



JAM

Version 1.1.2

13.05.2025

JAM

Job Application Management – a full stack application intended to manage job applications from the perspective of an applicant.

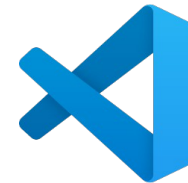
Created using following tools and components:



POSTMAN



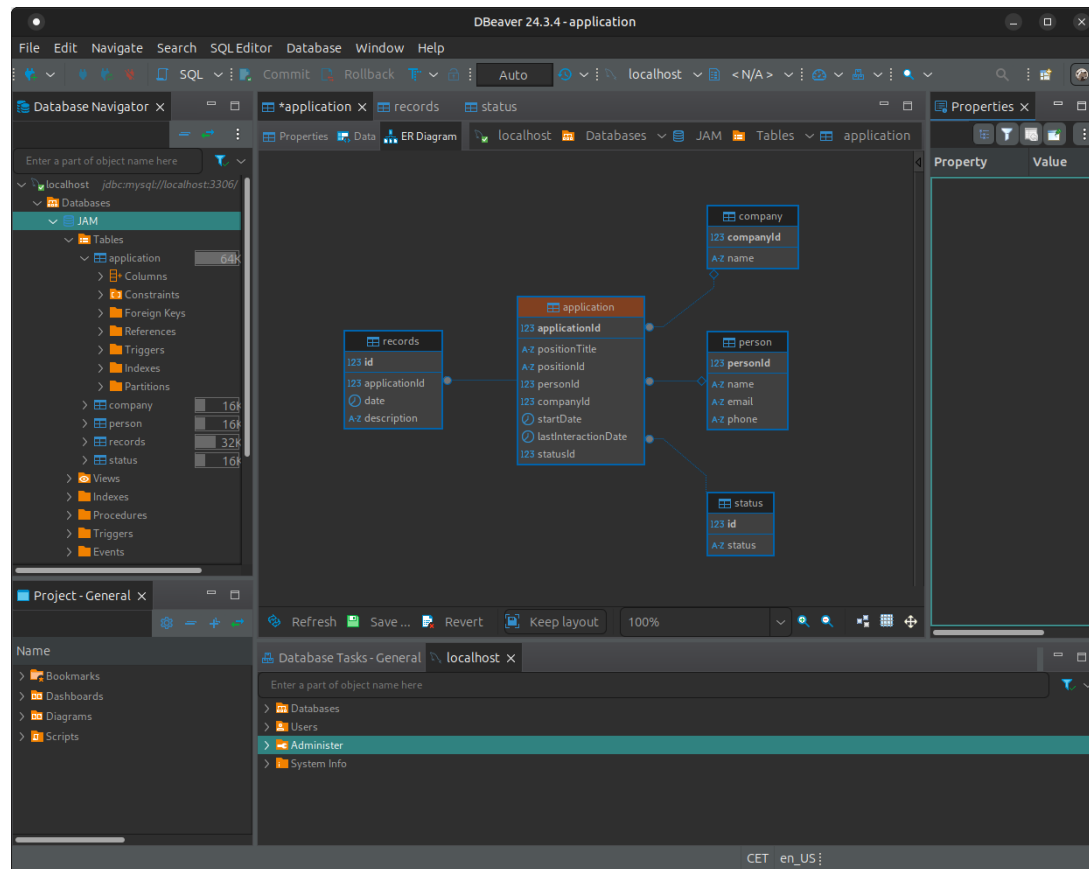
MavenTM



Database layer

MySQL used as base layer database.

Layout of tables and views created using DBeaver

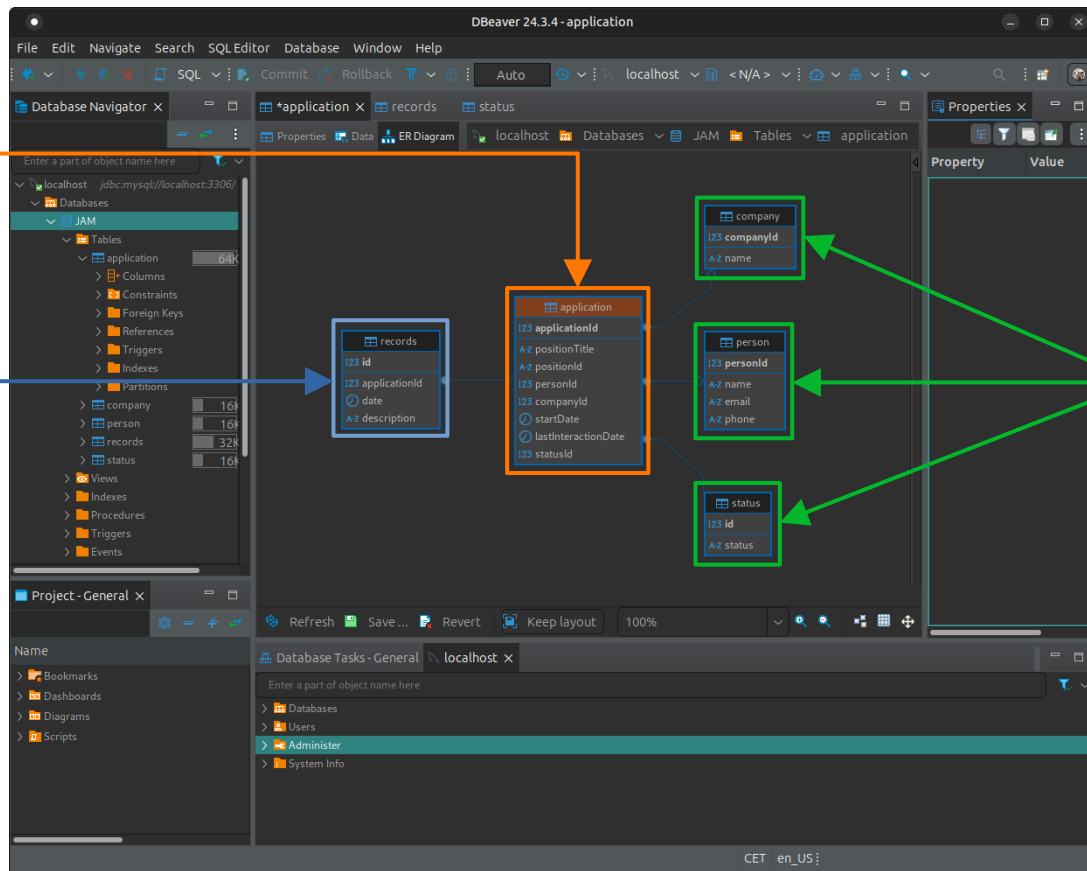


Database layer

“application” table used to hold information about applications

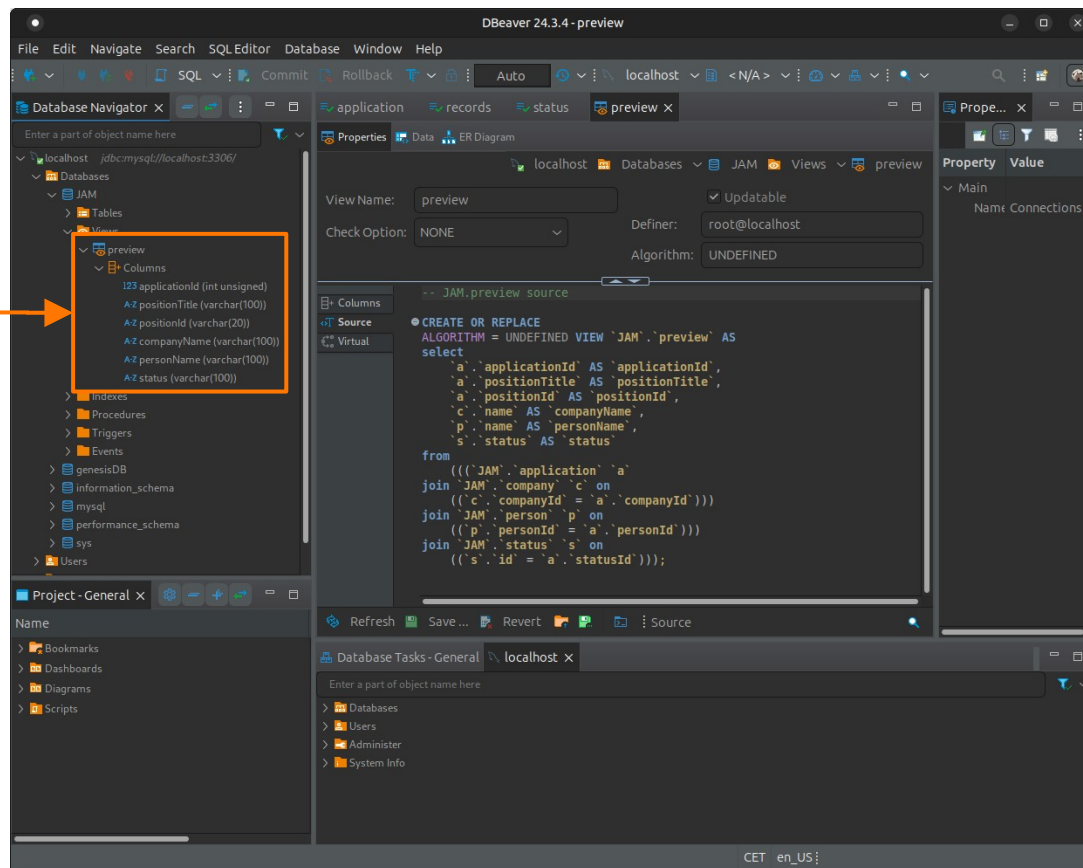
“records” table for various notes related to a particular application.

Tables holding information about persons, companies and status connected to “application” table via foreign keys



Database layer

“preview” view created to ease access to data used for application card (see front end section)



Back-end layer

- Java based
- Spring boot used for REST web service/web server creation
- Maven used for packaging
- Coded in IntelliJ Idea IDE (community edition)
- Hibernate used for interactions with database
- Postman used for testing



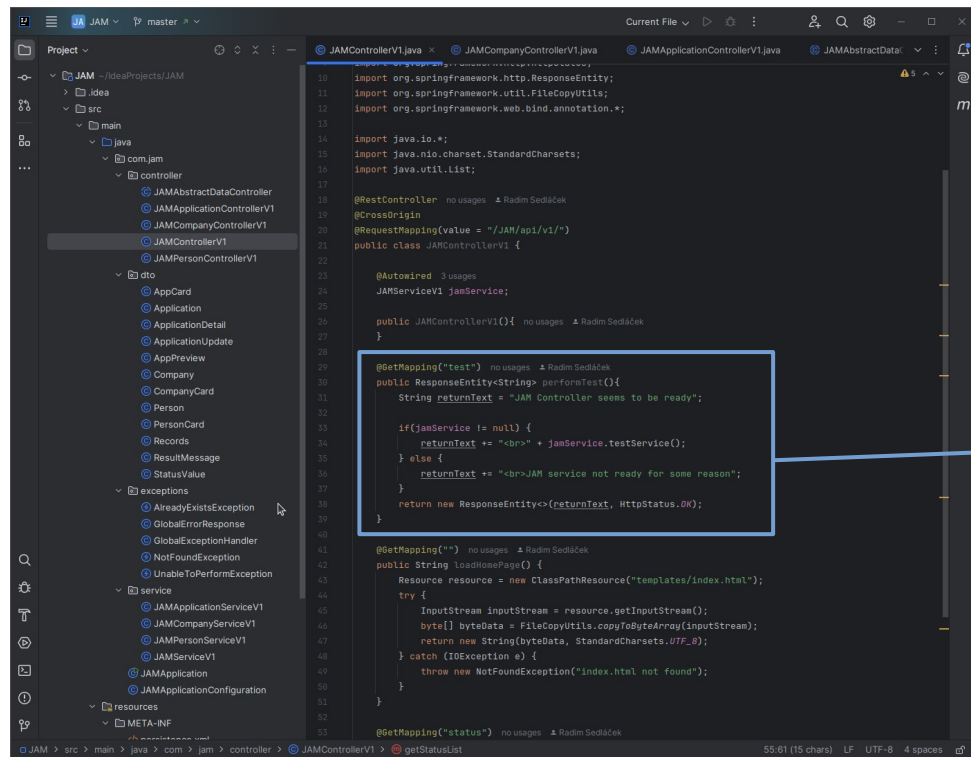
Back-end layer

Spring boot
application/controller/service
leveraged for requests
processing

A screenshot of an IDE (IntelliJ IDEA) showing a Java project named 'JAM'. The project structure on the left includes folders for 'main', 'src', 'java', 'com.jam', 'controller', 'dto', 'exceptions', and 'service'. The 'JAMApplication.java' file is open in the editor, showing the main method. The code defines a URL, sets up a Spring application context, and handles browser-specific commands for 'chrome' and 'firefox'.

```
10 public class JAMApplication {
11
12     private static final String URL = "http://localhost:8080/JAM/api/v1/";
13
14     public static void main(String[] args) {
15         ConfigurableApplicationContext ctx = SpringApplication.run(JAMApplication.class, args);
16
17         String browser = ctx.getEnvironment().getProperty("browser");
18         String incognito = ctx.getEnvironment().getProperty("incognito.parameter");
19
20         String[] commands = new String[3];
21         Runtime runtime = Runtime.getRuntime();
22         try {
23             if(browser.toLowerCase().contains("chrome")){ //if chrome is set
24                 commands[0] = browser;
25                 commands[1] = URL;
26                 commands[2] = incognito;
27                 runtime.exec(commands);
28             } else if(browser.toLowerCase().contains("firefox")) { //if firefox is set
29                 commands[0] = browser;
30                 commands[1] = incognito;
31                 commands[2] = URL;
32                 runtime.exec(commands);
33             } else {
34                 System.err.println("*****");
35                 System.err.println("Unable to run browser, Run it manually and enter address " + URL + " ");
36                 System.err.println("*****");
37             }
38         } catch (IOException | InterruptedException e) {
39             System.err.println("*****");
40             System.err.println(" " + e.getMessage() + " ");
41             System.err.println("*****");
42         }
43     }
44 }
45
46
47
48 }
```

Back-end layer



A simple test of service and database readiness available on address "test" – see Front-end section for more details

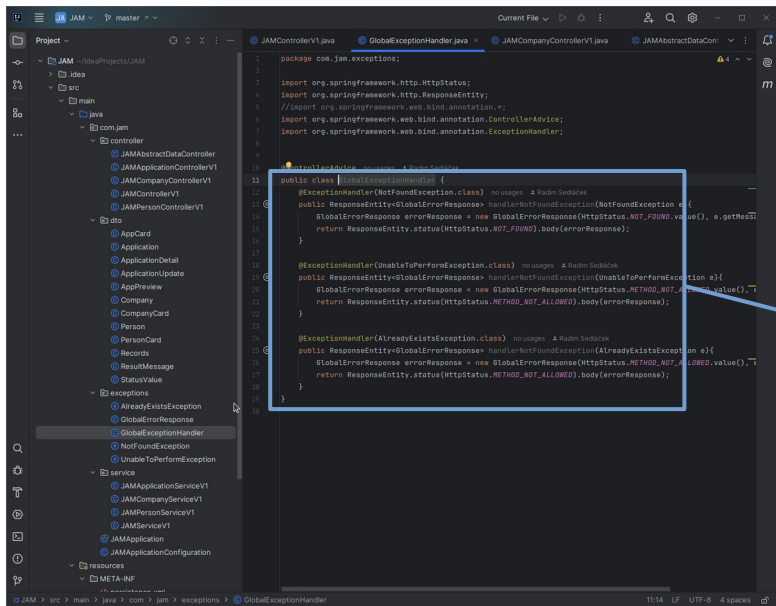
```
@GetMapping("test")
public ResponseEntity<String> performTest(){
    String returnText = "JAM Controller seems to be ready";

    if(jamService != null) {
        returnText += "<br>" + jamService.testService();
    } else {
        returnText += "<br>JAM service not ready for some reason";
    }

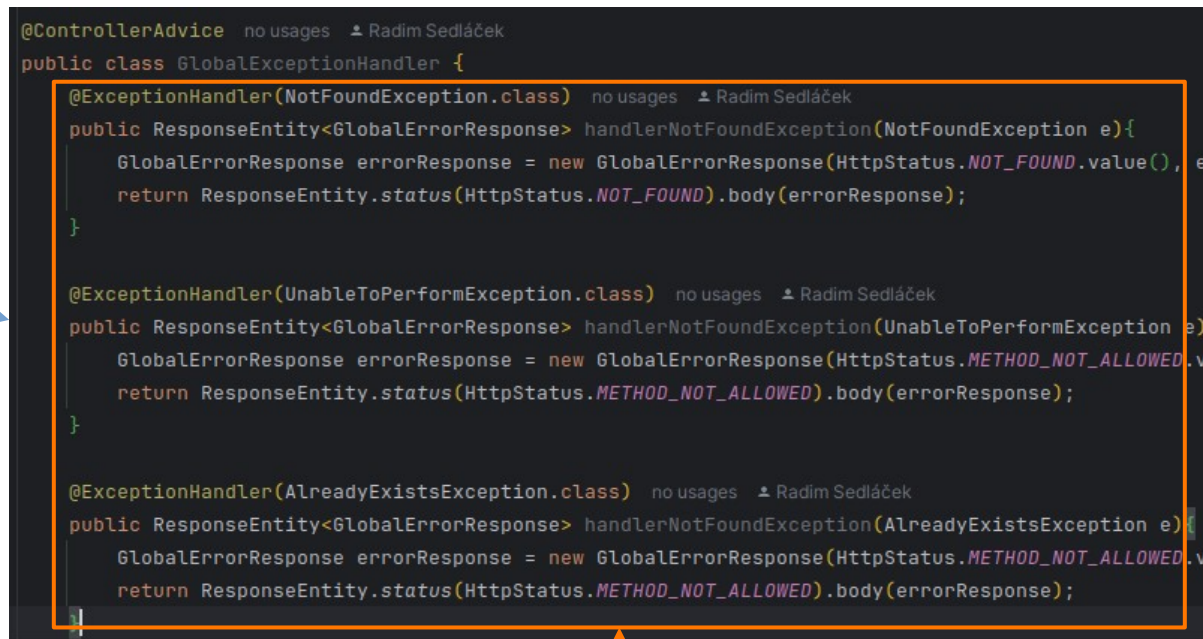
    return new ResponseEntity<>(returnText, HttpStatus.OK);
}
```



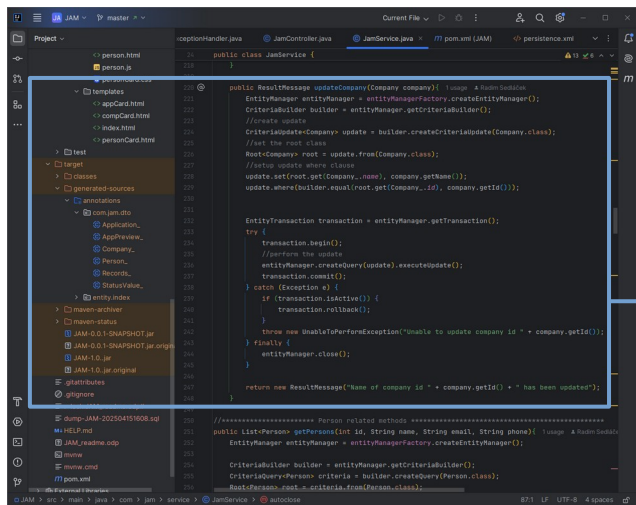
Back-end layer



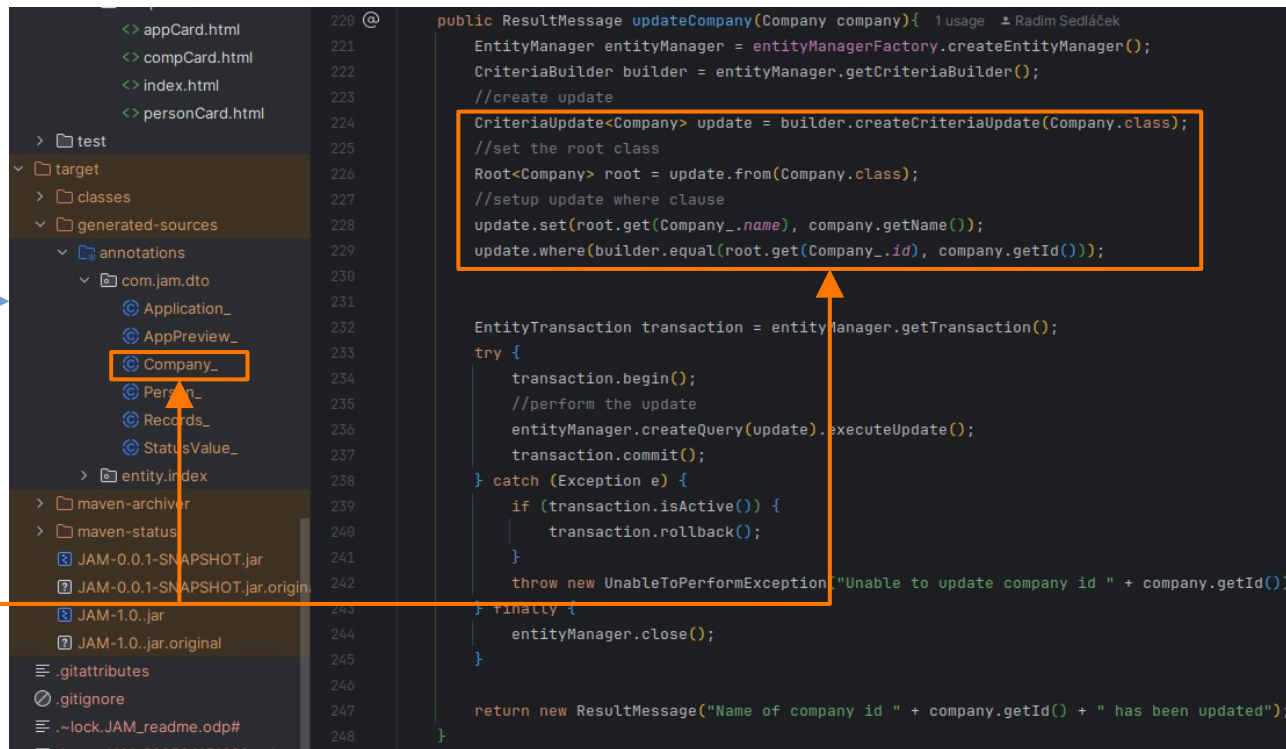
Spring boot @ExceptionHandler leveraged for error processing



Back-end layer



Hibernate static meta-model
leveraged to enforce type safety



Back-end layer

During every start the service checks database for application with idle time longer than 30 days and auto closes them

```
Maximum pool size: 20
2025-04-16T14:18:55.220+02:00 INFO 18699 --- [
0 applications autoclosed
2025-04-16T14:18:55.458+02:00 INFO 18699 --- [
```



```
package com.jam;

import ...

@SpringBootApplication
public class JAMApplication {

    private static final String URL = "http://localhost:8080/JAM/api/v1/";

    public static void main(String[] args) {
        ConfigurableApplicationContext ctx = SpringApplication.run(JAMApplication.class, args);

        String browser = ctx.getEnvironment().getProperty("browser");
        String incognito = ctx.getEnvironment().getProperty("incognito.parameter");

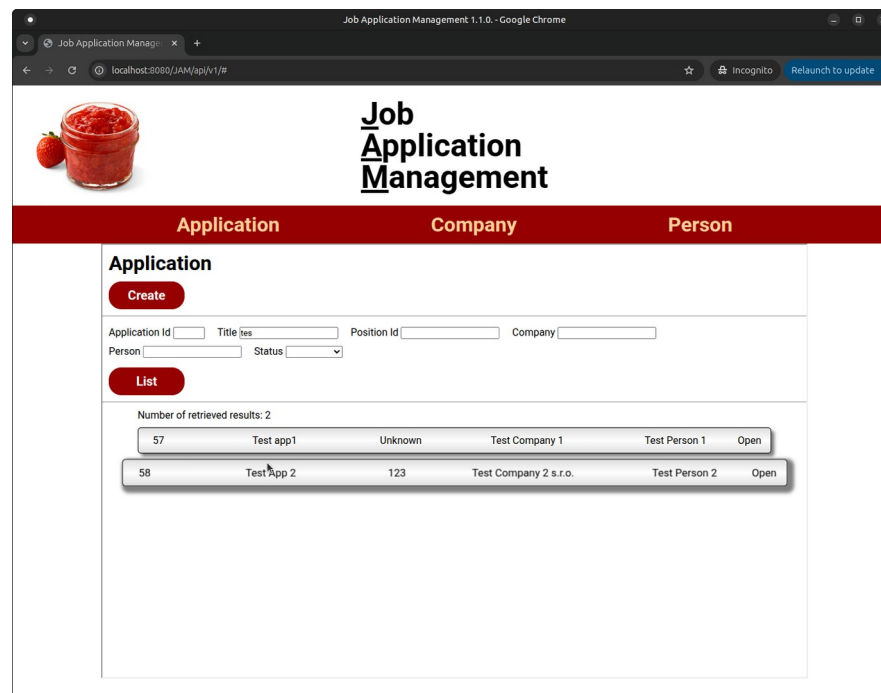
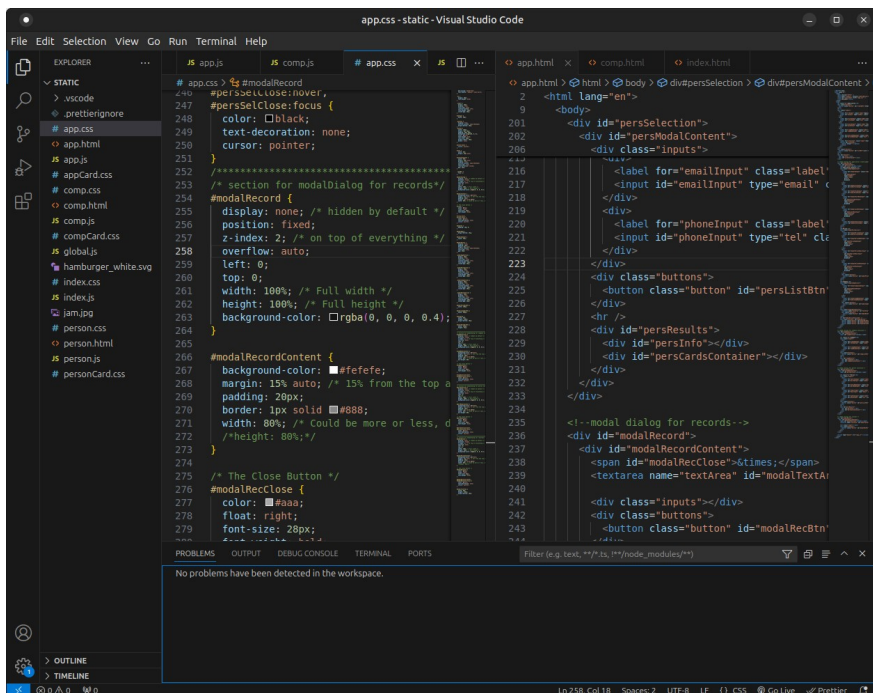
        String[] commands = new String[3];
        Runtime runtime = Runtime.getRuntime();
        try {
            if (browser.toLowerCase().contains("chrome")) { //if chrome is set
                commands[0] = browser;
                commands[1] = URL;
                commands[2] = incognito;
                runtime.exec(commands);
            } else if (browser.toLowerCase().contains("firefox")) { //if firefox is set
                commands[0] = browser;
                commands[1] = incognito;
                commands[2] = URL;
                runtime.exec(commands);
            }
        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

```
Minimum pool size: 1
Maximum pool size: 20
2025-05-13T14:53:26.481+02:00 INFO 22538 --- [
0 applications autoclosed
2025-05-13T14:53:26.878+02:00 INFO 22538 --- [
2025-05-13T14:53:27.037+02:00 INFO 22538 --- [
2025-05-13T14:53:27.337+02:00 INFO 22538 --- [
2025-05-13T14:53:27.353+02:00 INFO 22538 --- [
2025-05-13T14:53:27.673+02:00 INFO 22538 --- [nio-8080-exec-1] o.a.c.c. [Tomcat]. [localhost]. [/]
2025-05-13T14:53:27.673+02:00 INFO 22538 --- [nio-8080-exec-1] o.s.web.servlet.DispatcherServlet
2025-05-13T14:53:27.674+02:00 INFO 22538 --- [nio-8080-exec-1] o.s.web.servlet.DispatcherServlet

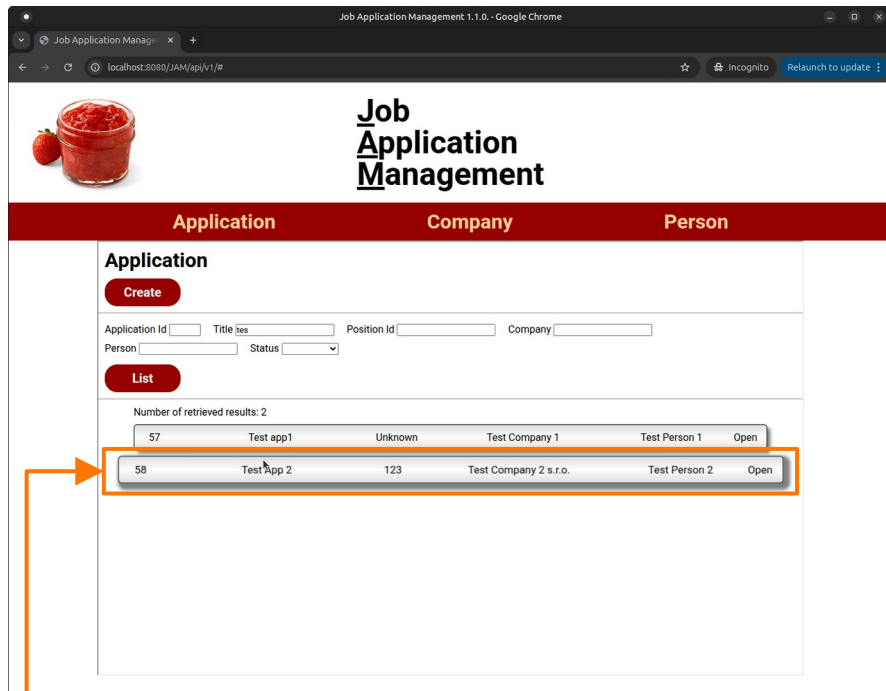
main] o.h.e.t.j.p.i.JtaPlatformInitiator : HHH000489: No JTA platform available (set 'hibernat
main] o.s.v.b.OptionalValidatorFactoryBean : Failed to set up a Bean Validation provider: jakart
main] o.s.b.a.e.web.EndpointLinksResolver : Exposing 15 endpoints beneath base path '/actuator'
main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port 8080 (http) with context pat
main] com.jam.JAMApplication : Started JAMApplication in 5.852 seconds (process run
: Initializing Spring DispatcherServlet 'dispatcherSe
: Initializing Servlet 'dispatcherServlet'
: Completed initialization in 1 ms
```

Front-end layer

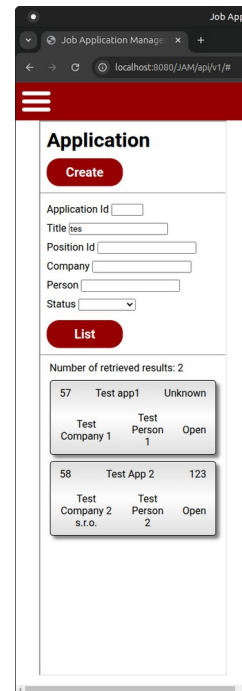
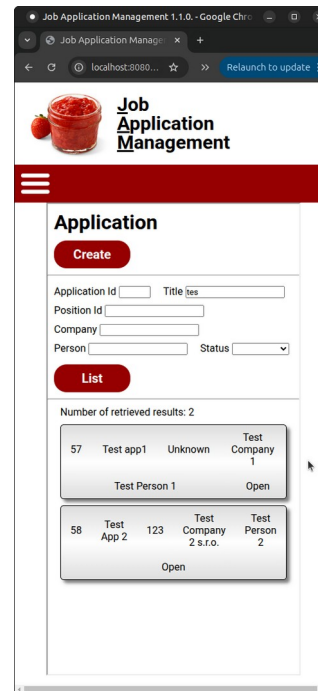
- HTML/CSS/JavaScript based web page
- Coded in Visual Studio Code



Responsive design for use on desktop, tablet as well as smart phone



3D like effect when hovering over a card in the result list



Front-end layer

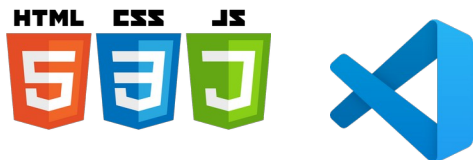
Although created as a web app, currently is used as a desktop application.

Preferable web browser can be configured via application.properties (currently only Chrome and Firefox is supported). Is recommended to start it in incognito/private mode. Browser starts automatically after application context is available.

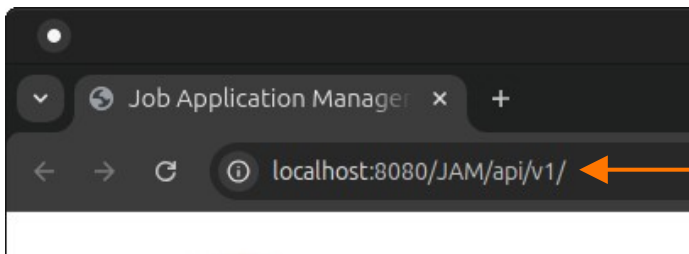
```
application.properties x
1 management.endpoints.web.exposure.include=*
2 management.endpoint.shutdown.enabled=true
3 endpoints.shutdown.enabled=true
4
5 browser=/usr/bin/google-chrome-stable
6 incognito.parameter=-incognito
```

After leaving index.html page, the service is automatically stopped via spring actuator (currently works on Chrome only)

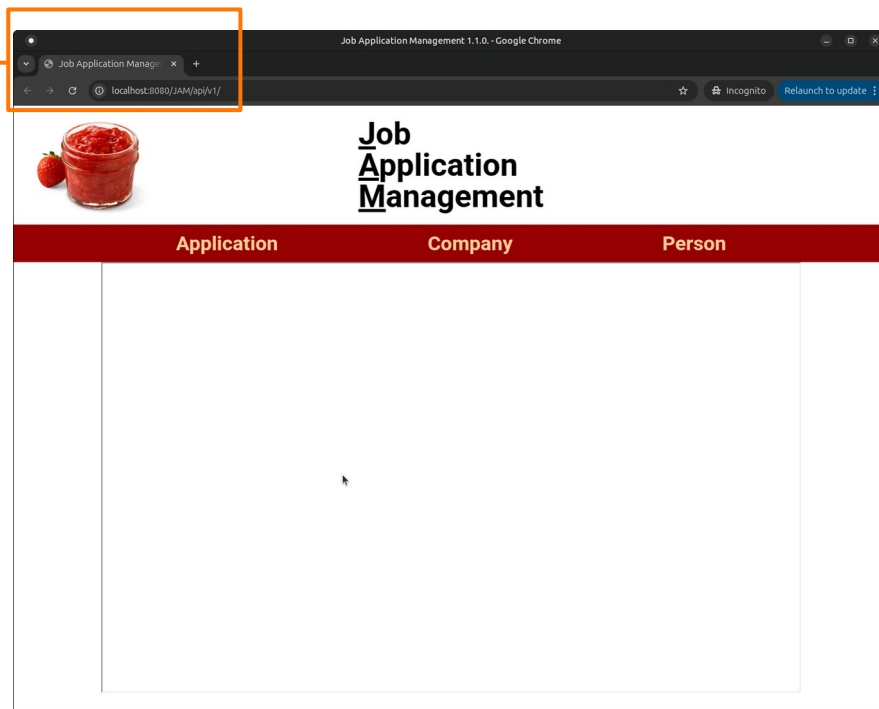
If unsupported or no browser is set, run it manually and enter address



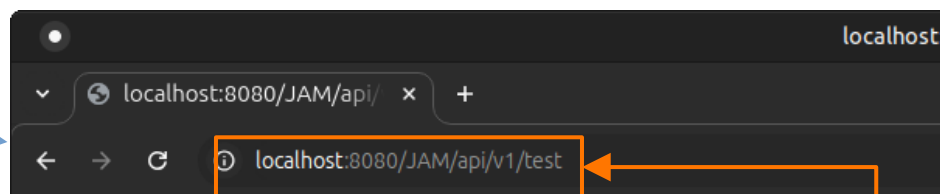
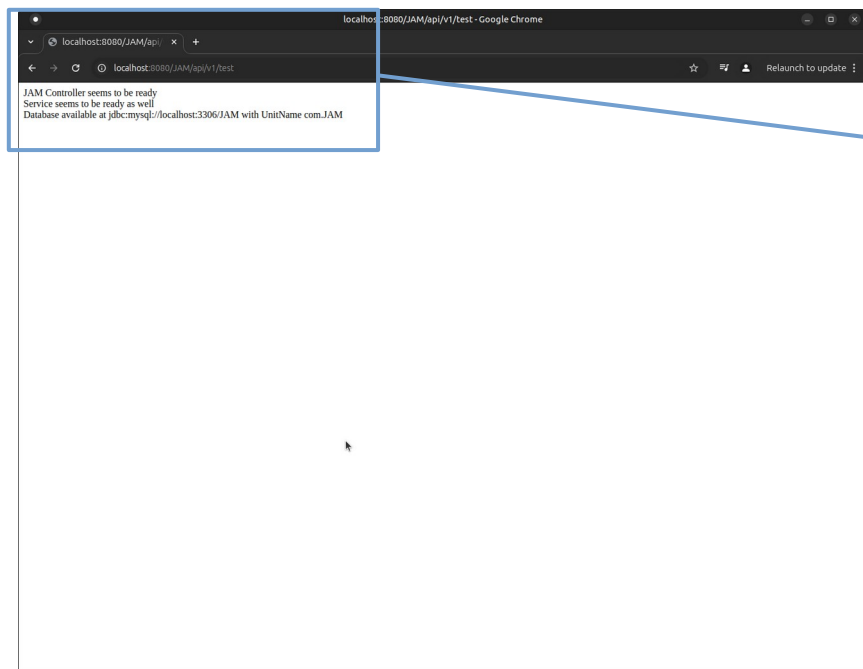
Front-end layer



When the server is running, the main web page itself available on "JAM/api/v1" address



Front-end layer



JAM Controller seems to be ready
Service seems to be ready as well
Database available at jdbc:mysql://localhost:3306/JAM with UnitName com.JAM

Service and database availability
check accessible on “test” address

This test should be performed from new clean
window, otherwise the service will stop due to
unload of index.html page (see previous slides)



Front-end layer

Area with entity to create/edit/delete selection

The screenshot shows a web application titled "Job Application Management 1.1.0" running in a Google Chrome browser. The interface features a header with a strawberry logo and the application title. Below the header is a navigation bar with three tabs: "Application", "Company", and "Person". The "Application" tab is currently selected. Under the "Application" tab, there is a "Create" button and a form with fields for "Application Id", "Title" (with the value "test"), "Position Id", "Company", "Person", and "Status". Below the form is a "List" button. Under the "List" button, there is a table showing the results of a search. The table has two rows of data. The first row shows "57", "Test app1", "Unknown", "Test Company 1", "Test Person 1", and an "Open" button. The second row shows "58", "Test App 2", "123", "Test Company 2 s.r.o.", "Test Person 2", and an "Open" button. The table is titled "Number of retrieved results: 2".

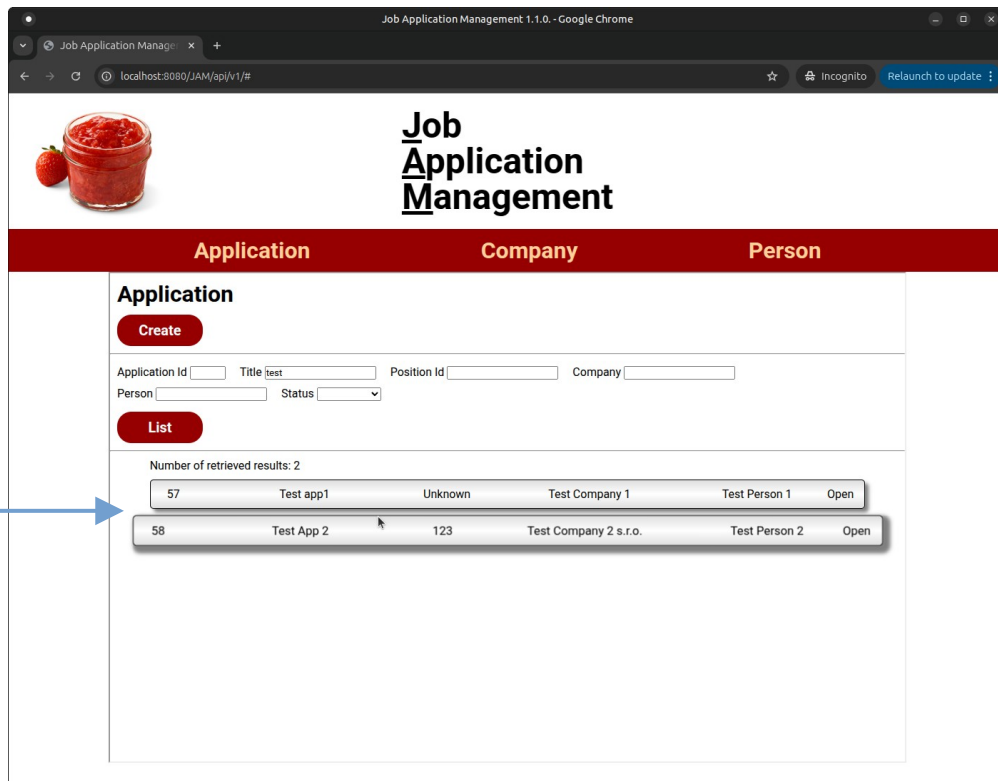
Id	Title	Position Id	Company	Person	Action
57	Test app1	Unknown	Test Company 1	Test Person 1	Open
58	Test App 2	123	Test Company 2 s.r.o.	Test Person 2	Open

Area with filters available for each entity

Result list area



Front-end layer



The screenshot shows a web browser window titled "Job Application Management 1.1.0. - Google Chrome". The address bar shows "localhost:8080/JAM/ap/v1/#". The page features a header with a strawberry jam jar icon and the title "Job Application Management". Below the header is a red navigation bar with three tabs: "Application", "Company", and "Person". The "Application" tab is active, showing a "Create" button and a form with fields for "Application Id", "Title" (containing "test"), "Position Id", "Company", "Person", and "Status". Below the form is a "List" button. Under the "List" button, it says "Number of retrieved results: 2". There is a table with two rows of application data. A blue arrow points from a text box on the left to the first row of the table.

Application Id	Title	Position Id	Company	Person	Action
57	Test app1	Unknown	Test Company 1	Test Person 1	Open
58	Test App 2	123	Test Company 2 s.r.o.	Test Person 2	Open

Data for each application card retrieved via "preview" view (see back-end layer section)

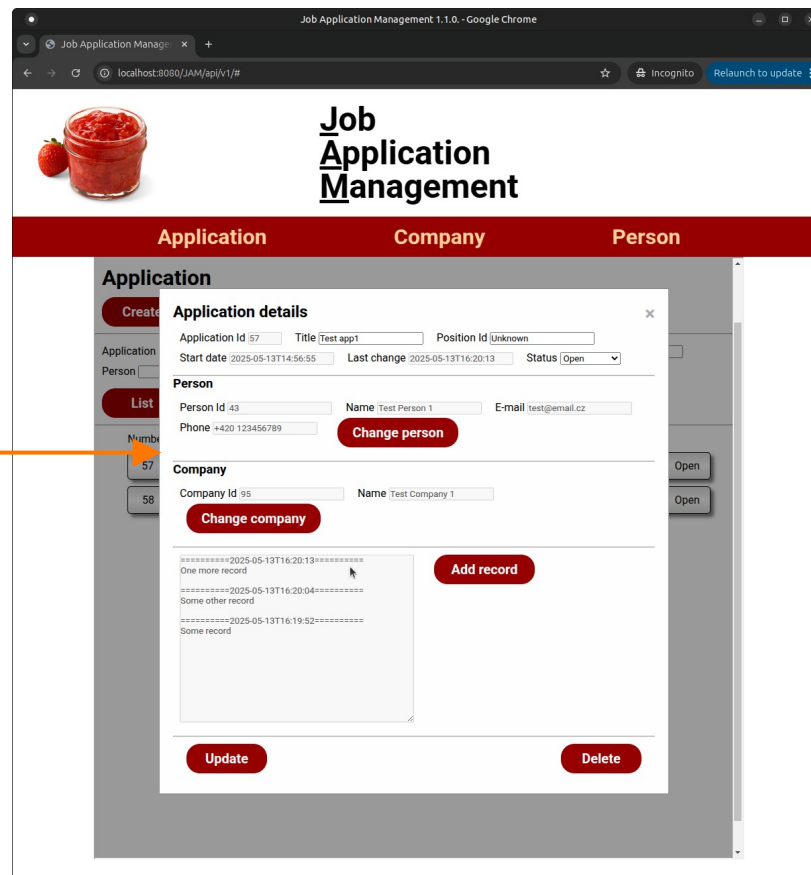
Clicking on a card will select given application for update



Front-end layer

After selecting an application, modal window like dialog appears to allow changes.

Available changes include change of contact person or company as well as recording notes, or deletion of the application



Front-end layer

Job Application Management 1.1.0 - Google Chrome

Job Application Management

Application Company Person

Application

Create Application details

Application Id 57 Title Test app1 Position Id Unknown

Start date 2025-05-13T14:56:55 Last change 2025-05-13T16:20:13 Status Open

Person

Person Id 43 Name Test Person 1 E-mail test@gmail.cz

Phone +420 123456789 Change person

Company

Company Id 95 Name Test Company 1

Change company

One more record

Some other record

Some record

Add record

Update Delete

Job Application Management 1.1.0 - Google Chrome

Job Application Management

Application Company Person

Company

Company Id Company Name

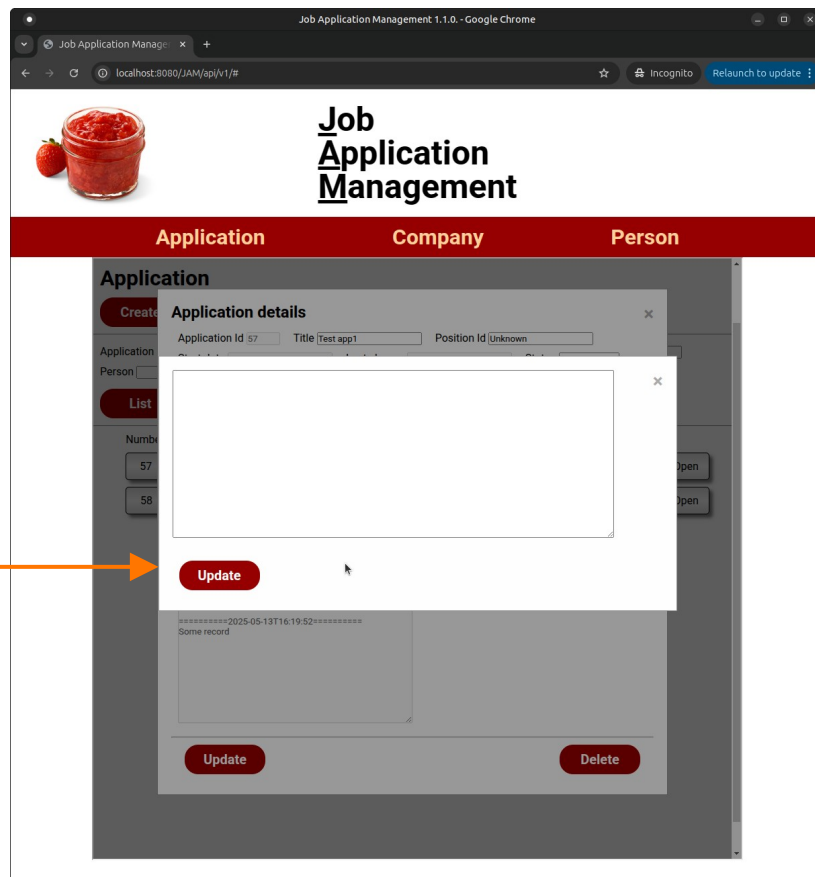
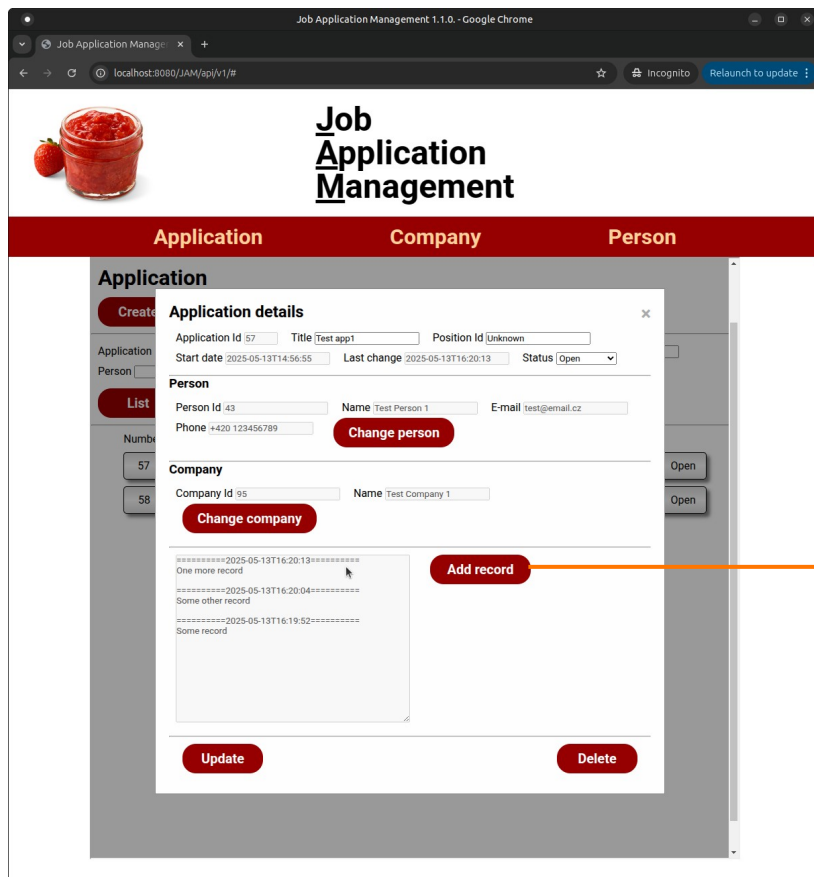
List

Number of retrieved results: 15

51	Unknown
79	
80	
81	
82	
83	
84	
85	
86	
87	
88	

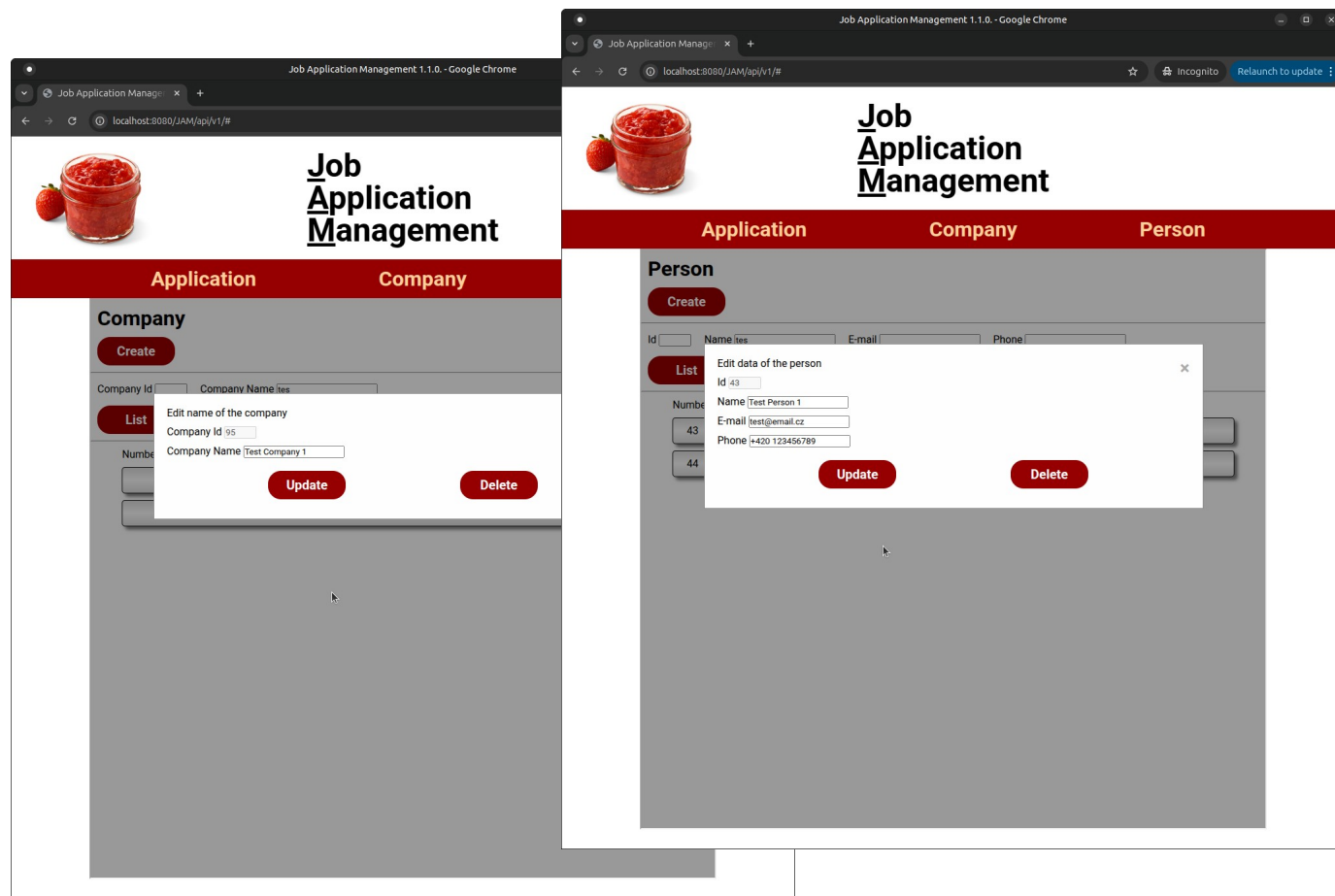


Front-end layer



Front-end layer

Same approach for editing an entity using modal like dialog is used for company and person as well



JAM

Source code available on <https://github.com/radimSed/JAM.git>

Other work available on <https://github.com/radimSed>

