

# **WhereFrom Railways (SBB Task)**

Technical Solution Description

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## **Project**

This project constitutes an information system for a railway company. It comprises two parts: the main application that provides functionality for both managing the railway network and using its services, and a separate indicator board that displays current schedule for a specific station.

## **Basic functionality**

The main application provides to both registered and unregistered users a possibility to look up a station's schedule (either current or at a specific date and time); a possibility to find connections between two stations and buy a ticket as long as there are seats available and there is enough time before departure. Registered users with administrative permissions (company employees) are able to add new stations and train models, schedule, look up current scheduled journeys and their passengers.

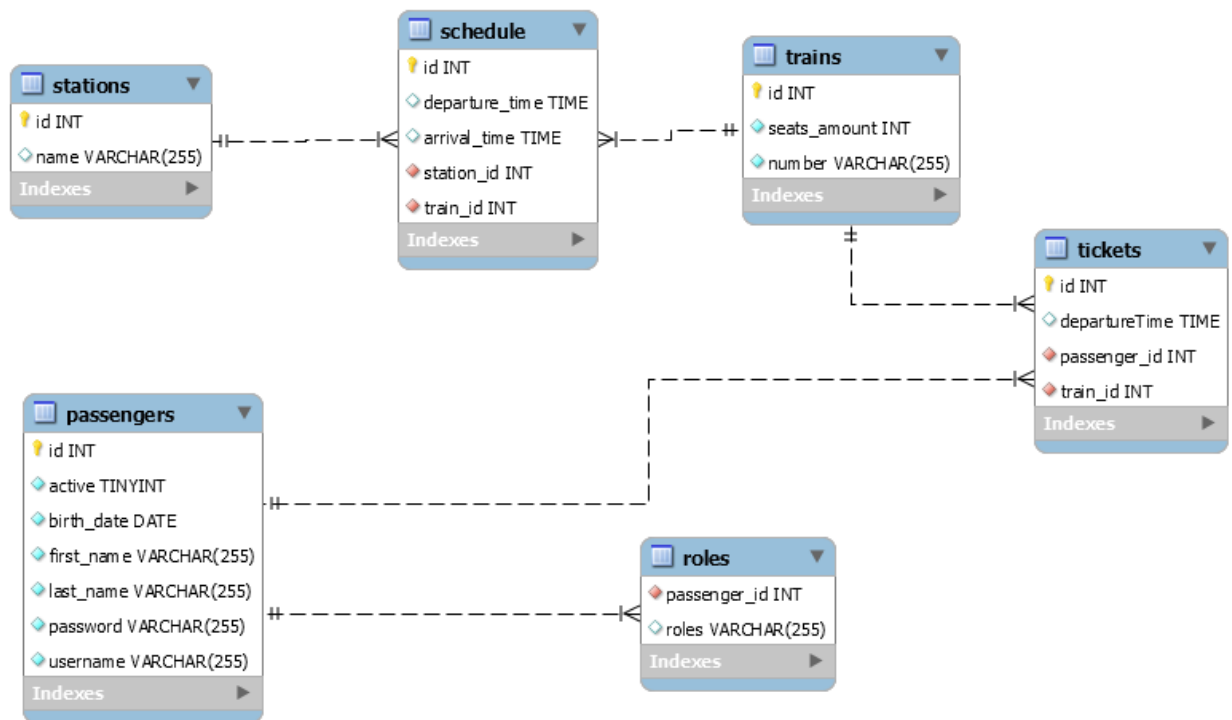
### Technology stack

- Maven 3
- JUnit5

- Mockito
- Log4j
- Lombok
- Bootstrap 4
- ActiveMQ
- JMS
- Spring MVC
- Spring Security
- JSP/JSTL
- MySQL 8
- JPA
- Tomcat
- Wildfly 17
- Java EE 8
- EJB
- JSF 2.3

# Data model

## Database scheme



## Application

The application consists of two modules: the «railways» module that constitutes the railways information system; the «board» module that constitutes a specific station's indicator board. The «board» module obtains via REST requests the list of the stations and each station's schedule at the start of the application and whenever the «railways» module communicates through JMS Topic that there were changes in either the stations' list or the schedule.

### *Railways*

This module is a Spring MVC application and consists of 5 sub-modules:

- Configuration (config package and its inner packages)
- Models (entities, dtos, mappers)
- Dao (working with DB)
- Service (service and inner packages)
- Controller

## **User interface**

User interface in this module is rendered via JSP technology. CSS is mainly provided by Bootstrap framework.

### *Board*

This module is a Java EE application. It consists of 3 main modules:

Beans, Dto and View.

Beans module is responsible for connection with ActiveMQ queue, dto – for providing necessary classes to front end side and View – for the rest business logic.

## **User interface**

User interface in this module is rendered by JSF 2.3. Communication with @Named bean is done with the help of <f:websocket> (when there are updates in the schedule). CSS is provided via Bootstrap framework.