

Fuldaflats.de

Master project HS Fulda Fall2016

Milestone 1

Group #1

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1. Executive Summary

The situation on the housing market has drastically changed in the last years. Especially in cities like Fulda with ever-expanding universities, the housing space for young people is running short. Fuldaflats.de is a company based in Fulda and aims to provide a web portal for students and young people who are searching for a nice and affordable place to live.

On our website, we will bring together people who want to rent something out and people who want to rent. By enabling the former to place their offers with a wide variety of options to describe their accommodation, the later will be able to use the search features provided by our website to find exactly what they are looking for.

The site will offer the following options:

- Room types: One/Multi room apartments, Shared rooms, Dorm rooms, etc.
- Rental types: Between rental, Sublet, Couchsurfing while searching for an apartment, Party sleepover
- Locations: Distance from Fulda (limited to a maximum of 30Km) or specific district/village in/around Fulda
- Ratings: Rate landlords and rental services and search for the best rated ones (1 to 5-star rating)
- Tagging: Which nationalities are living in the place and what languages are spoken
- Accounts: User accounts have the option to become landlord accounts
- Communication: Contact an offeror
- Marks: Mark an offer you are interested in

Through these various options we will outrival our competition by having a very diverse offer on our website. Especially the „Tagging“-feature will be our unique selling point. Most of our competitors haven't implemented a feature like this or it is not well done. By enabling people to see what nationalities are living in a place and what languages are spoken, it will make it easier for them to find roommates with either the same cultural background as their own or a different one to make new experiences, which will attract even more users to our site.

The website is free to use for anybody. The cost of running it will be covered by placing non-distracting advertisements on it.

2. Use Cases

1. Register

Sheldon is an exchange student from the USA. He is studying at University Fulda for only one Semester. He is looking for furnished rooms for short-term. He chooses our website www.fuldaflats.de for his request. To search for or ask after this special kind of room, he should be a registered user. On our website, he found a button „register“. A click on that button redirects him to a new page containing a form which asks some necessary and some optional personal information. As he registers, he is shown what step of the processes he is on. After registration is completed, Sheldon is brought to his personal user page, which personally welcomes him as registered user. Now he can go further to look for his request.

2. Login

Penny is a master student at University Fulda. She is interested in moving to a new apartment because she doesn't want to live in a shared flat anymore. Because she already found her actual location (the shared flat) on www.fuldaflats.de, she is already a registered user. For the search after a single apartment she navigates to www.fuldaflats.de again. On the website, she found the button „login“. A click on that button shows up the login form. She fills in her username and password. A click on the „ok“ button redirects her to her personal page, which welcome her back again.

3. Search (Unregistered User)

Howard is a Student who wants to study at Hochschule Fulda. For this reason, he seeks a small apartment in or near Fulda. He heard from the website www.fuldaflats.de which is an online portal for students who search apartments. He decided to go on the website to look for possible apartments himself. On the main website, he found a „search“ button. A click on this button redirects him to a page with a form, which asks him to give a few information about his preferred wishes, for area by zip code, price range, and first possible moving-in date. He filled out the requested data and forwarded it via the „go“ button. A new page opens and show him all found results, ordered by success. A short text above the first result displays the note, that registered users have options for a more detailed search.

4. Post Apartment

Mrs. Wollowitz is a nice old lady. She wants so rent her guestroom for students in Fulda. She has pictures and detailed information about the guestroom. From her daughter, she gets the tip to go on www.fuldaflats.de to post her apartment. After her registration and log-in she looks for a possibility to post her apartment. On her personal page, she found a button „post new offering “. A click on this button brings her to a new page which shows her a form. The form asks her for detailed information about her offering. She filled out all the requested fields. A button „upload pictures“ give her the opportunity to upload the pictures she has made. When all information is filled in and the pictures are uploaded, the form is complete. A click on the „submit“ button finishes the post and she is redirected to her personal page, which shows the new post.

5. Browse Posts (Unregistered User)

Leonard is a student at Hochschule Fulda. He currently lives with his parents but wants to move into a shared flat at the beginning of the new semester. A post at the university indicates the link www.fuldaflats.de. He followed the link which navigates to the website. On the website he found a button „browse posts“. A new page opens and lists the first twenty posts, ordered by date, newest first. A short text above the first post displays the note, that registered users have more options to browse posts. A „next“ button at the bottom of the page indicates the possibility to go to the next range of posts. When Leonard found a preferred post, he clicks on it to get detailed information about that one.

3. Data Definition

This section does describe terms, which will be used in the further development process of project *fuldaflats.de*. These terms will be extended with more implementation details as the development goes on.

Name: **Apartment**

Meaning: The apartment is the main object of *fuldaflats.de*.

Usage: An apartment is used as a trade object between users. It can be rent, bought or sold. Anyone can offer, rent or buy an apartment. In addition, a certain room can be rent or offered too.

Name: **User**

Meaning: A user is a human, which interacts with this application.

Usage: The user will be used with many other terms. Like the apartment, the user can be the new owner or the seller of it.

Name: **User Details**

Meaning: This term is needed to describe a user.

Usage: This term describes properties of an user. A property is e.g. the name or the E-Mail address of the user.

Name: **Attachments**

Meaning: A user should be able to make a better idea of the apartment.

Usage: An attachment is attached to the offer and can be an image of the apartment or a building plan.

Name: **Rating**

Meaning: To ease a user's decision, there should be some kind of rating.

Usage: Every user can rate the owner of the apartment with a number of zero up to 5 stars.

Name: **Comments**

Meaning: User should express their feelings regarding issues like the apartment.

Usage: user can write a small text beneath an apartment offer or users profile.

Name: **Offer**

Meaning: The main object of this application (the apartment), attachments, comments, rating and the owner should be grouped into one object.

Usage: An offer gets one page, which will be used to display the above mentioned objects.

Name: **Owner**

Meaning: describes the user which owns an apartment and offers it

Usage: A trade will be made between an owner and a buyer

Name: **Buyer**

Meaning: describes the user who buys/rents an apartment

Usage: A trade will be made between an owner and a buyer

Name: **Trade**

Meaning: An offer can end in a trade, where the buyer gets the apartments to buy/rent.

Usage: When an owner accepts the buyer, a trade should be established and the offer ends.)

Name: **Message**

Meaning: Users should be able to communicate

Usage: A user can send an E-Mail to another user.

Name: **Account**

Meaning: The application needs an authorization process verify the users

Usage: A user creates an account with his E-Mail Address and a password. The user should verify himself with the password as he wants to login into his account.

Name: **Advertisement**

Meaning: source of income

Usage: Ads can be placed in various location on the webpage

4. Initial list of functional specs

1. The application needs to authorize his users with an account system. An account can be accessed with an E-Mail address and a password.
2. A user should be able to create an account.
3. A user should be able to login into his account.
4. A user should be able to enlist an offer of his apartments
5. A user should be able to contact another user, especially the owner of an offered apartments.
6. A user should be able to access the application
7. A user should be able to add attachments to his offer
8. A user should be able to comment an offer
9. A user should be able to rate an offer or user/owner.
10. The application should list all available offers
11. The application should display an offer and its details
12. An owner should be able to delete his offer
13. A user should be able to logout to end his session.
14. The application should prevent unauthorized access to the private information of its users.
15. The application should store all account and offers information.
16. The application should have a map, which displays the offers at the its locations.

5. List of non-functional specs

General

1. Application shall be served from the team's account.
2. Pay functionality (how to pay for goods and services) shall be simulated with proper UI, no backend.

User Interface

3. Application shall be very easy to use and intuitive. No prior training shall be required to use the website.
4. Application shall be optimized for standard desktop/laptop browser, and shall render correctly on the two latest versions of all major browsers: Mozilla, Safari, Chrome. It shall degrade nicely for different sized windows using class approved programming technology and frameworks so it can be adequately rendered on mobile devices.
5. The language used shall be English.

Infrastructure

6. Data shall be stored in the MySQL database on the class server in the team's account.
7. Application shall be hosted and deployed on Online Web Services as specified in the class.

Performance

8. No more than 50 concurrent users shall be accessing the application at any time.

Security

9. Privacy of users shall be protected and all privacy policies will be appropriately communicated to the users.
10. Messaging between users shall be done only by class approved methods to avoid issues of security with e-mail services.
11. Site security: basic best practices shall be applied (as covered in the class).
12. The communication between client (browser) and server shall be secure.

Development Tooling

13. Application shall be developed using class provided LAMP stack
14. Application shall be developed using pre-approved set of SW development and collaborative tools provided in the class. Any other tools or frameworks shall be explicitly approved by Prof. Todtenhöfer on a case by case basis.
15. Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development, and only the tools and practices approved by instructors.

6. Competitive analysis

Feature	Airbnb	Asta HS Fulda	eBay Kleinanzeigen	fuldaflats.de	Immobilienscout24	WG-gesucht.de
Diversity of Apartment types	+	++	+	+++	-	+ / -
Landlord contact	+	++	+	+++	++	++
Language Settings	++	-	-	+ / -	+++	++
Rating Option	+++	-	-	+++	-	-
Shows current roommates and their nationalities	-	-	-	+++	-	+ / -
User Login	+++	+	++	++	+++	+++
Variety of Filter Settings	++	-	+	+++	++	+++

+++ Excellent ++ Good + Satisfactory - Missing

7. High-level system architecture

This section describes the system architecture and technology stack of fuldaflats.de. It contains the most important software components, frameworks, libraries and development tools that are used in the development process.

The overall architecture goal for fuldaflats.de is to create a multi-tier web application that uses a REST-Webservice and AJAX technology as main data exchange interfaces. We use a **Linux/Debian** virtual machine that is hosted on the **Microsoft Azure Cloud** as a server for our project.

The data-tier of the application is handled by a **MySQL Database** which can be administrated by the phpMyAdmin user interface.

The application / logic tier uses **Node.js 7.0¹** as technology platform to enable **server-sided JavaScript** coding. Node.js itself is quite a bare software platform, but it can be extended through the package-manager **npm²**. Node.js modules that are mandatory for the fuldaflats.de project are

¹ <https://nodejs.org>

² <https://www.npmjs.com>

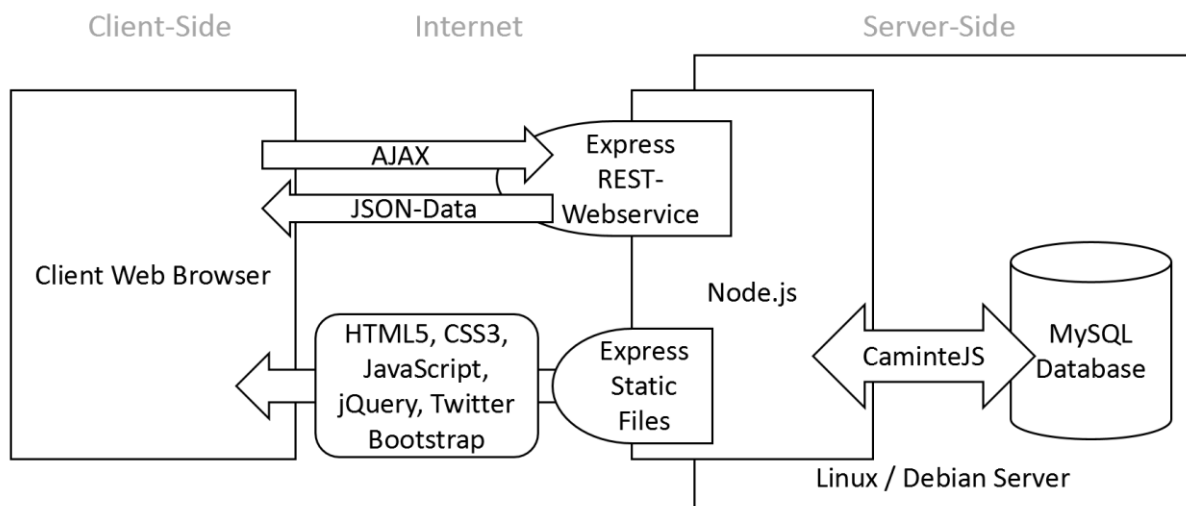
CaminteJS³ as an ORM library for database access and **Express**⁴ to create RESTful web service endpoints and start a web server within node.js (Those two are comparable to JPA and JAX-RS in Java EE).

For the web client, we use **jQuery**⁵ as a standard library to enhance browser APIs, as well as some small JavaScript libraries for handling user input and server connectivity (for example **KnockoutJS**⁶ for lightweight DOM-Databinding). We also use **Twitter Bootstrap**⁷ as a presentation framework (mainly for its CSS) for responsive web design.

The fuldaflats.de project uses **git**⁸ as a source code management system, the code is hosted as a **private repository on GitHub**⁹. GitHub issues and milestones are also used for project management and team communication. We use **Visual Studio Code**¹⁰ as development environment for web applications and node.js (which is not Visual Studio 2015, but rather just a free, enhanced text editor tool from Microsoft).

The final product will support and be tested on the following Browsers:

- **Google Chrome (Version 54.0)**
- **Mozilla Firefox (Version 42.0)**
- **Apple Safari (Version 10.12)**



³ <http://www.camintejs.com>

⁴ <http://expressjs.com>

⁵ <https://jquery.com>

⁶ <http://knockoutjs.com>

⁷ <http://getbootstrap.com>

⁸ <https://git-scm.com>

⁹ <https://github.com>

¹⁰ <https://code.visualstudio.com>

8. Team

Name	Initial Role
Michelle Rothenbücher	Team Lead / Frontend
Jonas Kleinkauf	Technical Lead/ Backend Lead
Patrick Hasenauer	Frontend Lead
Martin Herbener	Server Admin/ Frontend
Ziad Benhachem	Frontend
Franz Weidmann	Backend
Steffen Scholl	Backend
Plisam Ekpai-Laodema	Backend