

DAT109

Group Project 2:

“Exchange Buddy”

by group 10



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Table of Contents

Introduction	2
Iteration 1 ~ Inception	3
Vision document	3
Risk list	3
Development plan/Iteration plan	4
Word list	6
Use case model and supplementary requirements	7
Development environment	9
Iteration 2 ~ Elaboration	10
Cost estimate	10
Development plan	10
Class Diagram	11
Domain Model	11
Sequence Diagram	12
1. Publisher-perspective	12
2. Search-perspective (1)	13
3. Search-perspective (2)	14
Iteration 3 / 4 ~ Construction	15
Design model - UI prototypes and explanations	15
Updated domain model	16
User Interface	17
Other	18
Iteration 5 ~ Transition	19
What's still to be done	19
What could be done differently	19
AUP and Scrum	20
Estimation and time-management	20
Conclusion	20

Introduction

In this project we are going to create a web-application for students going abroad where they can find other people to share apartments. This project is supposed to help us master agile methods (AUP combined with Scrum) as a development process. Part of this consists of us grasping and perceiving what wishes and needs the customer has, and that we master the technology and manage to deliver one application of good quality and are able to document and reflect on it.

The report will contain a summary for each iteration.

Iteration 1 will contain a vision document, a risk list, a list of our priorities and a development plan, a word list, a use case model and supplementary requirements, and an explanation of our development environment.

Iteration 2 will contain a cost estimate, development plan, domain model, class diagram and sequence diagram.

To make this project as efficient as possible where we avoid the issues of several people working on the same task, we have made it so that the groups workflow for each iteration consists of online kanban boards. Here everyone can set up the tasks that need to be done, assign ourselves to the tasks we are currently doing, and show which tasks that are finished to the others in the group.

The kanban board also helped us sort out the tasks with different colored tags that would help us see what type of task each task was.

Iteration 1 ~ Inception

Vision document

Vision:

Our vision is to help exchange students have an easier way to find a place to live.

Business idea:

Students who are moving to another country for a semester, often struggle to find a place to live the semester they are home, because landlords want to ensure that they have tenants for a whole year (two semesters). With “*exchange buddy*”, students can get in contact with other students who are moving out of the country the opposite semester, to plan for sharing a lease. This way, landlords can have the assurance that their apartment is rented out for an entire year and the students can be assured that their lease is covered while they are gone.

Target audience:

Students, preferably students going abroad for only 1 semester.

Risk list

ID	Date raised	Risk description	Likelihood of the risk occurring	Impact if the risk occurs	Severity	Owner	Mitigating action
					Rating based on the impact & likelihood		
1	08.03.2023	Project schedule is not clearly defined or understood	Medium	Low	Medium	Project Manager	Have meeting to discuss what we have done and what the plan is going forward.
2	08.03.2023	Few users	Medium	High	High	Project Sponsor	Marketing through schools and school associations
3	08.03.2023	Estimating and/or scheduling errors	Medium	Low	Medium	Project Manager	Registering work hours and make sure that the estimated amount is followed.
4	08.03.2023	Late changes from the Project sponsor	Low	Medium	Medium	Scrum Leader	Keeping clear communication with project sponsor to avoid late changes
5	08.03.2023	Cyber security	Low	High	Medium	Project Manager	Updating the security regularly

Development plan/Iteration plan

Iteration 1 (Inception)

High:

- Make a plan for iteration 2
- Assign roles
- Setup the development environment

Medium:

- Risk list

Low:

- Word list
- Estimate cost (time)

Iteration 2 (Elaboration)

High:

- Test a prototype of the application on a clients web server (show that the architecture works)
- Prototype the UI
- Make class diagram (showing all entities in the backend)
- Make sequential diagram (showing users use cases)
- Make implementation plan (steps to get the app up and running)

Medium:

- Create a system architecture document (model the architecture)

Low:

- | |
|--|
| <input checked="" type="checkbox"/> Check that all estimates are credible (all must agree) |
|--|

Iteration 3/4 (Construction)

High:

- Construct a user interface that is usable
- Consult with the customer about the finished product

Medium:

- Documentation about the software is almost finished

Low:

- Check that resource expenditures versus planned expenditures are still acceptable

Iteration 5 (Transition)

High:

- Finish up product
- Deploy

Medium:

- Finish up report

Word list

Development environment:

- a set of tools and resources that developers use to create and test software applications

Project manager:

- the person in charge of managing the team and structure of the project

Project sponsor:

- the employer of the project

AUP:

- Agile Unified Process

Scrum:

- Scrum is an agile project management method used in software development.

Scrum leader:

- the person in charge of the Scrum sprints.

Iterations:

- An iteration is a single development cycle within an agile software development process.

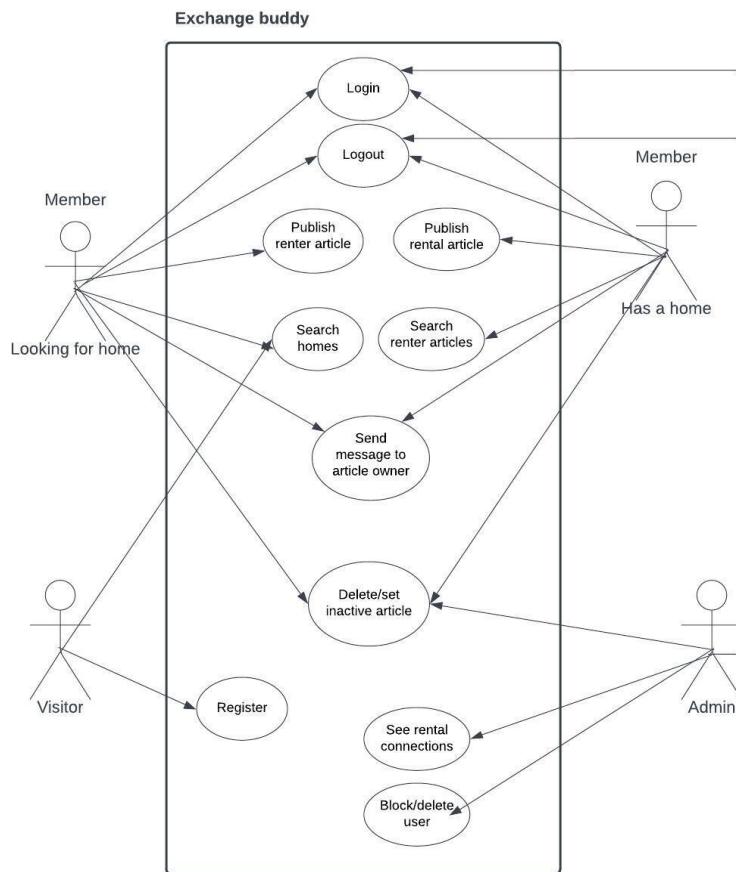
Agile methods:

- Agile methods are a way of creating software that focuses on flexibility, teamwork, and making sure the final product makes users happy.

Kanban board:

- A Kanban board is a visual project management tool that helps teams track their work and progress through various stages of development.

Use case model and supplementary requirements



Login	Check system for stored matching information with login-util. Redirects to logged in session or redirects to login again with an error message.
Logout	Removes the logged in user from session and sets the session to not logged in.
Publish rental article	The user is provided with a set of parameters to fill in to create an article

	for the home he wishes to share. When published the article is stored in the database and can be seen by other users.
Publish renter article	The user is provided with a set of parameters to fill in to create an article of themselves and their preferences. When published the article is stored in the database and can be seen by other users.
Search homes/users	Fill in preferred parameters and the system retrieves the matching homes/users from the database and displays them.
Send message to article owner	The system creates a chat between the owner of the article and the person initiating the chat, making it possible for them to communicate and possibly come to an agreement.
Delete/set inactive article	The system removes/deactivates the renter/rental article from the database, making it invisible for the user itself and others.
Register	New users can register by entering the necessary information, and the system will store a new user in the database with the provided information, and redirect to a logged in session.
See rental connections	The admins can see all rental

	connections with the users associated with them, this is for maintenance purposes. The system requests all connections from the database and displays them.
Block/delete user	For security reasons, the admin can delete or block users that doesn't follow the guidelines. The admin can search users in the database, and the system will delete this user or make it impossible for this phone number to log in again.

Development environment

For the development environment we are using a Bonobo Git Server and Eclipse/VSCode to provide a robust environment for our team. It will allow us to collaborate on code and manage changes effectively.

The Git version control system ensures that all changes are tracked and can be easily reverted if necessary, while Eclipse/VSCode provides us with a set of tools for writing and testing the code. This setup is ideal for a reliable, efficient and scalable development environment.

Also the application will run on a Tomee-server on port 8080 at ider-database.westeurope.cloudapp.azure.com, and all the data that we will use and collect will be stored on a PostgreSQL database server on port 5432 at ider-database.westeurope.cloudapp.azure.com.

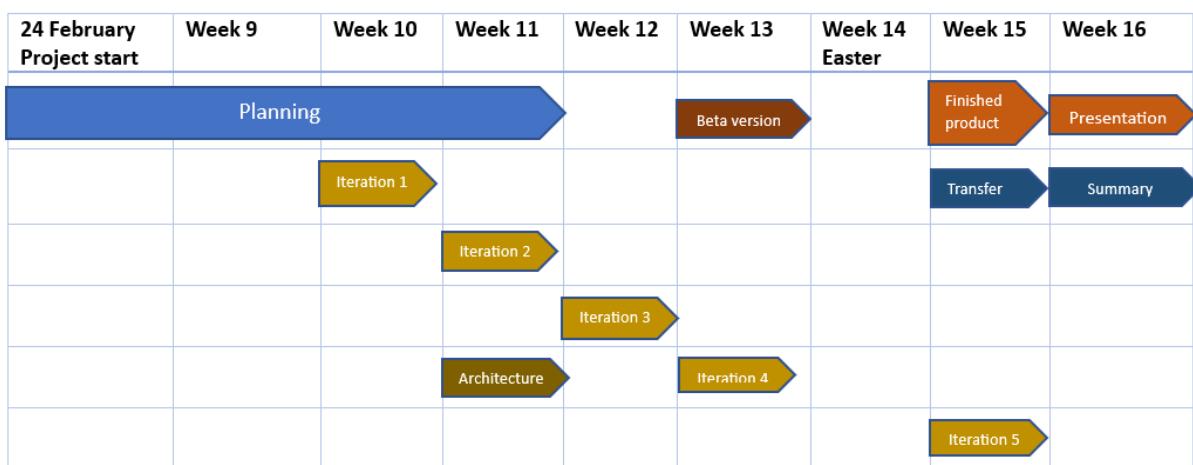
Iteration 2 ~ Elaboration

Cost estimate

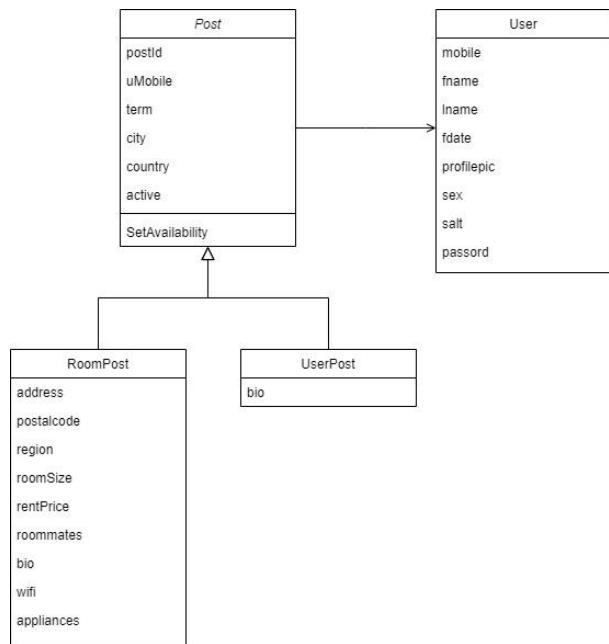
Our cost estimate for this project will be around 10 hours per iteration, per person.

The total cost estimate will then be 560 hours.

Development plan



Class Diagram

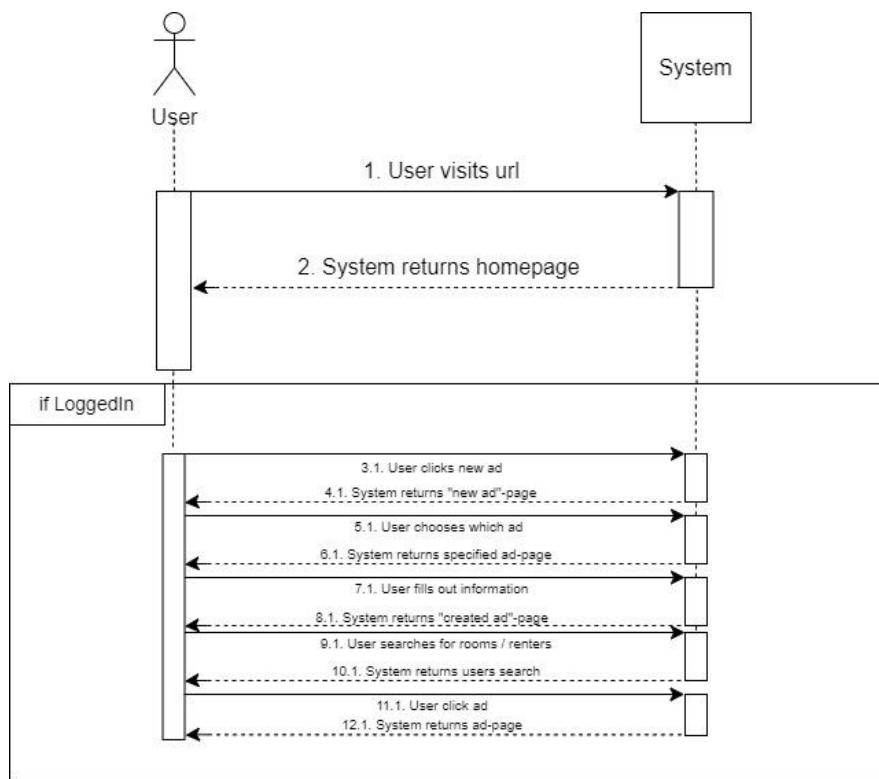


Domain Model

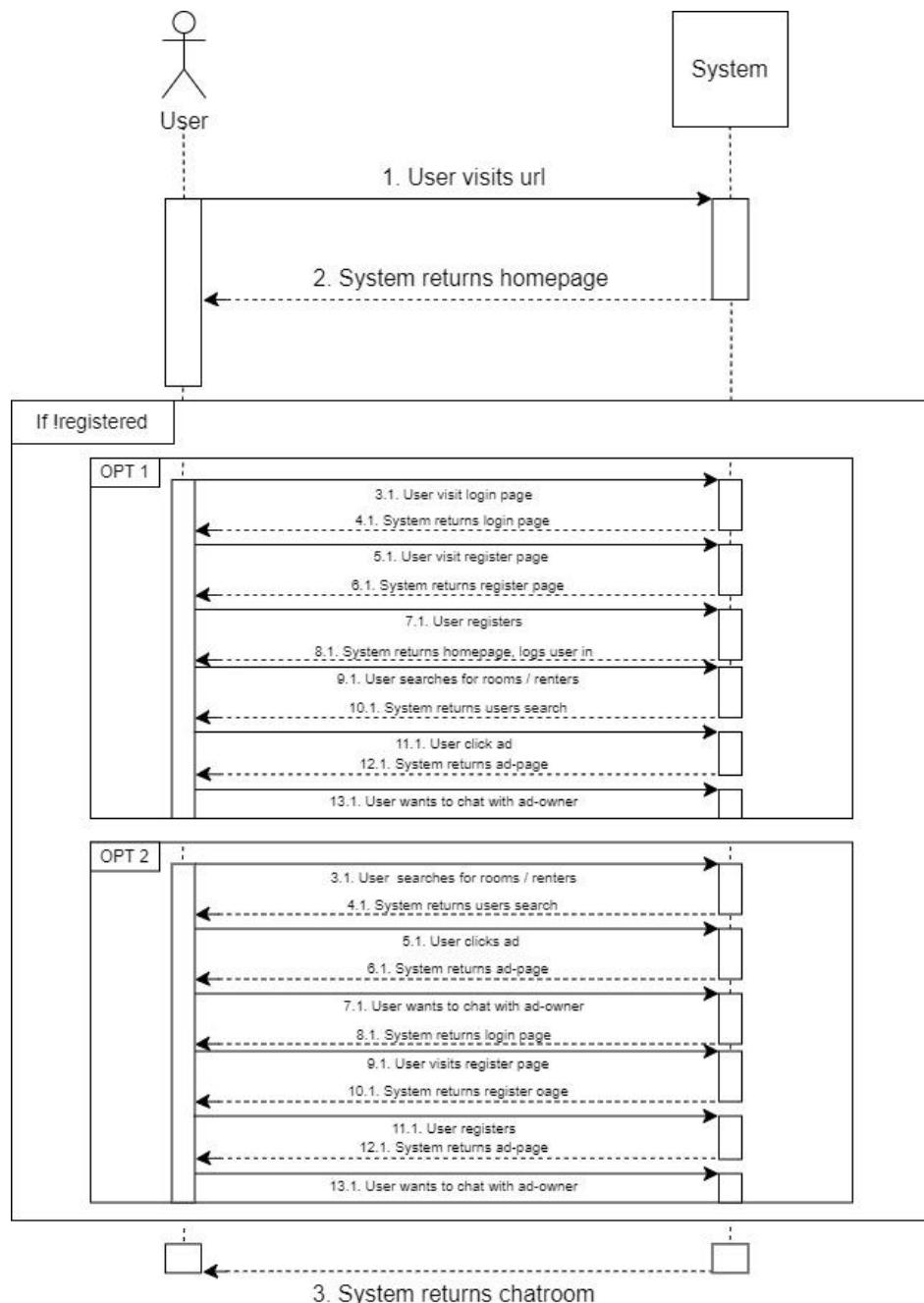


Sequence Diagram

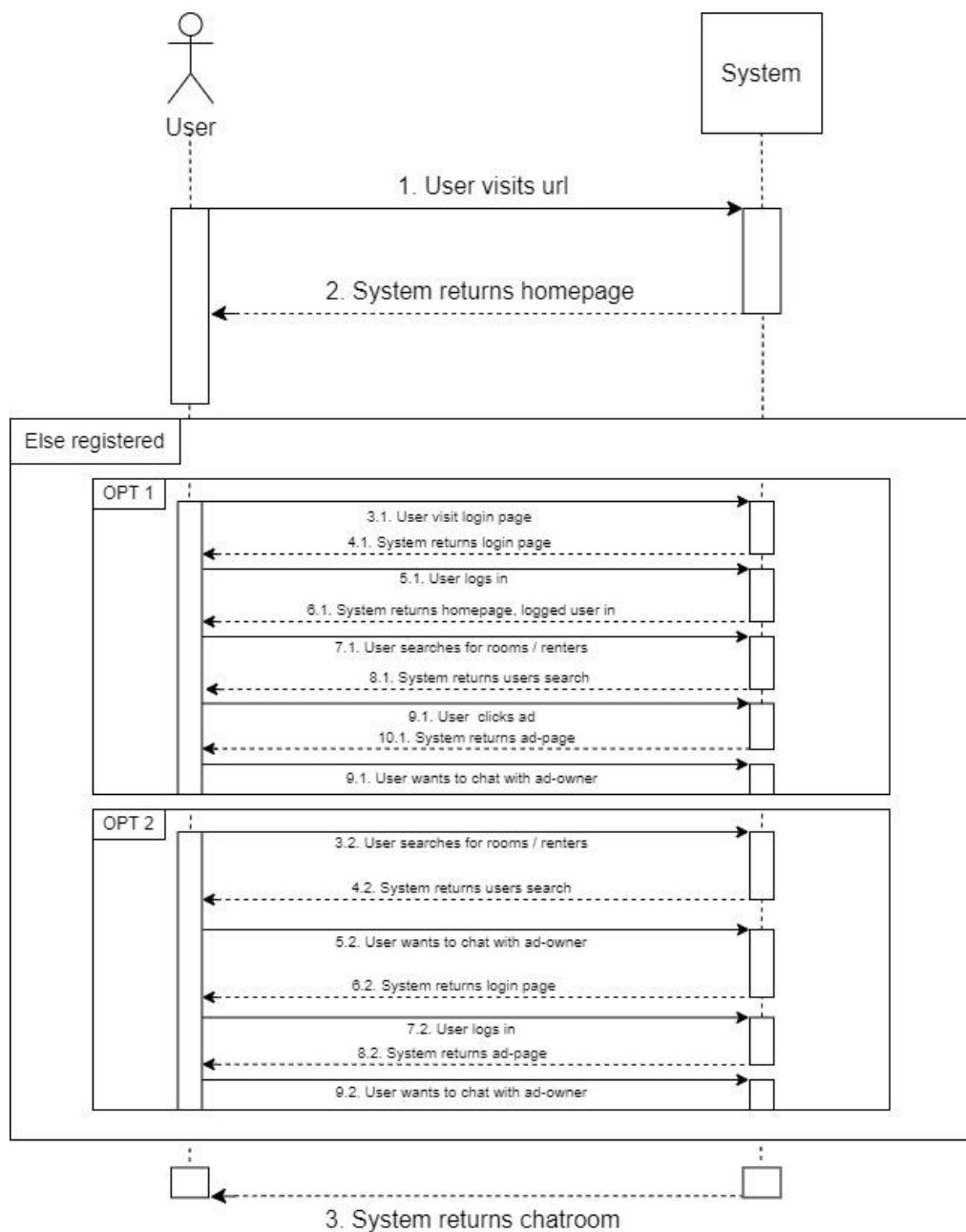
1. Publisher-perspective



2. Search-perspective (1)



3. Search-perspective (2)



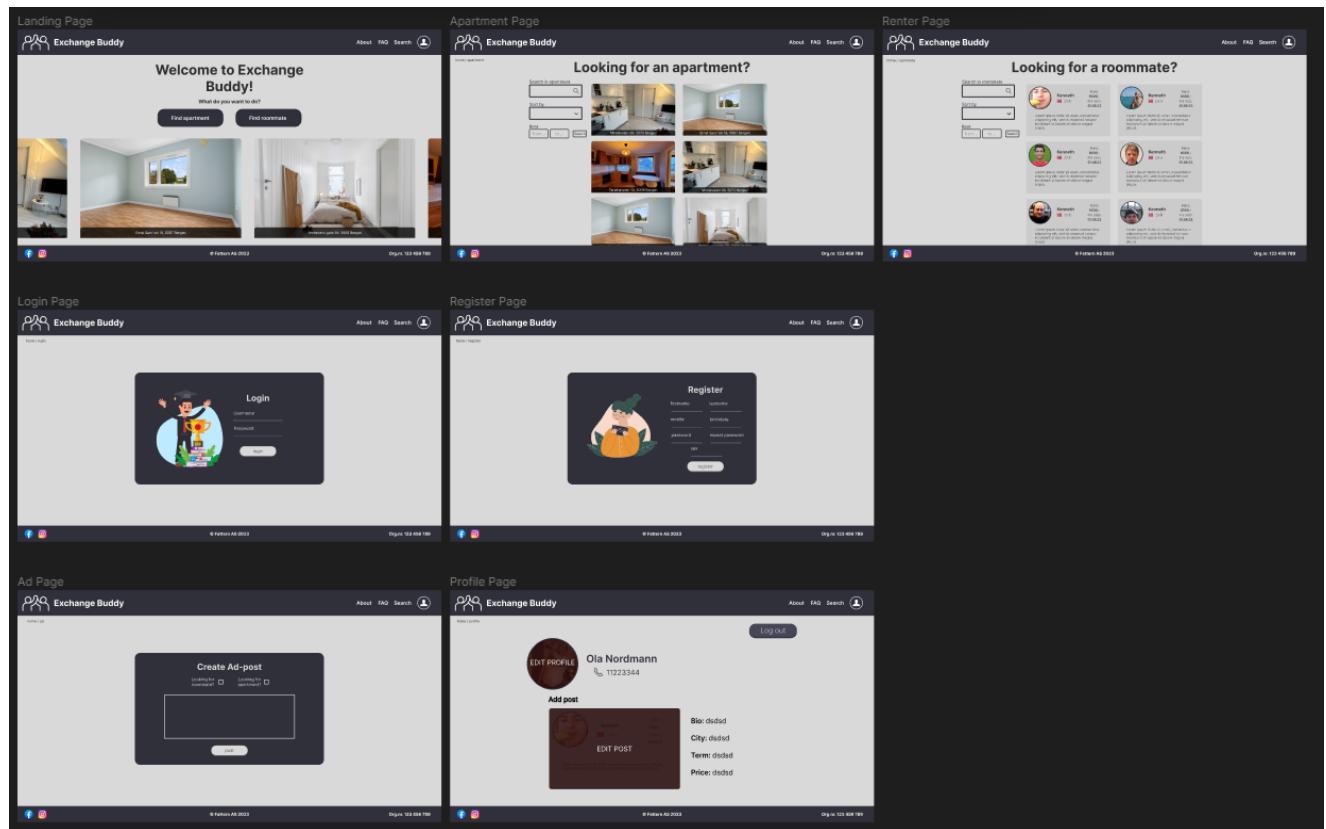
Iteration 3 / 4 ~ Construction

As for the status of the assignment, this is our progress on a beta-version of the application:

- ~~User can register a new user~~
- ~~User can log in~~
- ~~User can search for rooms~~
- ~~User to create an ad~~

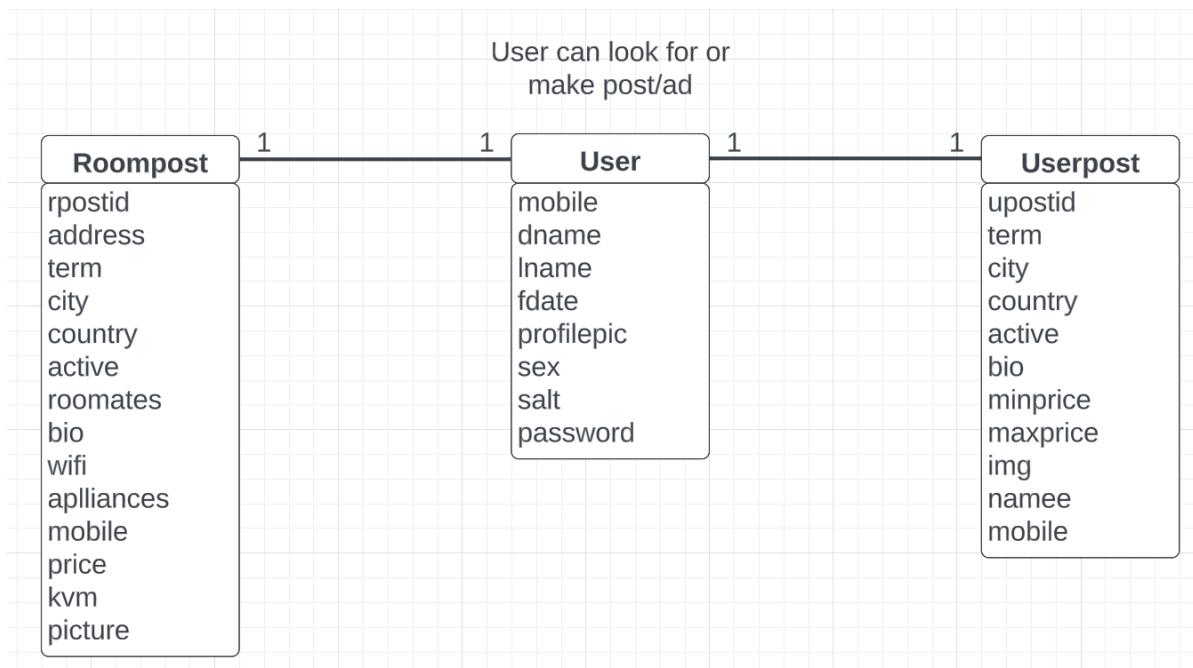
To demonstrate the application, we will show it to a lab-assistant when we get the opportunity.

Design model - UI prototypes and explanations

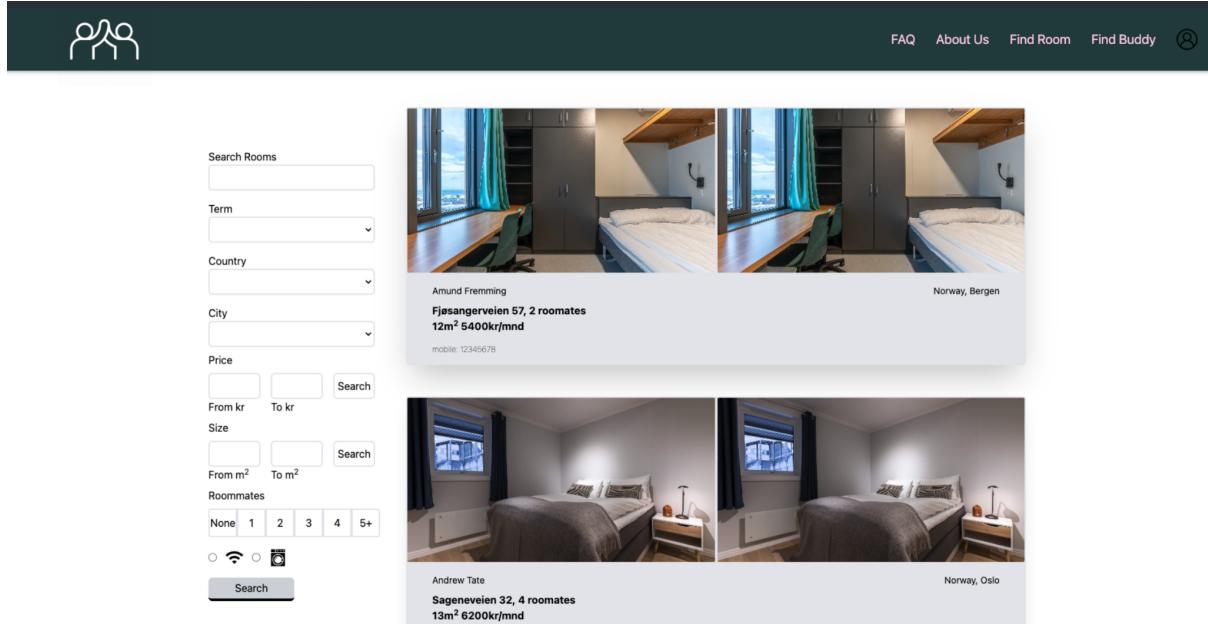
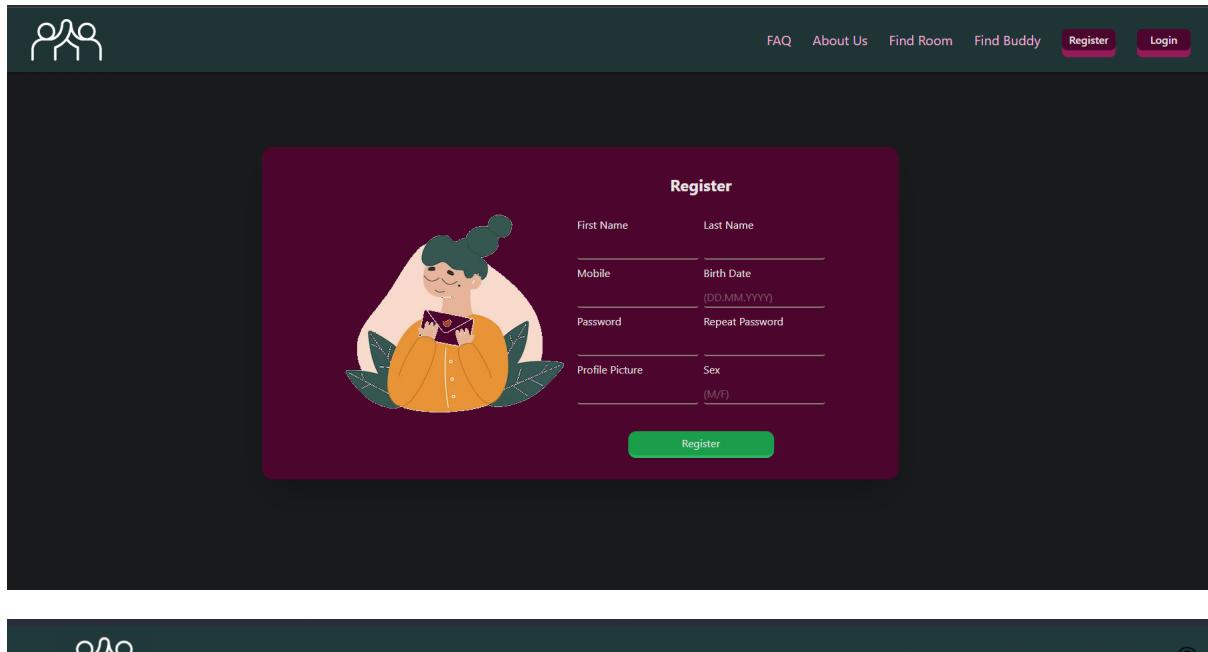


The picture above shows the planned design choices and UI prototypes for our website. We wanted to go with an easy and clear design without too many buttons. We also wanted to have a youthful feeling with the page to hit the target group in the best way possible. We went with a navbar and footer for all pages, and different mid sections with the functionality for all the different pages. The goal is a clean site which is easy to use and difficult to misunderstand, something we think that this design achieves.

Updated domain model



User Interface



When it comes to the actual User Interface, it is easy to see that the pages turned out pretty similar to the planned design shown earlier in the report. The only significant changes from the initial design is that we added more search parameters for the search pages, and that we added an “About us” and “FAQ” page, which we chose not to include in the report because these pages are fairly simple and straightforward.

Other

Apart from the mentioned updates and design choices, we have written a great amount of code to get the logic behind the application to work in this iteration. Most of it is related to connection between frontend and backend. Displaying and adding contents to the database in a working manner is also done, which is a cornerstone to this application. The testing for the code and the code documentation is also finished, and we have a functioning application that is ready to launch the application in the last milestone. We chose not to include further information or pictures of this in the report, since this will need a lot of understanding and context. We will cover this closer in the presentation.

Iteration 5 ~ Transition

What's still to be done

At this point we have a fully functioning, responsive, full-stack application. Given what we outlined at the start of the project, we can with confidence say that we have made a website that can fulfill the needs of our target audience. It is possible to create new users, create new ads for both rooms and personas, and search for other personas and rooms.

If we were to continue on this project, our next focus would be on implementing ways to get the users to communicate with each other. At first, this can be done by email, but to make the application more user friendly, we would need a messaging-app implemented directly into the website.

Furthermore, we would find a way to get user-feedback for optimizing the application. As we know, it's important to release version 1.0 as early as possible, so that you can start learning from mistakes and uncovering what can be added/done differently by letting users test your app.

What could be done differently

Should've done more research on React / SpringBoot applications, considering that we're a lot more confident in Java than JavaScript. The work distribution became hard to manage.

Better group structure: This can mean distributing tasks and responsibilities more effectively among group members to increase productivity and collaboration.

Use more A-leadership: A-leadership is a leadership style that focuses on motivating and inspiring employees to take initiative and be creative in their work. This can contribute to increased engagement and well-being in the workplace.

Better logging: This can mean having better oversight of what's happening in the group, who's responsible for what, and when things need to be done. This can contribute to increased efficiency and fewer misunderstandings.

AUP and Scrum

Overall we would say that working agile with iterative processes and different phases has worked well. We had challenges given that none of us had worked with AUP before and that we of course didn't see each other that often. We tried to hold as many meetings as possible, but we would maybe have liked to have had more meetings than what was achieved.

The use of a scrum-board (Kanban) was very efficient and worked great for our use-case. We were able to have a detailed overview of what was done, what was currently being done and what we still had left to do. Again, as we didn't see each other that often, it could be difficult for some to know what needed to be done, which is something we would look at improving.

Estimation and time-management

The time estimates we created at the beginning of the project worked well for the start of the project, but as the project went on, the differences in work that needed to be done for each week also made the estimates kind of irrelevant. This being said, if something was to be improved for the next project, it would be to find ways to share the work-load more evenly.

Conclusion

All in all, we are happy with the way “Exhange-buddy” turned out. We were able to uphold the deadlines given to us, meet the criterias in the assignments and deliver a fully-working website.