House Rental Management System

(A Web Application)

A Project Report

Submitted in partial fulfilment of the

Requirements for the award of the Degree of

BACHELOR OF SCIENCE

(INFORMATION TECHNOLOGY)

By

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DEPARTMENT OF INFORMATION TECHNOLOGY

CERTIFICATE

This is to certify that the entitled, "**House rental management system**", is bonafied work of **Sayyed Asif Murtuja** bearing Seat No. **470** submitted in partial fulfilment of the requirements for the award of degree of BACHELOR OF SCIENCE in INFORMATION TECHNOLOGY from Guru Nanak Khalsa College of Arts, Science and Commerce

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Abstract / Synopsis

House rental management system

(web application)

Introduction:-

The House Rental Management System is a web-based application designed to simplify and streamline the process of managing rental properties without any agents. This system allows property owners and tenants to manage rental properties efficiently, handling everything from listing properties to tracking rental payments. The project aims to provide a comprehensive platform for managing rental properties digitally, reducing the manual workload, and enhancing the rental experience for both landlords and tenants.

For tenants, the system provides an easy interface to search for available rental properties, make payments online, and communicate directly with landlords. It enhances the rental experience by offering transparency in rent transactions and reducing the time required for handling maintenance issues

Objective:-

Is to create a user-friendly platform for efficient rental property management. It enables property owners to easily list, update, and manage their rental properties, while providing tenants with a seamless experience for searching, booking, and processing payments. The system automates rental payments, tracks tenancy statuses, and securely maintains records of

rental agreements, tenant details, and payment histories, streamlining property management tasks for both landlords and tenants.

Scope:-

- Property listings by landlords, including details such as location, rent, and availability.
- Tenant registration and profile management.
- Search functionality for tenants to find properties based on criteria like location, rent, and type of property.
- Booking requests and landlord approval system.
- Automated rental payment processing and receipt generation.
- Secure login and role-based access control for landlords, tenants, and administrators.
- Maintenance request handling and communication between tenants *+and landlords.

Key Features:-

- **User Registration and Authentication:** Secure registration and login for landlords, tenants, and administrators.
- **Property Management:** Landlords can add, edit, and remove properties with details like rent, description, and images.
- **Search and Filter:** Tenants can search properties based on criteria such as location, type, and price range.
- **Booking System:** Tenants can request to book a property, and landlords can approve or reject the booking requests.

- **Payment Module(**: Secure online payment gateway integration for rental payments.
- **Notifications and Alerts:** Email and SMS notifications for payment reminders, booking confirmations, etc.
- **Reports and Analytics:** Generate reports for property occupancy, payments received, pending dues, etc.

Software Requirements:-

- **Frontend:** HTML, CSS, JavaScript, Bootstrap
- **Backend:** Java
- **Database:** MySQL or MongoDB

System Specifications:-

- Laptop
- Processor: Intel i5, Windows 10
- RAM: 8.00 GB
- SSD: 1TB
- LAN

Advantages:

- **Centralized Management:** Landlords can manage all their properties from one platform, simplifying updates and listings.
- **Automated Payments:** Online payment options ensure secure, fast, and transparent rent transactions.
- **Detailed Reports:** Landlords can easily generate reports on property status, payments, and occupancy.

- **Secure Access:** Role-based access ensures that sensitive data is protected and only accessible to authorized users.
- **Easy Property Search:** Tenants can quickly search for properties that meet their needs using filters like location and price.
- **Time-Saving:** Automation of tasks such as payment tracking and tenant management reduces manual effort for landlords.
- **Scalable:** The system can grow with the addition of more properties or users.

Disadvantages:

- **Initial Costs**: Setting up and maintaining the system may be expensive for smaller landlords.
- **Internet Dependency**: Both tenants and landlords need reliable internet access to use the system.
- **Security Risks**: The platform could be vulnerable to cyberattacks or data breaches.
- **Technical Issues**: Bugs or server downtime could disrupt operations temporarily.
- **Reduced Personal Interaction**: The digital system may reduce face-to-face contact between landlords and tenants.
- **Customization Limits**: The system may not meet all specific needs without costly customizations.

ACKNOWLEDGEMENT

I would like to express my thanks to the people who have helped me most throughout my project. I am grateful to my **Prof. Randeep Singh Ghai** for nonstop support for the project. I can't say thank you enough for him tremendous support and help.

I owe my deep gratitude to our HOD of Information Technology Department **Mrs. Pinky Panda** who took keen interest on our project work and guided us all along, till the completion of our project work by providing all the necessary information for developing a good system.

At last but not the least I want to thank all of my friends who helped/treasured me out in completing the project, where they all exchanged their own interesting ideas, thoughts and made this possible to complete my project with all accurate information. I wish to thank my parents for their personal support or attention who inspired/encouraged me to go my own way.

DECLARATION

I hereby declare that the project entitled, "**House rental management system web Application**" done at **Guru Nanak Khalsa College**, has not been in any case duplicated to submit to any other university for the award of any degree. To the best of my knowledge other than me, no one has submitted to any other university.

The project is done in partial fulfilment of the requirements for the award of degree of **BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)** to be submitted as semester 5 project as part of our curriculum.

Sayyed Asif Murtuja

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CHAPTER 1: INTRODUCTION

1.1 Background

A House Rental Management System is a software tool that helps landlords and tenants handle rental properties more easily. A House rental is a house that can be used temporarily for a period of time with a fee. Renting a house assists people to live in a comfortable house when they do not have access to build personal homes/houses or. It brings together all the tasks related to managing multiple properties, tenants, leases, rent payments, and maintenance requests in one place. landlords can use it to create detailed listings for rental units, track tenant details, and automate lease agreements with electronic signatures.

Tenants can submit maintenance requests through the system, and landlords can assign tasks and track the progress, making maintenance quicker and more efficient. It also helps with accounting, tracking income and expenses, and generating financial reports like profit and loss statements. Communication is improved with built-in messaging and automatic reminders for things like rent payments or lease renewals. Important documents like lease agreements are stored securely, ensuring legal compliance, and some systems even provide updates on rental laws.

Overall, the system saves time by automating routine tasks, reduces mistakes, and makes everything more transparent. Tenants also benefit from a better experience with convenient online portals, which can lead to better tenant retention. It's especially useful for landlords handling many properties, as it centralizes everything in one easy-to-use platform.

This makes it an essential tool for landlords and property managers who want to streamline their operations and improve communication with tenants. The rental houses are categorized into modern Homes, Colonial, apartment, Rentals etc. And tenants are free to choose any house of their choice based on their purse and availability of such houses at the time of booking.

1.2 Objective

The main goal of a House Rental Management System is to provide a simple and easy-to-use platform that helps landlords, property managers, and tenants manage rental properties more efficiently. It brings everything together in one place, making it easier to list and track properties, manage tenants, and handle tasks like collecting rent, renewing leases, and tracking payments. The system also improves communication between landlords and tenants by sending automatic reminders for rent payments or maintenance issues and providing a way for them to message each other directly. Tenants can easily submit maintenance requests, while property managers can track and fix problems quickly. Overall, the system aims to make things smoother and more organized, reducing the workload for landlords and property managers while making the experience better for tenants.

1.1 Purpose, Scope and Applicability

1.3.1 Purpose :-

The purpose of a House Rental Management System is to make managing rental properties easier for landlords and tenants. It brings together all the key tasks, like listing properties, managing tenants, handling lease agreements, collecting rent, dealing with maintenance issues, and tracking finances, into one simple platform.

The system helps reduce the workload for landlords and property managers by automating many of these tasks, which reduces mistakes and keeps things consistent. It also improves communication by providing a clear way for landlords and tenants to interact, making everything more transparent and responsive.

It helps ensure that all legal and regulatory requirements are met by safely storing important documents and keeping up with rental laws. Overall, the system aims to make the rental process smoother and more organized, so landlords focus on expanding their properties while giving tenants a more convenient and satisfying renting experience.

1.3.2 Scope:-

- **Property Listings:** Landlords can create and update property details such as location, rent, and availability.
- **Tenant Registration and Profile Management:** Tenants can register, manage their profiles, and handle lease details.
- **Search Functionality:** Tenants can search for properties based on criteria like location and rent.
- **Booking Requests and Approval:** Tenants can request bookings, and landlords can approve them.

- **Automated Rental Payment Processing(Optional):** The system processes rent payments online and generates receipts.
- **Secure Login and Role-Based Access Control:** Provides secure access based on user roles.
- **Maintenance Request Handling:** Tenants can submit maintenance requests, and landlords can manage and communicate about these issues.

1.3.3 Applicability:-

House Rental Management System covers various situations where it can be useful. It's perfect for landlords and property managers who oversee rental properties like apartments or houses, making it easier to handle tenant information, lease agreements, and rent collection.

It's also great for property management companies that manage many properties for owners, as well as real estate agencies that list and rent out properties. Individual landlords with multiple properties can use it to simplify tasks like rent collection and maintenance.

Tenant support services can benefit by helping tenants find and manage rentals more easily. Finally, maintenance companies can use the system to manage and track repair requests efficiently. Overall, this system helps make managing rental properties and tenant interactions simpler and more organized.

CHAPTER 2: SURVEY OF TECHNOLOGIES

2.1 Introduction

In today's fast-paced world, managing rental properties can be a complex and time-consuming task for landlords and tenants. House Rental Management Systems have emerged to streamline the property rental process, making it easier for both landlords and tenants to manage their real estate transactions from anywhere.

These systems offer a convenient, online platform where landlords can list properties, manage rental agreements, handle maintenance requests, and collect payments, all in one place. Similarly, tenants can browse available rental properties, submit applications, sign leases electronically, and make rent payments with just a few clicks.

By eliminating the need for in-person interactions, paperwork, and manual processes, house rental management systems bring efficiency, transparency, and convenience to the rental market.

This digital solution is especially valuable in today’s busy lifestyle, where time is a precious resources .For tenants, the hassle of finding properties, coordinating with landlords, and keeping track of rental payments is simplified, ensuring a smoother renting experience and making the entire process more accessible, efficient, and user-friendly for everyone involved.

2.2 Existing System

The existing rental management systems, while functional, suffer from several critical limitations that hinder efficiency and user satisfaction. These systems typically function as standalone applications or fragmented platforms, each serving a different aspect of the rental process—such as listing properties, processing rent payments, and managing tenant communications.

Limitation of existing system:

- **Fragmented Tools and Platforms:** Users must juggle multiple platforms for property listings, tenant communication, and rent collection, complicating the rental process.
- **Manual Processes and Limited Automation:** Many tasks, like tenant screening and invoice generation, require manual input, which is time-consuming and error-prone, with minimal automation.
- **Poor User Experience (UX):** Interfaces can be difficult to navigate, leading to frustration for both landlords and tenants, and potentially losing tenants.
- **Data Security and Privacy Concerns:** Legacy systems may lack robust security measures, putting personal and financial data at risk.

2.3 Market Survey

A market survey of house rental management systems, along with their drawbacks, highlights the current landscape of available software solutions that assist landlords and property managers in streamlining daily operations. These systems provide core features such as tenant screening, online rent collection, maintenance tracking, financial management, lease management, property marketing, mobile access, and communication tools.

Popular House Rental Management Systems in the Market

- **Buildium**: Buildium is a cloud-based software that helps landlords and property managers keep track of rent payments, communicate with tenants, and manage maintenance requests. It is easy to use and provides a centralized location to handle all property management tasks. Buildium works well for companies that manage a wide range of properties, whether small or large.

- **AppFolio**: AppFolio is another full-featured property management system. It supports online rent payments, tenant screening, lease agreements, and accounting. AppFolio also provides a mobile app for both landlords and tenants, making it easier for tenants to pay rent or submit maintenance requests while landlords can manage their properties from anywhere.
- **Rentec Direct**: This software provides a variety of tools for landlords, such as tenant screening, online rent collection, and property management features. Rentec Direct is especially popular among small- to medium-sized property managers because of its cost-effective pricing and easy-to-use platform.

Several trends are shaping the market for rental management systems. Cloud-based platforms now dominate, allowing property managers to work remotely and collaborate more efficiently. Mobile-first solutions are gaining popularity, as property managers increasingly work on the go. The integration of AI and automation is becoming more common, with features like automated rent collection and tenant chatbots reducing the need for manual input. There is also a growing focus on enhancing the tenant experience by providing online portals for rent payments and maintenance

requests, while some systems now incorporate sustainability features to help manage energy consumption in properties.

Disadvantages:

- **Cost Concerns:** Some platforms are expensive for small landlords, with subscription and transaction fees adding up. Hidden fees for additional features like tenant screening can also catch users off guard.
- **Complexity:** Many systems are complex and have a steep learning curve, making them difficult for first-time users or small landlords. Larger teams may need costly training to use the software effectively.
- **Customization Issues:** Some platforms lack flexibility, limiting customization for niche property types. There may also be gaps in features like advanced financial reporting.
- **Data Security Risks:** Cloud-based systems are vulnerable to breaches, raising concerns about storing sensitive tenant data. Not all platforms assist with regulatory compliance, posing legal risks.
- **Integration Problems:** Not all systems integrate well with other essential tools like accounting software, leading to inefficiencies. Many platforms also depend on third-party vendors for key services, which can cause disruptions.
- **Customer Support Limitations:** Some platforms provide limited customer support, with slow response times during critical issues. Smaller platforms often only offer email-based help, making it hard to get immediate assistance**.**

2.4 Detailed explanation of one of the market survey

AppFolio:

AppFolio is designed to cover all the needs of property managers. One of its strongest features:

- **Tenant Management**: Allows landlords to store detailed tenant information, manage leases, and communicate with tenants easily. The system ensures that all tenant-related information, such as contact details and lease agreements, is stored in one central location, reducing the need for paper records or separate files.
- **Rent Payment:** AppFolio supports automated rent payments, allowing tenants to pay their rent online using various methods such as bank transfers, credit cards, or e-checks. The system also sends automated reminders to tenants when their rent is due, helping landlords avoid late payments. AppFolio generates reports that show which tenants have paid and which are late, making rent collection more efficient.
- **Maintenance Management**: Allows tenants to submit maintenance requests online, which landlords can assign to specific vendors or staff for repair. The system keeps track of all maintenance tasks, ensuring that nothing is overlooked and all repair requests are resolved in a timely manner.
- **Usability:** It is user-friendly platform, and the mobile app allows both landlords and tenants to perform key tasks on the go. This flexibility is a significant advantage in today's fast-paced world, where managing tasks from a mobile device is becoming the norm. AppFolio's excellent customer support ensures that landlords can get help quickly if they encounter any issues

2.5 Proposed System

The proposed House Rental Management System addresses these limitations by offering a more efficient, cost-effective, and user-friendly solution. This system provides tenants and landlords with better tools to simplify the rental process.

The platform will feature an extensive database of rental properties, ensuring that tenants have a wide variety of options to choose from. Landlords will have access to a larger pool of potential tenants, expanding their outreach. The system will also introduce a dynamic pricing model, offering discounts for long-term leases and flexible payment options.

Furthermore, the system will streamline the entire process with features like online property tours, instant messaging between tenants and landlords, and automated listings. These features will save time by minimizing the need for in-person visits and reducing manual administrative tasks.

Advantages:

- **Streamlined Operations:** Integration of multiple functions into one system simplifies the management process, saving time and reducing the need for multiple tools.
- **Increased Efficiency:** Automation of routine tasks reduces manual effort, minimizes errors, and speeds up processes like tenant screening and rent collection.
- **Improved User Experience:** A user-friendly interface enhances satisfaction for both landlords and tenants, making property management and tenant interactions more efficient.

- **Enhanced Security:** Advanced security measures protect sensitive data, reducing the risk of data breaches and ensuring compliance with privacy regulations.
- **Better Data Management:** Centralized data storage and management facilitate better tracking of property details, tenant information, and financial transactions.

CHAPTER 3: REQUIREMENTS AND ANALYSIS

3.1 Problem Definition

Managing rental properties through traditional or manual methods presents significant challenges for landlords and tenants alike. The process is often inefficient, with time-consuming tasks such as listing properties, managing inquiries, collecting rent, handling maintenance requests, and keeping track of tenant records. Without automation, these processes are prone to errors and can result in missed payments, poor communication, and delayed maintenance.

Tenants face difficulties finding suitable properties due to inadequate search functionalities, and landlords struggle with fragmented property management, limited visibility of their listings, and inconsistent cash flow due to a lack of online payment integration(optional). Additionally, existing systems often lack proper security measures, risking tenant and landlord data. The non-responsiveness of many platforms, particularly on mobile devices, further diminishes user experience. As property portfolios grow, scalability issues exacerbate the problem, making it difficult to manage multiple properties effectively.

Furthermore, legal and regulatory compliance is often overlooked without a system in place to manage important documents like rental agreements. These challenges highlight the need for a comprehensive House Rental Management System that can streamline operations, automate key functions, enhance communication, and improve security, ultimately delivering a better experience for both landlords and tenants

3.2 Requirements Specification

Following Requirements will be implemented in the Mcare web application:

3.2.1 Functional Requirements:

- **Property Listings by Landlords**: Landlords should be able to add, update, and manage property listings, including details like rent, location, and availability.
- **Search Functionality for Tenants:** Tenants should have the ability to search for available rental properties using various filters such as location, price, and type of property.
- **Online Rental Payment System(optional):** The system should allow tenants to make rent payments online securely, and generate receipts for transactions.
- **Booking and Approval Workflow:** Tenants can send booking requests, and landlords should be able to approve or reject these requests based on availability.
- **Communication for Maintenance Requests:** A system for tenants to submit maintenance requests and for landlords to manage and respond to those requests efficiently.

3.2.2 Non-Functional Requirements:

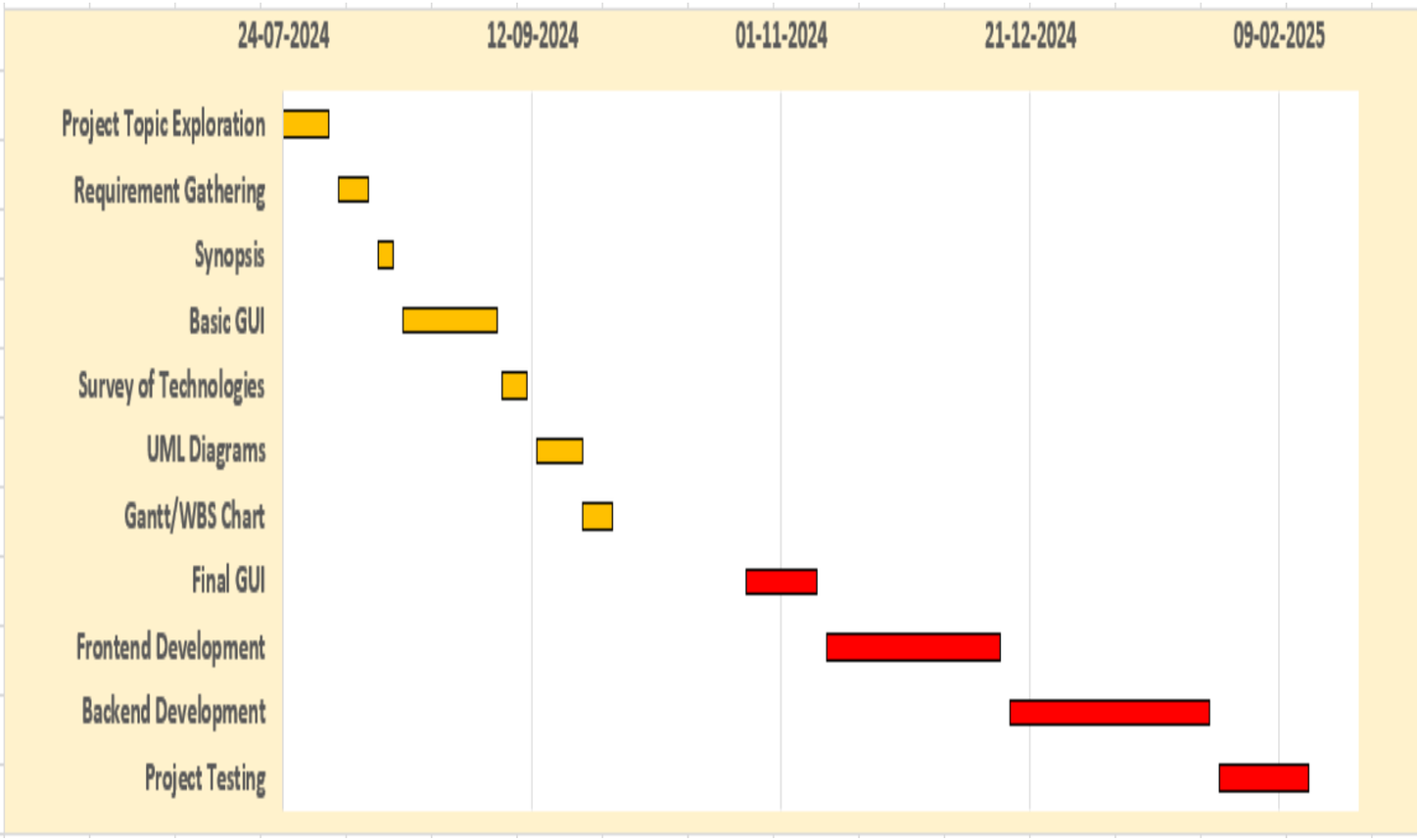
- **Security:** The system must ensure data protection with encryption and secure access for both landlords and tenants to prevent unauthorized access.
- **Data Privacy:** User data, including personal and financial information, should be securely stored and protected from breaches.

- **Responsive Interface:** The platform should be user-friendly and responsive, offering seamless access across devices such as computers, tablets, and smartphones.
- **Scalability:** The system should be able to handle multiple users and properties, supporting an expanding number of landlords, tenants, and properties as the platform grows**.**

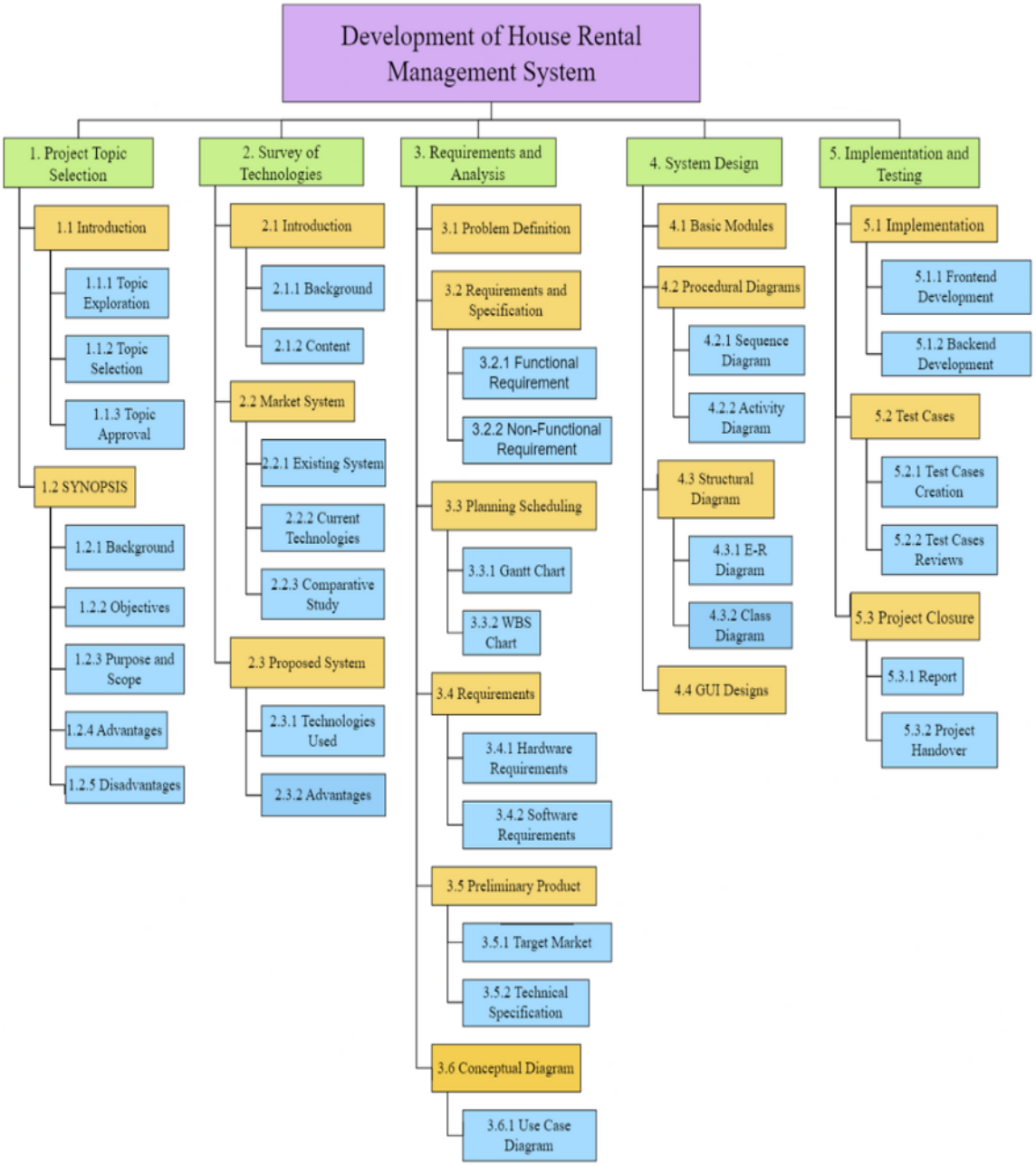
3.3 Planning and Scheduling

3.3.1 Gantt Chart

Task Name	Start Date	End Date	Duration (Days)	Status
Project Topic Exploration	24-07-2024	02-08-2024	9	Done
Requirement Gathering	04-08-2024	10-08-2024	6	Done
Synopsis	12-08-2024	15-08-2024	3	Done
Basic GUI	17-08-2024	05-09-2024	19	Done
Survey of Technologies	06-09-2024	11-09-2024	5	Done
UML Diagrams	13-09-2024	22-09-2024	9	Done
Gantt/WBS Chart	22-09-2024	28-09-2024	6	Done
Final GUI	25-10-2024	08-11-2024	14	Pending
Frontend Development	10-11-2024	15-12-2024	35	Pending
Backend Development	17-12-2024	26-01-2025	40	Pending
Project Testing	28-01-2025	15-02-2025	18	Pending



3.3.2 Work Breakdown Structure (WBS Chart)



3.4 Software and Hardware Requirements

3.4.1 Software Requirements:

- **Frontend:** HTML, JavaScript, Bootstrap, CSS for styling.
- **Backend:** java for server-side operations; MongoDB or MySQL for data management.
- **Development Tools:** Visual Studio Code for coding; Git for version control.
- **Database:** MongoDB or MySQL for user data

3.4.2 Hardware Requirements:

- **Development & Testing:** Minimum 8 GB RAM, Intel Core i5 processor, 100 GB storage.
- **Mobile Testing:** Android device with internet to ensure that the platform delivers a high-quality, responsive, and secure user experience for both landlords and tenants.
- **Network:** Stable internet connection and high-speed broadband for real-time operations.

3.5 Preliminary Product Description

The House Rental Management System (HRMS) is designed to cater to the needs of both landlords and tenants in the rental property market. This comprehensive system provides a seamless platform where landlords can manage their properties, and tenants can find and book rental accommodations easily. The system features a user-friendly interface that allows landlords to list properties, manage bookings, and track rental payments efficiently.

The HRMS access to property listings and booking functionalities, ensuring that tenants can search for and reserve accommodations at their convenience. Real-time notifications keep both landlords and tenants informed about booking confirmations, payment reminders, and maintenance requests. With integrated online payment capabilities, the system facilitates secure and streamlined financial transactions between landlords and tenants.

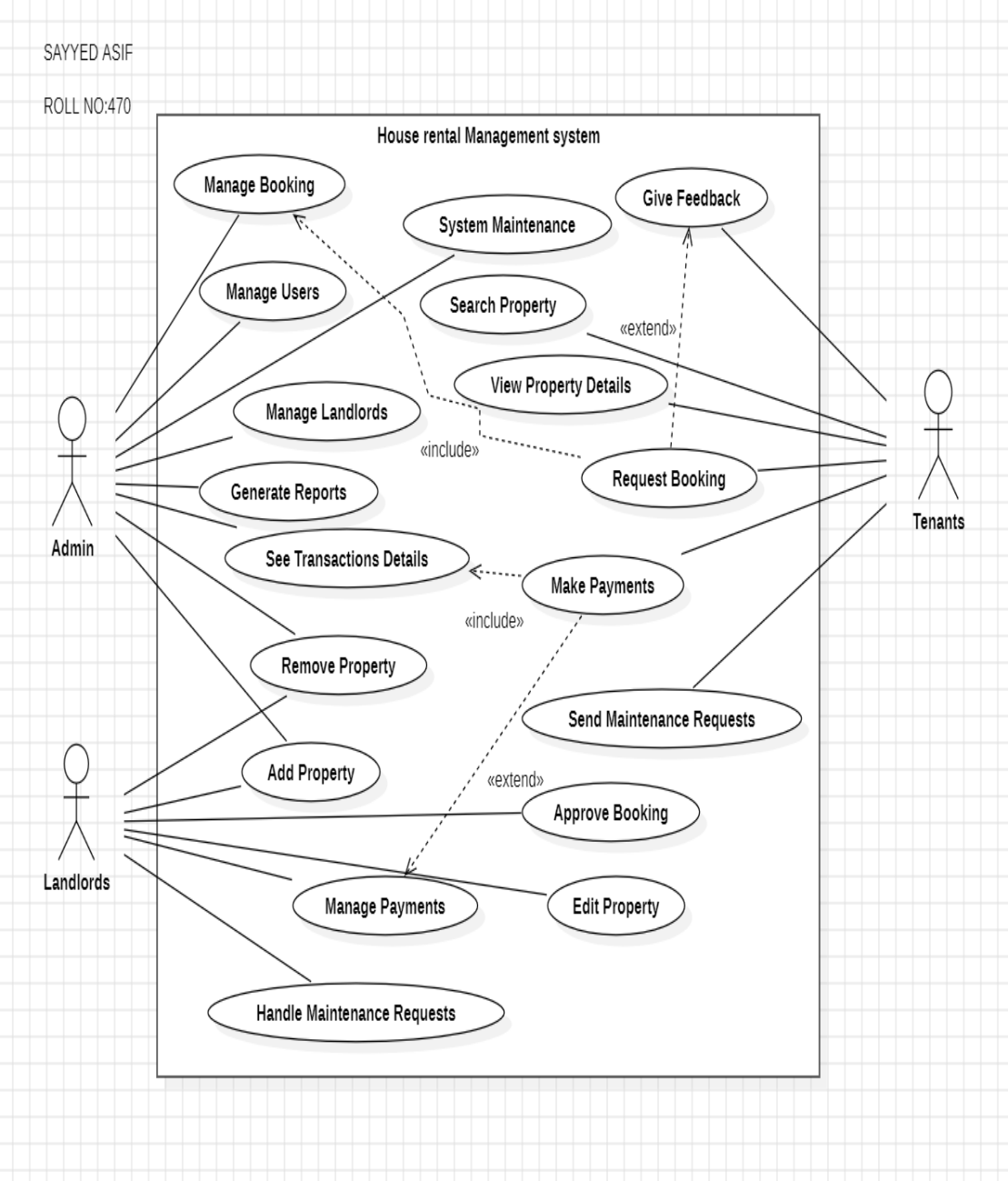
Available on both web and mobile platforms, the HRMS enhances accessibility for users, enabling them to manage rental activities from anywhere at any time. By automating administrative tasks such as payment tracking, maintenance management, and tenant communications, the system allows landlords to focus more on optimizing their rental properties and improving tenant satisfaction.

Applications:

- Tenants can create accounts to store personal information, view rental history, and manage upcoming appointments.
- Landlords can add, edit, and manage property listings, including detailed descriptions, images, and rental rates.
- Tenants can efficiently search for available properties based on specific criteria such as location, price range, and property type.
- The system allows tenants to request bookings for properties, while landlords can approve or reject these requests seamlessly.
- The system sends reminders for upcoming payments, booking confirmations, and maintenance updates via email or SMS.
- Built-in messaging features allow landlords and tenants to communicate effectively regarding any inquiries or issues.

3.6 Conceptual Model

3.6.1 Use Case Diagram



Description:

This use case diagram represents the interaction between three key actors—**Tenants**, **Landlords**, and **Admin**—within the **House rental management system**. Each actor has specific roles and interactions with the system:

- **Tenants**: Start by searching for a property. Once they find one, they view the property details. After viewing, they can proceed to request a booking. If approved by the landlord, they can make payments and optionally send maintenance requests or give feedback.
- **Landlords**: They can add or edit properties and approve bookings from tenants. They also manage payments and handle any maintenance requests sent by tenants.
- **Admin**: Oversees the entire system, managing both users and landlords. They can also generate reports, manage bookings, and perform system maintenance.

CHAPTER 4: SYSTEM DESIGN

4.1 Basic Module

The House Rental Management System is made up of several key parts (modules) that make it easier for users to manage rental properties. These parts are designed to simplify tasks like user registration, property listings, rental bookings, payments, and maintenance requests. Each module focuses on specific tasks, ensuring that landlords, tenants, and administrators can manage things efficiently and easily.

1. User Management Module:

Features:

- Registration and login functionality for landlords, tenants, and system administrators.
- Role-based access control with different permissions for each user type (landlords, tenants, admins).
- Profile management allowing users to view, edit, and update their personal details and property or rental-related information.

2. Property Management Module:

Features:

- Landlords can add, edit, and remove property listings with details like location, rent, availability, description, and images.
- Landlords can manage property availability and occupancy status.
- Secure storage of property-related data such as rental agreements and historical tenant information.

3. Rental Booking Module:

Features:

- Tenants can search for available rental properties based on location, rent, property type, and other filters.
- Tenants can submit booking requests, which landlords can approve or reject.
- Tenants and landlords can track booking statuses and maintain a history of confirmed and completed bookings.
- Notification system for booking confirmations, rejections, or requests for further information.

4. Payment Management Module(Optional):

Features:

- Integration with secure online payment gateways for tenants to pay rent.
- Landlords can view payment history, track pending dues, and generate invoices or receipts.

5. Admin Management Module:

Features:

- Admins can manage landlord and tenant accounts (add, update, or remove users).
- Admins can monitor system performance, review user activity, and ensure smooth platform operation.
- Admins can review and address complaints or disputes between tenants and landlords.
- Admins can generate reports and system logs for auditing purposes.

6. Notification & Reminder Module:

Features:

- Automatic reminders for tenants about upcoming rental payments, lease renewals, and scheduled maintenance.
- Notifications for landlords about new booking requests, payment updates, and maintenance requests.
- Delivery of notifications via email or SMS to both tenants and landlords for all relevant system updates and reminders.

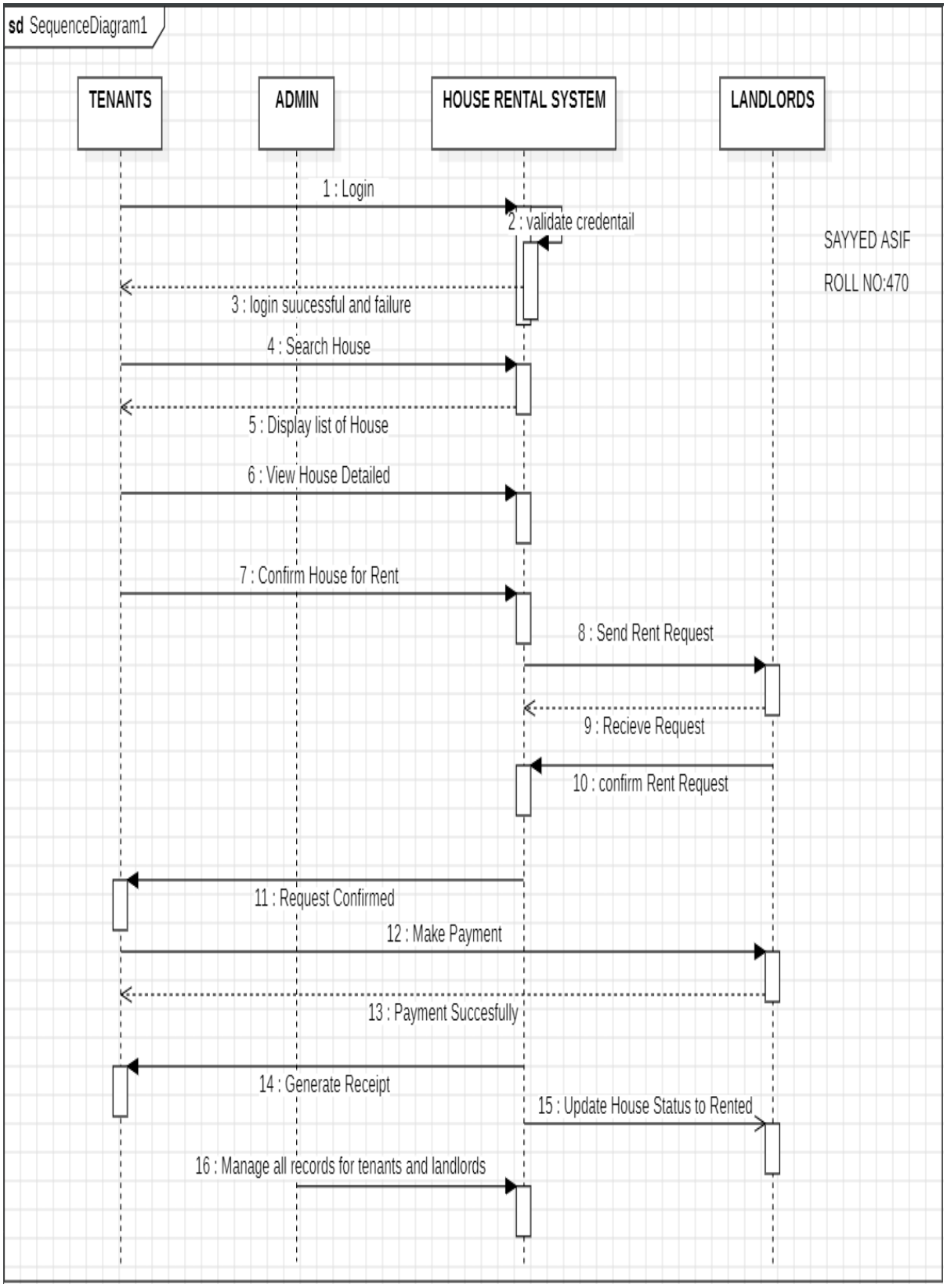
7. Maintenance Management Module:

Features:

- Tenants can submit maintenance or repair requests through the system.
- Landlords can view and manage maintenance requests, assign contractors, and track the status of ongoing repairs.
- Automatic notifications to both tenants and landlords when a maintenance request is submitted or resolved.

4.2 Procedural Design

4.2.1 Sequence Diagram

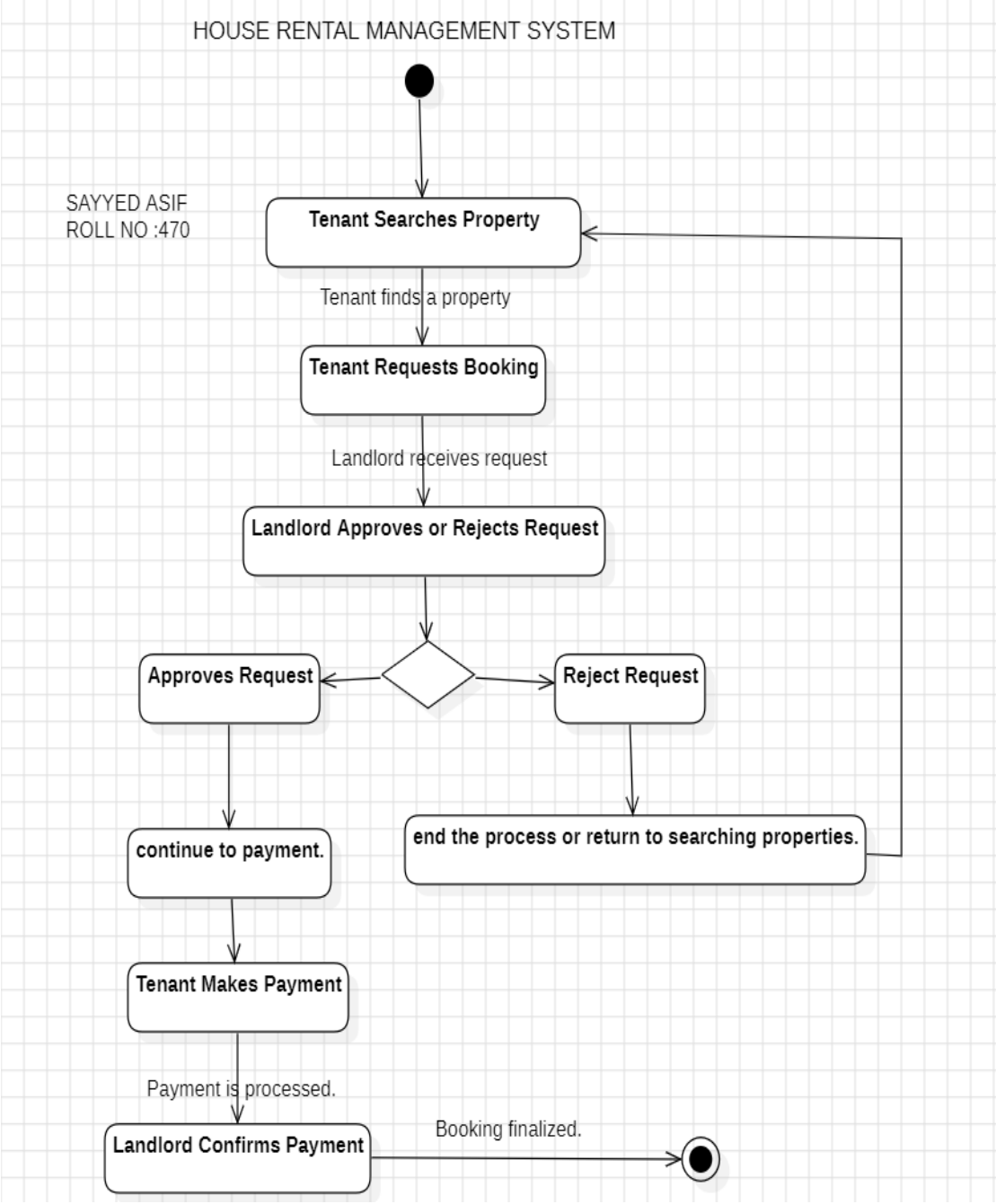


Description:

This sequence diagram shows the steps involved when a tenant rents a house through a house rental system. The tenant begins by searching for available houses based on their preferences, and the house rental system shows a list of options. The tenant selects a house to view more details, then confirms that they want to rent it. The system sends a request to the landlord, who reviews and approves the rental.

Once the landlord approves, the tenant is notified, and they proceed to make a payment through the system. After the payment is successful, the system generates a receipt for the tenant and updates the house status to "Rented" in the landlord's view. This entire process, from searching for a house to payment, is managed smoothly by the house rental system, which acts as the link between tenants and landlords, ensuring everything is handled efficiently.

4.2.2 Activity Diagram



Description

It starts with a Login node, followed by a decision point for "Create new Account Tenants or Landlords." If a user is existing, the system checks their type: Tenants, Landlords, or Admin.

- **Tenant Searches Property**:

  The process begins when a tenant searches for a rental property using the house rental system. They enter search criteria like location, size, and price to find suitable listings.

- **Tenant Requests Booking**:

  After finding a desired property, the tenant submits a **booking request** to the system, indicating interest in renting the property.

- **Landlord Approves or Rejects Request**:

  The request is sent to the **landlord** for review. The landlord can either **approve** or **reject** the booking request:

  - If the request is **rejected**, the process either ends, or the tenant can return to search for another property.
  - If the request is **approved**, the process moves to the payment stage.

- **Tenant Makes Payment(optional)**:

  Upon approval by the landlord, the tenant proceeds to **make a payment** through the system, typically covering the rental deposit or first month's rent.

- **Landlord Confirms Payment**:

  The system processes the payment and notifies the **landlord**, who then confirms the receipt of payment.

- **Booking Finalized**:

  Once the payment is confirmed, the system finalizes the booking, officially marking the property as rented. The process ends successfully.

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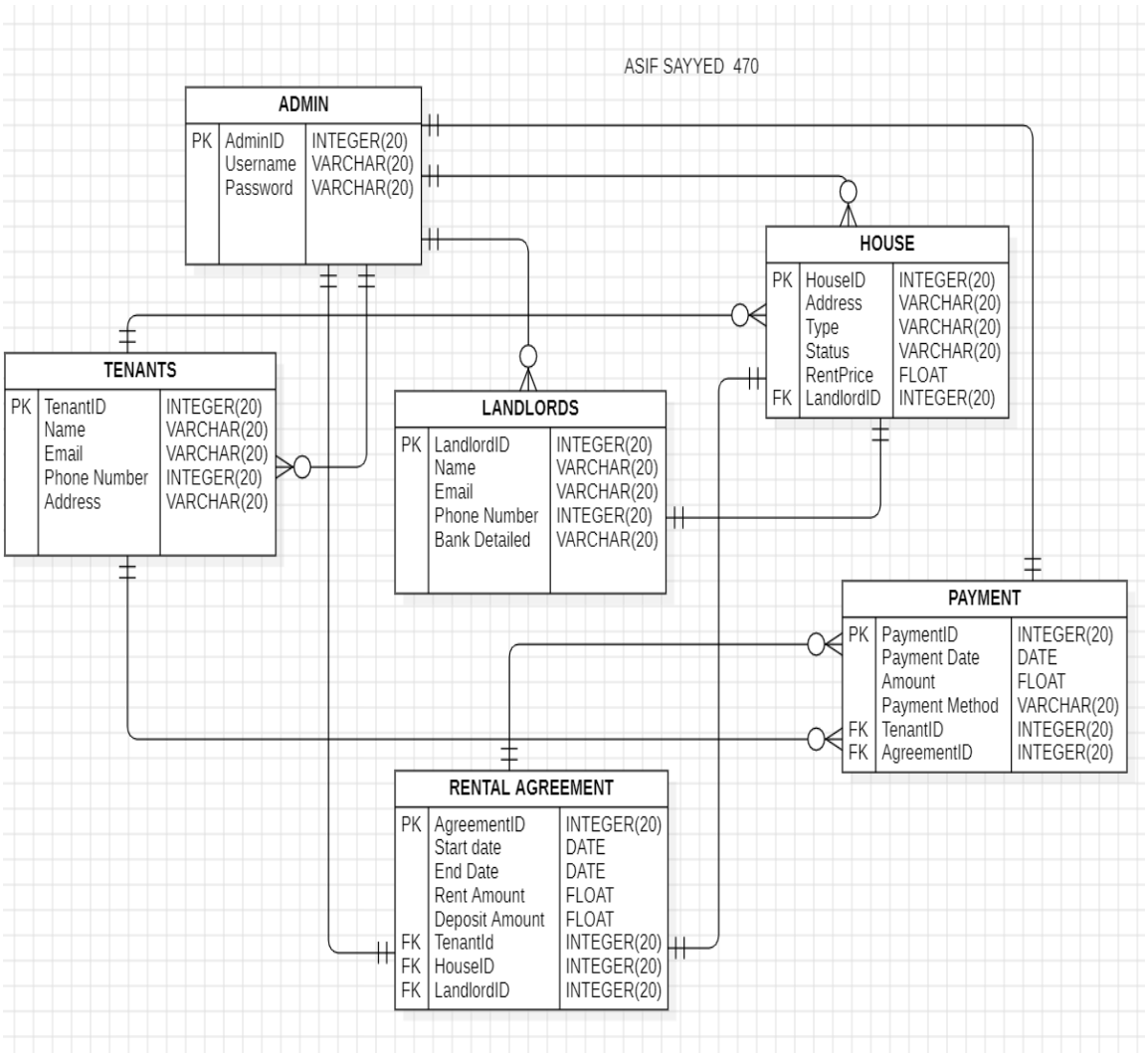
4.2.3 ER Diagram



Description:

This is an Entity-Relationship Diagram (ERD) for a House rental management system. Here's a brief explanation of the entities and their relationships:

- **Admin:** Manages both tenants and landlords. Contains attributes like: AdminID, Username, Password.
- **Tenant:** Represents individuals looking to rent houses. Contains attributes like: TenantID, Name, Email, Phone Number,

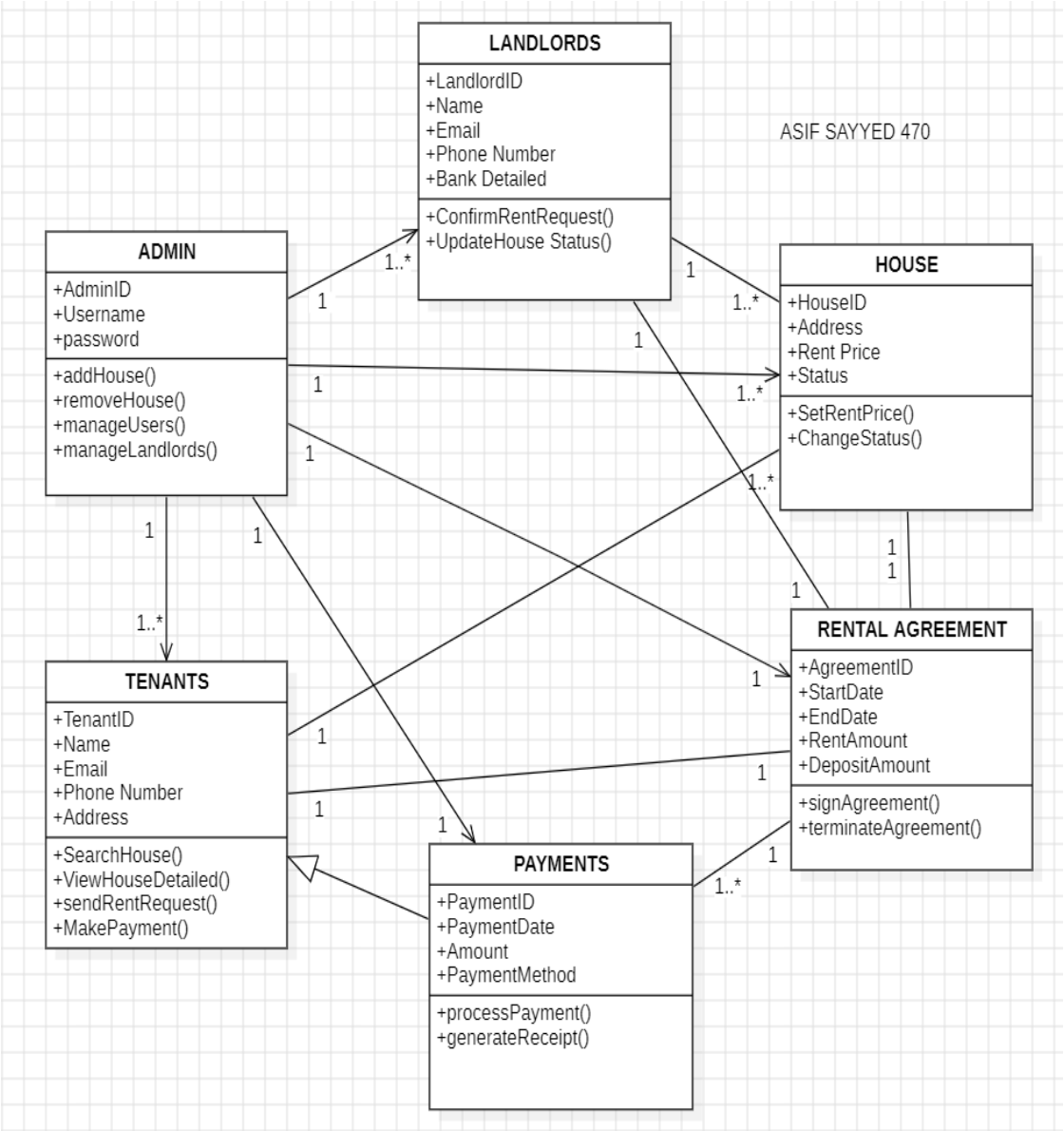
Address.Tenants can make rental agreements and payments for houses.

- **Landlord:** Represents property owners who rent out their houses. Contains attributes like: LandlordID, Name, Email, Phone Number, Bank Detailed. Landlords manage the houses they list for rent.
- **House:** Contains information about the properties available for rent. Attributes include: HouseID, Address, Type, Status, Rent Price, LandlordID. Each house belongs to a landlord and is linked to rental agreements.
- **Rental Agreement:** Records the rental contracts between tenants and landlords for a specific house. Contains attributes like: AgreementID, Start Date, End Date, Rent Amount, Deposit Amount, TenantID, HouseID, LandlordID. Links tenants, landlords, and houses together for a specific rental period.
- **Payment:** Tracks the payments made by tenants for rental agreements. Contains attributes like: PaymentID, Payment Date, Amount, Payment Method, TenantID, AgreementID.

Relationships between Entities:

- Admin manages both Tenants and Landlords.
- Tenants enter into Rental Agreements for a House owned by a Landlord.
- Payments are made by Tenants as part of the Rental Agreement process.
- Landlords own the Houses listed in the system for rent.

4.2.4 Class Diagram



Description:

This is an Class Diagram (CD) for a House rental management system. Here's a brief explanation of the entities and their relationships:

- **Landlords:** This entity represents the people who own properties. They have information such as their ID, name, email, phone number, and bank details. Landlords can confirm rent requests, update house statuses, and view house details.

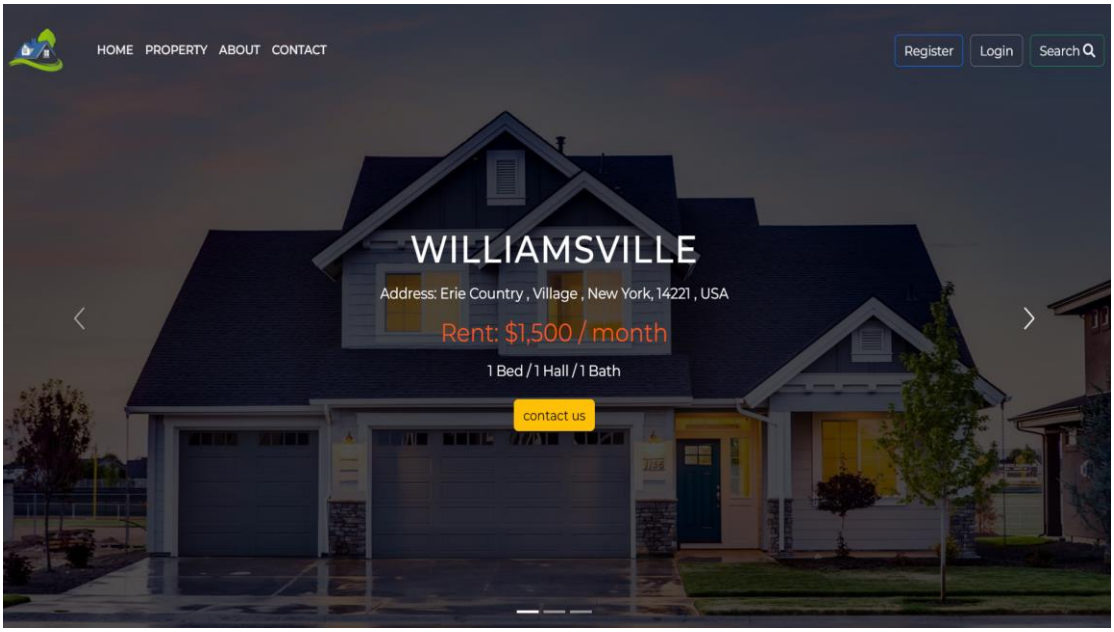
- **Admin:** This entity is responsible for managing the system. They can add or remove houses, manage users (landlords and tenants), and manage landlords.
- **House:** This entity represents the properties available for rent. Each house has an ID, address, rent price, status, and other details. Landlords can add houses, while the admin can remove them.
- **Tenants:** This entity represents the people who rent the properties. They have information such as their ID, name, email, phone number, and address. Tenants can search for houses, view house details, send rent requests, and make payments.
- **Rental Agreement:** This entity represents the agreement between a landlord and a tenant for renting a property. It includes information such as the start date, end date, rent amount, deposit amount, and other terms. Landlords can sign or terminate rental agreements.
- **Payments(optional):** This entity represents the payments made by tenants to landlords. It includes information such as the payment amount, payment method, payment date, and whether the payment has been processed. Landlords can process payments and generate receipts.

Relationships:

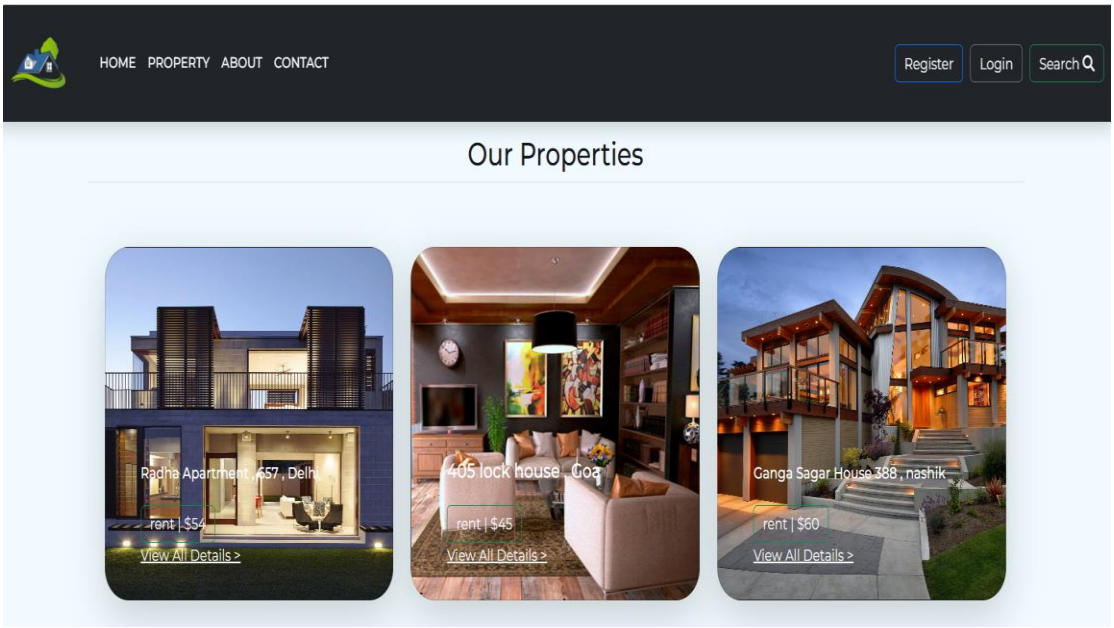
- Admin manages both Tenants and Landlords.
- Tenants enter into Rental Agreements for a House owned by a Landlord.
- Payments are made by Tenants as part of the Rental Agreement process.
- Landlords own the Houses listed in the system for rent.

4.3 User Interface Design

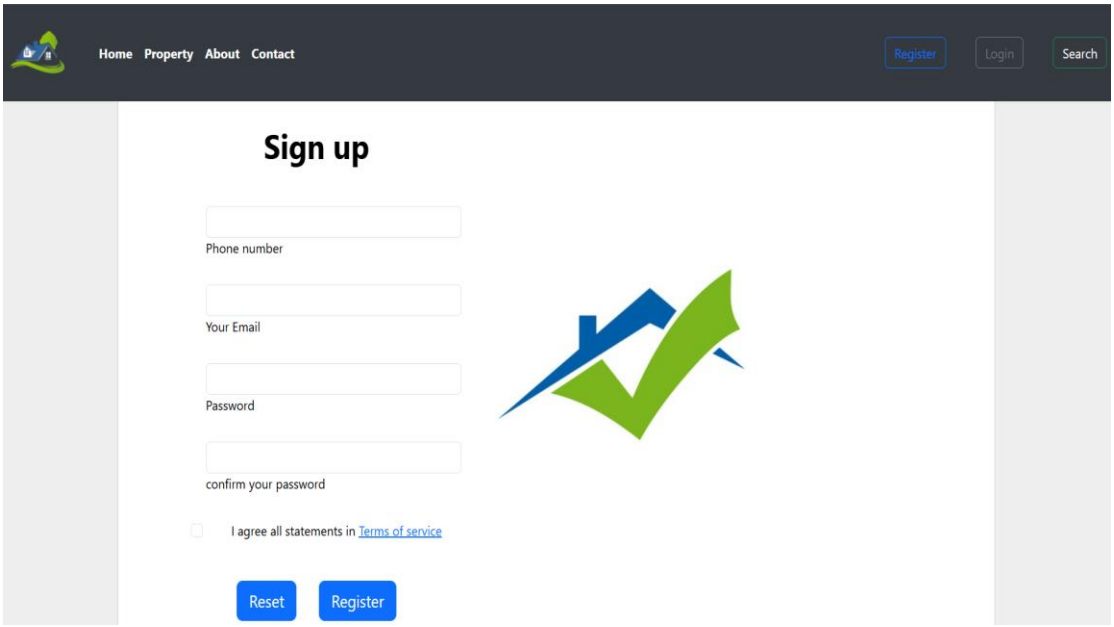
4.3.1 Home Page Design



4.3.2 Properties Page Design



4.3.3 Register Page Design



4.3.3 Login Page Design