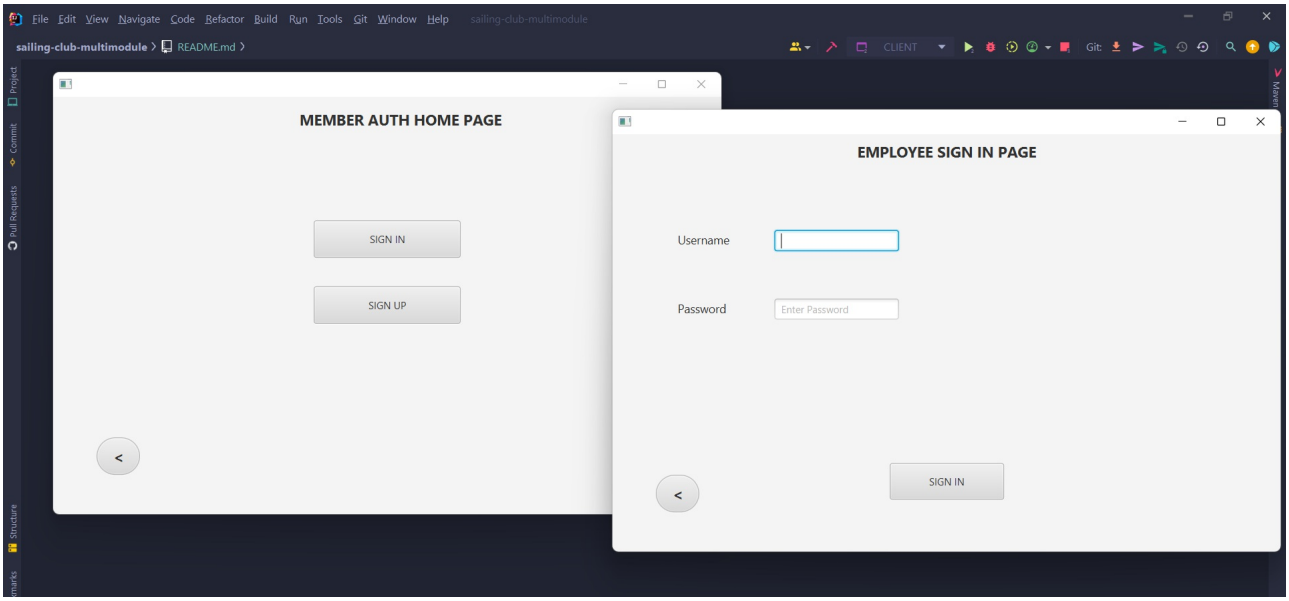
Sailing Club Project



This is a client-server application written in Java using module features introduced in Java 8.
It also uses Maven for project management.

Javadoc is available at /sailing-club-multimodule/src/main/resources/javadoc/index.html.

Tests of base classes are available at /sailing-club-multimodule/backend/src/test/java/entities/.

Table of Contents

- Project Structure
- Prerequisites
- Setup
- How to run the application
- How to use the application

Project Structure

The application is divided in two modules:

- backend: contains the server logic
- frontend: contains the JavaFX application

Each module uses the folder structure and conventions suggested by Maven,
while also having dependencies such as JavaFX and MySQL managed by it.

DAO Pattern

We used the Data Access Object (DAO) pattern to abstract away details of the persistence layer.
The domain layer, instead of interacting directly with the database, communicates with the

DAO layer,
which in turn communicates with the persistence layer. The advantage of this approach is that, if a change in the persistence layer is needed, only the DAO layer will be changed.

Client-Server communication

Clients and server communicate via two classes exposed to the frontend
using Java 8 module features:

- Message: used to send a request from client
- Reply: used to send a reply from server

To avoid creating huge switch-case statements the **Command Pattern** was used in the server code to handle all the different request types sent by clients. This enables us to have more readable code and to have for each request a particular class.

Prerequisites

- This application uses MySQL as the DBMS which is not provided from the project, and thus should be already installed in the host machine
- Eclipse or IntelliJ should have been already installed with the latest JDK

Setup

> :warning: **The following scripts will erase a database named sailing-club if it already exists in the host machine**

- Execute the createProductionDB.sql script situated in /sailing-club-multimodule/backend/scripts/createProductionDB.sql to create the database
    - Install Maven dependencies in your IDE of choice

In Intellij

- go to Run -> Edit Configurations
- add two configurations for Server.java and Client.java with Add new Configuration
- for Client.java Modify Options -> Enable multiple instances to be able to run multiple clients at the same time

Eclipse

Import project

- on top menu -> File -> Import
- click Maven -> Existing Maven projects
- click Browse
- choose the correct path in your system for sailing-club-multimodule project

Run configuration

On top menu -> Run -> Run Configuration

Server

- click on Java Application
- click Add new configuration
- rename it Server
- in project -> click browse -> choose backend
- in main class -> click search -> choose serverManagement.Server

Client

- click on Java Application
- click Add new configuration
- rename it Client
- in project -> click browse -> choose frontend
- in main class -> click search -> choose com.sailingclub.frontend.Client

How to run the application

There are two entry points to run the application:

- sailing-club-multimodule/backend/src/main/java/serverManagement/Server.java: to start the server
- sailing-club-multimodule/frontend/src/main/java/com/sailingclub/frontend/Client.java: to start
  JavaFX application

> :warning: **Server.java should always be started before Client.java**

1. Execute Server.java
2. Execute Client.java, this class can be started multiple times concurrently

How to use the application

The first time that a client is launched, a new Admin registration page will be showed.
The admin is the only user that can create and manage employees.

In the HomePage the user can choose to authenticate as a Member, Employee or Admin.

A Member can add or delete boats, manage fee payments and participate to races.

An Employee can manage member accounts and their boats, check payments record,
and notify members of their expired fees. Membership and Storage fees expires in 30 seconds.