Functional Specification

Project name: Roommate Reccomender
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1. Introduction

1.1 Overview

Our project aims to help people find a roommate who may share similar interests and personalities within their budget and living within their desired location. We also aim to offer a platform for those looking to share their accommodation to likewise find a suitable roommate as well as inform them of the approximate amount they should consider charging.

Our project will be composed of:

- A database to store users' data and preferences which will be used to match them as best as possible to other users
- A backend REST service to get and display matches to the user.
- A front-end UI as the face of the app. It will be important that design is simple to understand for the user and that information provided by the REST service is displayed coherently.

1.2 Business Context

This project is targeted at young renters who are looking for shared accommodation and property owners who are renting out room(s) and who might want to check how much they should charge for rent as per their property.

This could be sold to universities which will have a large number of students looking to rent a room and don't mind sharing the living space as well as find out and see what type of roommate they could live with on the property. This can be useful for any student accommodation organisation, as they can hand over the roommate assignment responsibility to the renters so that there is less work and the renters are happy with who they share their living space with, this can apply to any renting business (e.g Rent.ie) who can accommodate to students/young renters as well as new landlords to get them started.

1.3 Glossary

HTML: Stands for Hypertext Markup Language. It is the code that is used to build the basic structure of a web page

Django: A python-based web framework. This is used to add more advanced functionality to the web pages.

SQL: Structured Query Language. A language that is used for managing data in a database management system.

User Interface(UI): The point where the user interacts with the application.

2. General Description

2.1 Product / System Functions

- If you're just trying to find a place to rent and a roommate, you must first sign up/login into the website and create your own profile by inputting yourself name, contact details, profile picture, a short description of yourself and the renting period you're looking for.
- If you are also a property owner you have the option of getting a rough estimate of how much rent you should be charging based on the form/questionnaire you fill out, which will calculate the appropriate amount to rent for.
- You then have the main function of seeing all the potential roommates that have been recommended for you and you now have the option to to swipe left or right, left meaning rejection while right meaning approval.
- When you have matched you're then given each other's contact information based on what you had inputted in the sign up section and you can contact them on your own time.

2.2 User Characteristics and Objectives

Our main users are property owners and young renters (aged 18 - 30). The users are familiar with apps that use similar User Interfaces like Tinder or Bumble, as well as having the basic technical capabilities of using an app and will find it simple to navigate our site.

Everyone has the function to swipe left or right on any roommates recommended to them after the initial sign up and login process. Each user has the option to say whether or not they are renting in the sign up form, those who have signed up with a rental will have an extra tab/page to manage and view the rental info. There will also be options to set up tags which will help in the recommender process eg near university, good bus routes, some tags may be not optional or will have to be answered in the form eg. disability friendly. There will also be an option to calculate what price is best suited for your rental by filling out a questionnaire and getting an estimate of how much the rent price should be

2.3 Operational Scenarios

1. If a property owner wants to advertise a property, they would move to the manage rental page. There they can add or change information about their property. Some information would be required such as the location, and there would be some optional tags the user could use to further specify the type of roommate they are looking for. Once they insert all the information, they would be able to submit it so that the property can get recommended to other users. If any user indicates that they'd be interested in the property, the user would receive a notification containing contact details so that they can get in touch with each other.
2. If a user is looking for a property they will simply have to sign up. Then on the main page they can set some tags to help improve the recommendations they receive and then they will start getting roommates recommended to them and they can indicate if they are interested in them or not. If they are, they will receive a notification with the contact information of the owner of the property they are interested in and from there they can get in touch with them.

2.4 Constraints

As this is a web-based application, response times may be dependent on the server’s load and how far the user’s location is from the server. Therefore, if the application experiences many visitors at one time, users may start to experience problems.

The application will also be dependent on the amount of users signing up and either advertising their properties or looking for properties. If there is a small number of users, our recommendation system may fail to provide good recommendations for users.

As our application will require quite personal information from our users we may also be constrained by GDPR policies. We will have to ensure that the application is GDPR compliant at all times and that we get consent from our users to use their data.

3. Functional Requirements

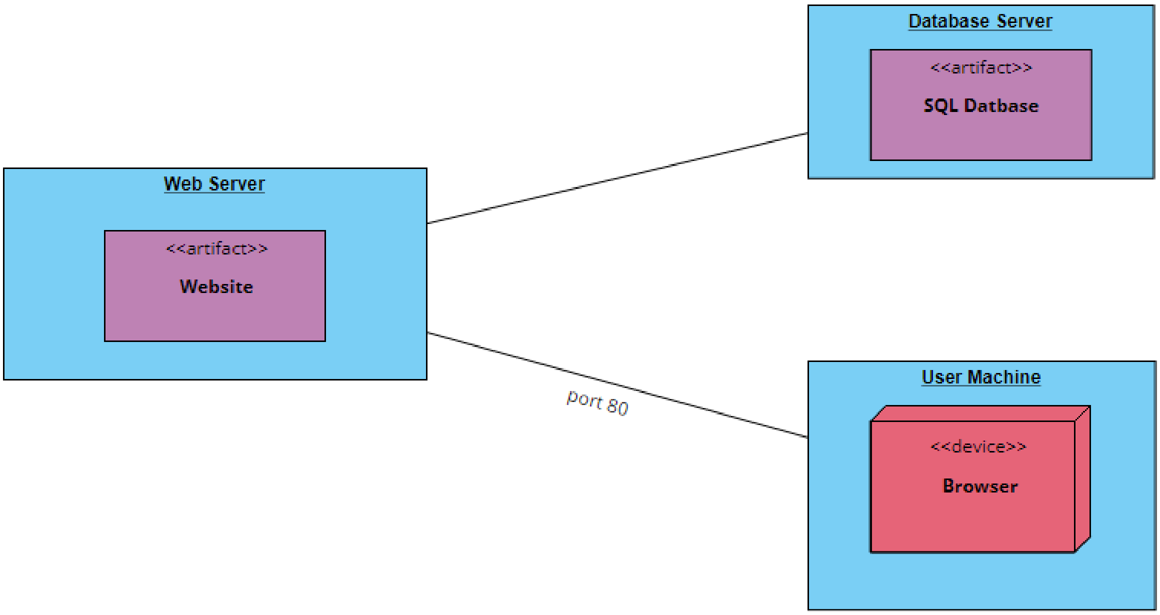
3.1
Register

Name	Register
Description	Register using name, email address and password
Criticality	Highly critical (will need to finish this to login)
Technical issues	N/A
Dependencies with other requirements	N/A
Misc	

3.2
User Login

Name	User login
Description	Allows user with username and password to login to site
Criticality	Highly critical (cannot access functions without login)
Technical issues	N/A
Dependencies with other requirements	User Registration (have to be registered)
Misc	

4. System Architecture

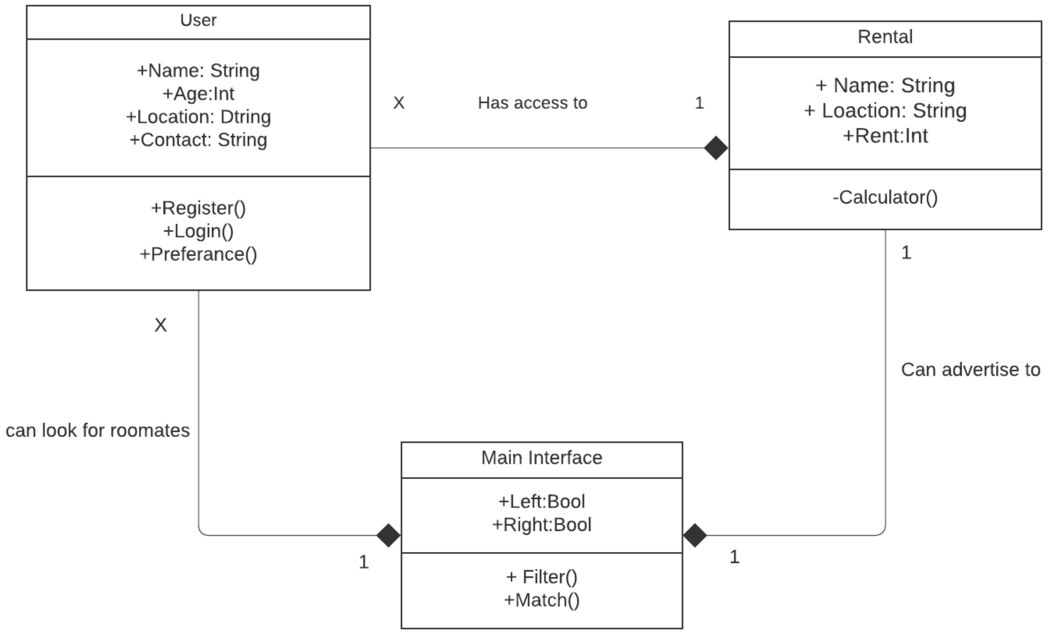


Database stores the information on each of the properties submitted by users. This will be used to match properties with renters based on how well it matches what the renter indicates they are looking for.

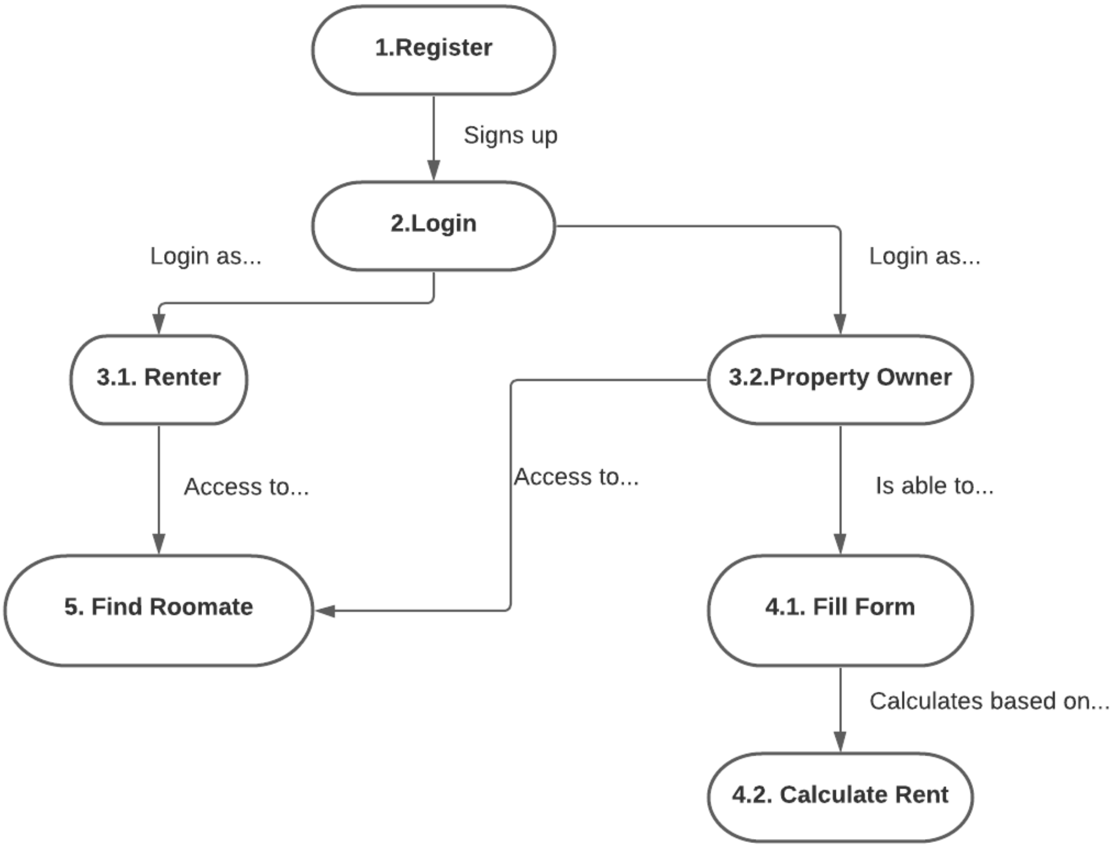
The web server will be what our program is run on. Users will connect to and be able to interact with it through their device's browser. The server will be able to interact with the database to add new information the user provides or to pull information from depending on how the user interacts with it.

5. High-Level Design

Class Diagram:



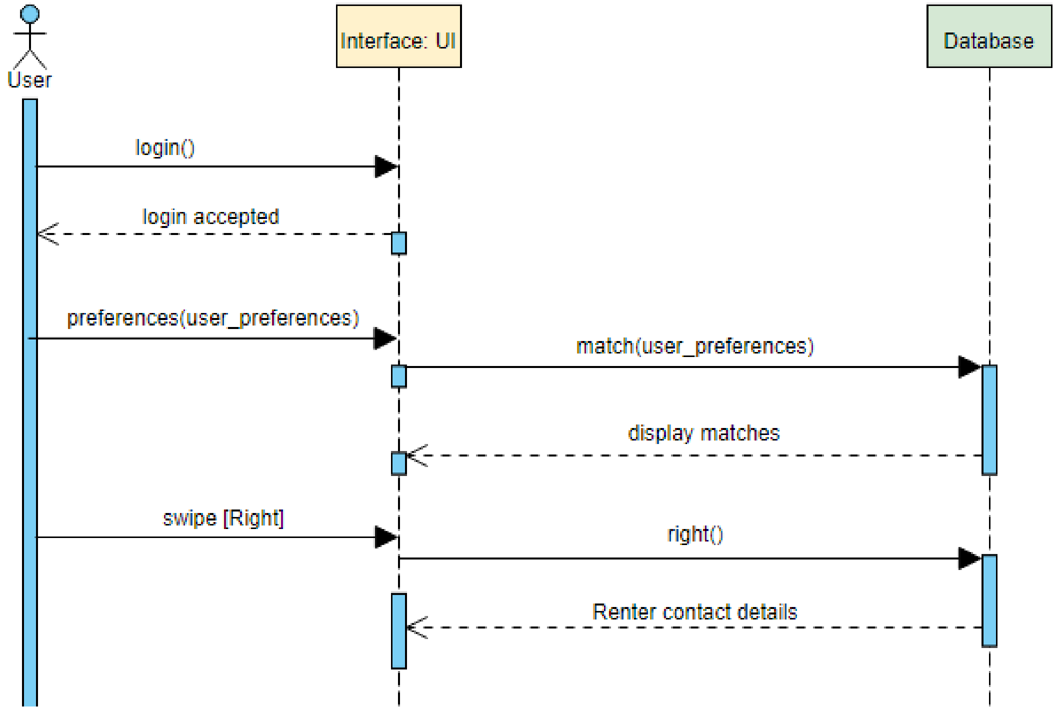
Data Flow:



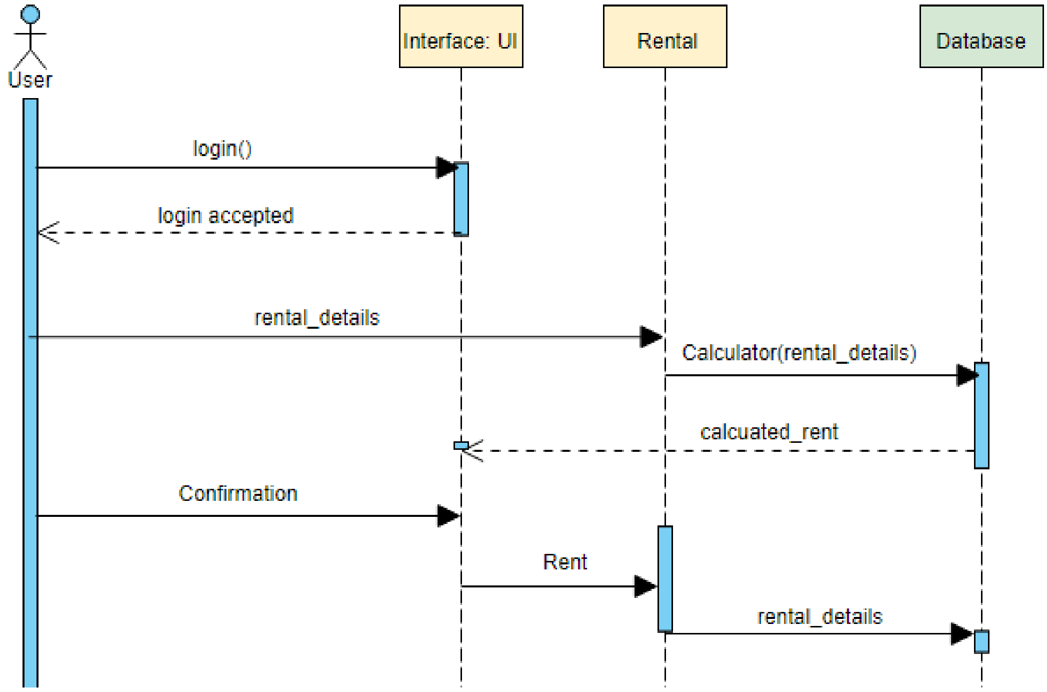
1.Register
Signs up
2.Login
Login as...
Login as...
3.1. Renter
3.2.Property Owner
Access to...
Access to...
Is able to...
5. Find Roomate
4.1. Fill Form
Calculates based on...
4.2. Calculate Rent

Sequence Diagrams:

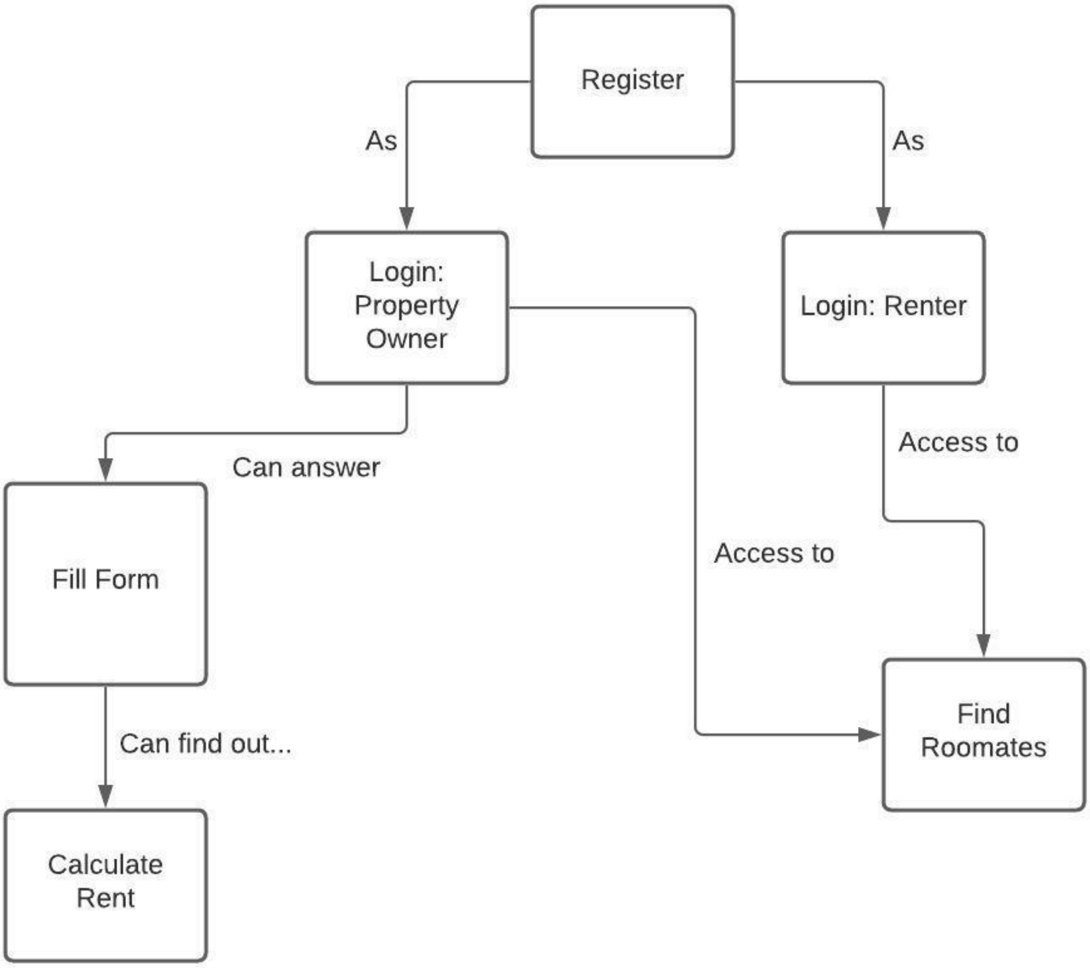
Finding Rental Matches



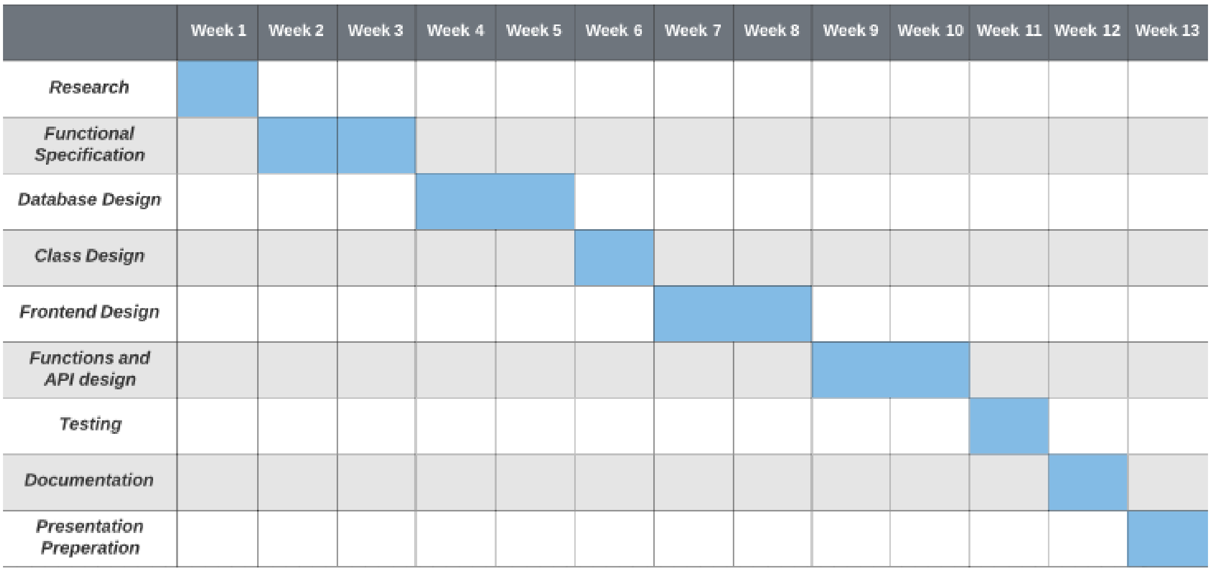
Adding a new Property



State Diagram



6. Preliminary Schedule



	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Research	■												
Functional Specification		■	■										
Database Design				■	■								
Class Design						■							
Frontend Design							■	■					
Functions and API design									■	■			
Testing											■		
Documentation												■	
Presentation Preperation													■

7. Appendices

Some aspects to bear in mind about our project when put into a real life situation is that in order for the app to work properly we need a large number of people to join initially as the user needs some options on who gets recommended as their roommate and a small number of users won’t work. And in terms of rent calculation on the property owner’s side, the estimated rent provided is dependent on the current social economic climate and may need to be updated to keep in track of the economic climate trend.