**A Project report on**

### Online Rental Home System

##### A Dissertation submitted to JNTU Hyderabad in partial fulfillment of the academic requirements for the award of the degree.

**Bachelor of Technology**

**in**

**Computer Science and Engineering**

Submitted by

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(An Autonomous Institution under UGC &JNTUH, Approved by AICTE, Permanently Affiliated to JNTUH, Accredited by NBA.)

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**CMR COLLEGE OF ENGINEERING & TECHNOLOGY**

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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**



### CERTIFICATE

This is to certify that the Mini Project-2 report entitled **"ONLINE RENTAL HOME SYSTEM"** being submitted by Ganendhar Gurijala (19H51A05K3), Ranga Satya Raj(19H51A0522),Ranabotu Rakshith Reddy (19H51A0521) in partial fulfillment for the award of **Bachelor of Technology** in **Computer Science and Engineering** is a record of bonafide work carried out his/her under my guidance and supervision.

##### The results embody in this project report have not been submitted to any other University or Institute for the award of any Degree.

**Dr. Poongodai Dr.S Siva Skandha**

**Associate Professor Associate Professor and HOD**

**Dept. of CSE Dept. of CSE**

##### Submitted for viva voice Examination held on

**External Examiner**

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**DECLARATION**

We hereby declare that results embodied in this Report of Project on “ONLINE RENTAL HOME SYSTEM” are from the work carried out by using partial fulfillment of the requirements for the award of B. Tech degree. We have not submitted this report to any other university/institute for the award of any other degree.

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**ABSTRACT**

In big cities like Hyderabad, Mumbai finding a rent house is a tedious and hectic task. It is even more troublesome if the person looking for a rent house is new to the city. The best way to solve this problem is by providing a platform where the user can find all the rental houses available in a particular locality and chose the best from the available according to his/her necessities. The main idea is to create a website where both the tenant and the owner can benefit. This website would help the tenant to filter houses based on costs, location, and many other factors. The owners can also benefit as advertising attracts lots of customers they can find their best deal. There are three types of users. One is the admin who controls the website. The Second user is someone who is in search of a rent house, and the third user is the person who owns the rent house. This website allows users to filter houses based on location, cost, etc. It also provides features like paying monthly rents, views the tenant details, and sends complaints to the owner regarding any issues, Adding houses to wishlists. If the user wants to vacate the house then he/she has an option to choose the date he/she is going to vacate so that website starts advertising the house and also the date the house will be vacant again so that other users can check in allowing the owners to no longer worry about finding tenants.

# CHAPTER 1

## INTRODUCTION

##### CHAPTER 1 INTRODUCTION

###### INTRODUCTION

Today, some 55% of the world’s population – 4.2 billion inhabitants – live in cities. This trend is expected to continue. By 2050, with the urban population more than doubling its current size, nearly 7 of 10 people in the world will live in cities.With more than 80% of global GDP generated in cities, urbanization can contribute to sustainable growth if managed well by increasing productivity, allowing innovation and new ideas to emerge. Global megatrends are re- shaping the world economic order. From urbanisation, to the rise of the global middle classes, ageing population and technological trends, these changes all pose major implications for the built environment and demand for housing in the short- and long-term. According to the latest projections by the United Nations, the world’s population is expected to grow by 2.9 billion in the next 33 years and potentially another three billion by the end of the century. At the same time, the move towards cities is expected to continue, driven by economic, climate change and conflict motivations, as a result of which, 80–90% of people are expected to live in cities by 2100 (United Nations 2017).As population growth and urbanisation continue, cities are faced with a number of challenges such as air pollution, congestion, social issues and pressure on housing markets. The pressure on housing markets can be analysed from different perspectives. Looking at the issue from a financial market perspective, the issue of financial market stability is a key element. However, when addressing the issue from a social and economic perspective, the focus lies more on risks like affordability, city competitiveness and social segregation.Consequently, cities are increasingly popular as locations to live, work, play and invest. Cities have become magnets for economic, cultural and social activities. They now attract not only a new generation of city dwellers, and a previously suburban generation that rediscovered the appeal of city living and urban lifestyle, but also businesses and institutional investors that are focusing exclusively on urban areas. Impacted by the rise of the sharing economy, and a demand for greater flexibility, in many cities the proportion of residents who prefer to rent rather than buy their homes is rising.

At the same time, urban demographics are rapidly changing. In 2015, the International Organization of Migration (IOM) recorded in excess of one million arrivals in Europe, with migrants arriving from more than 100 countries (McKinsey Global Institute [2016](https://link.springer.com/chapter/10.1007/978-3-030-11674-3_1#CR6)). Many of these people settle in cities. In Europe, 25% of the population is already aged 60 years or over and that proportion is projected to reach 35% in 2050 and 36% in 2100 (United Nations [2017](https://link.springer.com/chapter/10.1007/978-3-030-11674-3_1#CR11)). As a result of this, we now have many different generations living in cities. While previously, families tended to move out when children came, more and more are staying in the city, with older people also remaining in, or returning to cities when they retire.One of the consequences of the growing popularity of cities, particularly in large, global cities, has been a strong increase in demand for housing. As shown in Fig. [1.1](https://link.springer.com/chapter/10.1007/978-3-030-11674-3_1#Fig1), during the financial crisis of the late 2000s, in many cities, especially in the Netherlands, the housing market came to a complete standstill.

The resulting mismatch between supply and demand intensified due to inflows of people in cities and rapidly changing demands. When construction resumed, it could not pick up quickly enough to satisfy the demand for housing. As a result, house prices and the overall cost of living in many cities have increased quickly. This has not only led to financial market risks, but also to a housing affordability crisis that drives both lower skilled workers and talented young professionals out of major cities.

* 1. **OBJECTIVE**

In major cities, finding a rental house is a hectic task. The main objective of our project is to provide a platform where users can search for rental houses online and find their ideal house effortlessly. Similarly, House owners can rent their houses through Online Rental Home System without compromising the profit and the security, as the user gets verified by the owners before finalizing their ideal choice. In short, it's a win-win solution.

# CHAPTER 2

## BACKGROUND WORK

### CHAPTER 2 BACKGROUND WORK

#### 2.1 LITERATURE SURVEY:

India has been witnessing rapid urbanization in the last 15 years. According to estimates every minute 30 people migrate from rural to urban India. In 2011, 30% of India’s population lived in urban areas. By 2030, this percentage is expected to go up to 40% and the number of people living in India’s cities is expected to reach a whopping 630 million.

This pace of urbanization poses a challenge to the urban local bodies and to governments across various facets such as housing, demand on energy utilities, climate impact, security & crime rates, public health systems etc. Of all of these, adequate and decent housing for everyone remains the foremost requirement.

###### Housing Policies – Ownership versus Rental

Through the years, the Government of India has been providing many schemes which provide sustenance-level facilities to the Economically Weaker Section (EWS)/Low Income Group (LIG) population.

To solve the housing shortage, several schemes have been in place at different points in time. While these policies have had their share of successes there have been several challenges as well. The latest housing policy, the Pradhan MantriAwasYojana – Urban (PMAY-U) was launched in 2015. The scheme aims to provide a pucca house with basic amenities such as electricity, water, and sanitation to all eligible urban households by 2022. The scheme has an estimated demand of

1.12 crore houses. As per the Ministry of Housing and Urban Affairs’ dashboard, 45 lakh houses have been completed as of date.

While most of the historical housing policies as well as PMAY(U) have largely been targeting home ownership, the government has come to the realization that even with all the incentives provided, most of the urban poor cannot afford to buy a house. Affordability is not just the upfront cost of buying a house or availing a loan. Affordability must be measured by the operational expenses of living in that home, travel expenses of commuting to work, and the cost of accessing other social infrastructure such as hospitals and schools.

Globally, many countries have recognized that home ownership at the unskilled/semi-skilled level is not the ideal solution to their housing troubles. It is important to develop a vibrant rental market for the following reasons –

1. Home ownership leads to urban sprawl. Most workers purchase a home which is situated in the outskirts of the city due to the unaffordability of real estate in the core urban areas of any city. However, avenues for employment are almost always situated in the core urban areas. Working far away from home adds significant cost and time for the workforce, not to mention the added congestion on the public transportation system. A well-developed rental ecosystem can address this issue by allowing workers to rent houses near their workplace, thereby, increasing efficiency and productivity
2. Rental markets improve worker mobility. In the case of the blue-collar workforce, employment opportunities can keep shifting across localities within a city or even between cities. It is much simpler to move between rental homes than from an own house, which serves as a tether to one micro-market.
3. Rental houses can provide shelter to those families which cannot afford to purchase a home as their income level may not be sufficient to make a down-payment or to pay monthly installments. Most of the unskilled/semi-skilled workforce also works in the ‘informal’ economy or are thinly banked and might not be able to show sufficient formal records to avail a loan. Developing a well-functioning affordable rental housing is a highly feasible solution to the urban housing crisis.

###### IDENTIFIED PROBLEMS

* + - Websites like NoBroker.com, 99acres.com are some of the existing solutions that provide services like renting, selling properties, purchasing properties, packages and movers, and many more.
    - However, they are not domain specific i.e. they do not focus only on the rental but also on other services. There is no such website that completely focuses on the rental problem that is increasing significantly in major cities.
    - Apart from websites, the traditional way of providing renting services is through brokers. Hence, high charges are imposed on both rent owners as well as tenants.

# CHAPTER 3

## PROPOSED SYSTEM

### CHAPTER 3 PROPOSED SYSTEM

#### OVERVIEW

To overcome the drawbacks of the existing solutions, we have proposed a web application. Through this application people who are searching for rental houses can find their ideal one effortlessly. Also, the house owners can also gain profit as they are indirectly promoting or marketing their houses through the web application(Online Rental Home System); which in turn increases the demand for the house and can finally sell it to their interested buyers.

Online Rental Home System stands out from other existing platforms because it is domain-specific. i.e. it only focuses on the problem of the rental house that has been emerging and increasing significantly day by day in the urban cities.

Online Rental Home System provides a simple yet elegant user interface that makes it easy to use for the users. Admin can also handle the user data as well as the rental services data easily. Online Rental Home System is a secure platform that authenticates the users as well as the owners. In order to book a rental house or to provide rental home services, the user has to be verified.

The users are verified by authenticating their registered email ids. Only valid users can book or provide services. This application also enables the user to filter out the houses based on various factors like price range, infrastructure, location, type of houses, etc.

The users who provide rental home services can view the details of the interested buyers and can accept his/her request. The users who are in search of rental houses can also view the details of the rental providers. Users can also pay their monthly rents through Online Rental Home System. The payment gateway used for this web application is razor pay. Another feature that makes Online Rental Home System unique is that the data that is displayed is dynamic in nature, the information provided is user-specific making it different for different users.

#### TECHNOLOGIES USED:

###### HTML:

The Hyper Text Markup Language, or HTML is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets(CSS) and scripting languages such as JavaScript.Web browsers receive HTML documents from a web server or from local storage and renderthe documents into multimedia web pages. HTML describes the structure of a web pagesemantically and originally included cues for the appearance of the document.HTML elements are the building blocks of HTML pages. With HTML constructs, imagesand other objects such as interactive forms may be embedded into the rendered page. HTML provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items. HTML elements are delineated by *tags*, written using angle brackets. Tags such

as and directly introduce content into the page. Other tags such

<input />

<img />

as surround and provide information about document text and may include other tags as

<p>

sub-elements. Browsers do not display the HTML tags, but use them to interpret the content of the page.HTML can embed programs written in a scripting language such as JavaScript, which affects the behavior and content of web pages. Inclusion of CSS defines the look and layout of content. The World Wide Web Consortium (W3C), former maintainer of the HTML and current maintainer of the CSS standards, has encouraged the use of CSS over explicit presentational HTML since 1997.



**CSS:**

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript.CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple web pages to share formatting by specifying the relevant CSS in a separate .css file which reduces complexity and repetition in the structural content as well as enabling the .css file to be cached to improve the page load speed between the pages that share the file and its formatting.Separation of formatting and content also makes it feasible to present the same markup page in different styles for different rendering methods, such as on-screen, in print, by voice (via speech-based browser or screen reader), and on Braille-based tactile devices. CSS also has rules for alternate formatting if the content is accessed on a mobile device.The name *cascading* comes from the specified priority scheme to determine which style rule applies if more than one rule matches a particular element. This cascading priority scheme is predictable.The CSS specifications are maintained by the World Wide Web Consortium (W3C).

Internet media type (MIME type) is registered for use with CSS by RFC 2318 (March

text/css

1998). The W3C operates a free CSS validation service for CSS documents.In addition to HTML, other markup languages support the use of CSS including XHTML, plain XML, SVG, and XUL

###### BOOTSTRAP:

It is an open-source and free CSS framework, which helps in directing a responsive device- friendly mobile-first front-end web page development tool. Bootstrap includes the CSS (Cascading Style Sheets), and an optional JavaScript supported design template (plug-ins) that deals with typography, implementation of buttons, forms, and various other components user interface. This framework helps in faster web development and supports developers in creating responsive web pages faster.



Benefits of Bootstrap:

* It produces less cross-browser bugs.
* It is a consistent framework supported by all the browsers plus CSS based compatibility fixes.
* It is a lightweight and hence widely used framework for creating responsive sites.
* Looks, structure, and styles can be customized as per requirement.
* A simple and effective grid system.

#### JAVASCRIPT

JavaScript (often shortened to JS) is a lightweight, interpreted, object-oriented language with first- class functions, and is best known as the scripting language for Web pages, but it's used in many non-browser environments as well. It is a prototype-based, multi-paradigm scripting language that is dynamic, and supports object-oriented, imperative, and functional programming styles.JavaScript runs on the client side of the web, which can be used to design / program how the web pages behave on the occurrence of an event. JavaScript is an easy to learn and also powerful scripting language, widely used for controlling web page behavior.Contrary to popular misconception, JavaScript is not "Interpreted Java". In a nutshell, JavaScript is a dynamic scripting language supporting prototype based object construction. The basic syntax is intentionally similar to both Java and C++ to reduce the number of new concepts required to learn the language. Language constructs, such as if statements, for and while loops, and switch and try ... catch blocks function the same as in these languages (or nearly so).JavaScript can function as both a procedural and an object oriented language. Objects are created programmatically in JavaScript, by attaching methods and properties to otherwise empty objects at run time, as opposed to the syntactic class definitions common in compiled languages like C++ and Java. Once an object has been constructed it can be used as a blueprint (or prototype) for creating similar objects.

JavaScript's dynamic capabilities include runtime object construction, variable parameter lists, function variables, dynamic script creation (via [eval](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/eval)), object introspection (via for ... in), and source code recovery (JavaScript programs can decompile function bodies back into their source text.



#### NODEJS

Node.js is a server-side platform built on Google Chrome's JavaScript Engine (V8 Engine). Node.js was developed by Ryan Dahl in 2009 and its latest version is v0.10.36. Node.js is an open source, cross-platform runtime environment for developing server-side and networking applications. Node.js applications are written in JavaScript, and can be run within the Node.js runtime on OS X, Microsoft Windows, and Linux.Node.js also provides a rich library of various JavaScript modules which simplifies the development of web applications using Node.js to a great extent.Node.js = Runtime Environment + JavaScript LibraryFollowing are some of the important features that make Node.js the first choice of software architects.

* Asynchronous and Event Driven − All APIs of Node.js library are asynchronous, that is, non-blocking. It essentially means a Node.js based server never waits for an API to return data. The server moves to the next API after calling it and a notification mechanism of Events of Node.js helps the server to get a response from the previous API call.
* Very Fast − Being built on Google Chrome's V8 JavaScript Engine, Node.js library is very fast in code execution.
* Single Threaded but Highly Scalable − Node.js uses a single threaded model with event looping. Event mechanism helps the server to respond in a non-blocking way and makes the server highly scalable as opposed to traditional servers which create limited threads to handle requests. Node.js uses a single threaded program and the same program can provide service to a much larger number of requests than traditional servers like Apache HTTP Server.
* No Buffering − Node.js applications never buffer any data. These applications simply output the data in chunks

#### EXPRESS JS

Express is a minimal and flexible Node.js web application framework that provides a robust set of features to develop web and mobile applications. It facilitates the rapid development of Node based Web applications. Following are some of the core features of Express framework −

* + Allows setting up middlewares to respond to HTTP Requests.
  + Defines a routing table which is used to perform different actions based on HTTP Method and URL.
  + Allows to dynamically render HTML Pages based on passing arguments to templates.

#### MONGODB

MongoDB is an open source NoSQL database management program. NoSQL is used as an alternative to traditional relational databases. NoSQL databases are quite useful for working with large sets of distributed data. MongoDB is a tool that can manage document-oriented information, store or retrieve information. MongoDB supports various forms of data. It is one of the many nonrelational database technologies that arose in the mid-2000s under the NoSQL banner -- normally, for use in big data applications and other processing jobs involving data that doesn't fit well in a rigid relational model. Instead of using tables and rows as in relational databases, the MongoDB architecture is made up of collections and documents. Organizations can use Mongo DB for its ad-hoc queries, indexing, load balancing, aggregation, server-side JavaScript execution and other features.

#### PAYMENT GATEWAY

Razorpay is the one of the best payment solution in India that allows businesses to accept, process and disburse payments with its product suite. It gives you access to all payment modes including credit card, debit card, net banking, UPI and popular wallets including JioMoney, Mobikwik, Airtel Money, FreeCharge, Ola Money and PayZapp

Razorpay Manage your marketplace, automate NEFT/RTGS/IMPS bank transfers, collect recurring payments, share invoices with customers - all from a single platform.



# CHAPTER 4

## DESIGNING

22

### CHAPTER 4 DESIGNING

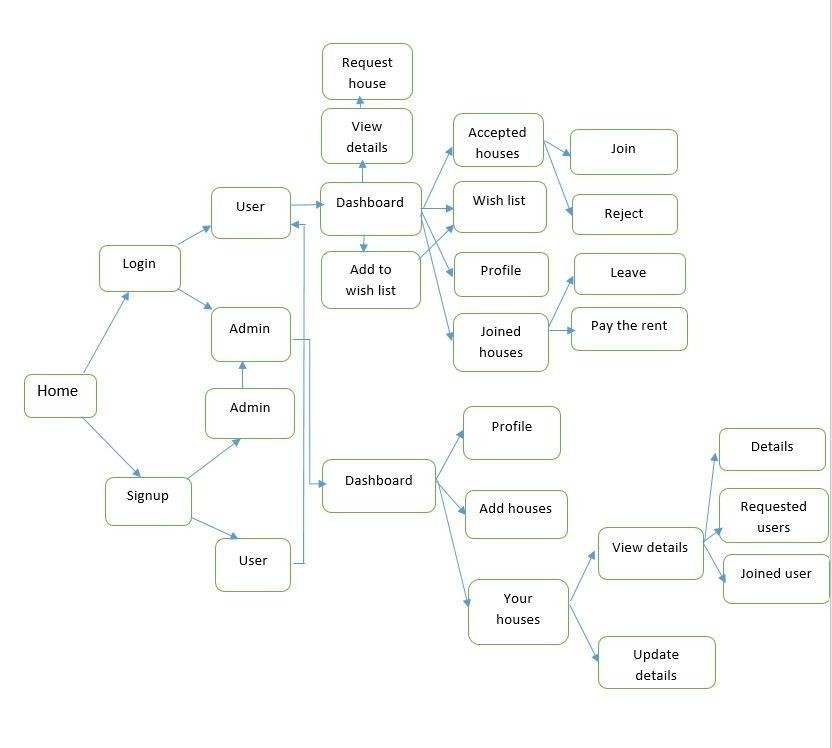
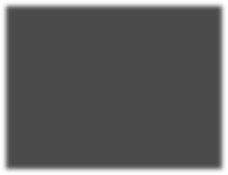


Fig 4.1.1 UML DIAGRAM OF ONLINE RENTAL HOME SYSTEM

This web application is designed for both admins as well as users. In Both case scenarios, they can log in through the login page if they have existing accounts or else can register for Online Rental Home System. Once the registration is done the user is then redirected to the login page and then to the dashboard page.

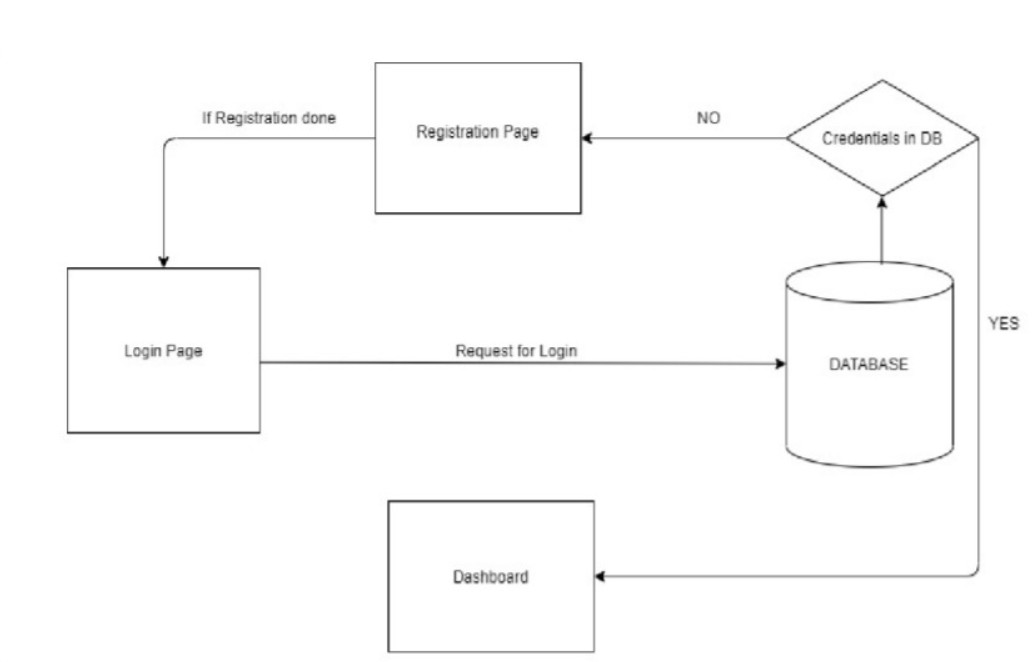
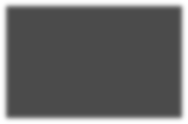


Fig 4.1.2 VALIDATION CHECK FOR LOGIN CREDENTIALS

The following is the Validation check process of the User login – Credentials. The values entered in the label are exported as JSON files. The JSON file is used to authenticate the user registered in the database that is linked with the Online Rental Home System Web Application.

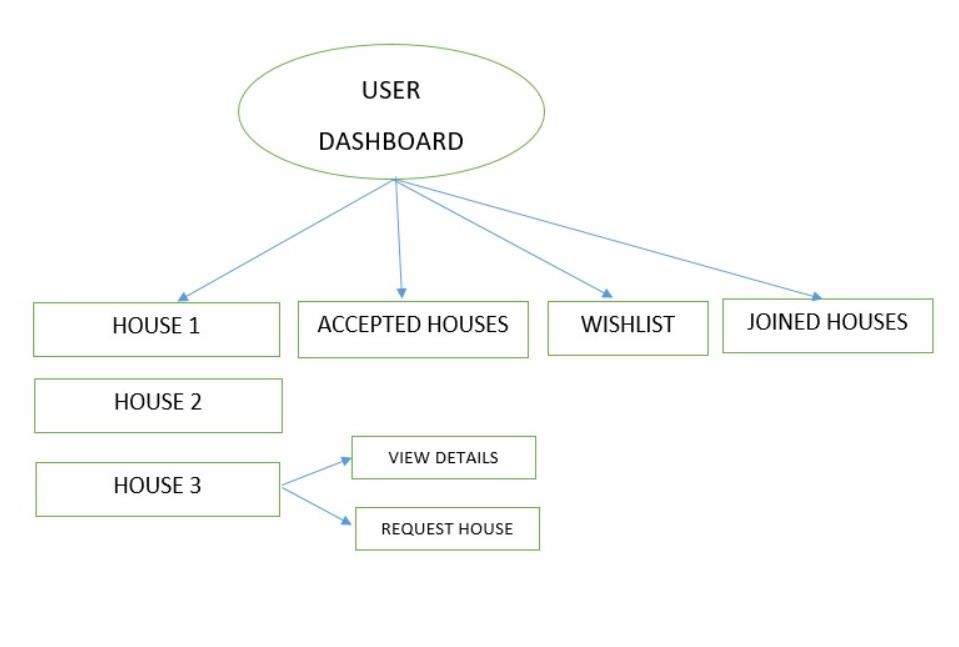
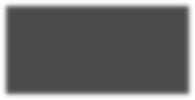


Fig 4.1.3 UML DIAGRAM FOR USER DASHBOARD

The dashboard page of the user displays all the houses that are available for rent. User can find their ideal one by filtering out various options that are available on the dashboard page. Users can view houses that are available in the dashboard, send a request for rental providers, and also add their ideal choices to wishlists. If the admin accepts the user requests then the user is further moved to accepted houses. Users can either reject or approve the house. If it is accepted then the user is further moved to joined houses. user can now pay his/her monthly rents through the pay rent option or he/she can leave the house if they want to vacate the house.

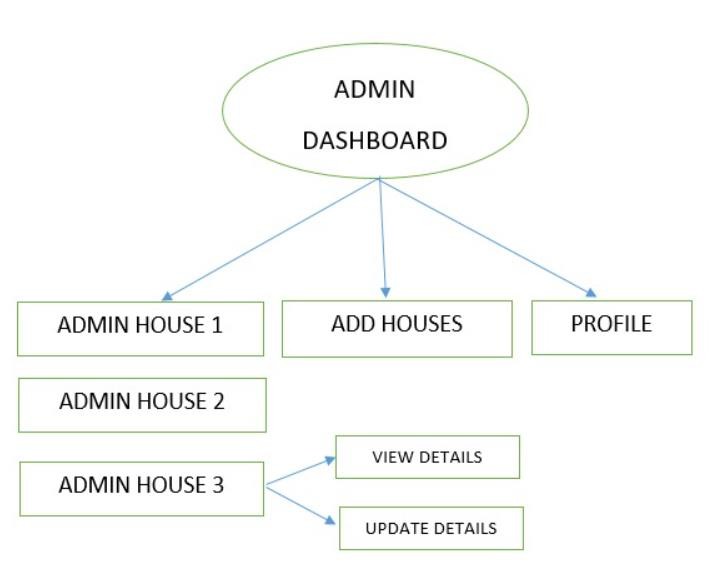
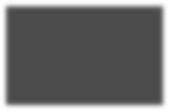


Fig 4.1.4 UML DIAGRAM FOR ADMIN DASHBOARD

The dashboard page of the admin displays all the houses that are related to the admin. The admin can also view the details of the house, requests received for a particular house. Admin can either accept or reject the house requests, if he/she accepts the user then that particular user is further moved to accepted houses and after the payment, the user is shown in the admin current user tab

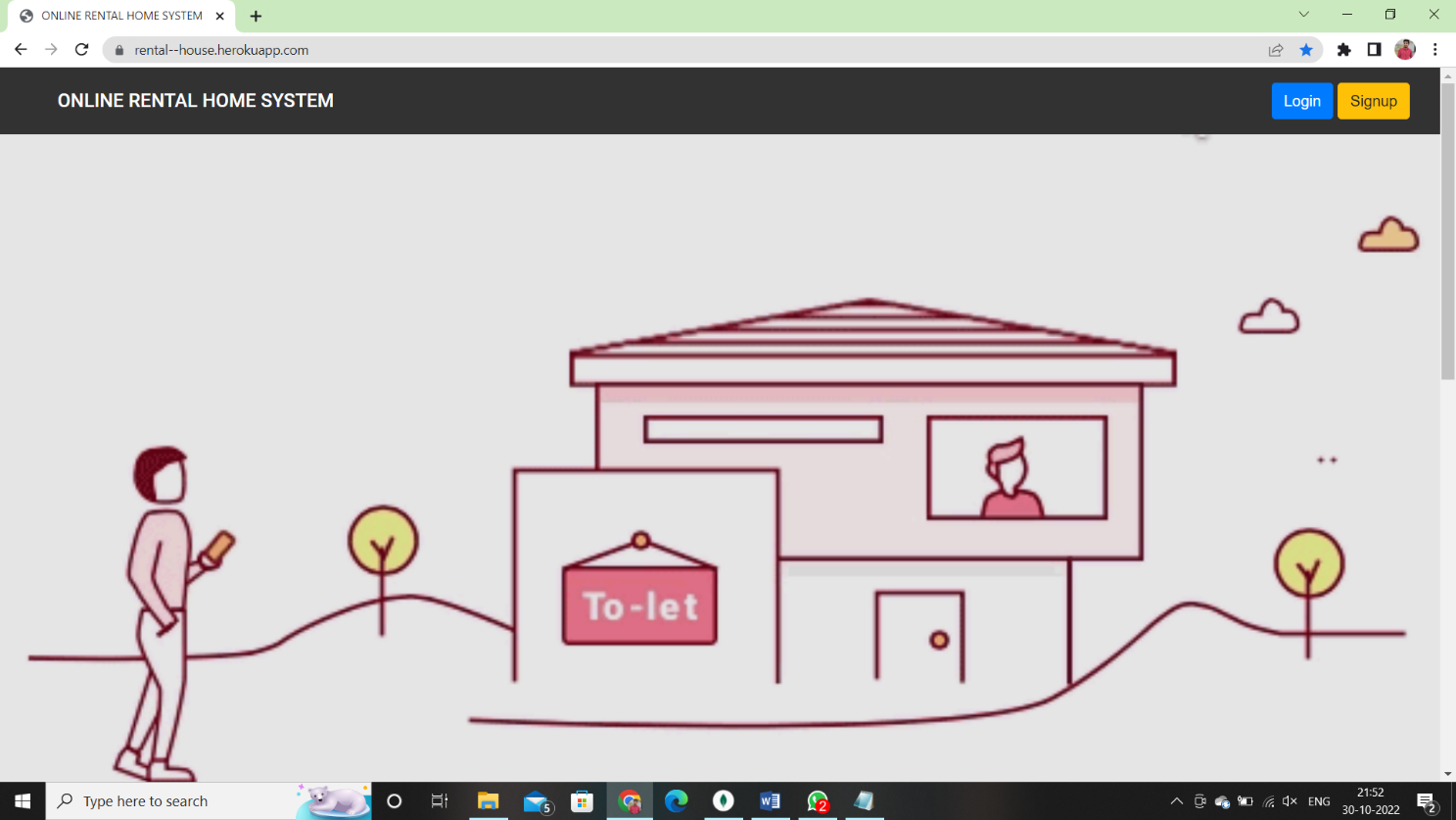
# CHAPTER 5

## RESULT

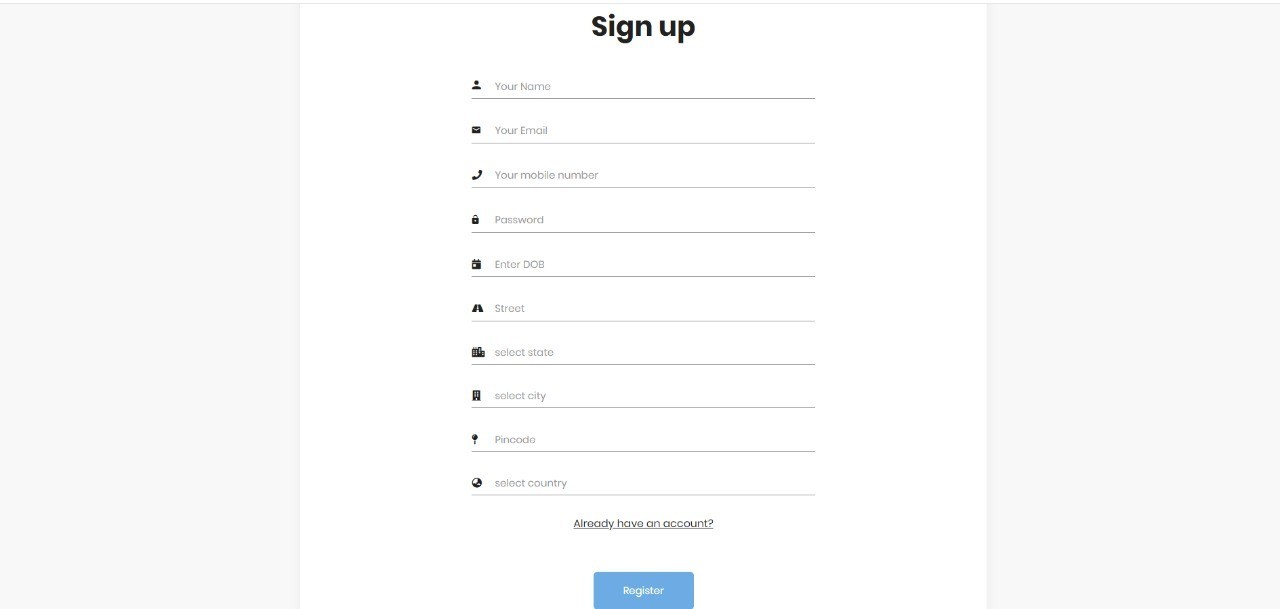
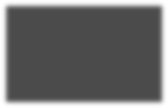


### CHAPTER 5 RESULT

###### HOME PAGE (FIG 5.1.1)

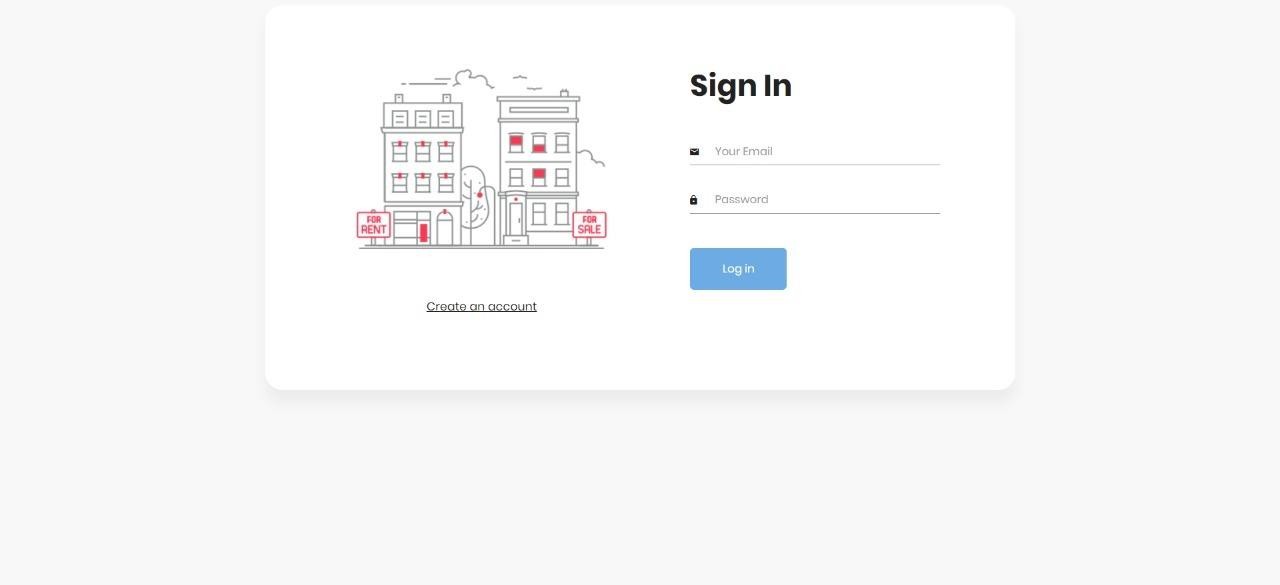
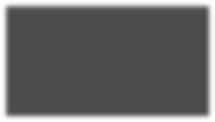
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**SIGNUP PAGE (FIG 5.1.2)**

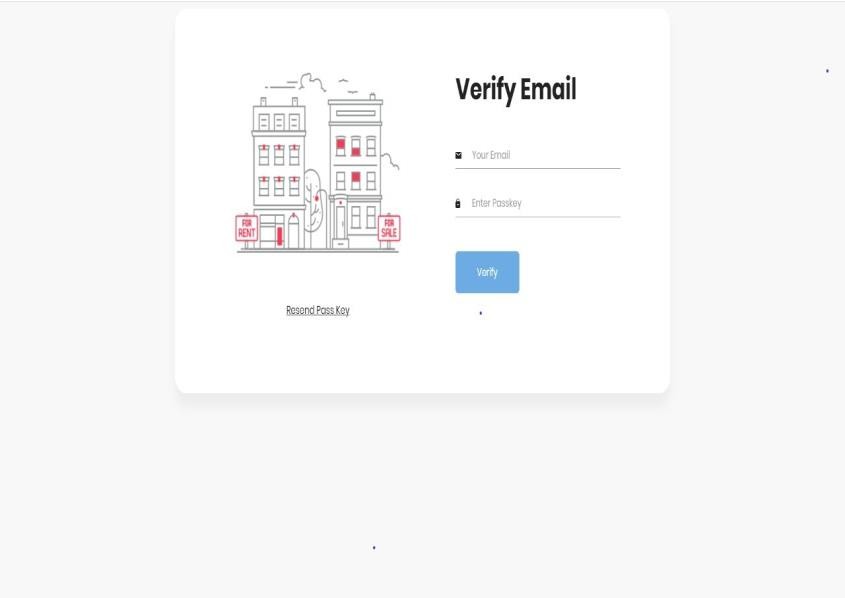
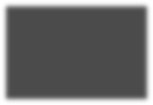




###### SIGNIN PAGE(FIG 5.1.3)

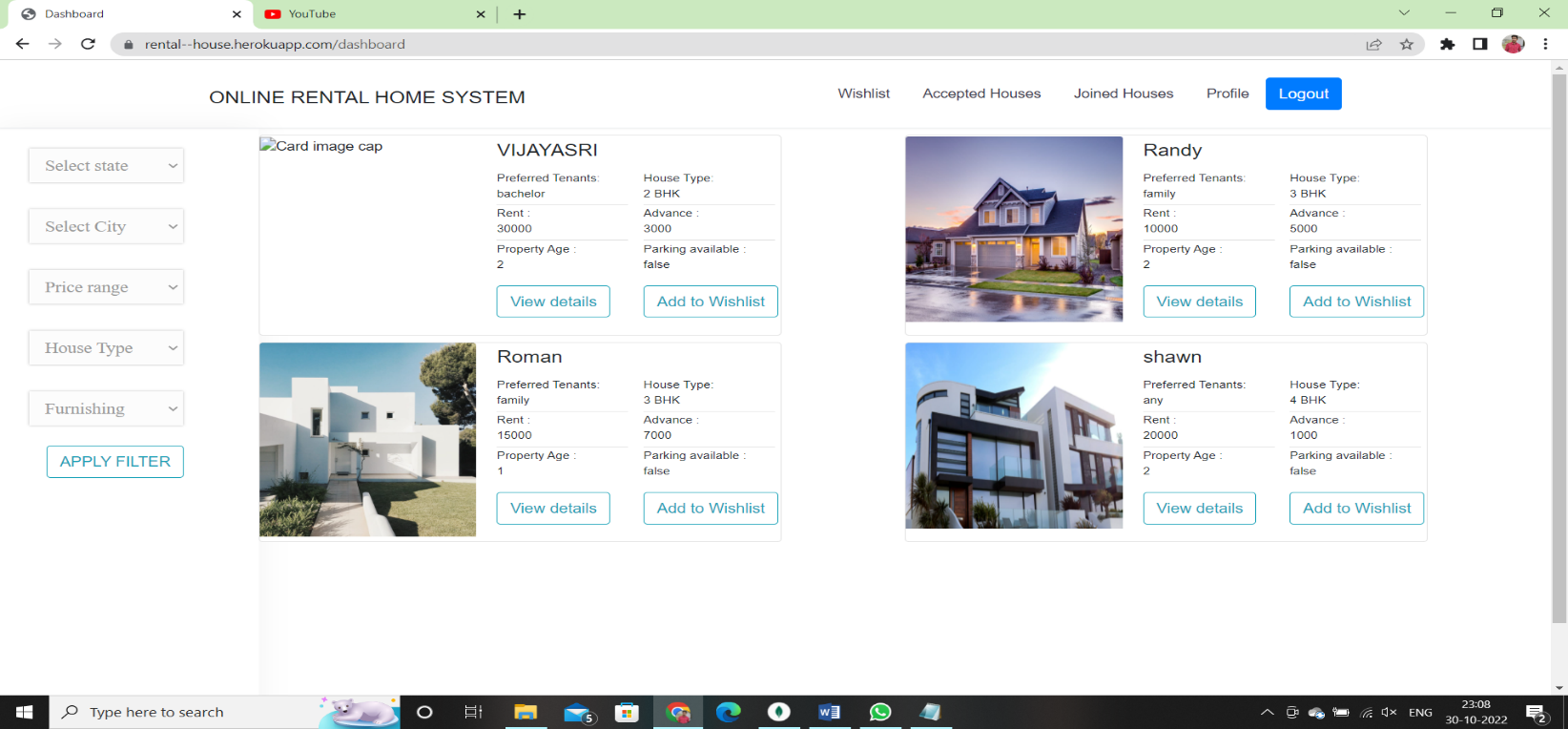


**VERIFY EMAIL PAGE(FIG 5.1.4)**

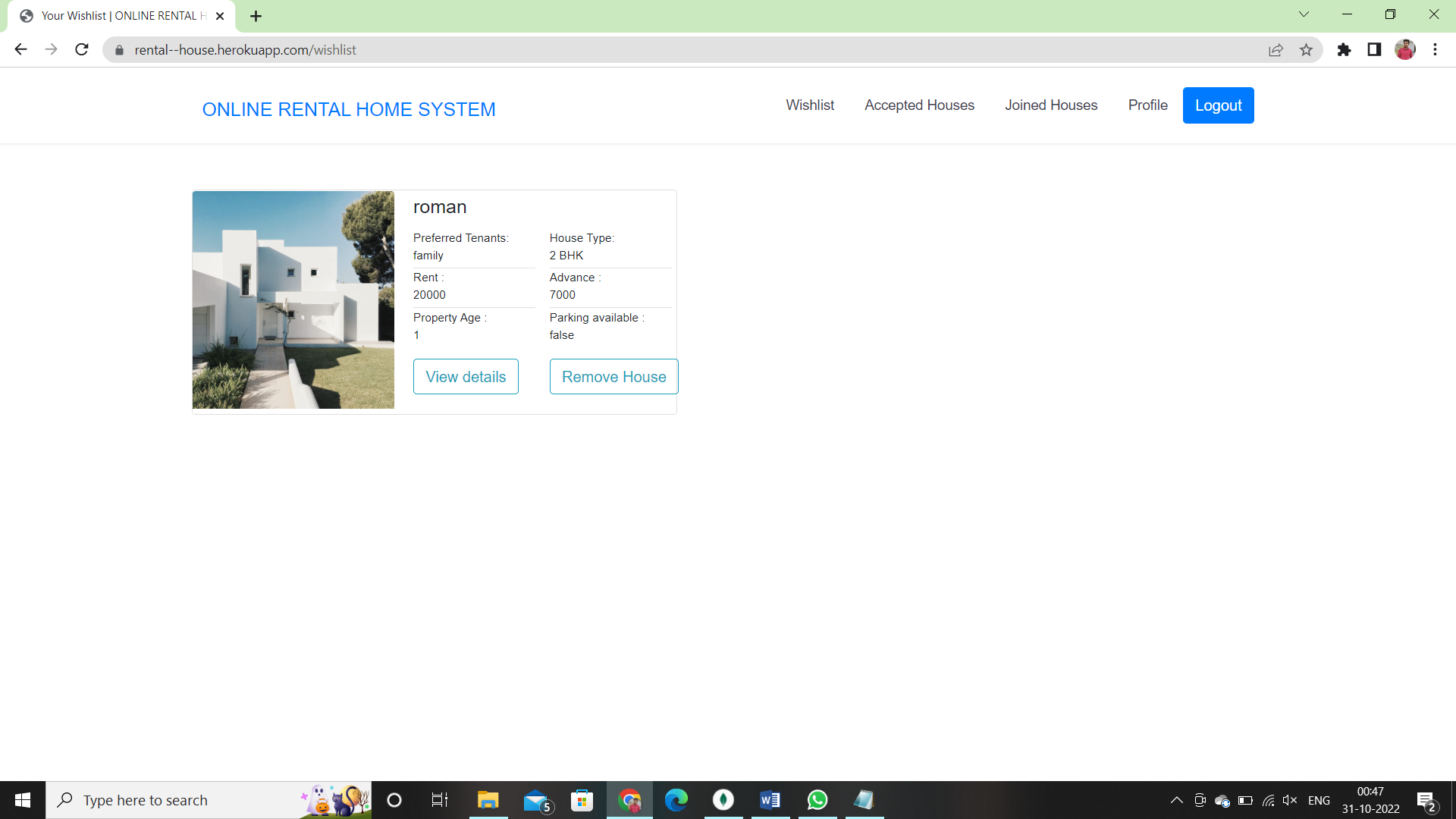




###### USER DASHBOARD PAGE(FIG 5.1.5)

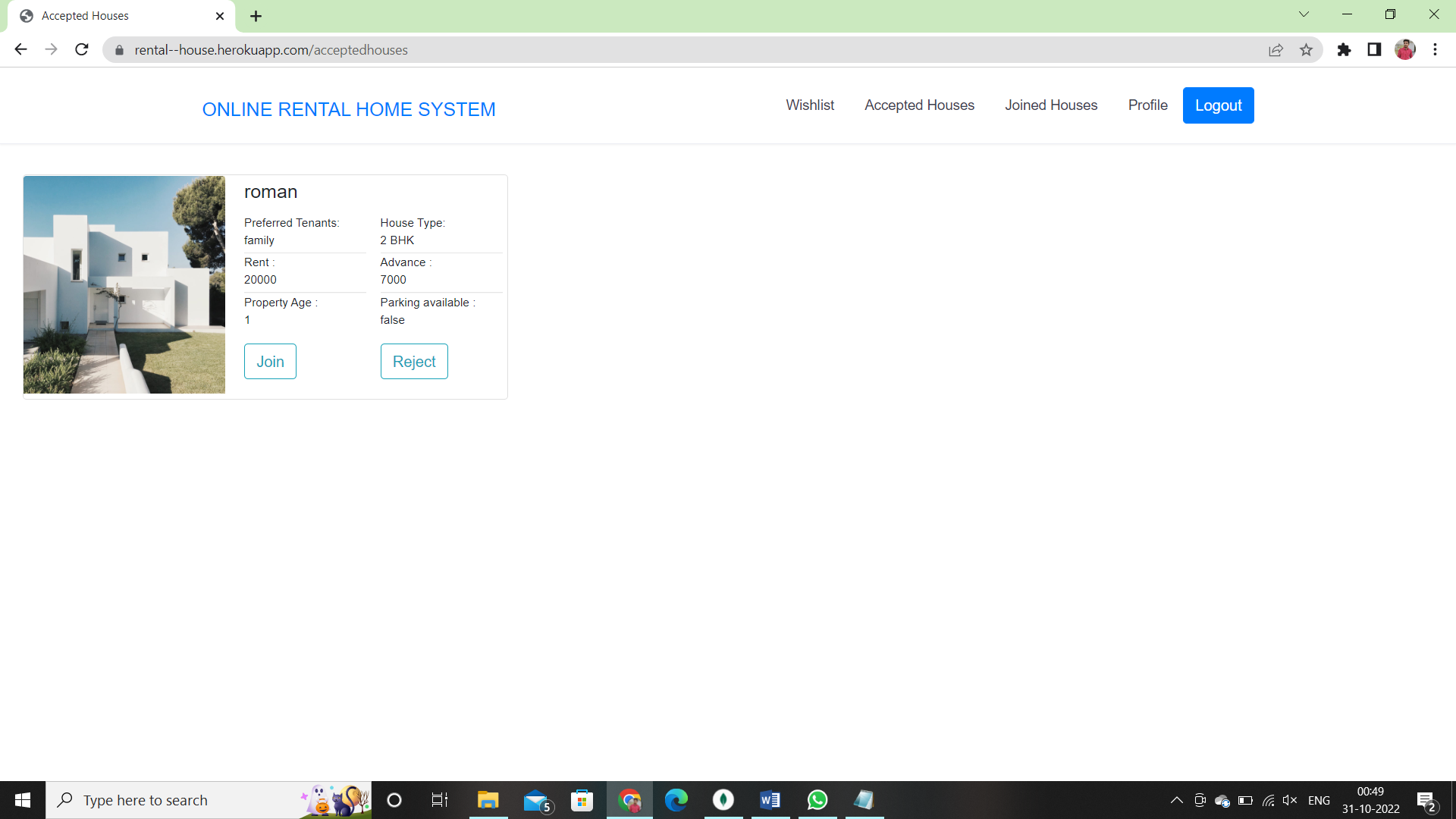
****

**WISHLIST PAGE(FIG 5.1.6)**

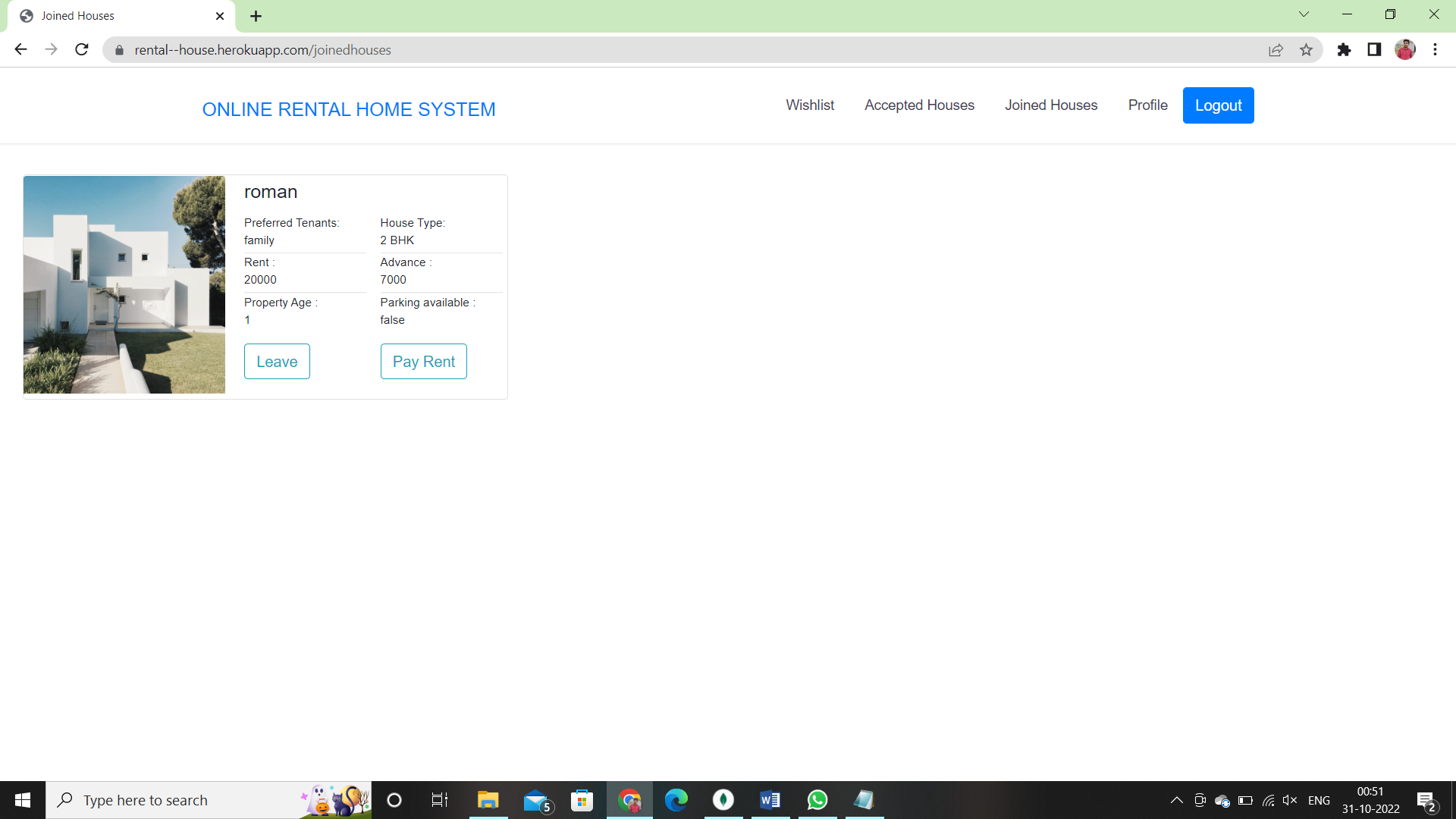
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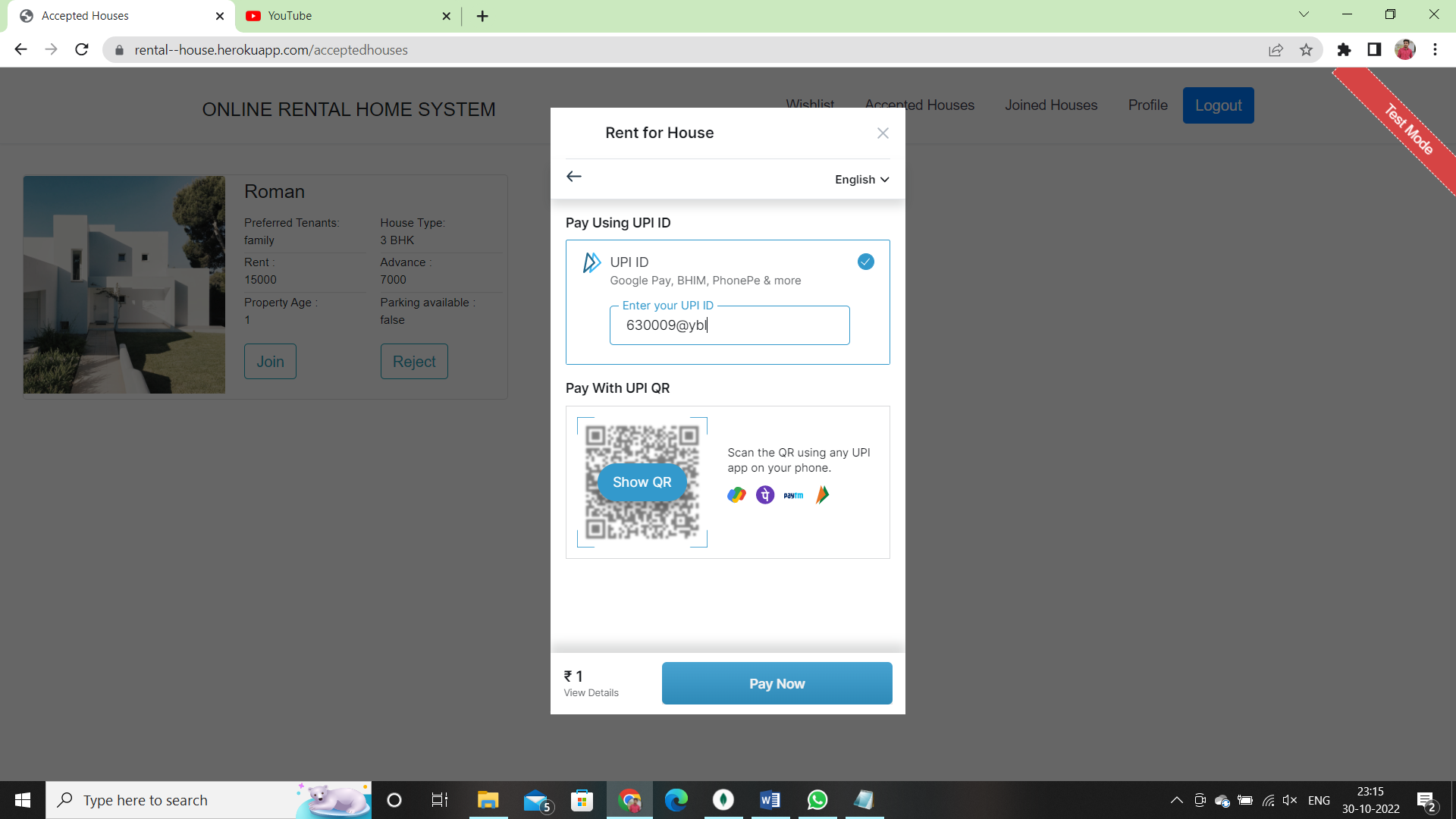
###### ACCEPTED HOUSES PAGE(FIG 5.1.7)

****

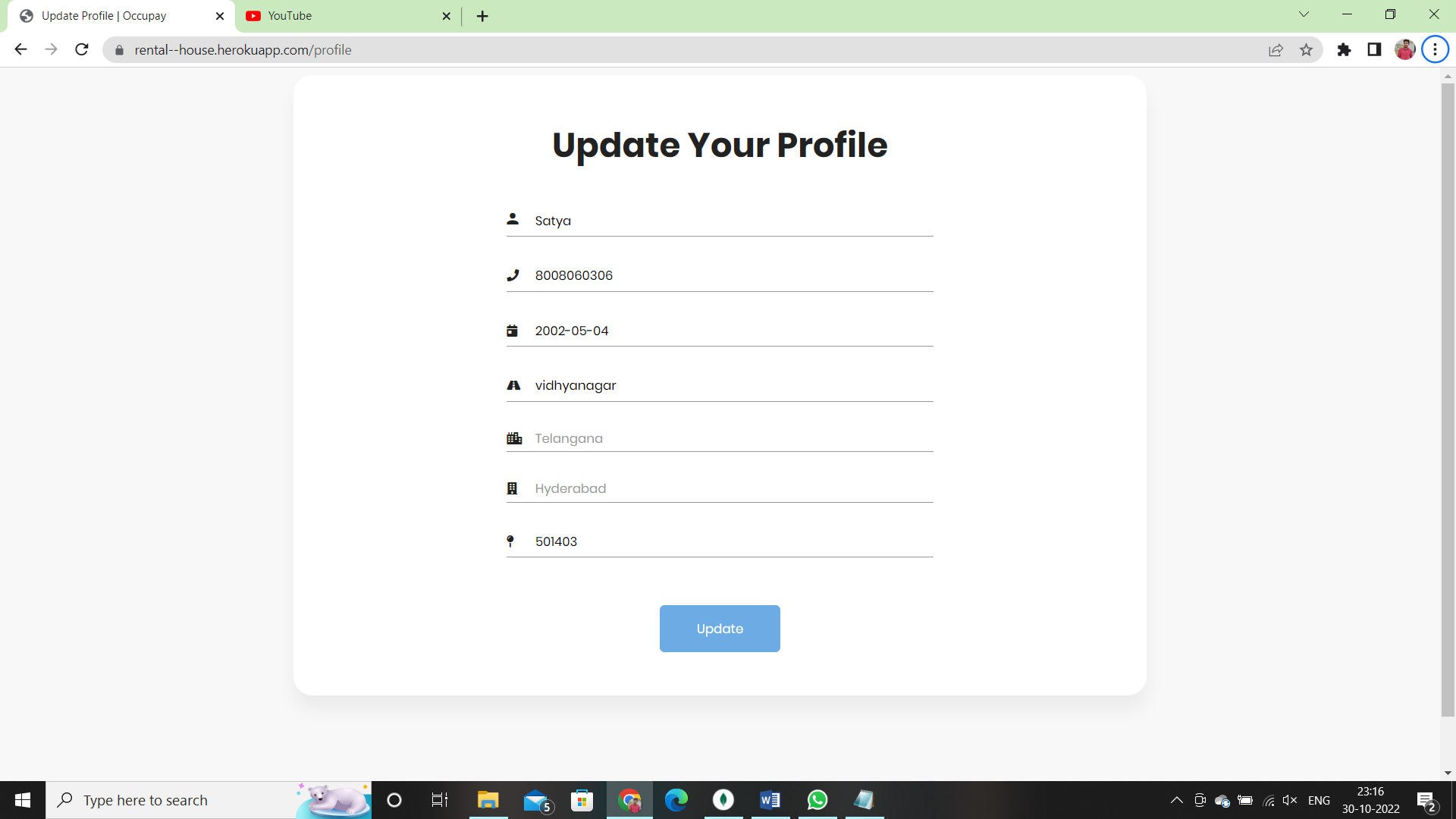
**JOINED HOUSES PAGE(FIG 5.1.8)**

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###### PAYMENT GATEWAY(FIG 5.1.9)

****

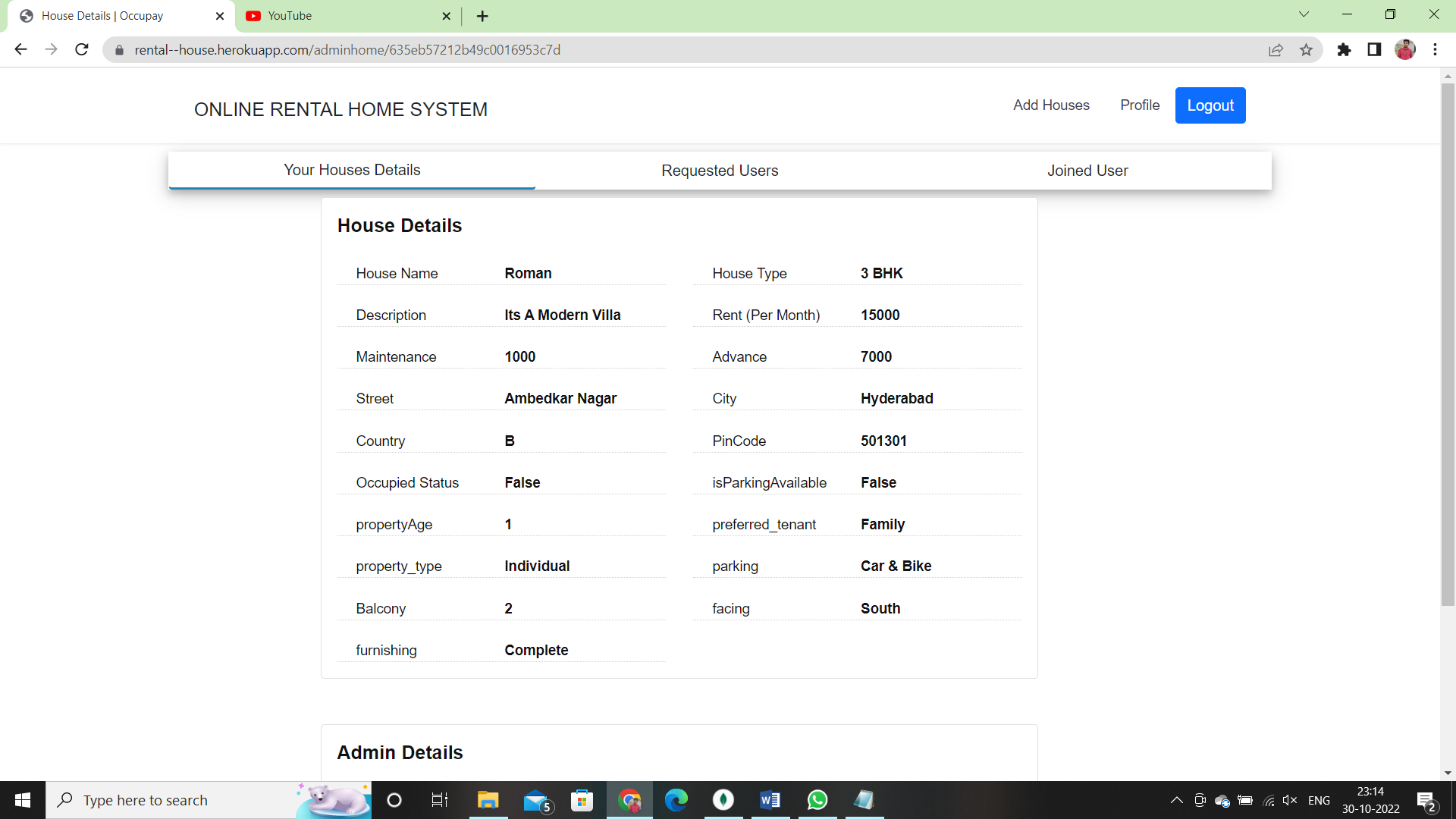
**UPDATEPROFILE PAGE(FIG 5.1.10)**

****

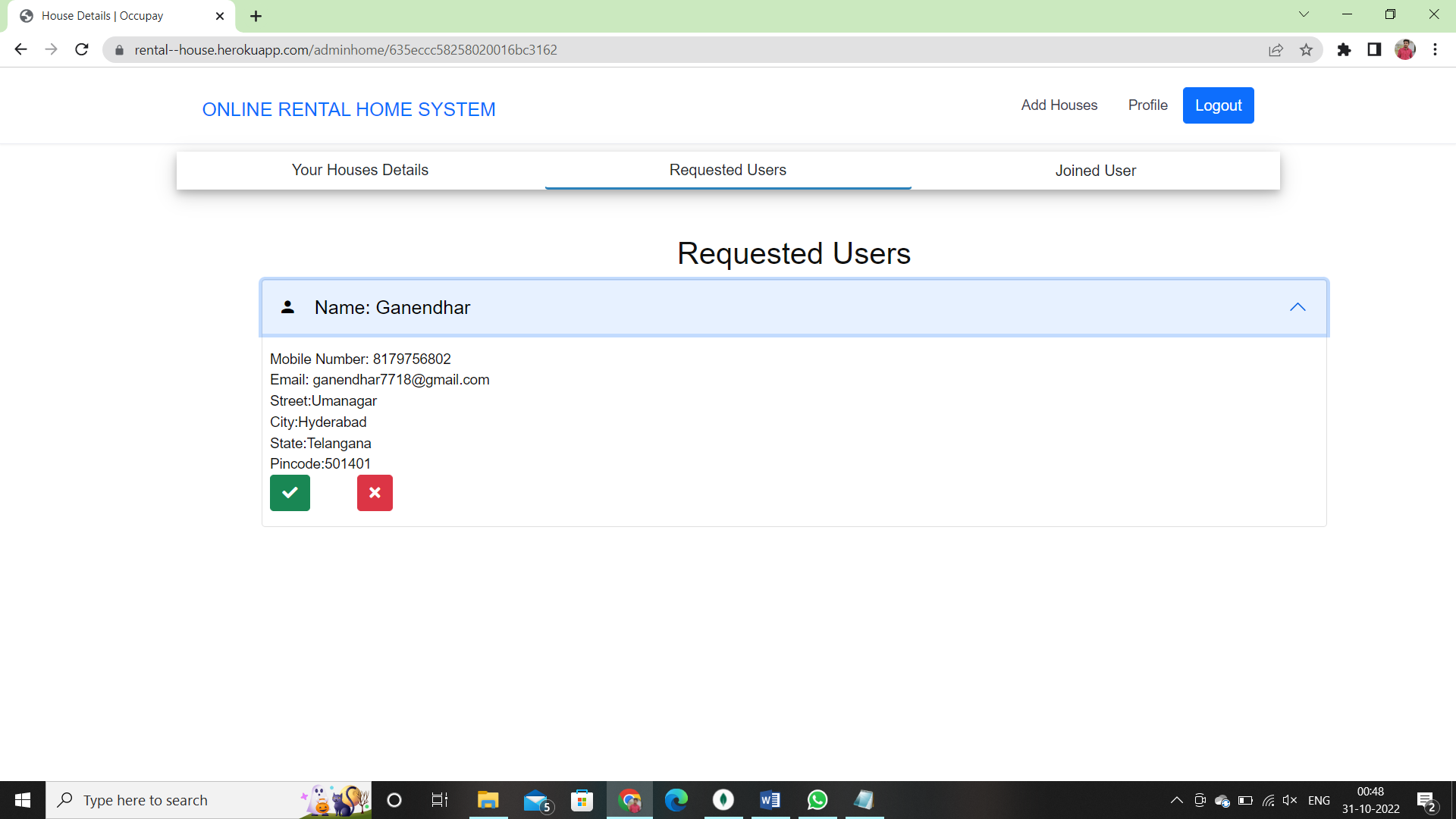
###### ADMIN DASHBOARD PAGE(FIG 5.1.11)

###### 

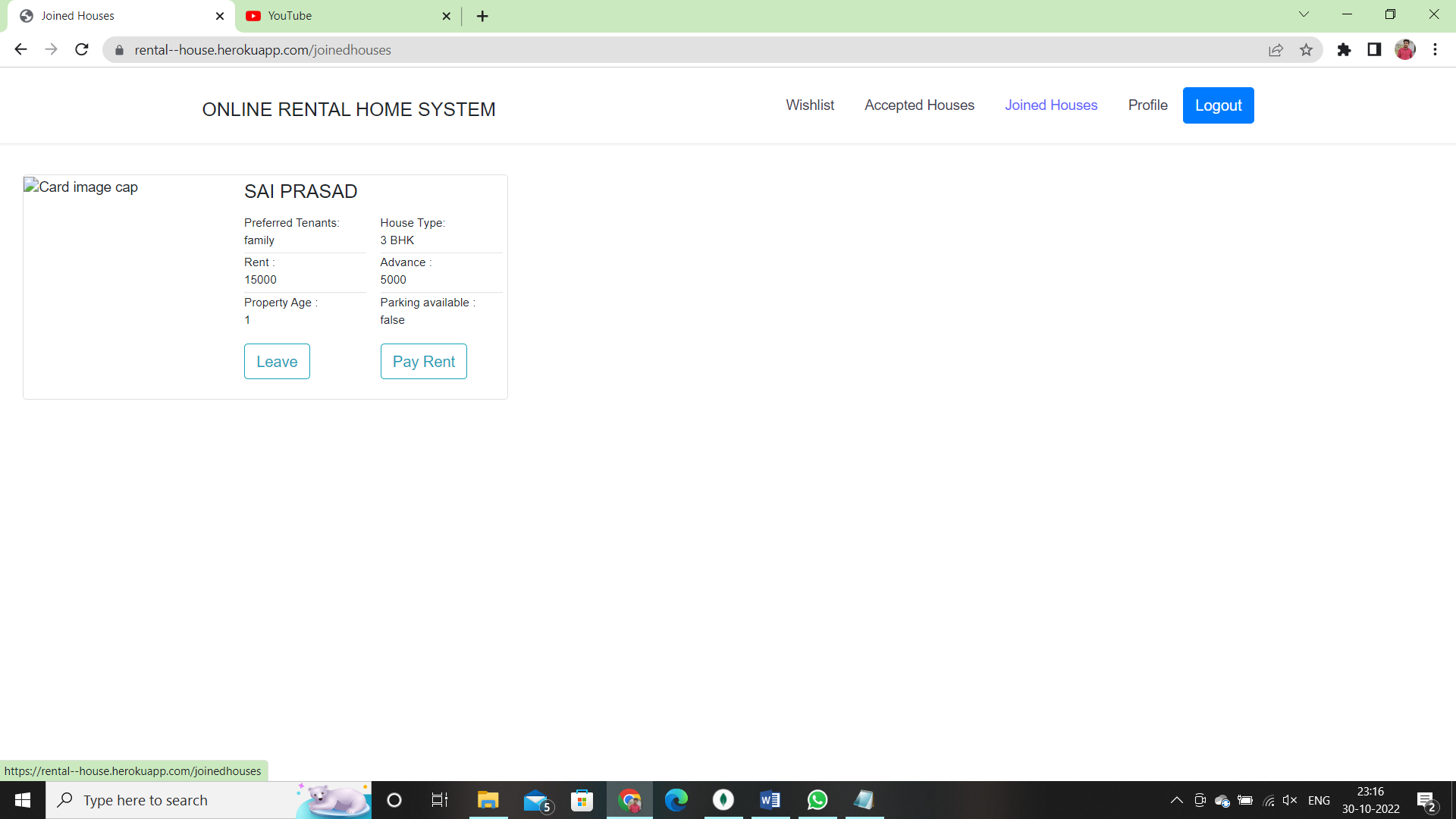
**HOUSE DETAILS PAGE(FIG 5.1.12)**

****

###### REQUESTED USERS(FIG 5.1.13)

****

**JOINED USER PAGE(FIG 5.1.14)**

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# CHAPTER 6

## CONCLUSION AND FUTURE WORK

### CHAPTER 6 CONCLUSION AND FUTURE WORK

#### CONCLUSION

Online Rental Home System is a one stop destination not only for users who have trouble in finding their ideal homes in major urban cities but also for the owners where they can gain a little more profit compared to that of traditional way of renting, i.e. through brokerage without compromising the security and comfort.

#### FUTURE SCOPE

* + 1. To provide chat functionality for the users, so that they can communicate with the owners for any queries.
    2. To implement remainder functionality, that reminds the user to pay his/her rent at the end of every month.
    3. To implement rating functionality, that rates both the user as well as the owner, user on the basis of behaviour and housekeeping, and owner on the basis of the services and maintenance of the house.
    4. To provide complaint form where both users as well as the owners can log their complaints to the admin.

# CHAPTER 7

## REFERENCES

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