Bachelor's Thesis

Make Skills Management Great Again

Torben Reetz

3reetz@informatik.uni-hamburg.de
Studiengang Software-System-Entwicklung
Matr.-Nr. 6524064
Semester 07

Erstgutachter: Zijad Kurtanovic
Zweitgutachter: Prof. Dr. Eva Bittner

Abgabe: 03.2017

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1 Abstract

Project driven organisations have to face the problem of constantly needing to put teams together based on the members' skills, experience and preferences. In many businesses, there is no sophisticated source of information about those data which makes finding the right person with a specific ability even more complicated. A central tool keeping track of all employees' competencies and important metadata such as soft skills would come in handy. As part of this thesis, a prototype of a web application fulfilling sinnerschrader's individual needs regarding will be contrived and partly implemented. The process of analysing those specific requirements with respect to the end users' needs and designing a technical architecture capable of fulfilling them will be documented. Furthermore, the backend part of said application will be implemented using state-of-the-art web technologies. It's internal structure will be explained and substantiated. The frontend components will also be implemented, but this will happen independently from the backend and thus cannot be part of this thesis.

2 Project & Organisation

Etwas zum Projekt.

2.1 SinnerSchrader

agentuhrensöhne

2.2 Related Bachelor's Thesis

Kadda macht da sowas

2.3 Team

wir sind so leute

3 Concept

The application should be accessible to all employees of SinnerSchrader. Due to the heterogeneity of the people's computer setups running Windows, macOS and Linux, creating a native application supported by everyone's system is a rather complicated task. A web application using standard technologies does not only solve this problem, but can also be used from mobile devices such as smart phones and tablets. Furthermore, there is no need to manually install and update the software so that it can be assumed that all users use the latest version of the application. This is not only a positive factor regarding the overall usability of the system, but also assures bugs and security issues are eliminated the moment a fixed version of the software is deployed. All those advantages compared to native clients and the fact that SinnerSchrader's expertise lies in the development of web applications made the decision that this tool should be realized as such. (TODO: wording as such)
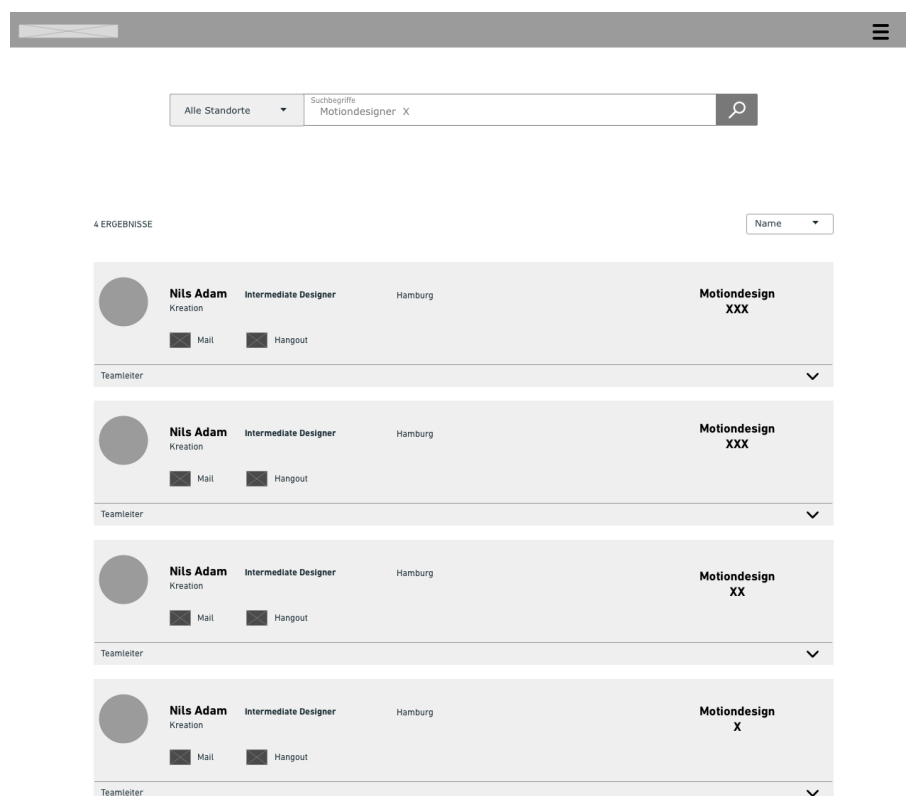

Figure 3.1: Wireframe

3.1 Requirements

3.1.1 Functional Requirements

- User Profiles Anyone can see another user's profile consisting of basic information about the user such as Name, Location, E-Mail and personal skills. Personal skills are composed of a name, a knowledge level and a will level, both on a scale from one to four.

- Employees can provide and edit their skills Users can add new skills from a pool of known skills to their own profile. Already added skills can be edited and removed from the profile.

- Search A search function can be used to find people who have added one or more specific skills to their profile. When searching for multiple skills, only persons matching all of them will will be displayed. The results shall be ordered by knowledge levels and/or wills.

- Management of known skills New skills can be added to the set of known skills in the application. Existing skills can be edited and removed. Users personal skills are automatically updated when a skill has been edited so that the integrity of the user profiles is maintained at all times.

3.1.2 Non Functional Requirements

TODO: Klären und formulieren

- Desktop/Devices

- Browsers

- Scalability

- Load/Response Times

3.2 Commercial Solutions

4 Implementation

4.1 Application Structure

4.1.1 MongoDB

BSON

Data Structure

Queries

4.1.2 LDAP

4.1.3 Reverse Proxy

4.1.4 API

4.2 Infrastructure

4.2.1 Maven Build

Frontend Build

4.2.2 Gitlab CI

4.2.3 Deployment

4.3 Frontend

4.3.1 React

4.3.2 Typescript

4.4 Backend

4.4.1 Java

4.4.2 Spring Boot MVC

4.4.3 Spring Data

4.4.4 Spring LDAP

4.4.5 Swagger

4.4.6 Testing

4.5 License

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