Web based Rental Agent

Undergraduate Thesis in Computer Science
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Introduction

Aim

The aim of this thesis is to design and develop a prototype for a web based service that will allow registered users to advertise short term room rentals as well as browse a common list of rooms on offer. The service will offer a limited administration panel for the users. This admin service will enable users to track their bookings, allow home owners to manage client bookings as well as offer all clients an opportunity to rate a room that has been visited as well as for home owners to rate the stay of their respective clients.

//TODO

Chapter 1

Business Analysis

1.1 Problem

Home owners who are in possession of excess floor space in the form of unused rooms or annexes to their homes) could capitalize on the major increase in human traffic across all the borders of the European Union as well as internally of each country in Europe by offering these travelers short term accommodation at a "reasonable" or suitable rate for both the traveler and the owner. The problem for such home owners is the extra overhead costs spent in advertising costs and/or other third parties(from here on referred to as "third parties") that help facilitate these transfers. Sometimes the costs are too large for smaller owners to handle and thus they lose their share of the market as well as their share of the total revenue spent on accommodation by the above mentioned traveler.
In the same way the European traveler who is experiencing a squeeze in income is looking for cheaper accommodation and yet keeping the same or similar standard of accommodation as previously when spending was not so limited.

1.2 Existing Solutions

There is a range of solutions available for the home owner to make use of. An example(and by far one of the most popular websites) of an existing solution is Airbnb(http://airbnb.com), which offers users an opportunity to rent out a house from a third party as well as many other options. A popular site in Poland is booking.pl(http://booking.pl) which allows users to search for accommodation around the world.

These existing solutions don't offer one group of users, that is the owners of homes, a way to comment the stay of their clients and thus enabling other home owners a chance to mitigate unwanted customers(i.e destructive, not following policy etc) but at the same time limit unwarranted discrimination of these same customers. The existing solutions don't offer the client an opportunity to swap his/her reservation with another client for what ever reason but rather penalty fees are charged so as to discourage such behavior.

Chapter 2

Project Design

In this chapter we list the functional requirements of the application with some rudimentary explanations. Using UML(Unified Modeling Language) to identify the users of the application, show possible use cases. Describe the architecture of the application as well as give a layout of the database design and what protocols will be used and why.

2.1 Functional Requirements

- registration clients
- enable user logging in and logging out
- client offer management - add, edit and remove an offer for a house rental
- user management - list registered clients and their personal details, revoke users, add users administratively
- search function - search offer by set of criteria such as location, price availability
- basic booking management - Allow landlords to view forthcoming reservations, confirm clients stay as well as allow clients to make bookings and view forth coming bookings
- rating mechanism - allow users to rate an offer based on a list of criteria as well as allow landlords to rate their clients stay. The rating system should mitigate discrimination.
- basic content management - add, edit and delete content of offers i.e photos
- create easy to use application programming interface(API)- API would allow users to access the service via front-ends other than a web browser i.e Smartphone app

2.2 Users, roles and use case

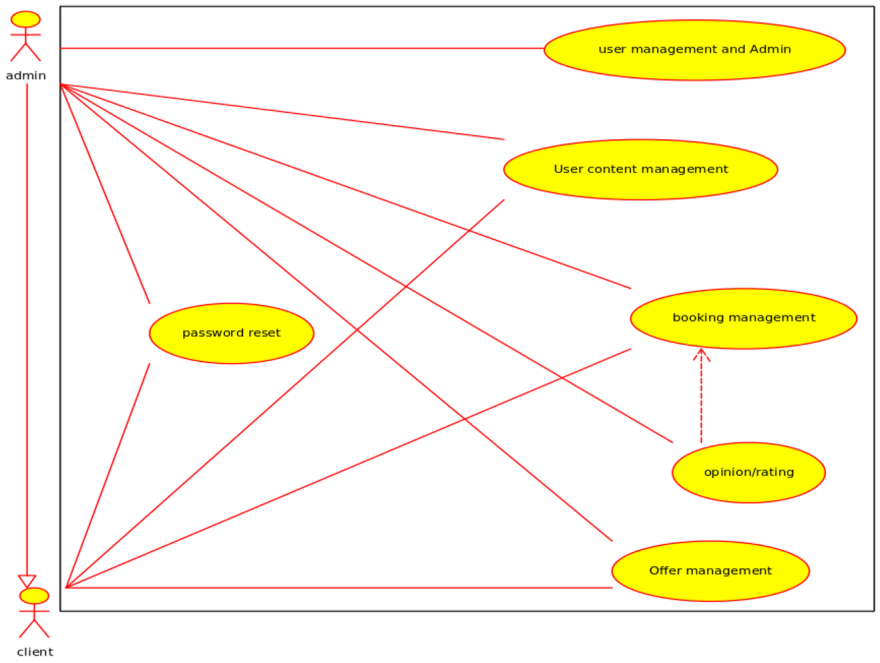


Figure 2.1: Use case diagram

2.2.1 User management

1. User selects action to preform on Users table on intended user
2. selecting create User a new screen appears:
    a. Admin enters details required to create user
    b. selects save option to save user or cancel to forget data
3. selecting edit User, admin is presented with user details and proceeds as in **User Content Management**
4. selecting block
    a. Admin adds reason for blocking user
    b. confirms the block by selecting the save option
5. Selecting unblock:
    a. Admin enters reason for unblocking user
    b. Selects the save option to confirm or cancel to forget action

2.2.2 User Content Management

1. User selects profile settings attribute
2. List of user profile details is output to screen
3. User selects edit under selected profile attribute i.e name,surname,identity etc
4. User enters new parameter for selected attribute
5. User selects the save options to write the changes or cancel to ignore changes

2.2.3 Offer Management

1. User selects the offers attribute
2. User forwarded to search criteria page
3. User is presented with options: Search,Add,Remove,Edit
4. User selects Search option:
    a. User presented with 'search bar' by system
    b. User enters search criteria: location of stay in the form of Country,city,region,street, date of arrival, date of departure, price ranges
    c. results output to screen
    d. selects offer of choice
    e. User presented with details of offer as entered by owner of the offer
    f. User proceeds to make booking as under **Booking Management**
5. User selects Add option:
    a. System outputs a new options page
    b. User fills in offer details including : location of offer, number of people, price per night, additional options such as kitchen, bathroom, separate entrance etc
    c. User adds photos of the room on offer
    d. User saves the offer or presses cancel to forget
6. User selects Remove option:
    a. User asked to confirm removal
    b. User confirms removal
    c. Offer removed from list of offers
7. User selects Edit option:
    a. User presented with properties of offer
    b. User selects property intended for editing
    c. User enters new parameters for selected property
    d. User selects save to confirm changes or cancel to drop changes

2.2.4 Booking Management

1. Admin/Owner(user) select edit offer attribute
2. user is presented with list of offer attributes
3. user selects attribute to edit or offer to revoke
4. user changes attribute accordingly if edit was selected
6. user selects appropriate confirmation or cancel to ignore action

2.2.5 Opinion Rating

1. User selects the rating attribute rental
2. System outputs list of rating criteria onto screen
3. User enters rating for each criteria
4. User saves by confirming actions or cancels to forget

2.3 Architecture

2.3.1 Representational State Transfer(ReST)

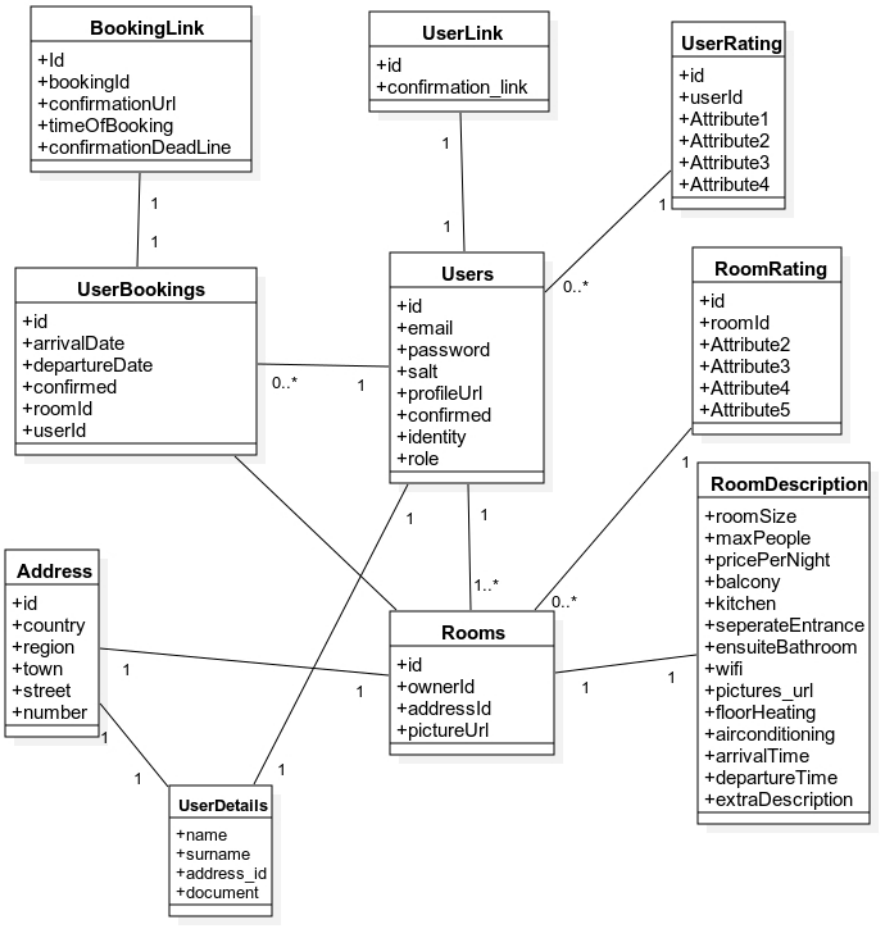
2.4 Class Diagrams

2.5 Database Design

2.6 Sequence Diagrams

2.7 Protocols

Hypertext Transfer Protocol


BookingLink
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+confirmationDeadLine
UserLink
+id
+confirmation_link
UserRating
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+userId
+Attribute1
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UserBookings
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+userId
Users
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+email
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+salt
+profileUrl
+confirmed
+identity
+role
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