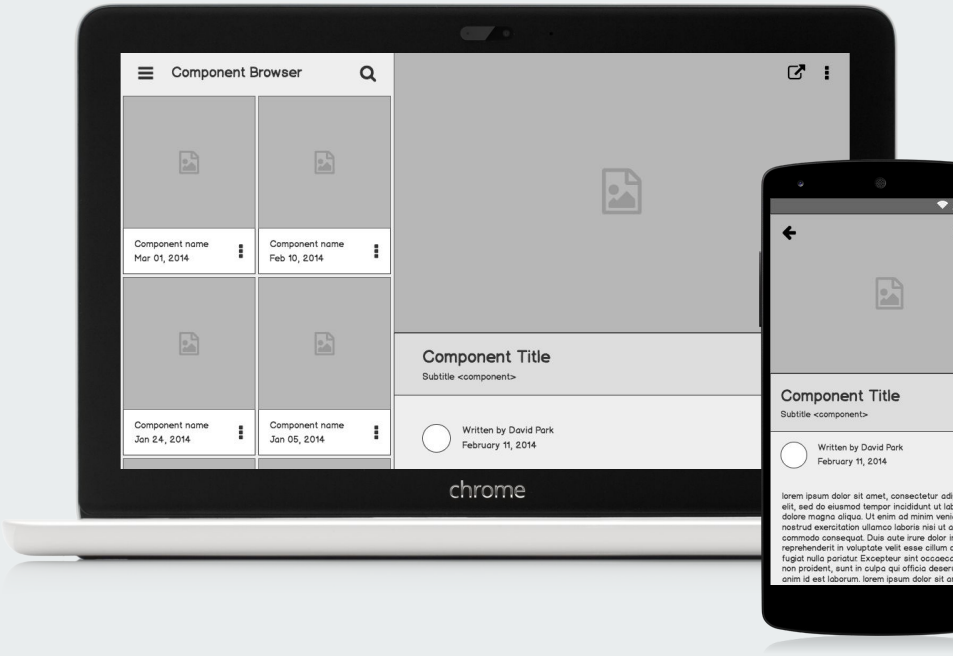
Application of Blockchain Technologies on Business Process (Study Case)

Real Estate Blockchain Application



Outline

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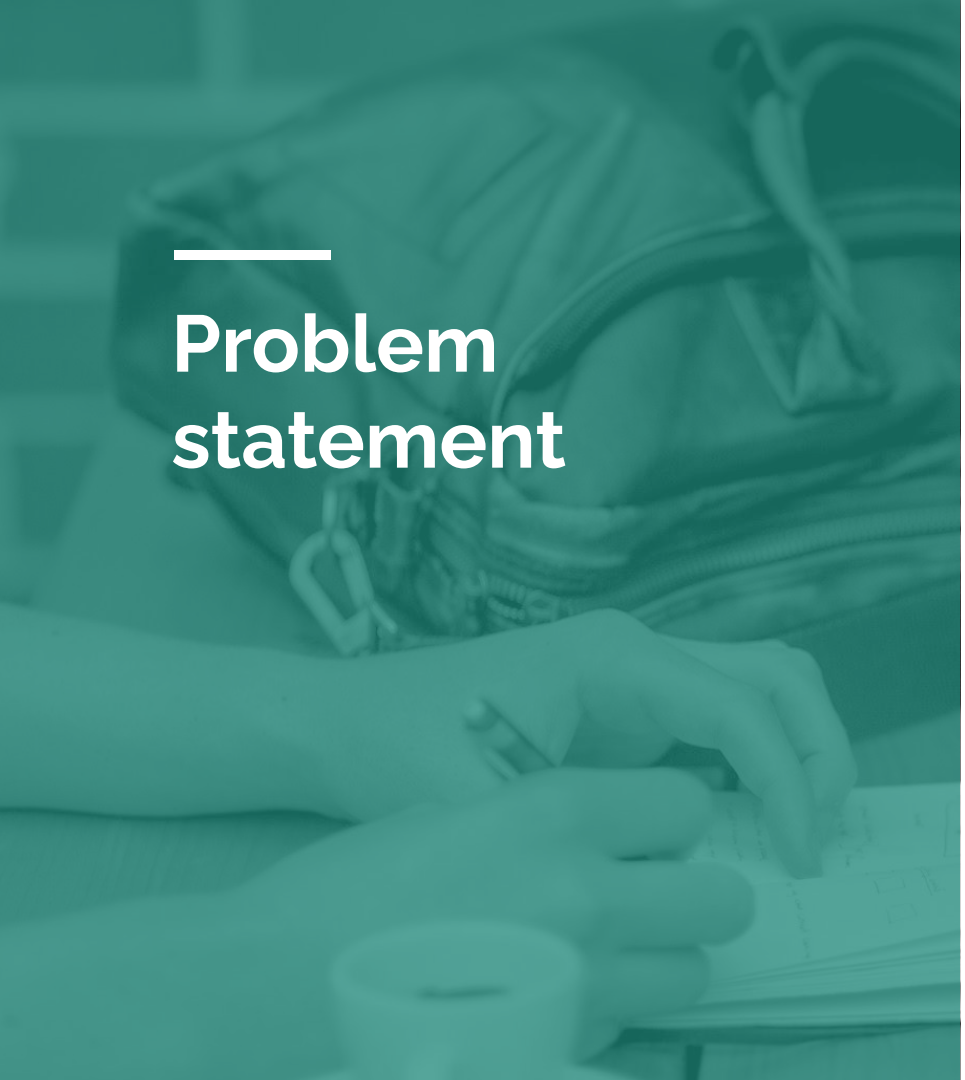
The Problem



Problem statement

Using blockchain-based smart contracts in real estate transactions

This results are cost-effective process, improves communication and trust between parties, and also can be used in rental agreements and property management.

Potential Users on the market

List of potential users possibility

- Real estate agents
- Wide community
- Government
- Building developers

Market, Users, and KPI

Market Position

advantages over traditional contracts

- Increased efficiency
- Improved accuracy
- Enhanced security
- Reduced costs
- Automatic enforcement

Key Performance Indicator

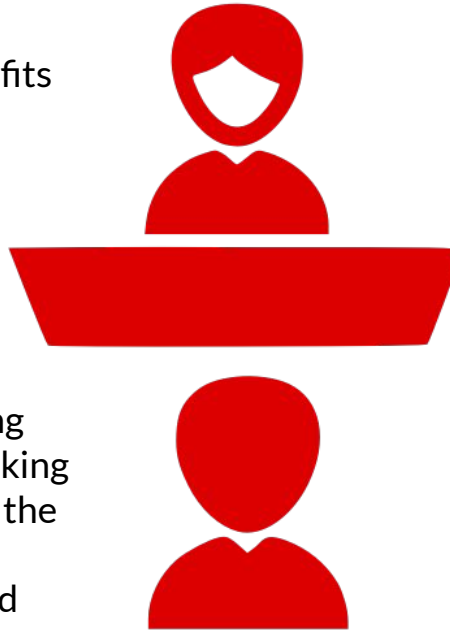
With smart contracts, the use of automation and digital signatures can significantly reduce processing time and improve efficiency

- Percentage of Contracts Completed Without Human Intervention
- Contract Accuracy Rate
- Time to Resolution

User Interview and Stories

User hypothesis based on Interview 1

"The potential user is an e-commerce store owner who is interested in exploring the benefits of smart contracts to streamline payment and fulfillment processes. They have no prior experience using smart contracts but are motivated to increase efficiency and reduce administrative burden."



User hypothesis based on Interview 2

"The potential user is a business owner who is interested in the potential benefits of using smart contracts to increase transparency and security in their transactions. They are looking for ways to automate and streamline their business processes and are open to exploring the use of smart contracts. They are willing to work with a consultant to identify specific processes that could benefit from using smart contracts and are willing to invest time and resources into implementing them."

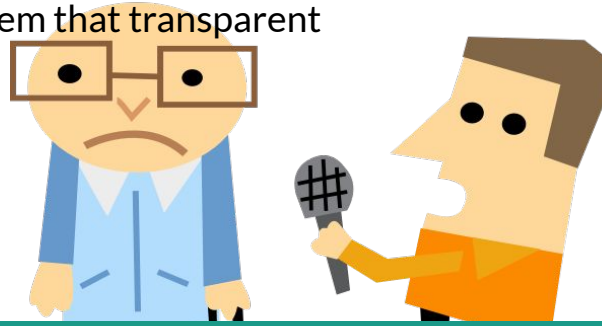
What we need to consider when we build the product

From this point, we formulate a scheme what we need to consider when we build the product:

1. Simplicity: the application interaction with the users should be easy to understand.

2. Security: based on the interview with business owners, they need to make sure that the system is secure, that is why what we offer is by using blockchain technology, it is possible to make the transaction secure and safe.

3. Efficiency: all the potential users mentioned that they want a system that transparent and relatively fast in processing time.



MVP Scope

Scope of Buyer

Category	Sub-category	App feature	Scope
Find Property	Search place to stay	Search by ID	Completed
	Browse listing	Display listing	Completed
	View listing	Display listing	Completed
Buy Property	Reserve a place	Select property	Completed
	Review property detail	Submit payment detail	Completed
	Confirm pay	Secure payment redirect	Completed

Scope of Seller/Agent

Category	Sub-category	App feature	Scope
List my property	Add property detail	Define my property's available spaces	Completed
	Set property location	Define my property's available spaces	Completed
	Amenities and available spaces	Select my property's available spaces	Completed
	Add property photo	Random photo	Completed
Manage my property	Property management	Add a listing title	Completed
	Property pricing	Price my property	Completed
	Preview my listing	View a summary of my listing detail	Completed

Application Demo

Blockchain Technologies Used

- Ethereum https://ethereum.org/en/developers/docs/intro-to-ethereum/

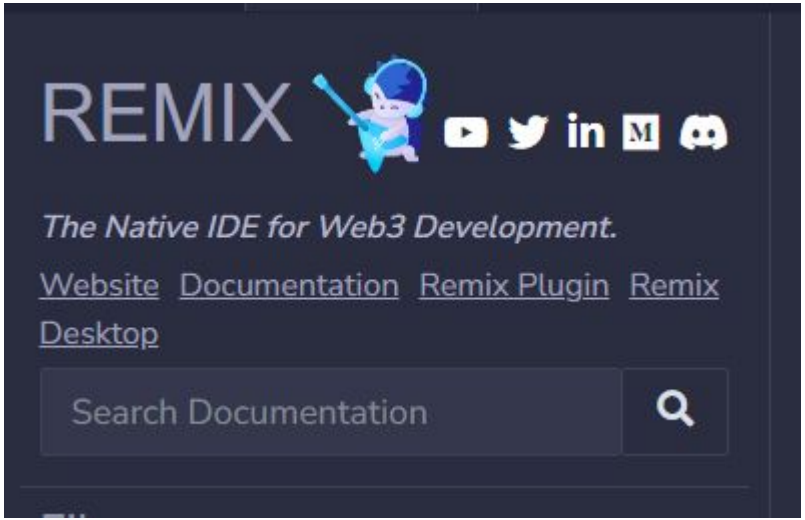
Blockchain Technologies Used

Solidity is a statically-typed curly-braces programming language designed for developing smart contracts that run on Ethereum.

get started

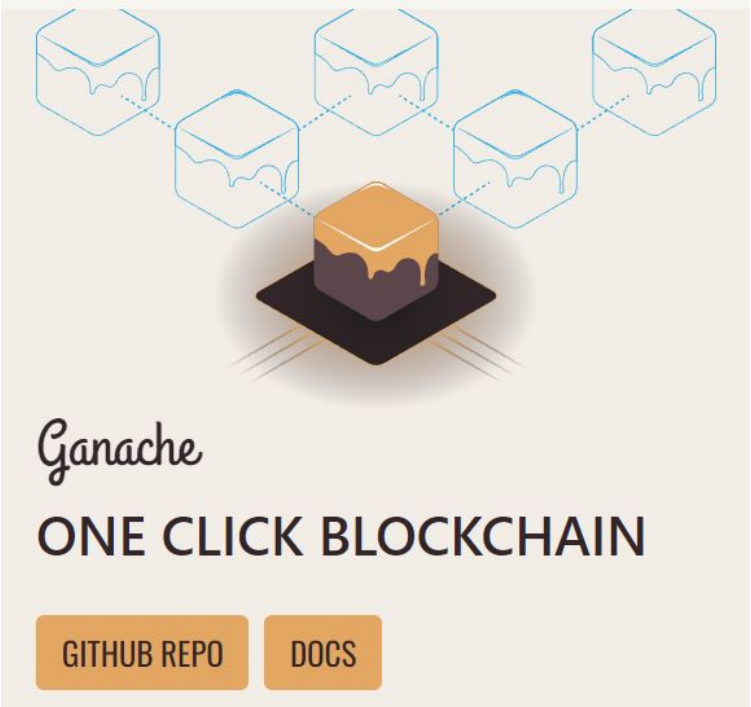
- Solidity (programming language for developing smart contract on ethereum)
- https://soliditylang.org/

Blockchain Technologies Used



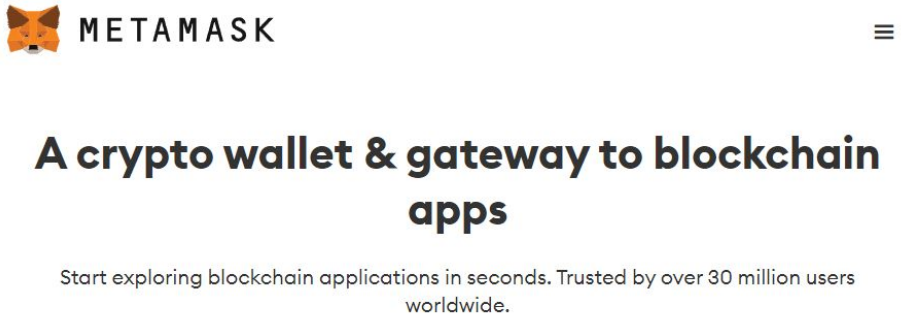
- https://remix.ethereum.org/#lang=en&optimize=false&runs=200&evmVersion=null&version=soljson-v0.5.17+commit.d19bba13.js
- IDE for deploying the smart contract

Blockchain Technologies Used



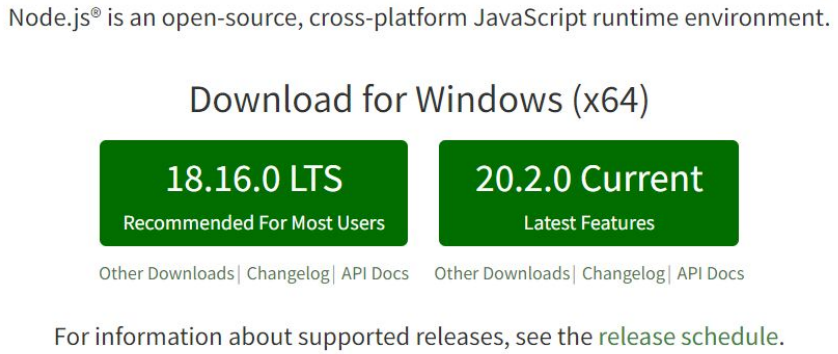
- https://trufflesuite.com/ganache/
- Local blockchain network for local testing purpose

Blockchain Technologies Used



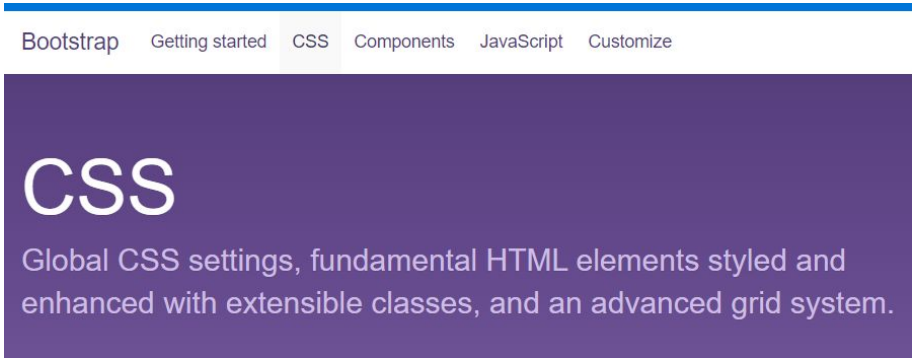
- https://metamask.io/
- Crypto wallet and gateway to connect with the blockchain network

Web Technologies Used



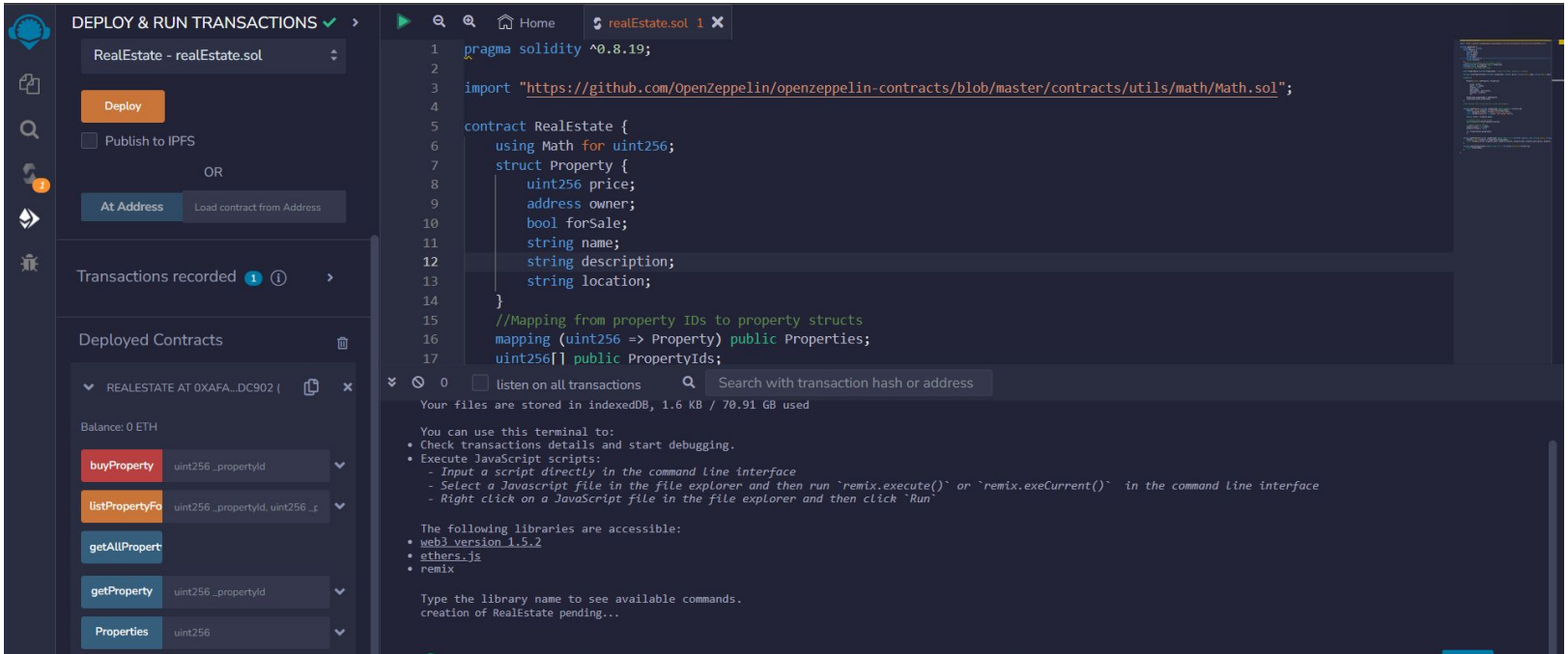
- https://node.js
- Node.js® is an open-source, cross-platform JavaScript runtime environment.

Web Technologies Used

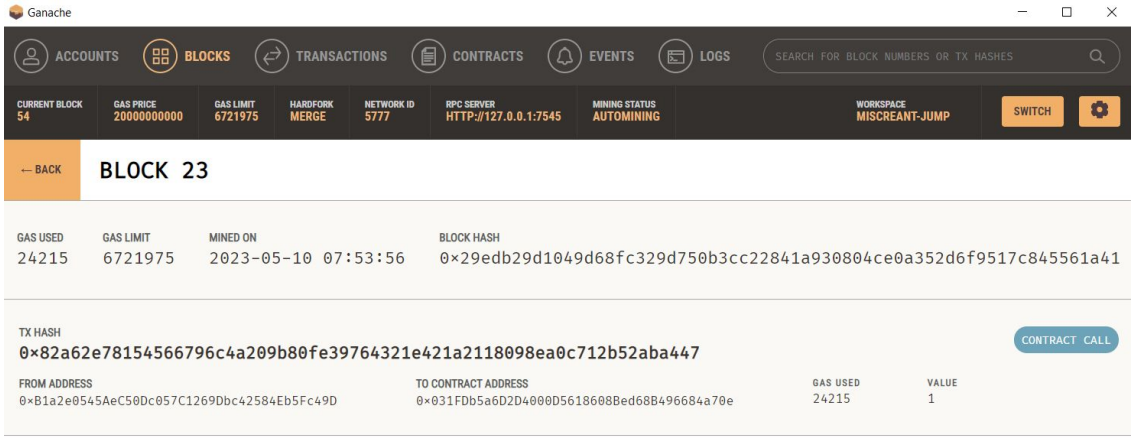


- https://getbootstrap.com
- Bootstrap makes use of certain HTML elements and CSS properties that require the use of the HTML5 doctype.

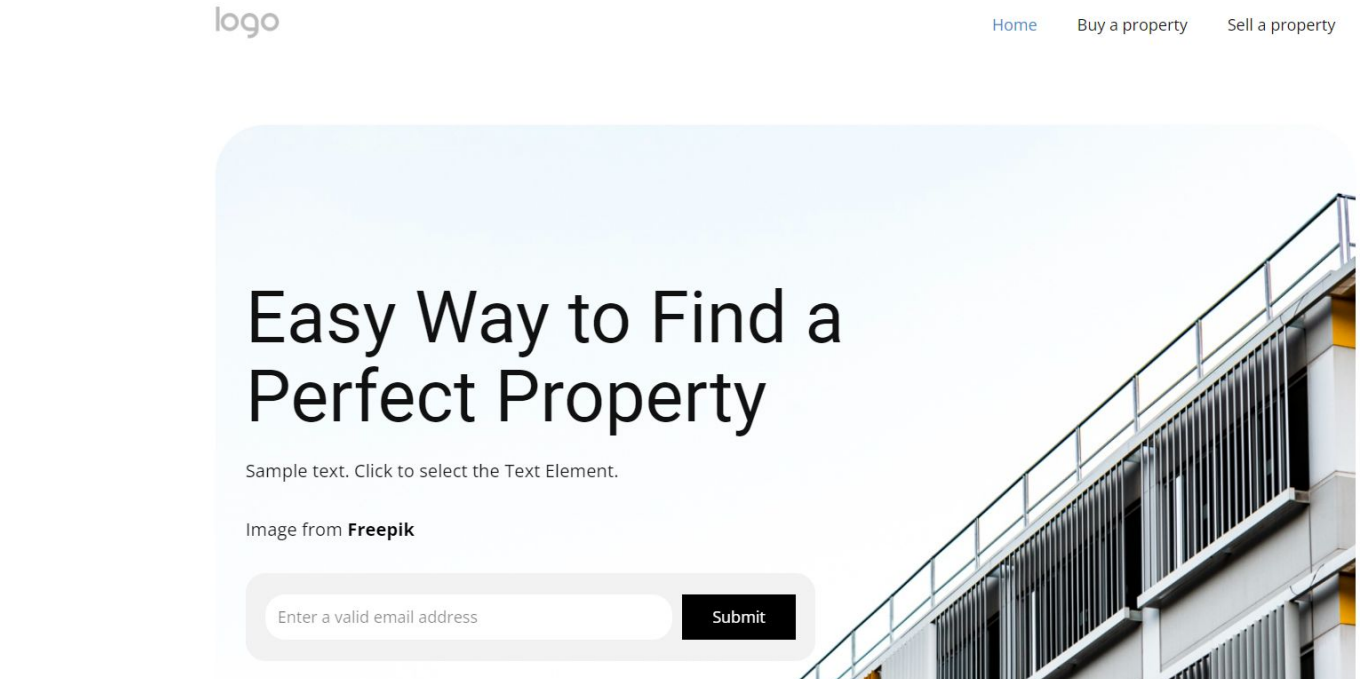
Smart Contract Deployment on Remix



Deployed Contract on Ganache



Main Interface

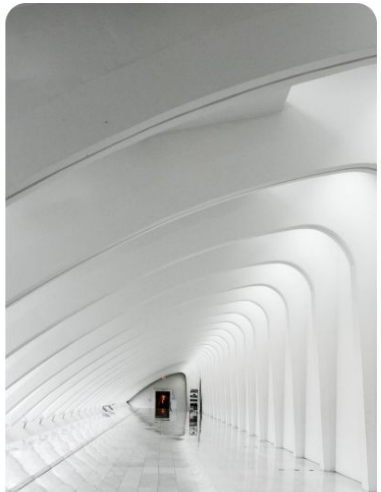


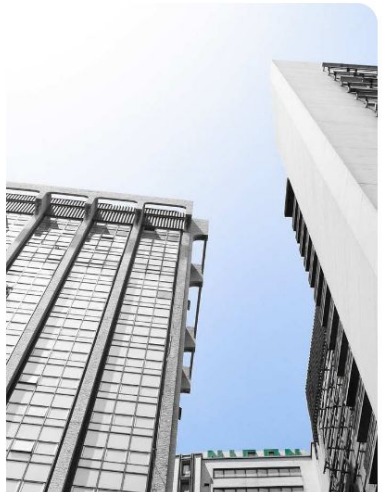
List Properties Interface

logo

Home Buy a Property Sell a Property

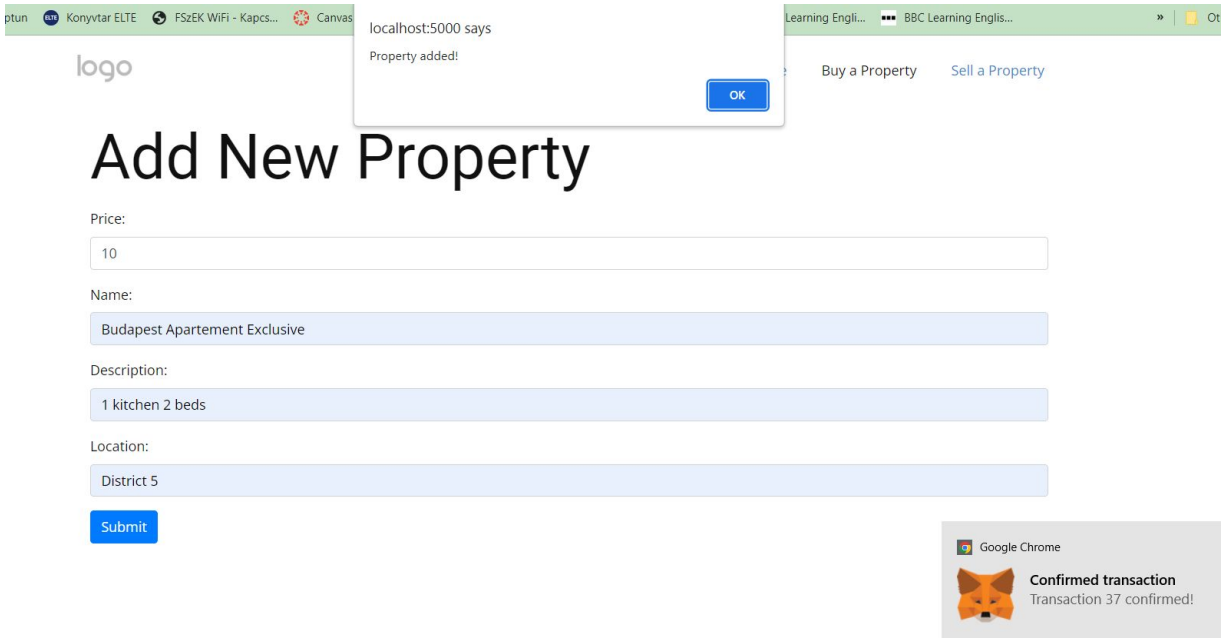
List of Properties



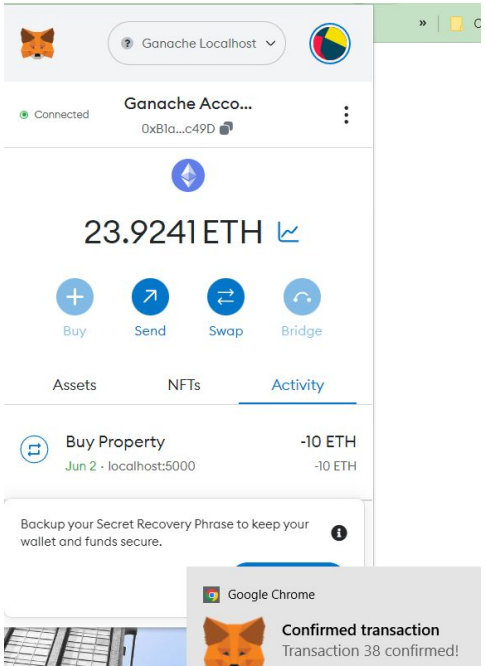


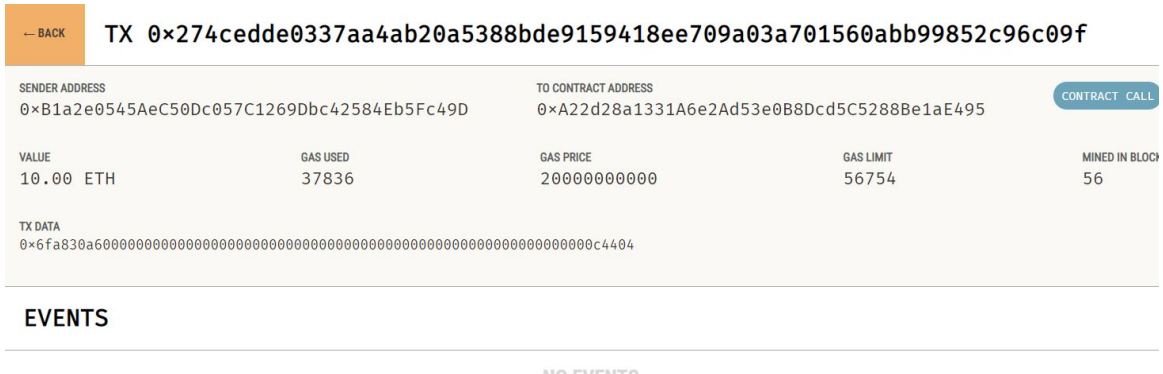
Selling Property Interface

Transaction Sample Interface



Transaction Sample Interface





Conclusion

Implementing blockchain-based smart contracts on a real estate website, using Ganache in a local environment, offers increased security, transparency, and efficiency in transactions. It ensures tamper-proof records and automates processes, reducing the need for intermediaries. However, challenges include the technology's novelty and potential resistance from traditional players. Despite this, embracing blockchain and smart contracts can improve the real estate industry by streamlining and enhancing trust in transactions.

References and Resources

https://github.com/oxtervlox/BlockchainApplicationsInBusinessProcesses