TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING

LALITPUR ENGINEERING COLLEGE
Kholcha Pokhari, Chakupat, Lalitpur

A PROPOSAL PROJECT REPORT ON ”RENTAL ROOM FINDER”

SUBMITTED TO:
Er. Bisikha Subedi

SUBMITTED BY:
Sarad Babu Shrestha (LEC077BCT018)

August 14, 2023

A Proposal on
the Project Titled

RENTAL ROOM FINDER

Submitted as a part of requirement of
the curriculum of Software Engineering

SUBMITTED BY:
Sarad Babu Shrestha [LEC077BCT018]

UNDER THE SUPERVISION OF:
Bisikha Subedi

August 14, 2023

Abstract

The Rental Room Finder simplifies the hectic process of finding an ideal rental room. Using modern technology and a user-centric approach, it efficiently matches users with suitable accommodations based on their preferences. The platform's user-friendly interface allows customization of search criteria, such as location, budget, and facilities, saving users valuable time and effort. Rental Room Finder provides detailed room listings with images, verified reviews, and owner contact information. This empowers users to make informed decisions based on real experiences from previous Customer.Facilitating communication between customer and owner, messaging system and inquiries, negotiations, contract and agreements. In summary, the Rental Room Finder revolutionizes the rental search process, offering convenience, reliability, and security. By empowering users with personalized options and transparent information, it provides a stress-free experience for both owner and customer.

Keywords: *"Search Criteria ", "Budget", "Messaging", "Contract", "Agreement"*

Contents

List of Figures

1 INTRODUCTION

1.1 Background

The search for rental rooms has traditionally been a time-consuming and frustrating endeavor. With the rise of digital technologies, online platforms have emerged to address this challenge. However, many existing rental room finder platforms lack user-friendly interfaces, accurate information, and personalized recommendations. These shortcomings often lead to suboptimal matches between renters and available rooms. Our project builds upon the evolving landscape of digital solutions to create a rental room finder that prioritizes user needs, transparency, and convenience.

1.2 Problem Statement

Finding the perfect rental room has become a challenge. One needs to surf over all the town, ask locals for the available room. Walking all day to find room is to much hectic process.Whether you're a student seeking a quiet place for focused studying, a young professional starting a new chapter in a city, or an adventurer exploring a new locale, the search for the ideal living space can be both exciting and overwhelming.So our "Rental Room finder" is your ultimate solution for effortless and efficient rental room discovery.

1.3 Scope

This project will focus on developing a web-based application for rental room finder. The application will have interface for users to search for rental rooms based on their preferences, such as location, budget, facilities, and room types. The platform will also incorporate contract system to provide users with legal contract and prevent risk of scam. . Additionally, the application will facilitate direct communication between users and property owners, enabling seamless interactions and information exchange. The scope also includes the implementation of secure user profiles and a database to store accommodation details.

1.4 Objective

- Develop an intuitive and responsive web-based application for users to search, compare, and select rental rooms.
- Enable direct communication between Customer and Owners

2 LITERATURE REVIEW

The search for rental room has been a significant concern in cities areas, particularly among students, young professionals, and those relocating for work or education. Vrbo,Love Home Swap,Flip key apps advertise properties and owner data .While each of these system serves crucial roles,they lacks an comprehensive approach that address user needs, security.this literature review on rental room system can are challenges and potential solutions related to rental room finders, focusing on user experience, technology integration, and data reliability.We aim to address the problem and create a user friendly easy interference so that any age user can use it easily and reliable data of room with contract.This project aims to contribute to a more efficient secure and user-friendly rental room finder experience.

2.1 Existing

- **Vrbo**

  Vrbo (Vacation Rental by Owner) is a company that only offers vacation rental properties, so you won't be tiptoeing around anyone's prized coffee mugs or wondering what's behind a locked closet door.Vrbo specializes in spacious homes located in popular destinations throughout six continents. However, it is has expensive themes only that can't be afford by normal user and complex processing to finalize rent.

- **Love Home Swap**

  Love Home Swap is less renting, more trading places. It was founded by a British mother of two who enjoyed this type of arrangement and wanted to create a secure site for temporarily exchanging beautiful homes. On the platform, you can find more than 80,000 homes – ranging in price, style, and amenities – in 160 countries. Love Home Swap gets major kudos from customers for the high-end appeal of the properties.How ever it has same problem as Vrbo.

- **Flip Key**

  Flip Key, a subsidiary of Trip advisor, lists more than 800,000 properties in 190 countries. Similar to Trip advisor, you are able to sort through a variety of features and amenities when browsing the site. Whether you want a sleek condo, a villa with a pool or a hot tub, or an apartment that's within walking distance of bars and restaurants, you can easily sort through hundreds of listings.Flip Key draws upon the information Trip advisor has collected to display traveler reviews, nearby restaurants and attractions, and other helpful know-how that could make planning your trip easier.In this site lack of local,simple properties make normal student, young new professional , a adventurer hard to find their ideal simple rental room only lavish and price properties are available .

2.2 Proposed

In this proposed project, the "Rental Room Finder" interface for users to search for rental rooms based on their preferences, such as location, budget, amenities, and room types.the application will facilitate direct communication between users and property owners, enabling seamless interactions and information exchange.

The project recognizes the complexities to find the perfect ideal room in today's world where one has to walk,travel whole cities and ask different local about to the rents room.The primary objective is to create intuitive and responsive web-based application for users to search,compare, and select rental rooms.Enable direct communication between Customer and Owners.

The web-application is accessible through a clean and user-friendly web interface. Overall, the "Rental Room Finder" project aims to offer a ultimate solution for effortless and efficient rental room discovery.

3 Requirement Analysis

3.1 FEASIBILITY STUDY

3.1.1 Economic Feasibility

Economical feasibility is a crucial aspect of any project, including the development of a rental room finder. The costs associated with developing and maintaining the platform must be weighed against the potential benefits and returns. The initial investment in software development, user interface design, database management, and server hosting needs to be carefully evaluated. Additionally, the project's impact on cost savings for users, who would spend less time and effort searching for accommodations, contributes to its overall economic viability.The MERN stack offers a seamless and cost-effective approach to building a dynamic and responsive application, ensuring a high-quality user experience while minimizing development expenses.The use of open-source tools eliminates substantial licensing costs, making our project economically viable.

3.1.2 Operational Feasibility

Operational feasibility for the "Rental Room Finder" web app is driven by key factors like user-friendliness, Criteria Customization, and Sercure legal process. Its UI is user friendly. The app's interface is designed to be intuitive, ensuring users can easily navigate without advanced technical knowledge. Maintenance and support are expected to be straightforward, reducing the need for complex technical assistance. Overall, the "Rental Room Finder" web app is operationally feasible, offering a ultimate solution for effortless and efficient rental room discovery.

3.1.3 Technical Feasibility

The "Rental Room Finder" web app utilizes the MERN (MongoDB, Express.js, React, Node.js) stack for technical feasibility. React and Node.js are used for frontend and backend development, respectively. These technologies are well-established with substantial backing from reputable organizations which ensures the availability of extensive technical support within the development community.Additionally, compatibility with various devices and operating systems, as well as the ability to handle potential traffic spikes, will be evaluated to ensure the platform's technical feasibility. Therefore, the "Rental Room Finder" project is technically feasible with rich well-supported technologies.

3.2 Functional Requirement

Functional Requirement are detailed description of capabilities, features, or functionalities that a proposed system, product, or project must have in order to meet the needs and expectations of its users.Functional requirements are crucial for defining the scope and boundaries of a project and guiding its development process.The functional requirement for my project is given below:

- The app should be able to upload the physical images, description, detail of rental room.
- User should be able be criteria customize and find rental rooms.
- System should be sort the rental room on the basis of criteria customization and enlist them.
- User should be able to message Owner and make a contract.
- System should able to display advertised room and best deal offers.
- Availability of online payment via E-banking, Mobile Banking.

3.3 Non-Functional Requirement

Non-functional requirements in a project proposal refer to the qualities, characteristics, and constraints that describe how a system should operate and perform, rather than specifying specific functionalities or features. Non-functional requirements are important because they ensure that the system not only functions correctly but also meets certain quality standards and user expectations.The Non-functional requirement for my project is given below:

- Web-Application should be user friendly and have easy interface for convenient use.
- Application should be efficient and responsive .
- Include specifying encryption standards, authentication mechanisms, access controls.
- System should be easily updated, modified, and maintained over time.
- System should handle increasing workloads and user demand.
- It should work with other systems, software, and platforms. This include browsers, operating systems, or third-party services.

4 METHODOLOGY

4.0.1 Software Development Life Cycle

For the study of research methods, or, more formally, ‘a contextual framework’ for research of this project, spiral model was chosen among all others as it enables gradual releases and refinement of a product through each phase of the spiral as well as the ability to build prototypes at each phase. Spiral model is one of the most important Software Development Life Cycle models, which provides support for Risk Handling. It has four phases: Planning, Design, Construct and Evaluation. A software project repeatedly passes through these phases in iterations (called Spirals in this model) as shown in the figure below. The Radius of the spiral at any point represents the expenses (cost) of the project so far, and the angular dimension represents the progress made so far in the current phase. In each phase of the Spiral Model, the features of the product dated and analyzed, and the risks at that point in time are identified and are resolved through prototyping.

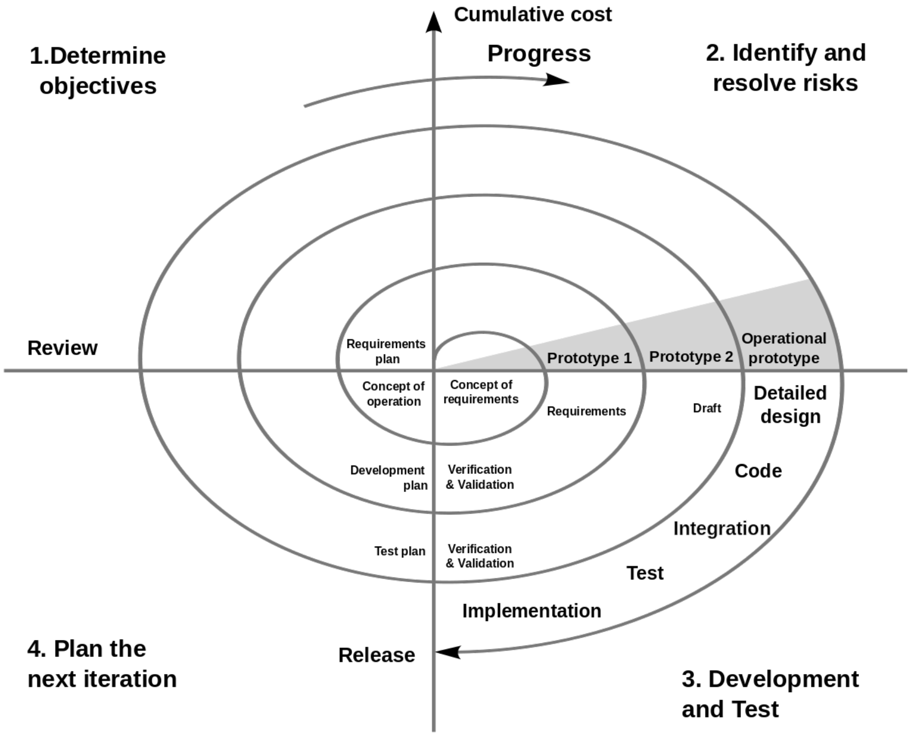


Figure 1: Spiral Model of Software Development

- **Planning Phase**

  Requirements are gathered from the customers and the objectives are identified, elaborated, and analyzed at the start of every phase. Then alternative solutions possible for the phase are proposed in this quadrant.

- **Risk Analysis Phase**

  During the second quadrant, all the possible solutions are evaluated to select the best possible solution. Then the risks associated with that solution are identified and the risks are resolved using the best possible strategy. At the end of this quadrant, the Prototype is built for the best possible solution.

- **Development and Testing Phase**

  During the third quadrant, the identified features are developed and verified through testing. At the end of the third quadrant, the next version of the software is available.

- **Evaluation and Planning next Phase**

  In the fourth quadrant, the Customers evaluate the so far developed version of the software. In the end, if the Customers are satisfied with the software, then, it is released, else, planning for the next phase is started.

4.0.2 System Development Tools

- **MongoDB (Database)**

  MongoDB serves as the foundational database, storing essential user data, task details, journal entries, and digital detox preferences. Its flexible schema allows us to adapt the data model as the app evolves, ensuring efficient data management.

- **Express.js (Backend)**

  Express.js provides a robust backend framework, handling HTTP requests and responses, routing, middleware, and interacting with the database. This framework enables efficient server-side logic, ensuring smooth data flow between the frontend and the database.

- **React (Frontend)**

  React forms the heart of our frontend development, offering a component-based architecture for building interactive user interfaces. Its fast rendering and reusable components enable a seamless user experience while managing tasks, reflecting, and engaging with digital detox features.

- **Node.js (Runtime Environment)**

  Node.js serves as the runtime environment for the backend, allowing us to use JavaScript on the server-side. This enables consistent code throughout the stack and leverages the extensive Node.js package ecosystem, enhancing development efficiency.

- **Git and GitHub (Version Control and Collaboration)** Git enables efficient version control, allowing our development team to track changes, collaborate seamlessly, and manage different code branches effectively. We utilize GitHub as a remote repository to host our project's source code, enabling version history tracking, code review, and easy collaboration among team members. This setup ensures a structured and collaborative approach to development, making it easier to manage code changes, review contributions, and maintain a reliable and up-to-date codebase for the "Rental Room Finder" app.

5 SYSTEM DESIGN AND ARCHITECTURE

5.1 System Overview

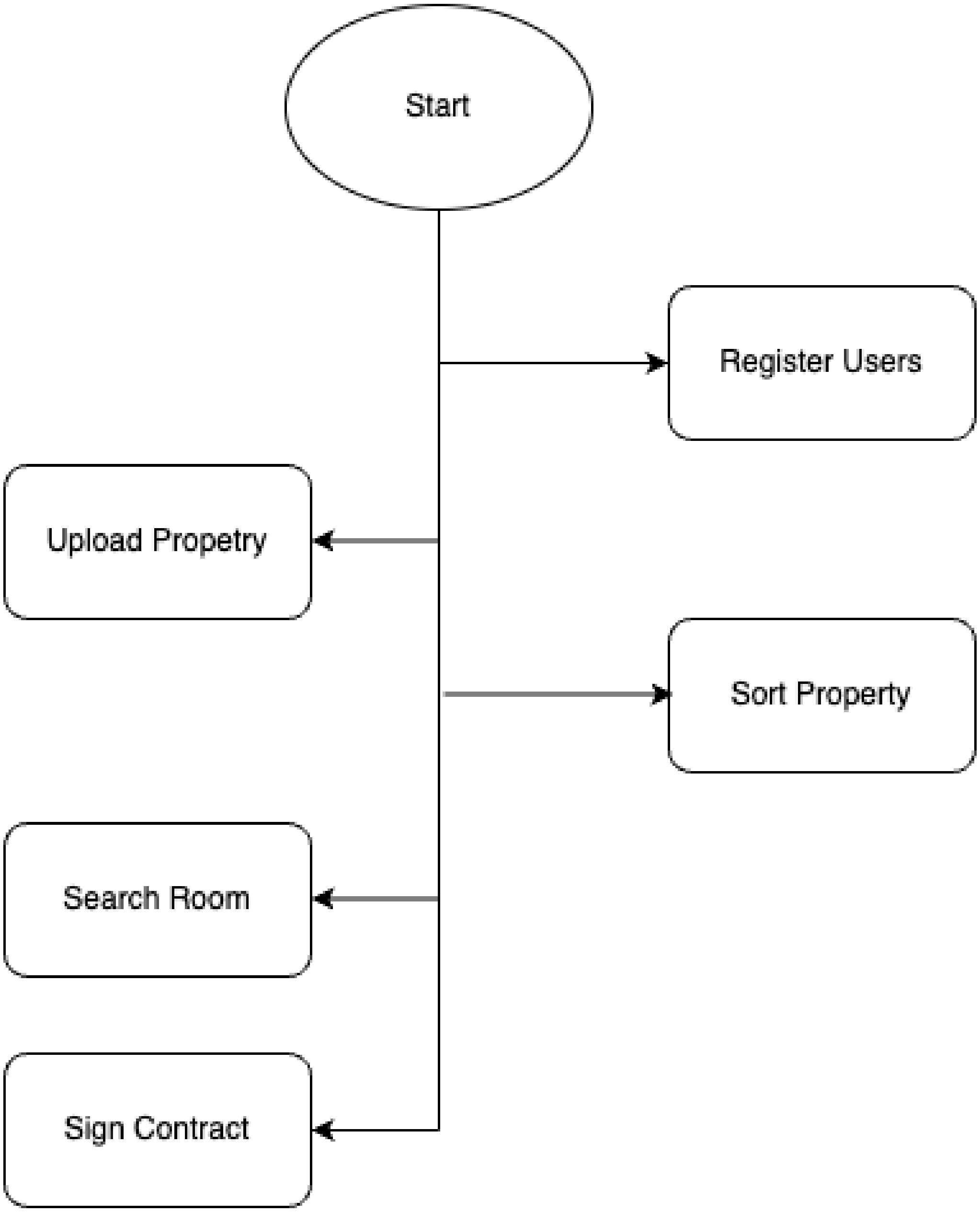


Figure 2: Block Diagram of System

5.2 Use Case Diagram

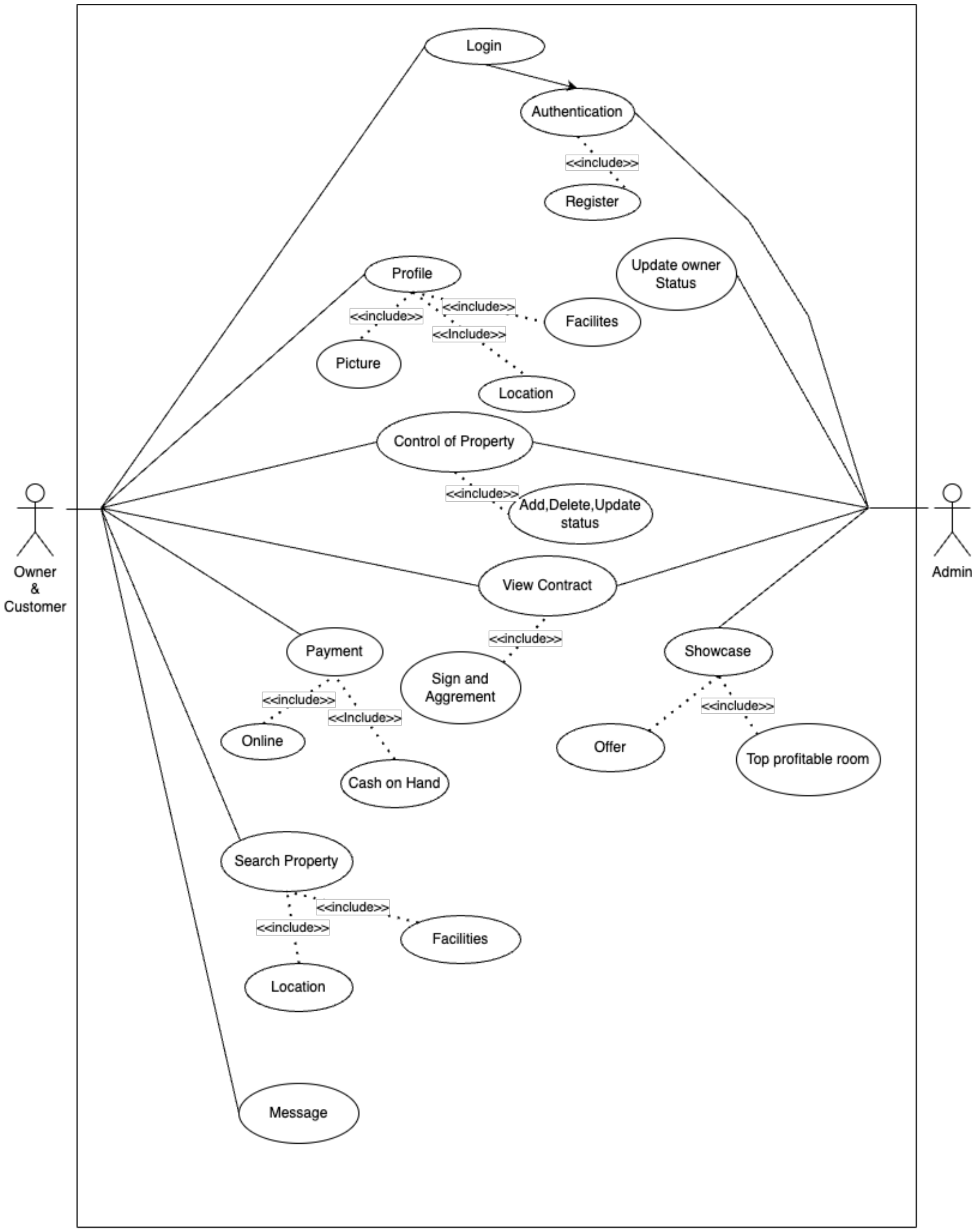


Figure 3: Use Case Diagram

5.3 Data Flow Diagram

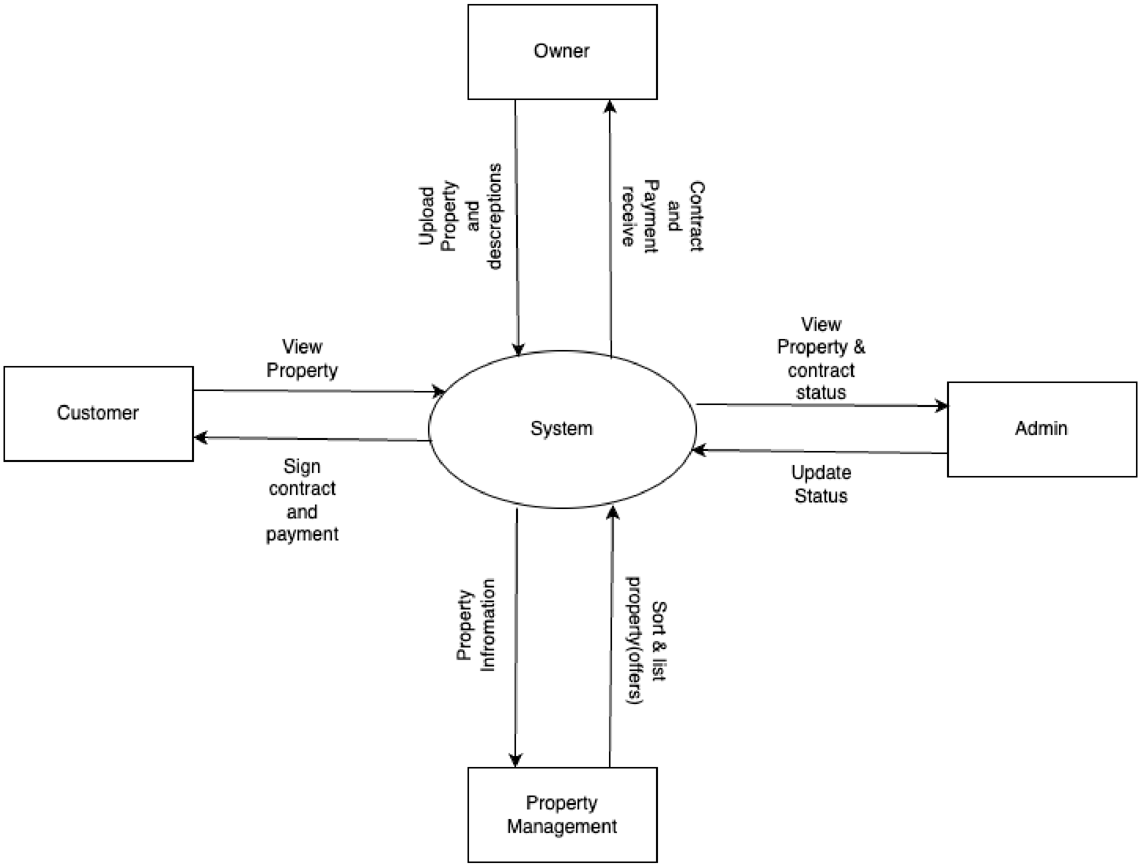

Owner
Upload Property and descreptions
Contract and Payment receive
Customer
View Property
Sign contract and payment
System
View Property & contract status
Admin
Update Status
Property Infromation
Sort & list property(offers)
Property Management

Figure 4: Level 0 DFD diagram

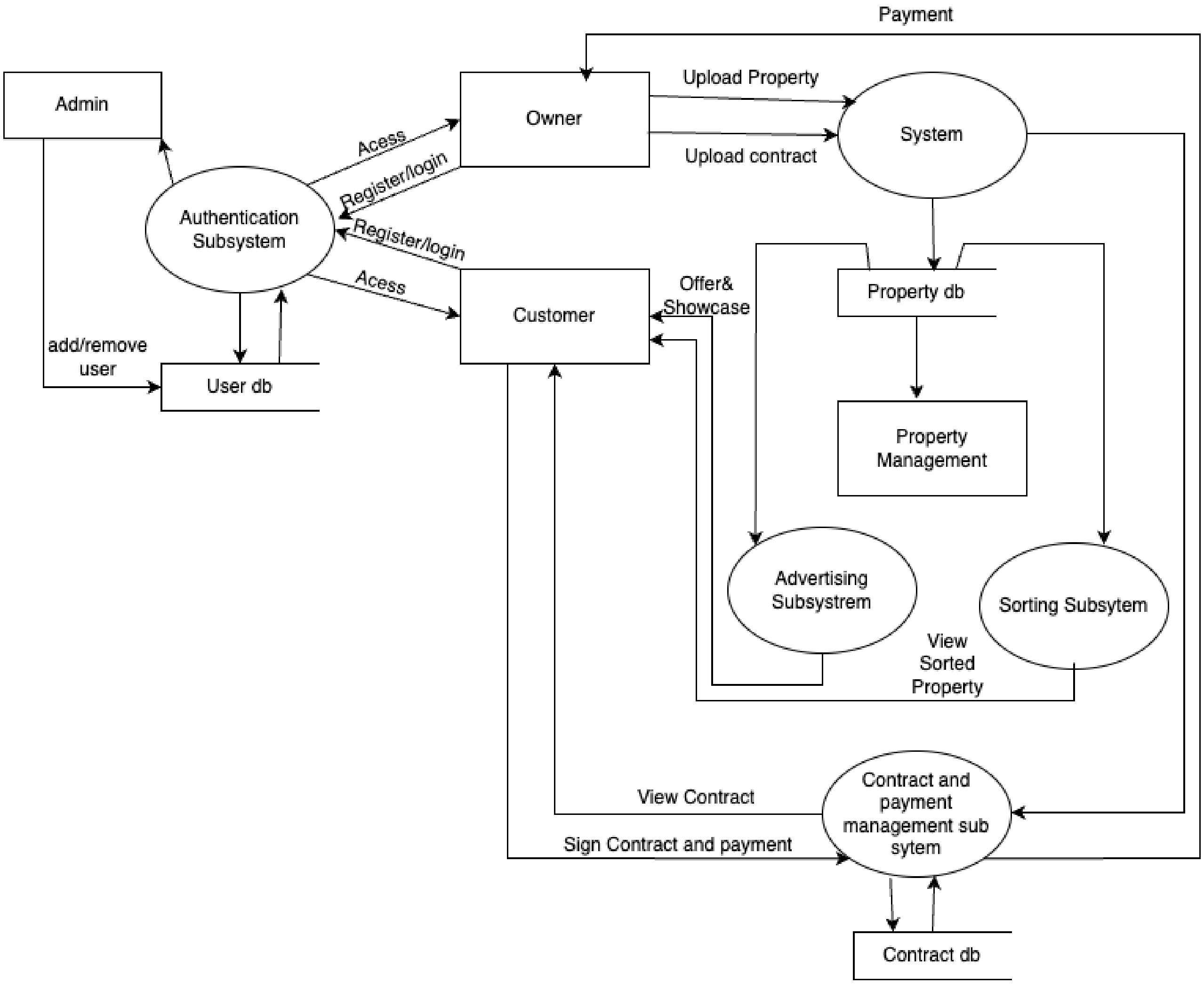


Figure 5: Level 1 DFD diagram

5.4 Activity Diagram

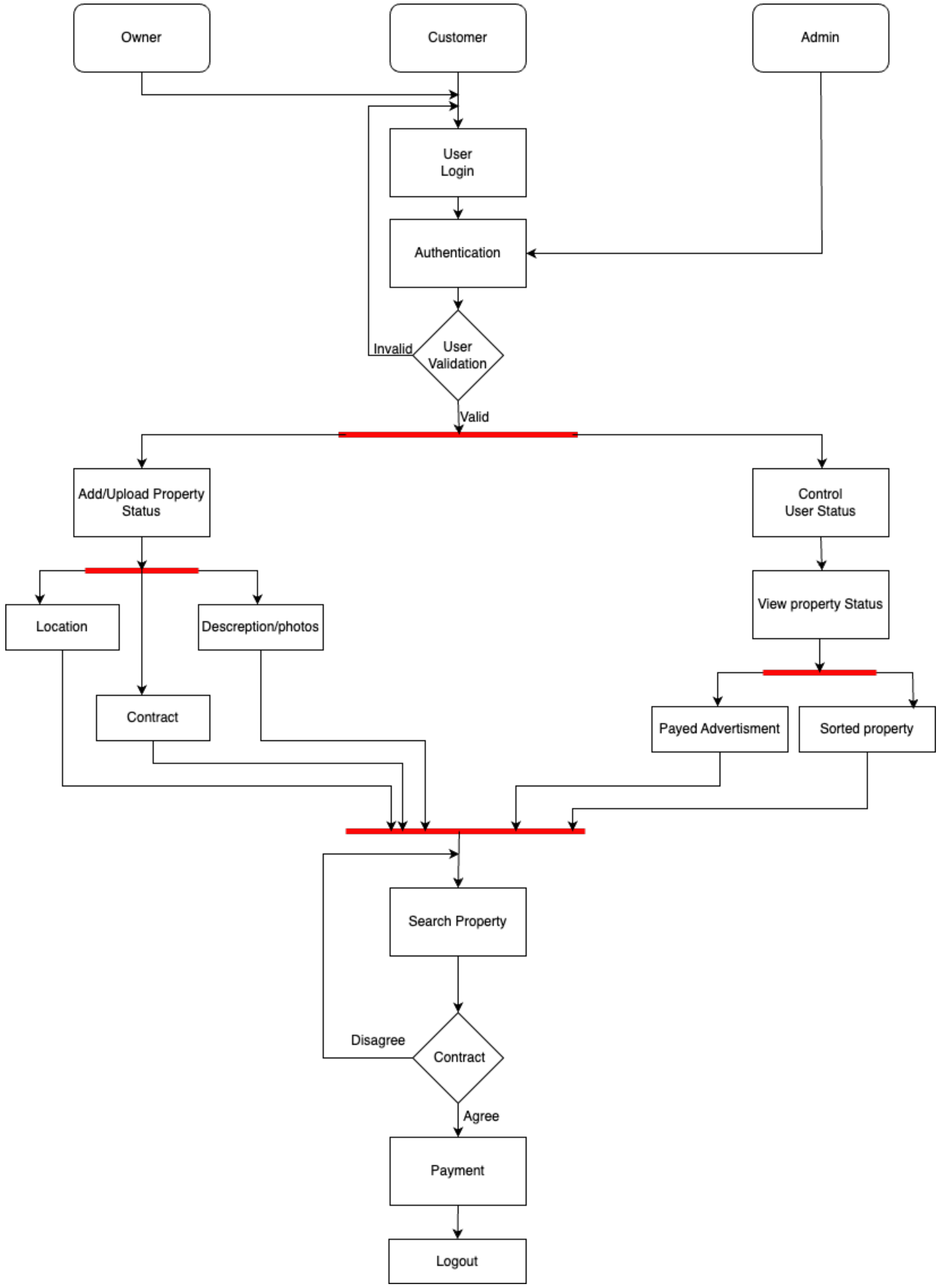


Figure 6: Activity Diagram

5.5 Sequence Diagram

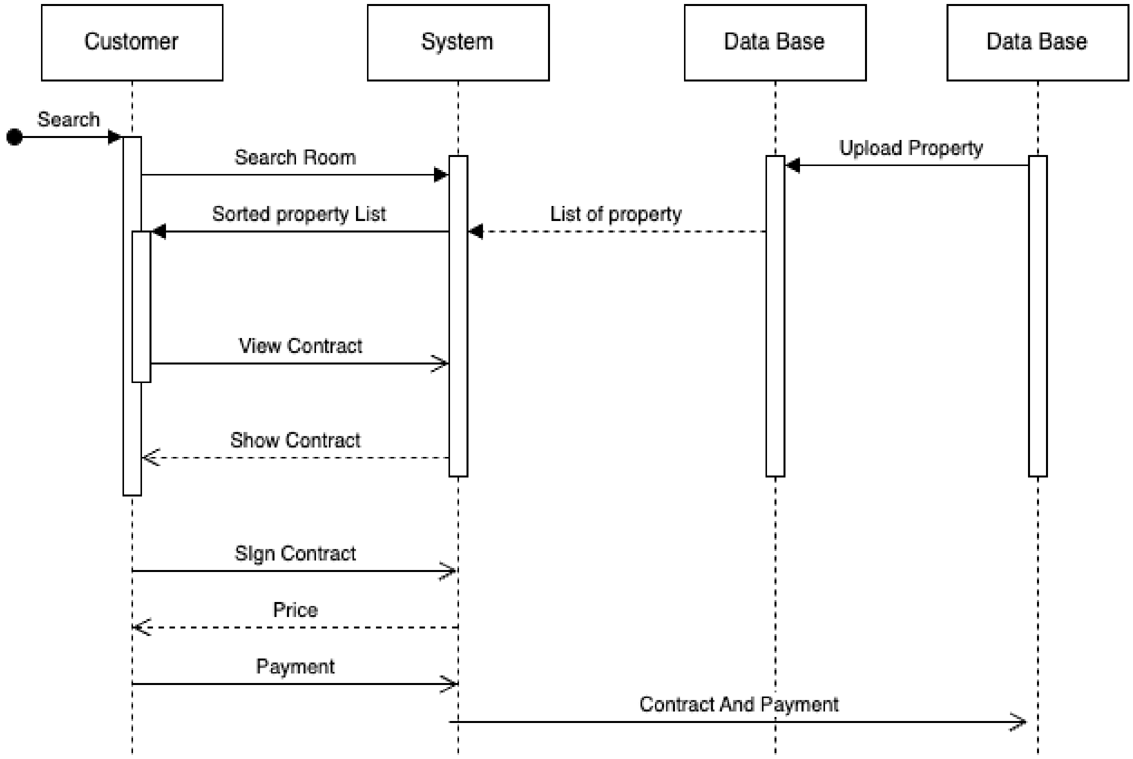


Figure 7: Sequence diagram for searching and finalizing rental room

5.6 Class Diagram

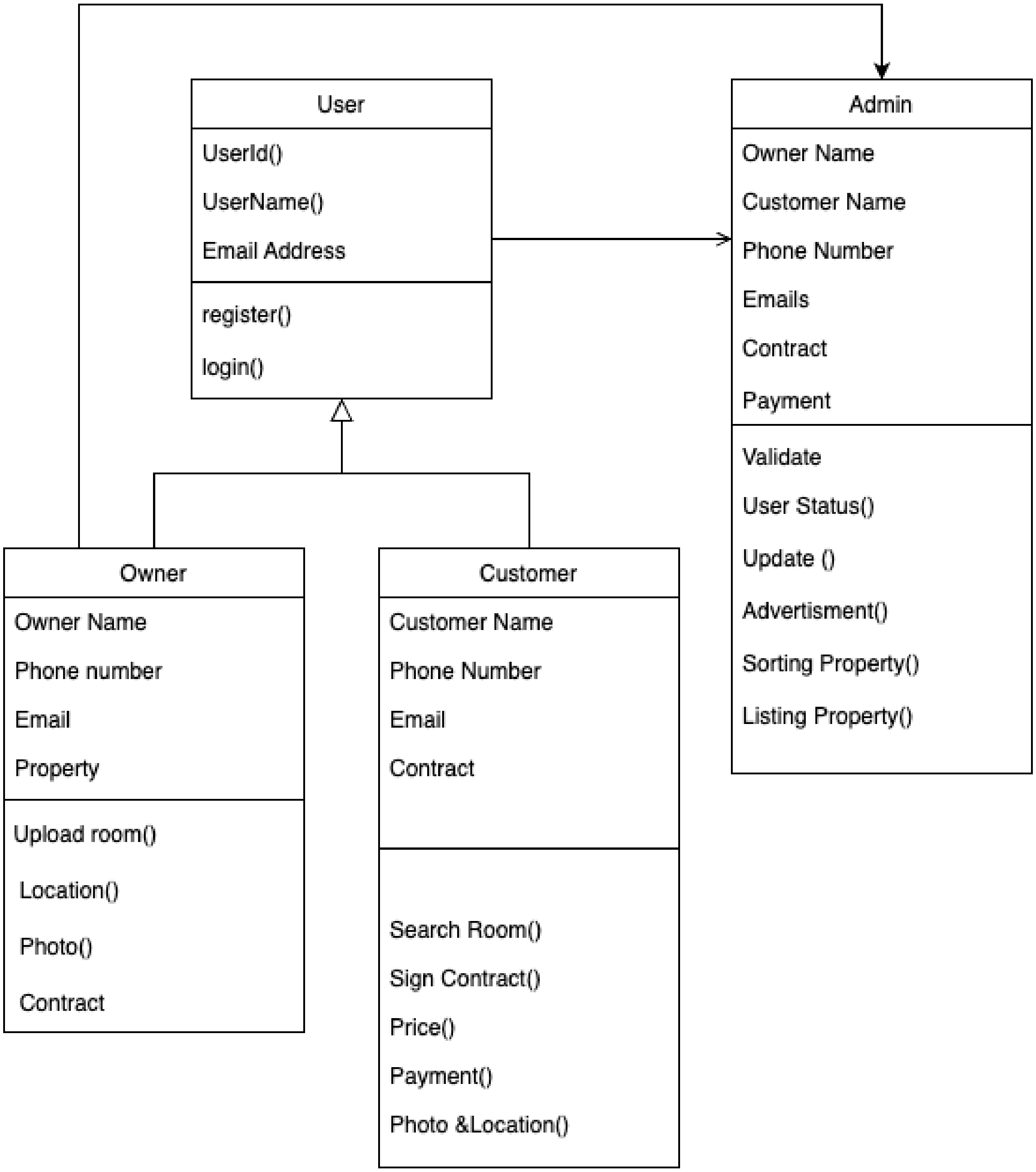


Figure 8: Class Diagram for Rental Room Finder

5.7 Entity Relationship Diagram

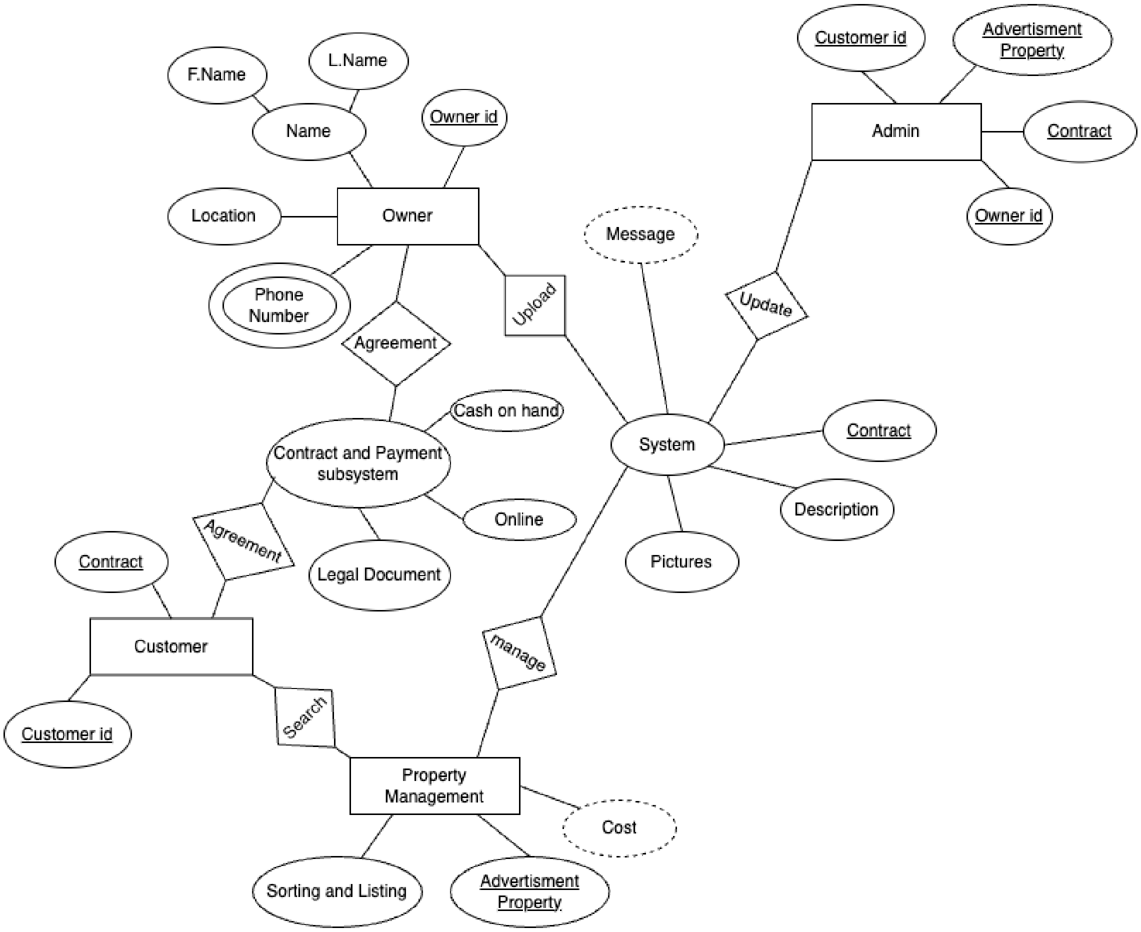
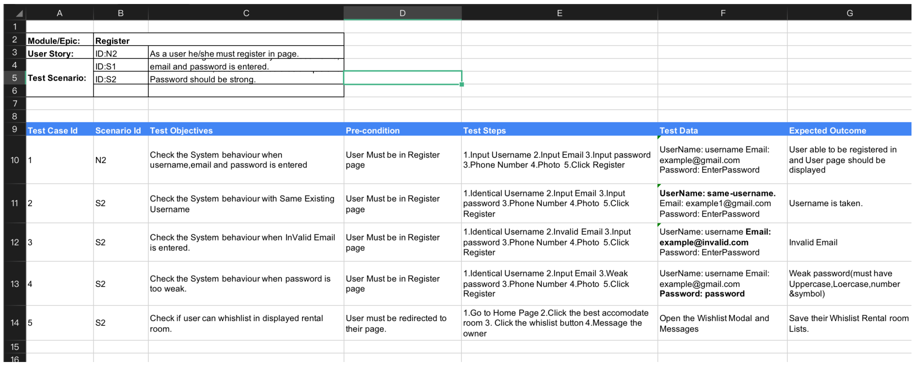


Figure 9: Entity Relationship Diagram for Rental Room Finder

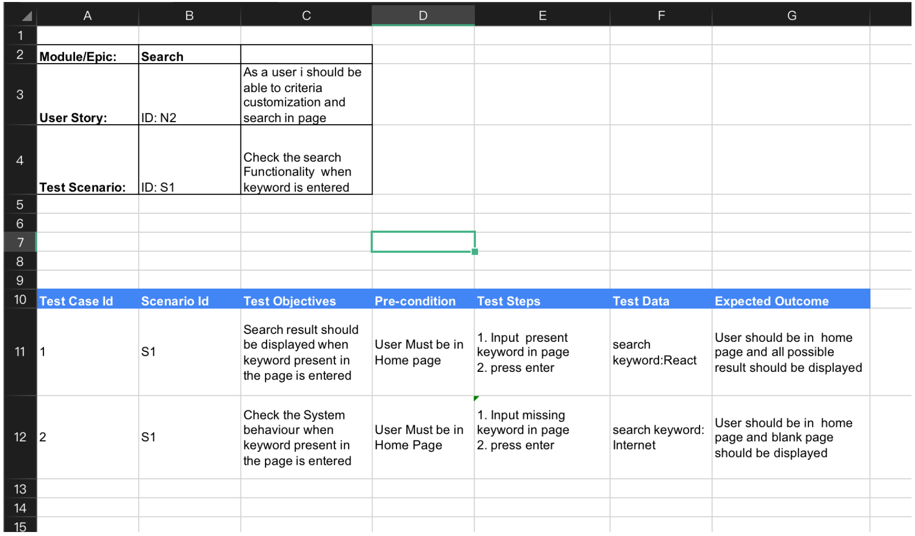
5.8 Test Case



Module/Epic:	**Register**	
User Story:	ID:N2	As a user he/she must register in page.
Test Scenario:	ID:S1	email and password is entered.
	ID:S2	Password should be strong.

Test Case Id	Scenario Id	Test Objectives	Pre-condition	Test Steps	Test Data	Expected Outcome
1	N2	Check the System behaviour when username,email and password is entered	User Must be in Register page	1.Input Username 2.Input Email 3.Input password 3.Phone Number 4.Photo 5.Click Register	UserName: username Email: example@gmail.com Password: EnterPassword	User able to be registered in and User page should be displayed
2	S2	Check the System behaviour with Same Existing Username	User Must be in Register page	1.Identical Username 2.Input Email 3.Input password 3.Phone Number 4.Photo 5.Click Register	**UserName: same-username.** Email: example1@gmail.com Password: EnterPassword	Username is taken.
3	S2	Check the System behaviour when InValid Email is entered.	User Must be in Register page	1.Identical Username 2.Invalid Email 3.Input password 3.Phone Number 4.Photo 5.Click Register	UserName: username **Email: example@invalid.com** Password: EnterPassword	Invalid Email
4	S2	Check the System behaviour when password is too weak.	User Must be in Register page	1.Identical Username 2.Input Email 3.Weak password 3.Phone Number 4.Photo 5.Click Register	UserName: username Email: example@gmail.com **Password: password**	Weak password(must have Uppercase,Loercase,number &symbol)
5	S2	Check if user can whishlist in displayed rental room.	User must be redirected to their page.	1.Go to Home Page 2.Click the best accomodate room 3. Click the whislist button 4.Message the owner	Open the Wishlist Modal and Messages	Save their Whislist Rental room Lists.

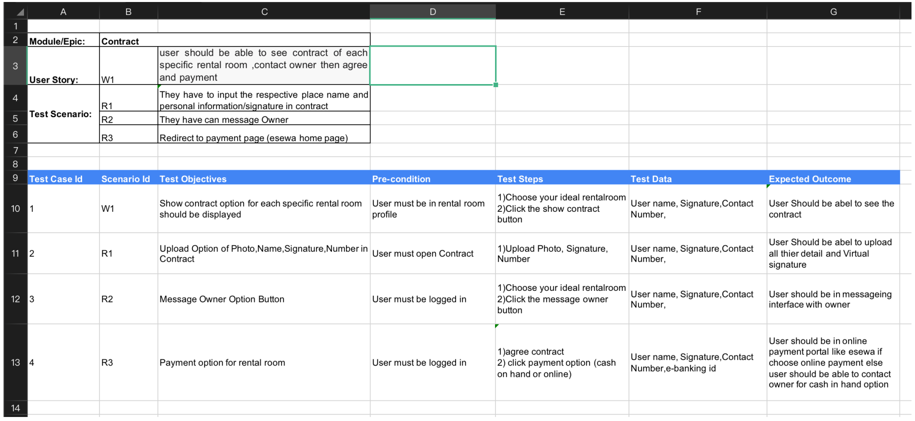
Figure 10: Test Case(1)



Module/Epic:	**Search**	
User Story:	ID: N2	As a user i should be able to criteria customization and search in page
Test Scenario:	ID: S1	Check the search Functionality when keyword is entered

Test Case Id	Scenario Id	Test Objectives	Pre-condition	Test Steps	Test Data	Expected Outcome
1	S1	Search result should be displayed when keyword present in the page is entered	User Must be in Home Page	1. Input present keyword in page 2. press enter	search keyword:React	User should be in home page and all possible result should be displayed
2	S1	Check the System behaviour when keyword present in the page is entered	User Must be in Home Page	1. Input missing keyword in page 2. press enter	search keyword: Internet	User should be in home page and blank page should be displayed

Figure 11: Test Case(2)



Module/Epic:	**Contract**	
User Story:	W1	user should be able to see contract of each specific rental room ,contact owner then agree and payment
Test Scenario:	R1	They have to input the respective place name and personal information/signature in contract
	R2	They have can message Owner
	R3	Redirect to payment page (esewa home page)

Test Case Id	Scenario Id	Test Objectives	Pre-condition	Test Steps	Test Data	Expected Outcome
1	W1	Show contract option for each specific rental room should be displayed	User must be in rental room profile	1)Choose your ideal rentalroom 2)Click the show contract button	User name, Signature,Contact Number,	User Should be abel to see the contract
2	R1	Upload Option of Photo,Name,Signature,Number in Contract	User must open Contract	1)Upload Photo, Signature, Number	User name, Signature,Contact Number,	User Should be abel to upload all thier detail and Virtual signature
3	R2	Message Owner Option Button	User must be logged in	1)Choose your ideal rentalroom 2)Click the message owner button	User name, Signature,Contact Number,	User should be in messageing interface with owner
4	R3	Payment option for rental room	User must be logged in	1)agree contract 2) click payment option (cash on hand or online)	User name, Signature,Contact Number,e-banking id	User should be in online payment portal like esewa if choose online payment else user should be able to contact owner for cash in hand option

Figure 12: Test case(3)

Expected Outcomes

The development and implementation of the rental room finder is anticipated to yield several positive outcomes that will benefit both users and property owners. Firstly,The rental room finder aims to provide users with an easy and efficient platform for searching, comparing, and selecting rental rooms. Users can expect a streamlined and user-friendly interface that simplifies the entire process, ultimately saving time and reducing frustration.Second,The platform will offer a up-to-date database of rental rooms, providing users with a wide range of options to choose from with their preferences, budget, and location requirements.Third, Its provide communication features that enable interactions between users and property owners.Fourth, By providing a comprehensive and easy-to-use platform, the project aims to contribute to cost savings for users and prevent expenses associated with traditional search methods. Overall ”Rental room finder” emphasizes user-centric design, enhanced transparency, efficient communication, and overall convenience. Through these outcomes, the project aims to make a tangible and positive impact on individuals’ experiences and interactions within the rental market.

References

[1] Amey Thakur, *International Journal for Research in Applied Science and Engineering Technology* , Car Rental System , Volume 9, Issue VII ,July 2021

[2] Henry Peter Gommans * , George Mwenda Njiru ** , Arphaxad Nguka Owange *Rental House Management System*, Volume 4, Issue 11, November 2014

[3] Autos.com, *https://www.autos.com/car-rentals/new-car-rental-advantages-and-disadvantages-of-renting-a-new-car*, 17 October,2017

[4] Jacob Nel, *https://www.quora.com/What-are-the-benefits-of-using-room-rental-software-for-your-business*, 10 February,2021

[5] Junaid Ahmed Kirmani * , Aasif Yousuf ** , Shahid Mohiudin Bhat *** *Junaid Ahmed Kirmani et al, International Journal of Computer Science and Mobile Computing*, Vol.6 Issue.7, July- 2017

[6] IEEE, *Proceedings Fourth International Enterprise Distributed Objects Computing Conference. EDOC2000*, 06 August 2002