Software Engineering

CSC 648/848 Fall 2021

Project: RoomMe

Section 02

Team 06

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Milestone 1

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(1) Executive Summary:

Adulting is a phase every young adult has to go through in life, and one major step in adulting is moving out to find their own place. Many young people face difficulties when they have to leave their homes and live apart from their families for college or for work. Buying a house is out of reach and expensive rent challenges college students to afford a good place to stay when they decide to move out and live on their own. Because of that, many people choose to live with a roommate in order to lower the cost of living expenses. Although it sounds like a good option for college students who study across states or young professionals who want to live apart from their parents, choosing a perfect roommate is not easy and it requires a lot of work. Some cannot be trustworthy or some are not financially reliable. One's ideal living place can be another one's nightmare, and sometimes, best friends can be poor housemates. Therefore, a roommate finder web application is created in order to solve those problems. It makes life easier and saves lots of time spent on searching.

Our application, RoomMe, aims to help college students and professionals to find a place for rent as well as provide great experiences while they are using the website. There are two ways that people can find a room or roommate, searching and matching. With advanced searching, users can search for their ideal living based on their personal preferences. It includes many filters such as a price range, location range, number of bedrooms, preferred gender, preferred age, amenities, and pets. On the other hand, there is a matching option that helps to connect one to another. Instead of spending hours going through a list of all available rooms, a user can also match up with another user based on their major, hobbies, and interests that list on their profile after registering. These two options will help users to find a room that meets their criteria as well as find a potential roommate. With that being said, one thing that makes this web application unique is that it is San Francisco-centric, and therefore the users are likely to be fresh grads or professionals moving for work.

The team are students from San Francisco State University and consist of seven members. With Raul-Izaiah Rodriguez the team leader, Jay Jaber and Kaung Htun the backend engineer, Vy Ngo and Nael Yun the frontend engineer, Tanishq Pradhan the Full-stack engineer as well as Github master, and Vandit Malik the Database manager. These students want to create a web application that benefits college students since it is needed for whoever intends to move out. Their goals are to save time for other college students, help them to look for a perfect roommate, and find a great house for themselves.

(2a) Personas

Name	Dev Patel
Age	21
Occupation	Student
Location	San Francisco
Social Media	Facebook. IG, Snapchat, TikTok
Personality	Introvert, caring, intuitive
Introduction/Bio	Dev is a sophomore student studying BS in CS at SFSU. He is a sincere student who likes to play guitar and enjoys cooking.
Goals	· Find a decent job after graduation · Learn playing guitar · Make new friends
Frustrations	· Doesn't know SF housing market · Finding it hard to find roommate online · Doesn't understand pricing
Preferred Channels	Social media groups, referrals and traditional bulletin ads

Name	Andrea Jackson
Age	26
Occupation	Software Engineer at XYZ
Location	San Mateo
Social Media	Facebook. IG, LinkedIn
Personality	Extrovert, outgoing, hardworking
Introduction/Bio	Andrea is a California born SE who just got a job in San Francisco. She is an outgoing personality who also likes the company of friends. She likes ordering food and is looking for a place from where she can work remotely in San Francisco.

Goals	· Be successful in her new job · Have her own brewery · Make new friends in San Francisco
Frustrations	· Tired of using roommate postings on social media because of fake postings. · Looking for a place where she can find all the information at one place. · Find roommates with whom she can adjust
Preferred Channels	Social media groups and traditional bulletin ads

(2.b) Use-Cases:

1. The user wants to search for a room. The user uses the filter feature to apply a filter to the searching parameters such as and not limited to location of the room, budget of the user, gender of roommate, amenities available, major of roommate, pet policy, etc. The user then reviews the list of search results.

2. The user wants to post the availability of a room on our site. The user is prompted to login/signup on our website before posting. The user after creating an account or logging in to the account creates a listing of their room along with parameters attached to it.

3. The user wants to search for a roommate. The user can review the profiles of various users looking for a room on our website. The user after reviewing the profiles selects potential roommates and contacts them.

4. The user wants to create their own profile information page on our website. The user is prompted to login/signup on our website before doing so. Once they are logged in the user can type some information and upload an image of themselves. This profile is available for anyone to see.

5. The user is looking for a room on our website. After viewing the different listings available the user selects one of them. The user is prompted to login/signup on our webpage before they can contact the tenant who listed the room. Once logged in the user can contact the tenant and can ask further questions to finalize the room.

(3) Main data/entities for projects (users, data structures, db models)

- User
  - UUID (Universally unique identifier)
  - Email
  - Phone_number
  - Password
  - Name
  - Gender
  - Contact_info
  - bookmarked_listings

- Region (will get the API from Google or other service)
  - location

- Preferences
  - price_range
  - age_range
  - Current_occupation
  - smoking
  - Pets
  - num_roommates
  - region
  - fk_user

- Room Listing
  - location(coordinates)
  - room_count
  - Occupancy
  - vacancy
  - amenities
  - room_photos
  - description
  - lease_period
  - fk_user
  - fk_region
- Roommate Listing

- description
- interests
- Duration
- fk_user

(4) Functional Requirements:
1. Users shall be able to register for a personal account.
2. Users shall be able to log into their account.
3. Users shall be able to list one or more units/rooms to be rented.
4. Users shall be able to limit their rooms maximum occupancy.
5. Users shall be able to set rooms as vacant or occupied.
6. Users shall be able edit posted listings.
7. Users shall be able to delete listings.
8. Users shall be able to search for rooms to rent.
9. Users shall be able to rent a room alone or with roommates.
10. Users shall be able to find new roommates. Users shall be able to post and search roommate listings to find others with similar interests.
11. Users shall be able to filter for roommates by preference. These include pets, smoking, gender, age.
12. Users shall be able to search for rooms based on amenities offered. These include laundry machines, kitchen, pool, gym, parking, furniture.
13. Users shall be able to find rooms based on the amount of tenants.
14. Users shall be able to contact each other for inquiries.
15. Users shall be able to search for rooms based on location.
16. Users shall be able to view rooms for rent on map.
17. Users shall be able to filter rooms by price.
18. Users shall be able to set the duration for their units to be rented.
19. Users shall be able to filter rooms based on duration of stay.
20. Users shall be able to bookmark rooms/ roommates they are interested in.

(5) Non-functional requirements:

- 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 the class, some may be chosen by the student team but all tools and servers have to be approved by class CTO).
- Application shall be optimized for standard desktop/laptop browsers e.g. must render correctly on the two latest versions of two major browsers
- Selected application functions must render well on mobile devices

- Data shall be stored in the team's chosen database technology on the team's deployment server.
- No more than 100 concurrent users shall be accessing the application at any time
- Privacy of users shall be protected, and all privacy policies will be appropriately communicated to the users.
- The language used shall be English.
- Application shall be very easy to use and intuitive.
- Google maps and analytics shall be added
- No e-mail clients shall be allowed. You shall use webmail.
- Pay functionality, if any (e.g. paying for goods and services) shall not be implemented nor simulated in UI.
- Site security: basic best practices shall be applied (as covered in the class)
- Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development
- 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).

(6) Competitive Analysis :

Competing Softwares
- Facebook marketplace
- roomster.com
- roomi

Planned Features
- Host/Guest presents a resume of themselves to gain trust between each other.
- Reviews, show user what the room or the roommate is like
- Security, e.g user's account information is protected and information such as password will not be shown during the entering phase.
- Filters, create a better experience to search for what is needed or wanted when looking for a roommate or room
- Overall UI design, create a friendly UI experience where learning time for the application is simple and requires no knowledge.

Features	Facebook Marketplace	Roomster	Roomi	Our Product

User Presentation	-	-	-	+
Reviews/Ratings	+	-	-	++
Security	+	+	+	+
Filters	++	++	++	+
Overall UI Design	+	+	+	+

Our app thrives for simplicity and quality for the user's experience. With the features mentioned above, we planned to utilize presentation, reviews, security, search filtering and overall UI design. Our app will have a presentation for both the Host and Guest to gain trust between each other and feel secured, each party will present a description of themselves to know each other better to gain confidence in selecting the room or roommate. Furthermore, reviews in the app will be included to support the Guest or Host background as proof and increase trust in the application itself. Other than that, the app will consist of security to provide safety for both the Guest and Host, an example would be password and sensitive information will not be shown on screen and protected at all time. Moreover, Filtering shall be implemented into searches to ease user experience in finding the best choices for their room or roommate of choice. Lastly, UI design shall be made with simplicity and quality to create an environment where users have no hard time learning the application and create a user-friendly environment.

(7) High-level architecture and technologies used:

Backend:

- Node.js v16.8.0: Javascript runtime which allows for execution of JS code outside of a browser. Supports JS as a server-side language.
- Express.js 4.17.1: Unopinionated web-server framework built on top of Node.js. Contains built in functionality for routes, listening for requests, etc.
- MySQL server 8: SQL relational database served locally from host machine.

Frontend:

- Handlebars 4.7.7: Templating engine for HTML. Allows for dynamic DOM tree generation; includes mechanisms for conditionals, loops, and simple communication with backend.

Deployment:

- Host machine: AWS EC2 Virtual Machine: 2 vCPU, 1GiB RAM, 64-bit "t3.micro" instance
- Operating System for host: Debian GNU/Linux 10 LTS

Supported Browsers:
- Google Chrome v93.0.4577.82 (current)
- Firefox v92.0 (current)

(8) Team Roles:

- Raul-Izaiah Rodriguez - Team lead
- Jay Jaber - Backend engineer/Deployment
- Kaung Htun - Backend engineer
- Vy Ngo - Frontend engineer
- Nael Yun - Frontend engineer
- Tanishq Pradhan - Full-stack engineer/Github master
- Vandit Malik - Database manager

(9) Progress Checklist:

- Found time slot to meet outside class: **ON TRACK**
- Github master chosen: **DONE**
- Team agrees on tech stack: **DONE**
- Team ready to learn/use stack to build app: **ON TRACK**
- Team lead ensures all members up to speed on M1: **DONE**
- Github organization: **DONE**