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Auto Generated Agreement Based House Rental System

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Abstract: *The housing rental market faces several challenges, including numerous landlords, arbitrary charges, and false rental information, making it difficult for the government to monitor and regulate the rental situation effectively. To address these issues, this project proposes the creation of a housing leasing alliance chain using blockchain technology based on encryption algorithms. In this system, landlords and tenants sign lease agreements through smart contracts, which establish the lease relationship, automate the regular payment and collection of rent, and return rental rights when due. The alliance chain network incorporates certification department nodes and record management nodes to verify the authenticity of property listings and personal identity information, back up lease contract information, register housing rental situations, and ensure safe leasing practices. This method eliminates the need for intermediaries, reduces costs, and provides clear housing rental information, benefiting government market supervision. The client application system is designed for the public rental market. Landlords can register, log in, and post available rental information, while tenants can search for matching housing resources based on their needs and send requests to the alliance chain network once they have expressed interest. The alliance chain network is responsible for recording transaction information, authenticating property listings and personal identity information, and maintaining on-chain records of leasing situations. The blockchain repository is tamper-proof and traceable, aiding in the resolution of disputes related to housing leases, such as accommodation issues and lease priorities. The Home Rental System is particularly advantageous for property owners as it saves time by only connecting them with eligible tenants, eliminating the need for verbal explanations of room details. It is best suited for urban areas, allowing customers to easily search for suitable properties based on their budget and occupancy limits.*

Keywords: House Rental System, Block Chain concept, Data Mining, Hashing

I. INTRODUCTION

In traditional Internet applications, increasing the number of users and amount of data typically leads to greater business value, as this data is controlled by a single enterprise. When renting properties, tenants and landlords usually rely on conventional lease agreements to safeguard their interests. However, these agreements often involve third-party payment services, which cannot ensure irreversible transactions or fully store transaction records from the lease period, leading to potential disputes. The goal is to move beyond technological limitations and focus on solutions that work effectively.

Given the ongoing technological paradigm shift, there is a pressing need to harness the potential of technology. The housing sector must adopt new strategies to efficiently manage rental properties. This has created a need for developing a House Rental Project.he Home Rental System is designed for searching apartment houses for rent in metropolitan areas. It serves both property owners and customers. Owners can update details about their apartments and rent information, while customers can access information about room space, rent, and addresses. This system is particularly advantageous for owners because it saves time by allowing them to connect only with eligible renters, eliminating the need to verbally explain room details.The Home Rental System is ideally suited for urban areas, allowing customers to easily search for and find suitable houses within their budget and occupancy limits. The system saves both time and costs, making it a practical solution for simplifying the rental process through an online platform.In summary, the Home Rental System facilitates efficient searches for rental apartments in cities. It benefits both owners and customers

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by streamlining the rental process, ensuring only qualified interactions, and reducing the need for repeated explanations of property details.

II. LITERATURE REVIEW

The housing rental market is fraught with challenges such as unregulated practices, arbitrary charges, and unreliable rental information, making effective governance difficult. Blockchain technology has emerged as a promising solution to address these issues by enhancing transparency, security, and efficiency in rental transactions. T Several studies have highlighted blockchain's potential to revolutionize various industries by improving data integrity and reducing transaction costs. The housing rental market is fraught with challenges such as unregulated practices, arbitrary charges, and unreliable rental information, making effective governance difficult. Blockchain technology has emerged as a promising solution to address these issues by enhancing transparency, security, and efficiency in rental transactions. It is characterized by its decentralized nature, cryptographic security, and ability to automate processes through smart contracts. Several studies have highlighted blockchain's potential to revolutionize various industries by improving data integrity and reducing transaction costs. Recent studies have specifically explored the application of blockchain in the housing rental market. Karamitsos et al. (2018) proposed a blockchain-based platform that facilitates direct interactions between landlords and tenants, eliminating the need for intermediaries and reducing transaction costs. Similarly, Zhang et al. (2020) highlighted the use of blockchain to enhance trust and transparency in rental transactions, addressing issues such as false rental information and arbitrary charges. Blockchain's ability to provide a secure and immutable record of transactions is particularly beneficial in the rental market, where disputes over lease terms and rental payments are common. By maintaining a tamper-proof ledger of rental agreements and payment histories, blockchain can aid in dispute resolution and enhance accountability.

III. PROPOSED METHOD

In the housing rental market, challenges such as numerous landlords, arbitrary charges, and false rental information make it difficult for the government to monitor and supervise the rental situation effectively. Using blockchain technology with encryption algorithms, our system constructs a housing leasing alliance chain. This system automates rent payments and collections, and the rental rights revert to the landlord when the lease expires. The system ensures customer privacy by blocking attackers or fraudsters who may inject vulnerable data. Blockchain's protocol networks allow the development of blockchain and its transactions without interfering with live transactions. In this system, the admin can log in using their username and password to view and manage landlords and tenants by approving, blocking, or deleting them. The admin can also view feedback and ratings, as well as the Cirrus core wallet details of landlords and tenants on the Cirrus Dashboard. Landlords can register to log in and upload property details to find suitable tenants. They can manage property details by adding, updating, or deleting information, as well as creating, confirming, and terminating rental contracts. Landlords can view contract details, including rent, date and time, property location, and tenant information. They can also view the list of tenants who have applied for renting and provide ratings and feedback about tenants, along with accessing rent transaction history. Tenants can view available property details and rent amounts, send notifications to landlords to rent specific properties, and filter properties by price range and location. Upon confirmation of rental details and deposit information, tenants can proceed with rent payments. Users initially sign up and create an account. When logged in, the system automatically shows the number of rented houses in specific locations. Information such as owner name, house rent, address, and mobile number helps users avoid brokers, alongside rent payment and registration forms.

Each form includes several command buttons: New, Search, Cancel, Back, and Exit. The system maintains customer privacy by eliminating threats from attackers or fraudsters who inject vulnerable data. Blockchain's protocol networks allow for seamless development and transaction processing without disrupting live transactions.

IV. TECHNOLOGY USED

Visual Studio 2022

Microsoft's Visual Studio is Known for being modern, feature-rich, and advanced, Visual Studio receives more frequent updates than any other IDE. The upcoming version, Visual Studio 2022, has just had its first public preview released by the Visual Studio team. This new version promises to be faster and more lightweight compared to its predecessor. The team has concentrated on improving the overall user experience to make the IDE more user-friendly, resulting in a cleaner and more streamlined interface. Additionally, Visual Studio 2022 introduces intelligent features that provide recommendations on code cleanliness, quality, adherence to standards, and best practices. These enhancements are designed to help developers write better code by offering suggestions that improve code structure and maintainability. Overall, Visual Studio 2022 is poised to deliver a significant upgrade to the development experience, making it easier for developers to create high-quality software efficiently. With its focus on performance, usability, and intelligent assistance, Visual Studio 2022 is set to become an essential tool for developers looking to enhance their productivity and code quality.

Blockchain Technology

A fundamental characteristic of blockchain technology is its decentralization. This decentralized setup makes blockchains particularly robust against hacking and fraudulent activities. A major advantage of blockchain technology is its decentralization. Unlike traditional databases controlled by a single entity, a blockchain functions on a distributed network of computers, or nodes. Each node holds a complete copy of the blockchain, which boosts security and reduces the risk of data tampering or centralized failures. This decentralized model makes blockchains particularly resilient against hacking and fraud. Beyond the realm of cryptocurrencies, blockchain technology has promising applications in areas such as supply chain management, healthcare, finance, and voting systems. It offers transparent and verifiable transaction records, enhances efficiency, and reduces costs. blockchain technology represents a significant advancement with its focus on security, transparency, and decentralization. Its potential applications are vast and can lead to meaningful improvements across various sectors of society.

ASP.Net

ASP.Net is an open-source web framework created by Microsoft for building modern web applications and services with .NET. ASP.NET is a subset of the .NET Framework and the successor to the classic ASP (Active Server Pages). The first version of ASP.Net was released in January 2002 with the .NET Framework 1.0.Before the advent of .NET and ASP.NET, developers used Classic ASP for creating web applications and services. ASP.NET is built on the Common Language Runtime (CLR), allowing programmers to execute code using any .NET language, such as C# or VB. It is specifically designed to work with HTTP and enables web developers to create dynamic web pages, applications, websites, and services by integrating HTML, CSS, and JavaScript seamlessly. A web application is installed only on the web server and is accessed by users via web browsers like Microsoft Internet Explorer, Google Chrome, Mozilla Firefox, and Apple Safari. In addition to ASP.NET, other technologies such as Java, PHP, Perl, and Ruby on Rails can also be used to develop web applications. Web applications provide cross-platform functionality, as users only need a web browser to access them. Web applications developed using the .NET framework or its subsets need to be executed under Microsoft Internet Information Services (IIS) on the server side. It's important not to confuse terms like ASP.NET, ASP.NET Core, and ASP.NET MVC, as they represent different development models within the ASP.NET ecosystem.

C#.Net

C# is a programming language specifically designed to closely reflect the underlying Common Language Infrastructure (CLI). This relationship is evident in the way most of its intrinsic types correspond to the value types implemented by the CLI framework. However, the language specification does not impose specific code generation requirements on the compiler. This means that a C# compiler is not obligated to target a Common Language Runtime (CLR), generate Common Intermediate Language (CIL), or produce any particular output format. In theory, a C# compiler could generate machine code, much like traditional compilers for languages such as C++ or FORTRAN.One of the notable features of C# is its strict organization of code. In C#, there are no global variables or functions; all methods and members must be declared within classes. This design choice helps maintain a clear and organized structure, as static members of public classes can substitute for global variables and functions. Unlike languages such as C and C++, C# does not allow local variables to shadow variables from the enclosing block. Variable shadowing can often lead to confusion and errors in C++ programming, and C# addresses this issue by enforcing clear and distinct variable scopes. In C#, statements that require conditions, such as `while` and `if`, must use expressions of a type that implements the true operator, such as the Boolean type. While C++ also has a Boolean type, it permits implicit conversions to and from integers. This allows expressions such as `if (a)` to work as long as `a` is convertible to `bool`, which could include `int` or pointers. C# disallows this practice to avoid common programming errors found in C and C++, such as mistaking the assignment operator `=` for the equality operator `==`. By enforcing the use of expressions that return exactly `bool`, C# reduces the likelihood of such mistakes. Moreover, C# incorporates a robust approach to memory management. Memory address pointers can only be used within blocks specifically marked as unsafe, and programs containing unsafe code require appropriate permissions to execute. Most object access in C# is accomplished through safe object references, which always point to either a live object or have a well-defined null value. It is impossible in C# to obtain a reference to a "dead" object that has been garbage-collected or to a random block of memory. Although an unsafe pointer can point to an instance of a value type, array, string, or a block of memory allocated on a stack, code not marked as unsafe can still manipulate pointers through the `System.IntPtr` type but cannot dereference them.

V. DATABASE DESIGN

Database design is a critical aspect of information technology and software development, focusing on the creation and organization of a database structure that efficiently stores, manages, and retrieves data. Effective database design is foundational to ensuring that data systems are reliable, scalable, and maintainable. It involves a detailed process that includes requirements analysis, conceptual design, logical design, and physical design. Each stage is essential in translating real-world data requirements into a structured framework that supports an organization’s data-driven applications. Database design cannot be overstated, as it directly impacts the performance and integrity of the data system. A well-designed database optimizes data storage, minimizes redundancy, and ensures data consistency and accuracy. This efficiency is crucial in supporting fast query processing and providing users with timely access to relevant information. Moreover, a robust design anticipates future data needs, accommodating scalability and adaptability as the volume of data grows or business requirements evolve.

Login

Field Name	Data Type	Size	Constraint	Description
username	varchar	20	Primary Key	Username
password	varchar	20	NOT NULL	Password
role	varchar	10	NOT NULL	Role

App Rent

Field Name	Data Type	Size	Constraint	Description
App id	int	4	Primary Key	Application ID
Lu name	varchar	20	NOT NULL	Land Lord Username
Cu name	varchar	20	NOT NULL	Customer Username
Book id	int	4	NOT NULL	Booked ID
H code	int	4	NOT NULL	Home Code
L status	varchar	10	NOT NULL	Land Lord Status
C status	varchar	10	NOT NULL	Customer Status
status	int	4	NOT NULL	Status

Home Registration

Field Name	Data Type	Size	Constraint	Description
H code	int	4	Primary Key	Home Code
H cat	varchar	10	NOT NULL	Home Category
bed	varchar	20	NOT NULL	No of Bed Room
bath	varchar	10	NOT NULL	No of Bath Room

furnish	varchar	10	NOT NULL	Furnished
car	varchar	10	NOT NULL	No of car parking
area	varchar	10	NOT NULL	Total Area
TF	varchar	10	NOT NULL	Total Floor
H date	varchar	20	NOT NULL	Upload Date
description	varchar	300	NOT NULL	Description
price	varchar	20	NOT NULL	Price
title	varchar	100	NOT NULL	Title
M Image	varchar	100	NOT NULL	Image Path
status	varchar	4	NOT NULL	Status
Lu name	varchar	20	NOT NULL	Land Lord Username
location	varchar	30	NOT NULL	Location

user Registration

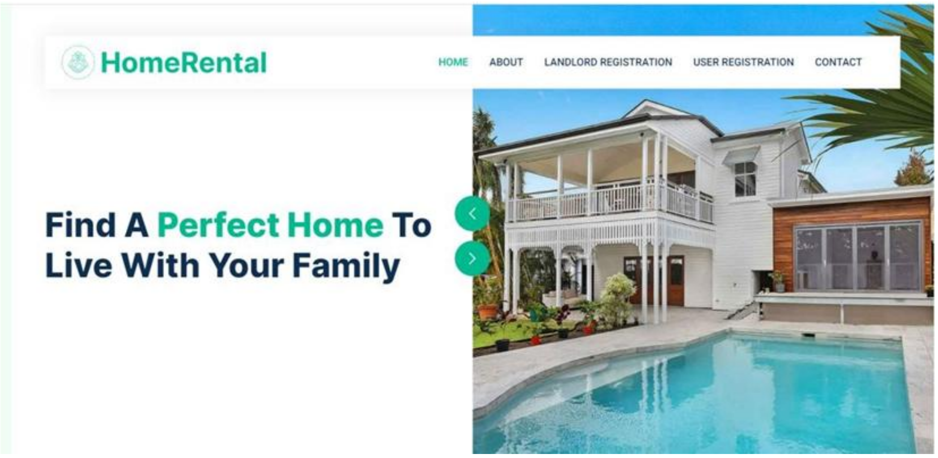
Field Name	Data Type	Size	Constraint	Description
U id	int	4	Primary Key	User ID
username	varchar	20	Foreign Key (ref from login)	Username
password	varchar	20	NOT NULL	Password
name	varchar	30	NOT NULL	Name
gender	varchar	10	NOT NULL	Gender
email	varchar	50	NOT NULL	Email ID
address	varchar	100	NOT NULL	Address
location	varchar	50	NOT NULL	Occupation
Lat	varchar	20	NOT NULL	Latitude
long	varchar	20	NOT NULL	Longitude
contact	varchar	50	NOT NULL	Contact Number
Designation	varchar	100	NOT NULL	Designation
status	int	4	NOT NULL	Status

VI. FUTURE ENHANCEMENT

In the future, our project aims to meet the needs of rental house owners by adopting several user-friendly interfaces. This package is designed to effectively satisfy all user requirements. I present this software with utmost confidence, hoping it will solve your problems and encourage you to continue embracing technology, as it is intended to simplify and ease tasks that may seem difficult. While I don't claim that my project is the best or that it uses the most advanced technology available, it is a simple and humble venture that is easy to understand. In the future, we can add a built-in GPS system and provide a live chat option for users. This app can also be extended to the iOS platform, and multiple state databases can be included. Additionally, the app could allow local businesses to push deals and coupons within a specific geographic area.

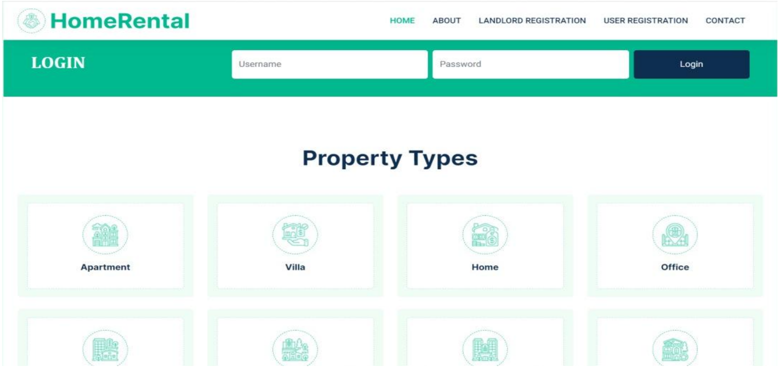
VII. RESULT

Home Page

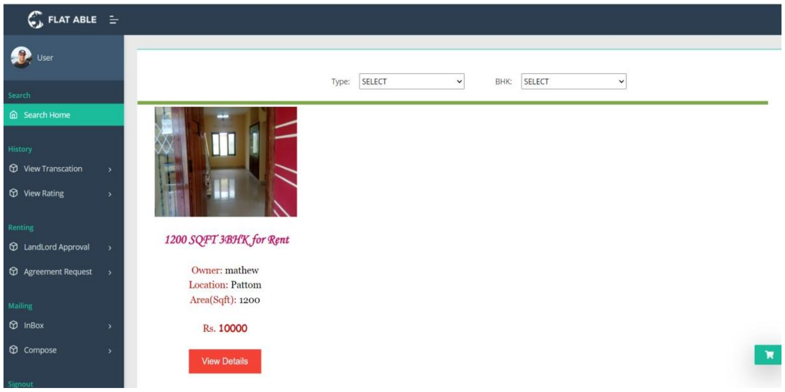


Find A Perfect Home To Live With Your Family

Login Form



User Search Home



Type: SELECT BHK: SELECT

1200 SQFT 3BHK for Rent

Owner: mathew
Location: Pattom
Area(Sqft): 1200

Rs. 10000

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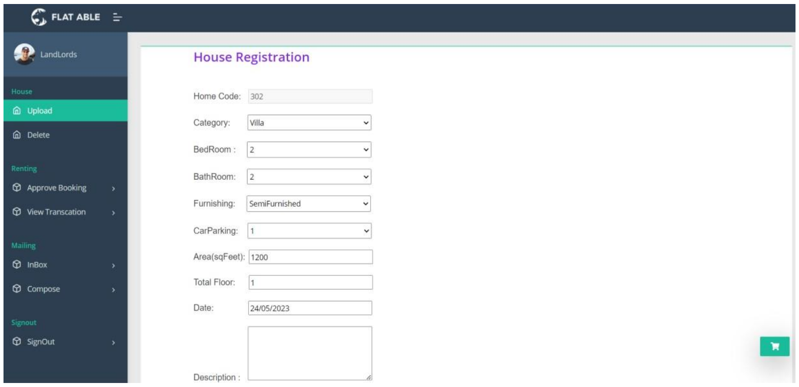
House Registration



House Registration

Home Code: 302
Category: Villa
BedRoom : 2
BathRoom: 2
Furnishing: SemiFurnished
CarParking: 1
Area(sqFeet): 1200
Total Floor: 1
Date: 24/05/2023
Description :

VIII. CONCLUSION

The main purpose of this house rental website is to provide an easy way for tenants to find a house, PG (paying guest accommodation), hotel, or flat, as they often face difficulties when renting. I have worked to establish a platform where owners and tenants can easily interact, believing this rental zone website will be a blessing that simplifies their lives. This online house rental zone is user-friendly and suitable for both owners and tenants, saving tenants valuable time, reducing stress, and preventing unnecessary expenses. For owners, there is no need to explain room details verbally, and for renters, there is no need to go door-to-door. The online house rental website or system is the best way to search for a house, apartment, office, PG, or hostel, making the renting process easy and effective. General users are the main audience for this website, so I have made it dynamic and user-friendly to serve them better. Through this website, tenants can book available houses, PGs, hostels, or flats online before their intended use date, avoiding the need to walk around searching for vacant properties. The goal of the project is to create an online rental system for all tenants and landlords to foster better relationships and facilitate easy interactions. Effectively resolving apartment issues is crucial for the long-term stability of tenants. The Rental Property Management app will be an important tool for creating rental housing stability by helping tenants communicate more effectively through documented communications, thus building productive relationships with sellers. This app will provide buyers with insights into specific housing associations and social sellers.

REFERENCES

[1]. Yu, Y., Dong, Y. & Guo, X., 2018. Pricing for sales and per-use rental services with vertical differentiation. European Journal of Operational Research, 270(2): 586–598.

[2]. Zhuang, W., Chen, J. & Fu, X., 2017. Joint dynamic pricing and capacity control for hotels and rentals with advanced demand information. Oper. Res. Lett.

[3]. Yu, X.L., Xu, X. & Bin Liu, 2017. Eth Drive-A Peer-to-Peer Data Storage with Provenance. CAiSE-Forum-DC. Wilkinson, S., 2016. Storj A Peer-to-Peer Cloud Storage Network. Cheng, Z. et al., 2018. Deterministic Proof of Work. arXiv.org, cs.CR.

[4]. Gupta, D., Saia, J. & Young, M., 2017. Proof of Work Without All the Work: Computationally Efficient Attack-Resistant Systems. arXiv.org, cs.DC.

[5]. Y. Yuan, F.-Y. Wang, 2016. Blockchain: The State of the Art and Future Trends[J]. Acta Automatica Sinica, 42(4): 481-494.

[6]. Kim, H.M., Laskowski, M. & Nan, N., 2018. A First Step in the Co-Evolution of Blockchain and OntologiesTowards Engineering an Ontology of Governance at the Blockchain Protocol Level. CoRR, cs.CY.

[7]. Nakamoto S, 2009. Bitcoin: a peer-to-peer electronic cash system. Ethereum White Paper, 2015. A next-generation smart contract and decentralized application platform.

DOI: 10.48175/IJARSCT-19335

[8]. Ethereum: A Secure Decentralised Generalised Transaction Ledger. Available at: https://gavwood.com/paper.pdf. David Johnston, 2015. The General Theory of Decentralized Applications, Dapps. Available https://github.com/DavidJohnstonCEO/DecentralizedApplications.

[9]. Kim, H., M., 2018. A perspective on blockchain smart contracts: reducing uncertainty and complexity in value exchange. Social Science Electronic Publishing, 1-6.

DOI: 10.48175/IJARSCT-19335