 +0200
regex correction

commit 7dae18686a0a8fd57f9c744baa1f4785a790e82b
Author: Florian Schmidt <schmidt.florian03@gmail.com>
Date: Sun Jun 29 10:48:42 2025 +0200
working Searchbar

commit 88aecab5f095feeb9d98b1059d583bfeccf6ee56
Author: Florian Schmidt <schmidt.florian03@gmail.com>
Date: Mon Jun 23 00:58:38 2025 +0200
revised Pdf Generator, added Summarize Report

commit 24ab12c70e46bf9a54aa98c88481790b4cbe2b99
Merge: 01adca2 e96bfb1
Author: Florian Schmidt <schmidt.florian03@gmail.com>
Date: Sun Jun 22 20:09:53 2025 +0200
Merge remote-tracking branch 'origin/main'

commit 0f2ca9add5aa298f5716d8b1c634b121326fa387
Author: if23b288 <if23b288@technikum-wien.at>
Date: Sat Mar 29 16:11:47 2025 +0100
wireframes

commit a50b79b42a3c3d1e0f32772de2153ac8179b263b
Author: if23b288 <if23b288@technikum-wien.at>
Date: Sat Mar 29 16:11:29 2025 +0100
refresh after modify/delete tour

commit b1ff00d9c174b3dd8c61d7d2950b22fa1bbb335a
Author: if23b288 <if23b288@technikum-wien.at>
Date: Wed Mar 26 18:52:42 2025 +0100
added log add/edit/delete functionality

commit 082c31c44eb2ca900d24f0eeec655b41c35b7437
Author: Johanna Nasr <if23b284@technikum-wien.at>
Date: Tue Mar 25 19:06:15 2025 +0100
add changes to tour

commit b45c353a5b74ca6fc981265e48901af3ced8e796
Author: Johanna Nasr <if23b284@technikum-wien.at>
Date: Tue Mar 25 19:05:50 2025 +010
change onAction method

commit 3df870e54b44995a52c1cdb1aa19ef0f50ba8c93
Author: Johanna Nasr <if23b284@technikum-wien.at>
Date: Tue Mar 25 18:38:54 2025 +010change onAction method

commit
076898036f49e18572ae3545a813a7b2c68ae2c3
Author: Johanna Nasr <if23b284@technikum-wien.at>
Date: Tue Mar 25 17:03:30 2025 +0100
add methods TourListController

commit 738f59799b9aa5fe53ddf86a23a6fa92c445c89f
Author: Johanna Nasr <if23b284@technikum-wien.at>
Date: Tue Mar 25 17:02:29 2025 +0100
nullpointerexception check and fix

commit
51c1cb8070fecb92e2d5872b0f8ce25744e703e0
Author: Johanna Nasr <if23b284@technikum-wien.at>
Date: Sun Mar 23 20:29:51 2025 +0100
feature: delete tour

commit
9a0614970dcf461d604d5a93c6a2a407689ca700
Author: if23b288 <if23b288@technikum-wien.at>
Date: Sun Mar 23 15:41:24 2025 +0100
added logModal and Log functionality

commit
d9fb3ce90644b6d89a19851429a514b34265f0ee
Author: Johanna Nasr <if23b284@technikum-wien.at>
Date: Thu Mar 20 15:07:24 2025 +0100
add red statusbar, error message

commit
6f8d4a633a6e736f78d3f84827e304d7412dcdee
Author: if23b288 <if23b288@technikum-wien.at>
Date: Tue Mar 18 18:39:25 2025 +0100
Statusbar

commit
efdaab0bc72d1a1f8c535fc8f4b56bd495e43b82
Author: if23b288 <if23b288@technikum-wien.at>
Date: Tue Mar 18 18:00:56 2025 +0100
Icons

commit
d2b6622947ee039f13a0d9e6daeb46150638b4ed
Author: Johanna Nasr <if23b284@technikum-wien.at>
Date: Mon Mar 17 14:14:55 2025 +0100
add validation to TourModalController

commit
07b2ecf092dbc834d0b4a1c786ed386042517b22
Author: if23b288 <if23b288@technikum-wien.at>
Date: Sun Mar 16 20:14:54 2025 +0100
removed combobox from general, general is read only, added resource strings everywhere, added table column fix

commit
d916f0e628705e128f6596fcb6d5cedcc412d2ec
Author: if23b288 <if23b288@technikum-wien.at>
Date: Fri Mar 14 11:44:47 2025 +0100
splitting components + create tour modal

commit
9bc4076432bc81e5cf11b64f08c46cb5ce5c7aa3
Author: Johanna Nasr <if23b284@technikum-wien.at>
Date: Fri Mar 14 09:58:32 2025 +0100
add changes to MainView

commit
08aa01b655641414a538afe2f9600faed3994445
Author: Johanna Nasr <if23b284@technikum-wien.at>
Date: Fri Mar 14 09:57:04 2025 +0100
add searchbar and tourOverview

commit
ca88e2baa4b8a2e92d158f2e2d4eaa87ae3d0592
Author: if23b288 <if23b288@technikum-wien.at>
Date: Fri Mar 14 09:50:31 2025 +0100
splitting components

commit
dc2ede6e1a30995ac6294a25ffda3437d2cb7b90
Author: if23b288 <if23b288@technikum-wien.at>
Date: Fri Mar 14 09:39:09 2025 +0100
file structure

commit
4be065c3fb7f937cc9d27ed52182fe1c57aca0bc
Author: Johanna Nasr <if23b284@technikum-wien.at>
Date: Fri Mar 14 09:12:01 2025 +0100
add changes

commit
bcd4353b776260815c6839ec47e3251dbcf2292a
Author: if23b288 <if23b288@technikum-wien.at>
Date: Mon Mar 10 16:17:12 2025 +0100
little changes in ui

commit
765d19284b0428818a5190d0f8e10e73e37cbeef
Author: if23b288 <if23b288@technikum-wien.at>
Date: Mon Mar 3 11:03:24 2025 +0100
fullscreen

commit
7b003a38578a814533bbea25615fdc71bb44c26e
Author: if23b288 <if23b288@technikum-wien.at>
Date: Mon Mar 3 10:50:28 2025 +0100
setup

```
commit
9d1d7d32d235f79b92e301f05d5bcaf80f4ad4a0
Author: if23b288 <if23b288@technikum-wien.at>
Date:   Sat Mar 15 12:59:58 2025 +0100
    feature: selecting a tour and displaying tour info

commit
e0eb38a9cf4418ec35b539bd286295ee7817c26a
Author: if23b288 <if23b288@technikum-wien.at>
Date:   Fri Mar 14 13:50:08 2025 +0100
    feature: creating new tours

commit 631f9fbfcca23c6e6fe6a39a1fba62ad87273e87
Author: if23b288 <if23b288@technikum-wien.at>
Date:   Mon Mar 3 10:46:58 2025 +0100
    first commit

commit
3a8393e47b070541ea958d69f4a50d84c855886f
Author: if23b288 <if23b288@technikum-wien.at>
Date:   Mon Mar 3 10:36:48 2025 +0100
    ui

commit
e5b25f09a1bf5b156db130b51816402f1461e13e
Author: if23b288 <if23b288@technikum-wien.at>
Date:   Mon Mar 3 08:51:32 2025 +0100
    first commit
```

Backend commits: git log --since=5months

```
Author: Johanna Nasr <if23b284@technikum-wien.at>
Date:   Sat Jul 5 10:39:30 2025 +0200
    add unit tests
commit
7fc81bb4c8d27b6e8686dca481bc32f2566cd44d
Author: Johanna Nasr <if23b284@technikum-wien.at>
Date:   Sat Jul 5 10:13:42 2025 +0200
    add logging with log4j

commit
ce8235ee45348ee245f2e99d1621da18a803bfa3
Author: if23b288 <if23b288@technikum-wien.at>
Date:   Fri Jul 4 20:40:04 2025 +0200
    added summarize report without tours

commit
875331ee763f2e60d37df9d94339188493dbe897
Author: if23b288 <if23b288@technikum-wien.at>
Date:   Fri Jul 4 19:54:11 2025 +0200
    added dependencies to pom file, working
Import/Export

commit
e5ae2ff1246aa5073748baae83b9e353d42efb9f
Author:  Florian  Schmidt
<schmidt.florian03@gmail.com>
Date:   Mon Jun 23 15:15:24 2025 +0200
    added no logs available

commit
0339aaf9053e4fbb19edb194e571d6e511780acc
Author:  Florian  Schmidt
<schmidt.florian03@gmail.com>
Date:   Mon Jun 23 00:56:45 2025 +0200
    overworked Pdf Generator and added Summarize
Report

commit
e9d112caa5b7f57eb7785bed4a6ef4d9c0c1b76a
Merge: a489ff3 f8bf55a
Author:  Florian  Schmidt
<schmidt.florian03@gmail.com>
Date:   Sun Jun 22 20:02:33 2025 +0200
    Merge remote-tracking branch 'origin/main'

commit a489ff3f882d08a6cc3761bb376727881bffbcb4
Author:  Florian  Schmidt
<schmidt.florian03@gmail.com>
Date:   Sun Jun 22 20:02:15 2025 +0200
    Pdf Generator working

commit
f8bf55ab4fbd623c13919857a950cc2a46c2e272
Author: if23b288 <if23b288@technikum-wien.at>
Date:   Sun Jun 22 18:26:44 2025 +0200
    added get last created Tour, updated log datatypes
```

commit e8a06dd67fae9201e82908f926adff04241daf63
Author: if23b288 <if23b288@technikum-wien.at>
Date: Sat Jun 21 21:22:31 2025 +0200
added log management

commit 4d31a69d672cdabac349464a56eb4afa9e5a5754
Author: if23b288 <if23b288@technikum-wien.at>
Date: Sun Jun 1 09:50:21 2025 +0200
added map functionality

commit 08c0a16fcbd19c4eae12d11c61e215edc81fca82
Author: if23b288 <if23b288@technikum-wien.at>
Date: Thu Apr 24 00:10:35 2025 +0200
added log basics, working tour functionality

commit 0470c76a838f8d53938e4fe20b92ca0693321669
Author: if23b288 <if23b288@technikum-wien.at>
Date: Wed Apr 23 16:00:46 2025 +0200
init

9 Link to GIT

https://github.com/FI003/Tourplanner
https://github.com/FI003/Tourplanner_Spring