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Milestone 1

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CSC 648/848 Software Engineering - Fall 2021

Use Cases, High-level Requirements and Architecture

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Acknowledge

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Team05 - www.RoomM8.net

Executive Summary	3
Summary	3
Main Use Cases	4
Moving to College	4
Job offer in the Bay Area	4
Looking for someone to split the cost	5
Roommate breaks the lease agreement	6
List of main data items and entities	7
Guest users	7
Registered users	7
Admin users	7
User's Profile	7
User's Preferences	7
Room Posts	7
Reviews	7
Room Preferences	7
Initial List of Functional Requirements	8
Guests/Unregistered Users	8
Registered Users	8
Admins	9
List of Non-Functional Requirements	9
Competitive Analysis	10
High-level System Architecture and Technologies used	11
Team and Roles	12
Checklist	12

Executive Summary

Summary

Roomm8 is a housemate and roommate finder application that aims to improve the lives of young students and professionals trying to live, work, and study in the San Francisco Bay Area. We are focusing our efforts on the San Francisco Bay Area first with the goal of expanding services statewide and then nationwide with features tailored to each environment. Roomm8 allows young professionals and students to immediately start looking for and inquiring about available rooms and houses without the need to sign up for an account, lowering the access wall and attracting more casual and busy youth to the service. Our service is designed to work well across all devices so users, whether they be on the bus, in a cafe, or on their laptop at home, can look for secure housing whenever and wherever they have time.

When a new user first visits the Roomm8 website, they will be able to look for a room and ask the poster of the lodging questions directly about the space without needing to sign up. After registering a user is able to post a room/ house listing. When a user creates a profile they then are also able to add details about themselves and preferences for apartments. When creating a posting for a house or room a registered user can add a lot of details in order to show how unique the room is. Furthermore, registered users will also be able to register that they live in a space and advertise the need for a roommate. Users can also search different parts of the city for the just right room using the built in google maps.

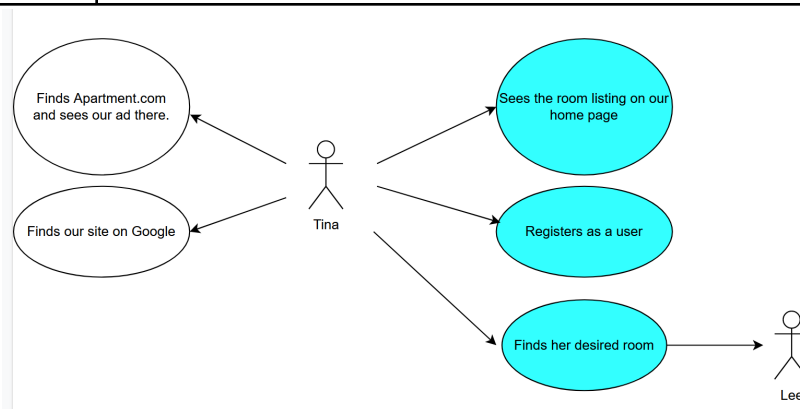
We, at Roomm8, want to make the most beautiful and fast website that we can. By using cloud rendering, we reduce the amount of data that needs to be sent back and forth making our site more accessible to users. Our application utilizes Amazon Web Services (AWS), a leader in cloud application deployment. This will allow for continuous operation and responsive user connections to make every visit special. We are using the latest in UX design for mobile and desktop to make the navigation and accessibility to our site second to none.

With how expensive renting is in the San Francisco Bay Area, we want to give young professionals and students the ability to find the rooms or houses that will give them the security that they need to follow and complete their dreams. Using the latest cloud technology from the industry leader AWS we empower our users to find their next home with a responsive web experience. Strong search preference tools allow users to find that "just right" room or house that they need. With Intuitive controls built in a great mobile and desktop website, our users are able to look for a new place from the comfort of their home or on the go with their busy schedules. All these great features will make Roomm8 the destination for people looking for a house or room to rent.

Main Use Cases

Moving to College

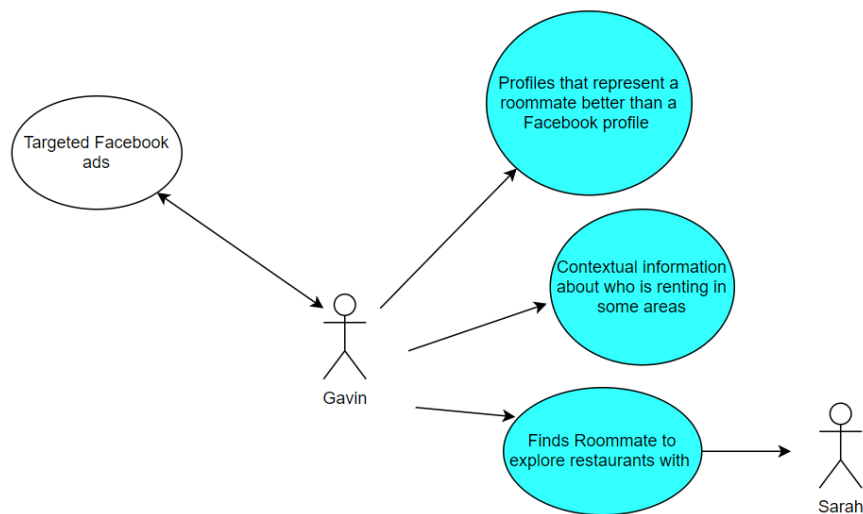
Actors	Tina, Lee
Description	Tina just got their acceptance letter to SFSU and is excited to move to the bay from her tiny town in rural Arkansas. She wishes to find someone that she can trust to move in with so she searches on google on apartments.com and sees our sponsored ad for Roomm8 - an application that allows ease of access to listings of current registered users, and their rooms. She then decides to register to Roomm8 and find a post that she is interested in and sends over an e-mail.



Job offer in the Bay Area

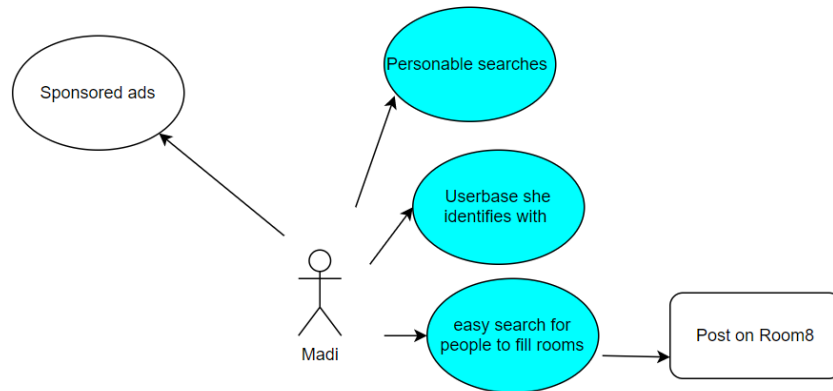
Actors	Gavin, Sarah
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Description	<p>Gavin has worked for a small web development firm in Austin, Tx. and just accepted a job offer with Salseforce. Gavin is from Houston and was lucky enough to move to Austin with a childhood friend. When looking at facebook groups for bay area housing he sees our facebook ad for www.roomm8.net. As he looks at profiles he learns about the neighborhoods in the city. He is a foodie and finds another avid foodie named Sarah living in the mission with an open room.</p>
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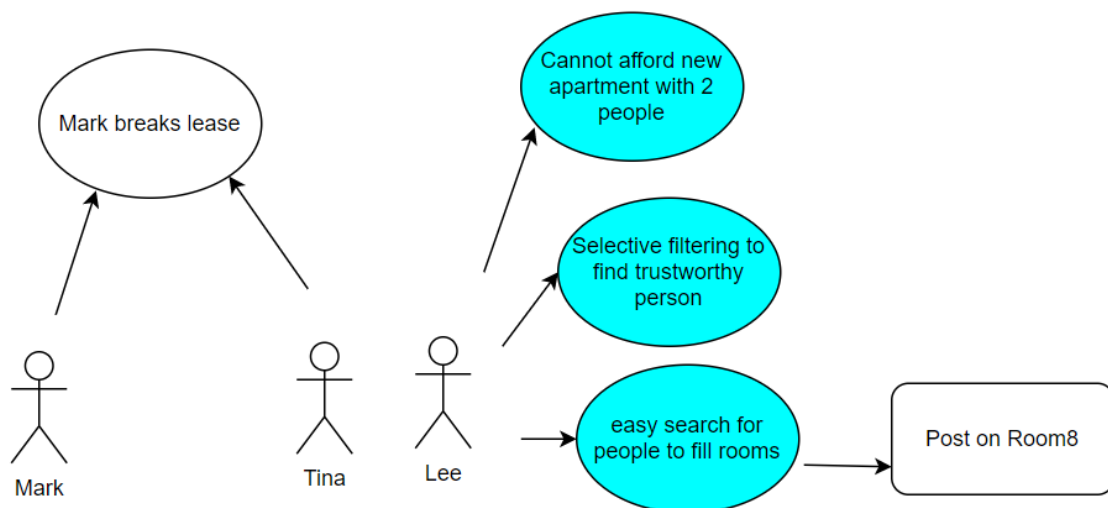
Looking for someone to split the cost

Actors	Madi
Description	<p>Madi is an incoming freshman at SFSU and has an apartment in the city. She has an extra room and wishes to find someone that she can trust to move in with her. She searches on Google on Apartments.com and sees our sponsored ad for Roomm8 - an application that allows ease of access to listings of current registered users, and their rooms. She then decides to register at Roomm8 and post her room.</p>



Roommate breaks the lease agreement

Actors	Tina, Lee, Mark
Description	Tina Julie and Mark have lived together for 2 years and just moved as a group into a new 1 year lease. However Mark just got news that his grandmother has died and has to break his lease to move back home and take care of his family. Tina and Julie cannot pay for the rent alone but don't want to live with a stranger. Tina remembers using Roomm8.net for the first year of college and goes straight there to start finding like minded candidates.



List of main data items and entities

Guest users

Users who have yet to make an account shall be able to respond, but shall not be able to post.

Registered users

Users who have made an account with Roomm8 shall have full access to the website.

Admin users

Website and system administrators will have admin capabilities such that they shall be able to remove/ban users.

User's Profile

All of the relevant information that shall be used to design the user's profile

User's Preferences

This information is designed such that RoomM8 will filter their search parameters to our guest and registered users.

Room Posts

A standalone page that shall be showcasing a living space with various links to the associated user's profile.

Reviews

Registered users can leave reviews based on their experiences. This shall be about the living space or how accurate the user's profile was.

Room Preferences

Registered users shall be able to assign preferences about the living space such as majors, school, smokers, pets, languages, same interests, and/or hobbies etc.

Initial List of Functional Requirements

Guests/Unregistered Users

- Guest Users shall be able to access the landing page.
- Guest users shall be able to search for rooms.
- Guest users shall be able to search for roommates.
- Guest users shall not be able to utilize premium features.
- Guest users shall be able to register and create accounts.

Registered Users

- Registered users shall be able to access the landing page.
- Registered users shall be able to access the about page.
- Registered users shall be able to access the login page.
- Registered users shall be able to edit their personal profile.
- Registered users shall be able to update their profile pictures.
- Registered users shall be able to change their passwords.
- Registered users shall be able to deactivate their account.
- Registered Users shall be able to search for rooms.
- Registered Users shall be able to search for roommates.
- Registered Users shall be able to search for rooms with a search filter.
- Registered Users shall be able to search for roommates with a search filter.
- Registered Users shall be able to post a vacant room.
- Registered Users shall be able to find a room by their budget.
- Registered Users shall be able to search around their preferred location.
- Registered Users shall be able to set their *room* preferences such as: majors, school, pets, smoking, language, similar interests, and/or hobbies.
- Registered Users shall be able to filter *roommates* by majors, school, pets, smoking, language, similar interests, major, and/or hobbies.

Admins

- Admins shall be able to view all logs of past and current list of registered users.
- Admins shall be able to delete or ban any registered users.
- Admins shall be able to give and/or remove permissions and other users that are not admins.

List of Non-Functional Requirements

1. Application shall be developed, tested and deployed using tools and servers approved by Class CTO and as agreed in M0 (some may be provided in this class, some may be chosen by the student team but all tools and servers have to be approved by class CTO).
2. Application shall be optimized for standard desktop/laptop browsers e.g. must render correctly on the two latest versions of two major browsers.
3. Selected application functions must render well on mobile devices.
4. Data shall be stored in the team's chosen database technology on the team's deployment server.
5. No more than 100 concurrent users shall be accessing the application at any time.
6. Privacy of users shall be protected, and all privacy policies will be appropriately communicated to the users.
7. The language used shall be English.
8. Application shall be very easy to use and intuitive.
9. Google maps and analytics shall be added.
10. No e-mail clients shall be allowed. You shall use webmail.
11. Pay functionality, if any (e.g. paying for goods and services) shall not be implemented nor simulated in UI.
12. Site security: basic best practices shall be applied (as covered in the class).
13. Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development.
14. The website shall prominently display the following exact text on all pages "SFSU Software Engineering Project CSC 648-848, Fall 2021. For Demonstration Only" at the top of the WWW page." (Important so not to confuse this with a real application).

Competitive Analysis

Feature	RoomM8	SpareRoom	PadMapper	RoomGo
UI Simplicity	++	++	++	++
Messaging (Email)	+	++	++	++
Search rooms	+	++	+	+
Search roommates	+	+	-	+
Search by location	+	+	+	+
Match alerts	++	+	+	+

- feature not present + feature is present ++ feature presented very well

Summary: For any successful roommate finder application, it is crucial to have key features such as a simple user interface, messaging, the ability to search for rooms and roommates, especially by location, and the ability to alert users of their matches. SpareRoom and RoomGo present a very similar search/browse UI, making these websites a bore to use. Padmapper highlights search by location with its focus on the map feature, allowing the users to more quickly view and compare different posts, as it does not take the user to a new page upon selecting on a post, in which SpareRoom and RoomGo does. Similarly, in regards to messaging, SpareRoom directs you to a new page, while PadMapper utilizes a popup and RoomGo offers direct messaging on the page. The ability to message directly on the page would allow users to craft a message while being able to reference the post, which is a pro. Next, the ability to search for rooms by location is essential, which is a feature that our competitors have; PadMapper and RoomGo deliver this feature particularly well with the use of a map, which is a feature that RoomM8 will also offer. While the ability to search for roommates is not prevalent across all our competitors, it is a feature that RoomM8 will offer, as we believe that finding a suitable roommate is just as important as finding a suitable room. Lastly, regarding match alerts, each of our competitors takes a different approach to deliver the same task. SpareRoom offers sending emails of new rooms as they come in based on the selected filters that were saved, PadMapper offers similar however, based on the specific post that was selected, and RoomGo does similar with regards to newest profiles and rooms based on the location and price that were set on the search page. The key point is to notify our users of new postings.

High-level System Architecture and Technologies used

Description: A small brief about our original decision and why we decided to change. We had originally decided to use namecheap for our domain name and website hosting. They offer easy

to use ssl built into the website without the need to integrate into our framework. Lastly the team lead was familiar with this platform and has created website before on it. We started development on this platform and soon found out that the tools and packages that we wanted to use were not compatible with the node version that the cpanel offered us. We decided to switch to using AWS's EC2 platform. EC2 is a cloud hosted virtual machine platform.

1. Operating System: Ubuntu 20.04.2 LTS. This is a very popular linux distribution and has a lot of support.
2. NodeJS, npm, and express.
 - a. Nodejs v16.8.0: is a javascript runtime environment that allows us to run code written in Javascript
 - b. Npm 7.21.0, is the node package manager that we use to install all the different packages we use for the functionality of our website
 - c. Express 4.16.4: express is a very popular web application framework that
3. MySQL is the database that we are using.
4. Tailwind2.2.9: Tailwind great CSS cdn and has a version that works with express and handlebars our rendering engine
5. Handlebars: this is a html rendering engine built for nodejs

Other miscellaneous node packages

1. autoprefixer@10.3.4
2. bcrypt@5.0.1
3. colors@1.4.0
4. cookie-parser@1.4.5
5. debug@2.6.9
6. dotenv@10.0.0
7. express-flash@0.0.2
8. express-handlebars@5.3.3
9. express-mysql-session@2.1.6
10. express-session@1.17.2
11. express-validation@3.0.8
12. express-validator@6.12.1
13. express@4.16.4

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14. hbs@4.1.2
 15. http-errors@1.6.3
 16. morgan@1.9.1
 17. multer@1.4.3
 18. mysql2@2.3.0
 19. node-pre-gyp@0.17.0
 20. nodemon@2.0.12

Team and Roles

Team member	Roles
Jeff Fulmer Gardner	Team Lead / Github Master
Adele Wu	Front-end Lead
Edward Yun	Back-end Lead
Kris Byington	Team member of Database Team
Jeffrey Friedrich	Database Lead
Jose Quintero	Team member of Front-end/Document Master

Checklist

- Meeting times: We meet once a week usually on fridays or statudy as as a whole group but the individual members meet often throughout the week as needed. - **ON TRACK**
- Github master has been assigned to JeffreyFG - **DONE**
- Team found a time slot to meet outside of the class - **ON TRACK**
- Team decided and agreed together on using the listed SW tools and deployment server - **DONE**
- Team has successfully deployed backend and front end and the website is available at <http://roomm8.net> - **DONE**
- Team ready and able to use the chosen back and front end frameworks and those who need to learn are working on learning and practicing - **ON TRACK**

- Team lead ensured that all team members read the final M1 and agree/understand it before submission - **DONE**
- Github is organized as discussed in class (e.g. master branch, development branch, folder for milestone documents etc.) - **DONE**