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Management System for an Apartment

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MANAGEMENT SYSTEM FOR AN APARTMENT

By

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ABSTRACT

One of the fundamental aspects of society is the rental housing issue. If one searches physically nowadays, it is difficult to find acceptable housing in urban regions. However, the landowner must also rent the residence. A building owner may lose money if it is difficult to attract tenants only to post a lease sign on it. In this situation, a shared online platform might be quite important. The goal of the project is to create a standard web-based online platform for renters and homeowners so that both parties may profit from the system. This essay discusses the creation of online apps for citizens, through intelligent communication with the homeowner, owners and renters may register and tenants can have residences for rent. In this, a standard web application for smart house rentals has been created for both renters and homeowners. This online application is incredibly user-friendly, and effective, and it offers a lot of distinctive features that aren't provided by other house rental websites that are now available in Bangladesh. Using online apps that have been built, tenants may register with their phone numbers, store identifying information, look for available homes, communicate with homeowners, and select a suitable home. Homeowners may sign up for the system as well.

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1   Project Description

The best place to rent high-end homes securely online is Rentoo. Based on their location, quality, and design, we handpick particular homes. We carefully choose the top residences in the best areas. Rent immediately online while lounging on your couch. Rentoo assists you in finding fantastic tenants who conveniently rent your property online after having their references thoroughly checked. For information about amenities, safety, and services in residential complexes, we rely on feedback from current residents. A member of our team verifies each home on Rentoo to ensure it meets our high standards for quality. Each of our landlords must pass a rigorous identity check. Our methods and procedures have been created to guard against fraud. Landlords may safely access your rental profile and accept you within minutes. Online tenancy agreement signature. Rentoo makes it simple to pay your rent. All popular payment options, including bank transfers, are accepted by us. Renters pay no fees, and you always get to see a detailed breakdown of your rent payments.

1.1   Competitive Information

Even so, there are many internet rental marketplaces that offer high-quality flats. yet in contrast to those platforms, we handpick the top flats in the greatest neighborhoods. Rent immediately online while lounging on your couch. Rentoo assists you in finding fantastic tenants who conveniently rent your property online after having their references thoroughly reviewed.

1.2   Relationship to Other Applications/Projects

Our project will be connected to another application built on the apartment-seeking market, which aids users in finding apartments. This project uses Visual Studio as an application and web technologies like HTML, CSS, jQuery, and JavaScript to execute and build the code.

1.3   Assumptions and Dependencies

This website can only be accessed by genuine individuals who have registered, and if they haven't already, they can do so right immediately. The full list of listings that have been uploaded by owners and users who have submitted applications is available to the administrator. It's possible to filter the apartment listings.

1.4   Future Enhancements

We are thinking to develop the application and explore in many places gather many owners and customers by using trending technologies.

1.5   Definitions and Acronyms

Tenant: The one who books a slot to view.
Owner: The One who is responsible for posting the Images of apartment
Admin: The admin portal is to manage all the settings and owners and customers

2   Project Technical Description

Three categories make up this project. Each category has been carefully created to satisfy the needs of the final consumer. Tenant, Owner, and Admin are the three classifications. Each of these jobs has been carefully created to satisfy the requirements of the end user. The next sections discuss each role's architecture and application flow.

2.1   Application Architecture

1. The idea behind breaking down a process into many stages is that knowledge at one level of depth extends to more specific knowledge at a higher level. This DFD, also referred to as a "bubble chart," is used to describe the system requirements and project roles' flow. A DFD is composed of a series of data-related bubbles.
2. The DFD uses four different symbols. 1. A square indicates the source (originator) or destination of system data (destination). 2. Data flow is indicated by an arrow. It serves as the pathway for the transmission of information. 3. A circle or a bubble is used to illustrate a process that changes entering data flows into outgoing data flows. 4. Data storage, resting data, or an open rectangle is a temporary data storage.
3. Owner details, Tenant details, and apartment search serve as the data source in this instance, and data verification and insertion serve to integrate the source data into already-existing dataflows.
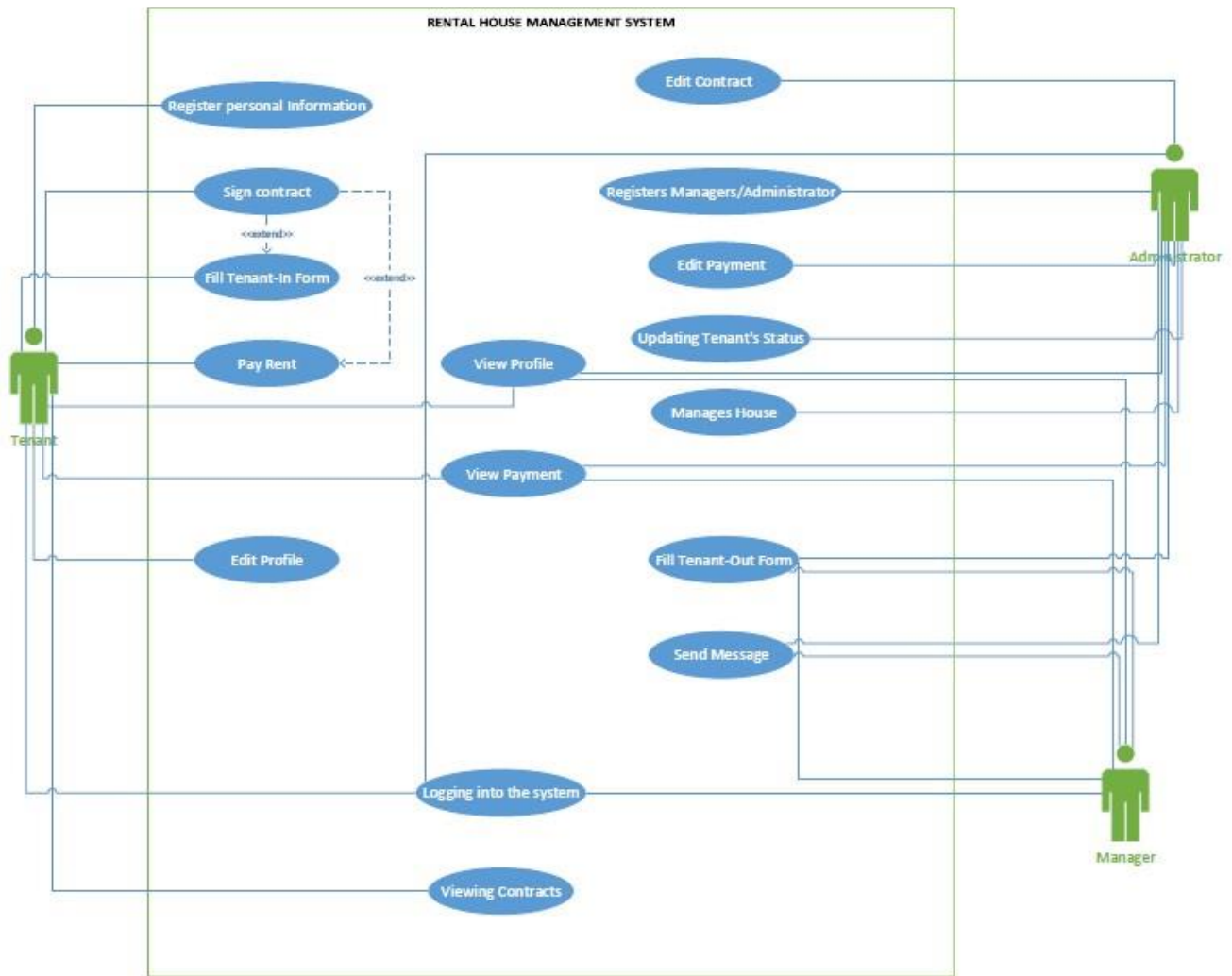
Figure 1: Search Rental apartment

Figure 2: DFD For home seeker
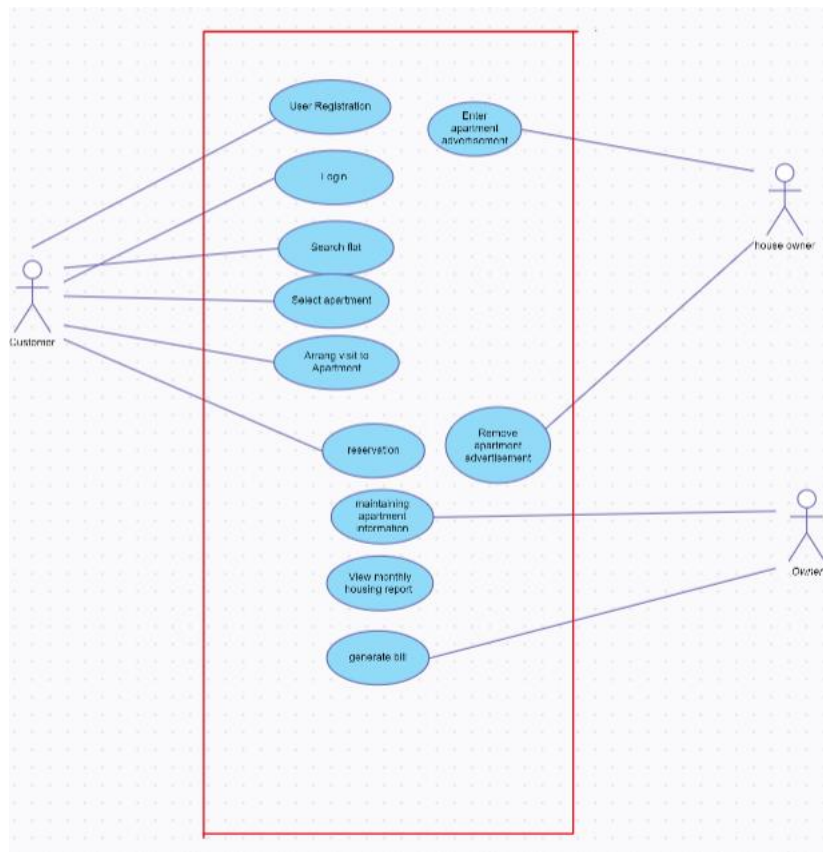
2.2 Application Information flows

The application flows for the GSU Rentoo Project are illustrated in the diagrams below. Figure 3 illustrates the process for logging in or registering for all three roles, accessing their profiles, and exiting the application, while Figure 4 shows how the client and server are used to connect to the database.
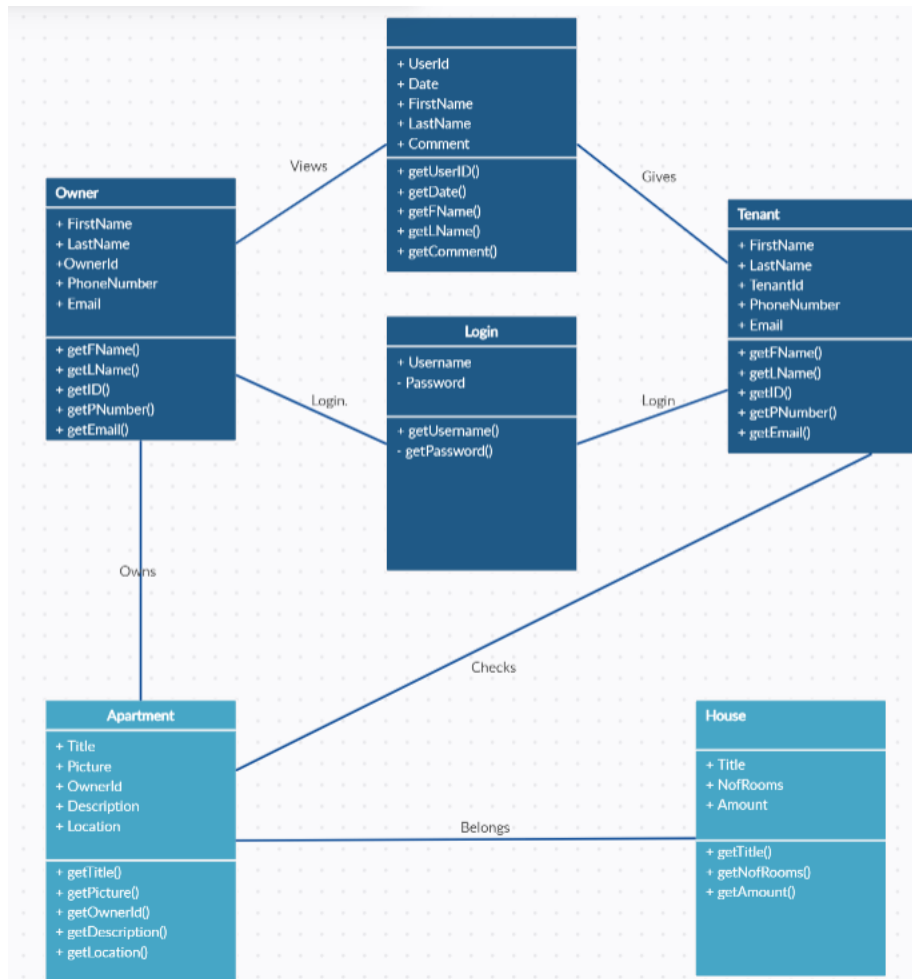
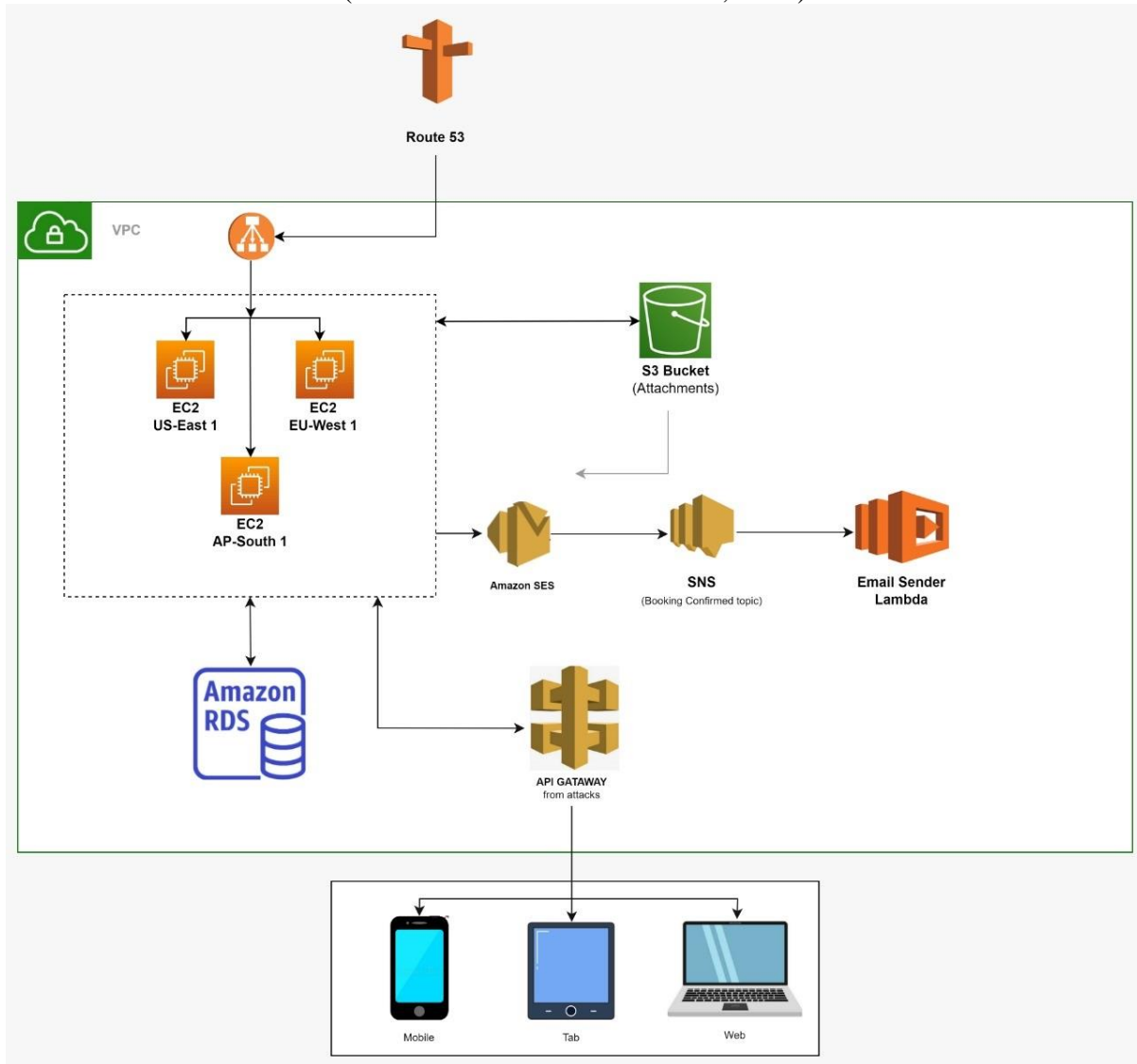Figure 3: Application Architecture

4

(AmazonWebServicesLATAM, 2016)

Route 53

VPC

EC2
US-East 1

EC2
EU-West 1

EC2
AP-South 1

S3 Bucket
(Attachments)

Amazon SES

SNS
(Booking Confirmed topic)

Email Sender
Lambda

Amazon RDS

API GATAWAY
from attacks

Mobile

Tab

Web

Figure 4: Connections between Client, Server, and Database

2.3 Interactions with other Applications

It can interact as Rentoo portal, like the Zillo and Easy home Due to the sheer volume of information and services it offers, Rentoo is the greatest rental listing website overall. It offers services that take the landlord from marketing to rent collecting and has the largest inventory and most site traffic. The Project has been implemented using various technologies. SQL Server is used as the Database used as the technology to build the application. It can retrieve, create, modify, and delete the data dynamically. The retrieving call is used to get the data of the Homes, Customers, and the Admin. The modifying call is sent to update the existing data present in the application. Similarly, the remove call is invoked to remove the information from the application.

2.4 Capabilities

Utilizing a variety of technologies, the Project has been put into action. JAVASCRIPT is utilized as the technology to develop the program, while SQL is used as the database. Dynamically, it is capable of retrieving, generating, altering, and erasing the data. To change the data already available in the program, the modifying call is made. Likewise, the information is removed from the application by using the delete call. Information about the apartments can be created, read, updated, and deleted by us.

2.5 Risk Assessment and Management

The project was put together with the utmost competence. The development team will ensure that any risks are swiftly identified, carefully analyzed, and handled throughout the project if they do arise. They will be located, and swift mitigation actions will be done to limit the impact. The team will set up a risk management log to update and save any risks that materialize and how they are managed for future use. Each risk's effect on the project will be rated as either High, Medium, or Low, and the top risk will be mitigated first before the other risks.

3 Project Requirements

3.1 Identification of Requirements

The main goal of the project is to create a house rental application because it might be challenging to locate decent homes in urban areas nowadays. The home must, however, be rented out by the landowner as well. If it is difficult to get renters, a building owner may lose money by just putting a leasing sign on the property. A common internet platform might be crucial in this scenario. The project's objective is to provide a common web-based online platform for tenants and homeowners so that both groups may benefit from it. After performing all of my research, I chatted with my professor about these needs and eventually identified the particular qualities

User Capability:
 <GSU-GS_SP2022-1 User-Capability-000100>

Every user must be fully able to be created, stored, and managed in the database. We have constructed the SQL Server to oversee this in order to improve this user capacity, which is one of the key objectives in the project. The best tool to manage the database is Server, a leading MS SQL database that also uses ORM-specific tools to engage the dataflow.

User Friendly:
: <GSU-GS_SP2022-1 REACT-00002>

The fundamental factor in keeping a user on a website is the application's user-friendly behavior. To achieve and improve the application's usability, we chose to implement the user interface in C#. This technology is so pleasant and useful that it makes use of the virtual DOM notion, which makes it easier to lighten the load on browsers. In order to convert the virtual DOM to genuine DOM while the remainder is ready to use, it implements a virtual inhibitor called Babel. To make this program user-friendly, we choose to use C#.

User Experience:
: <GSU-GS_SP2022-1 Node-00003>

The program has all the necessary components, including a sizable data management capacity, appealing features, necessary fields, and security. If the program is quick enough to meet the user's needs, the elements will be utilized by the user. We chose not to use Node.js, the best server-side rendering technology available, in order to improve the application's user experience.

3.2 Operations, Administration, Maintenance, and Provisioning (OAM&P)

The user has the power to search for apartments and use filters to find the finest ones in a certain area. Since the main objective of the project is to present the ideal apartment, the user is the application's greatest asset.
The operations that a user can perform are:
- Search the Apartment
- Filter the Apartment
- View their Profile
- Login
- Logout
- Book slot to view
- Access the apartment

The Other Major Role involved in the application is the role of the owner.
The owner's main function in the program is to post newly additional residences that meet the required standards. The person who enrolls in the application is a licensed recruiter.

3.3   Security and Fraud Prevention

On rental applications, sensitive information is typically sought, which might be used fraudulently to steal an applicant's identity. Online form data that is received or stored insecurely might be used for nefarious purposes. While information from paper applications can be utilized for illicit reasons, internet security failures expose applicant information to a broader audience. Fraud Prevention may be done by practicing a few strategies.

- *Watch out for Apartment*- Refrain from clicking on pop-up ads or other advertisements that do not provide you with contact details for the company, such as a phone number or website. Even if you see such ads and want to apply, always browse the website first and get in touch with the business to ask them about the ads and specify the name of the recruitment agency.
- *Please visit the MCA website-* At times, members of the core internal management of a reputable corporation may construct shell companies. These "shell" businesses are employed in employment fraud.

Let's say a business requests payment for anything having to do with the hiring procedure. In that instance, you should ask them to include these details in the offer letters or any other document that specifies additional costs the candidate will be responsible for. Such charged charges must always be supported by legal consideration. Keep in mind that if the fees charged for the hiring process are unlawful, it doesn't matter if the company is real or the offers are real. You could be held accountable for aiding fraud if, for example, the company offered to hire candidates in exchange for candidate payments and you agreed to it.

3.4   Release and Transition Plan

It is possible to install the project in client-side cloud storage. They will receive the prod build that is prepared for deployment. The pre-installed IDE and other tools required to run the application will also have enough drive space to load the system.
Depending on the needs of the customer, the upcoming releases will be provided to them in patch form. Every three months, there would be a general upgrade with improved features; the customer who opted in would receive the required version of the product.
Depending on the user, the version's features change.

4   Project Design Description

The administrative user interface, also known as the generic user interface, is a user interface that focuses on standardized data that is useful, a component of organizational processes, and necessitates proper authorization for data collection. The operational user interface, also known as the lower-level GUIs, is a user interface that does not. Along with offering powerful data search tools, the interfaces assist the administrations with all transactional states like data addition, deletion, and date updating. The system's operational or general user interface assists users in conducting transactions by providing them with the necessary data and services. Ordinary users can manage their information in a personalized way using the operational user interface's assisted flexibilities.

5   Internal/external Interface Impacts and Specification

MVC.net, jQuery, and SQL are a few of the technologies that help with interface design and contribute to making the program user-friendly.
- The server receives a request from the user.
- This request is added to a queue of others.
- Each request is delegated by a single thread via an event loop method to a thread in the thread pool.
- This technique of delegation is dependent on the kind of operation being handled by the thread in the thread pool, such as input/output operations.
- Once the thread is assigned the request in the thread pool, it processes the request asynchronously, which means it continues to process other requests while not even waiting for this one to finish.
- This request returns a result or error when it is resolved.

Additionally, Sequelize offers amazing features to connect between multiple databases. This restful application's backend SQL database is connected through Sequelize.

In order to perform certain operations on the databases we need, we create an object that holds the schema definition and then expose it by importing it. Sequelize leverages promises to chain error and success callbacks, which all work well with unit tests. This function chaining improves readability and maintainability along the way.
The web application is initially launched through the bootstrapping of a root module. The bootstrap callback is registered, and jQuery is downloaded as soon as the web application makes a URL request. Once the HTML page has been downloaded, the callback is put into action.
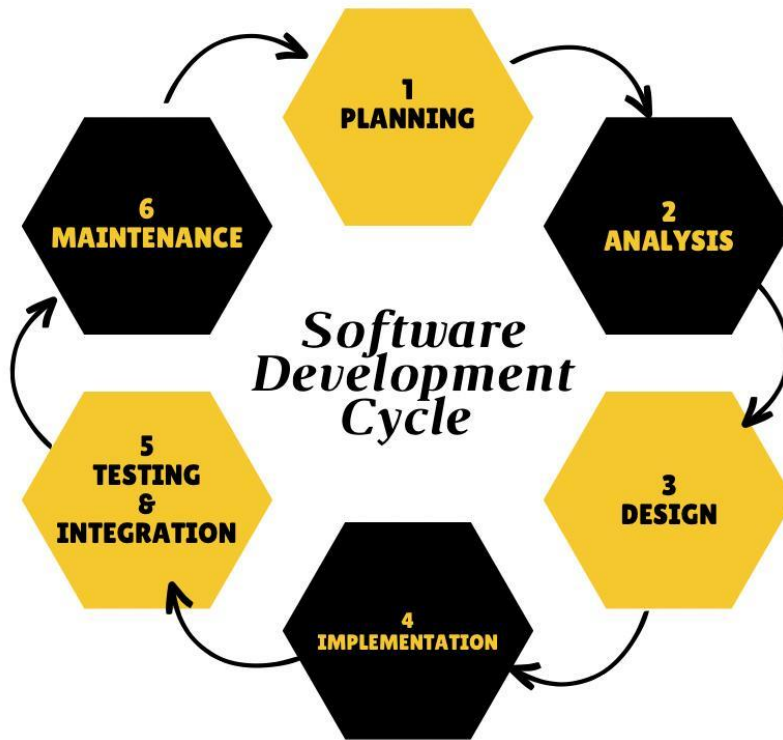
Figure 5: SDLC Life Cycle of Rentoo application

Figure 7: Login and Sign-up Page for Admin and user

Figure 8: Register Page

Figure 9: Home Page

Figure 10: Details of Apartment

Upload Flat Details

Category: Studio

Flat: Flat

Address: Address

Year Build: Year

Price: $0.00

Upload Houses: Choose File No file chosen

Submit

Figure 11: Upload new flat details

6   Design Units Impacts

People can sign up as Tenants, create profiles, and search for flat that fit them
- Tenants can apply directly to Book slot.
- Users can create an account and search for good apartments.
- A company's agents should be allowed to register.

6.1   Functional Area A/Design Unit A

6.1.1   Functional Overview
6.1.2   Software specifications:
- Windows 10 as the operating system
- IDE/Text Editor: Atom, Git Bash CLI, Sublime Text
- Frameworks/APIs: AngularJS, Sequelize ORM, Swagger, MySQL Workbench Application Server: Node 3.10.10
- MongoDB is the database.
- Front-end technologies include HTML5, CSS3, JavaScript, and jQuery. Web services include RESTful web services.
- Browser: Preferably Mozilla Firefox or Google Chrome Impacts

7   Open Issues

Every program that is made available to users in the age of the internet is inevitably fraught with risk. These dangers can differ in many industries, such as the main danger of using social media sites and online fraud. These risk characteristics make online recruiting susceptible to several dangers, including data risk, privacy risk, and others.

Renters should be on the lookout for rental assistance scams as eviction bans in cities and states expire, advises Deborah Royster, assistant director at the Consumer Financial Protection Bureau. Midway through 2021, more than 583,000 senior citizens were behind on their rent, providing opportunity for con artists to pose as representatives of the government or nonprofit sector and demand sensitive information and upfront payment for applications.

8   Acknowledgments

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10   Appendices

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2. https://www.w3schools.com/js/default.asp
3. https://www.w3schools.com/sql/