

# Decentralized Real Estate Financing

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# What we made:

A dApp which allows a real estate seller to tokenize and crowd sell properties.

## Executive Summary

Blockchains are positioned to be the next technological advancement in real estate investment. The potential for digitizing real estate assets means that ownership of these assets can be fractionalized through ownership of tokens.

Suppose a seller has a property title wrapped in a unique LLC and would like to sell fractionalized shares of the LLC to Ethereum investors. These investors would then have the rights to collect income on the property.

To make this transaction on the ERC 721 Network, the seller can use this application to convert their property into tokens and process the sale of them.

# Technologies

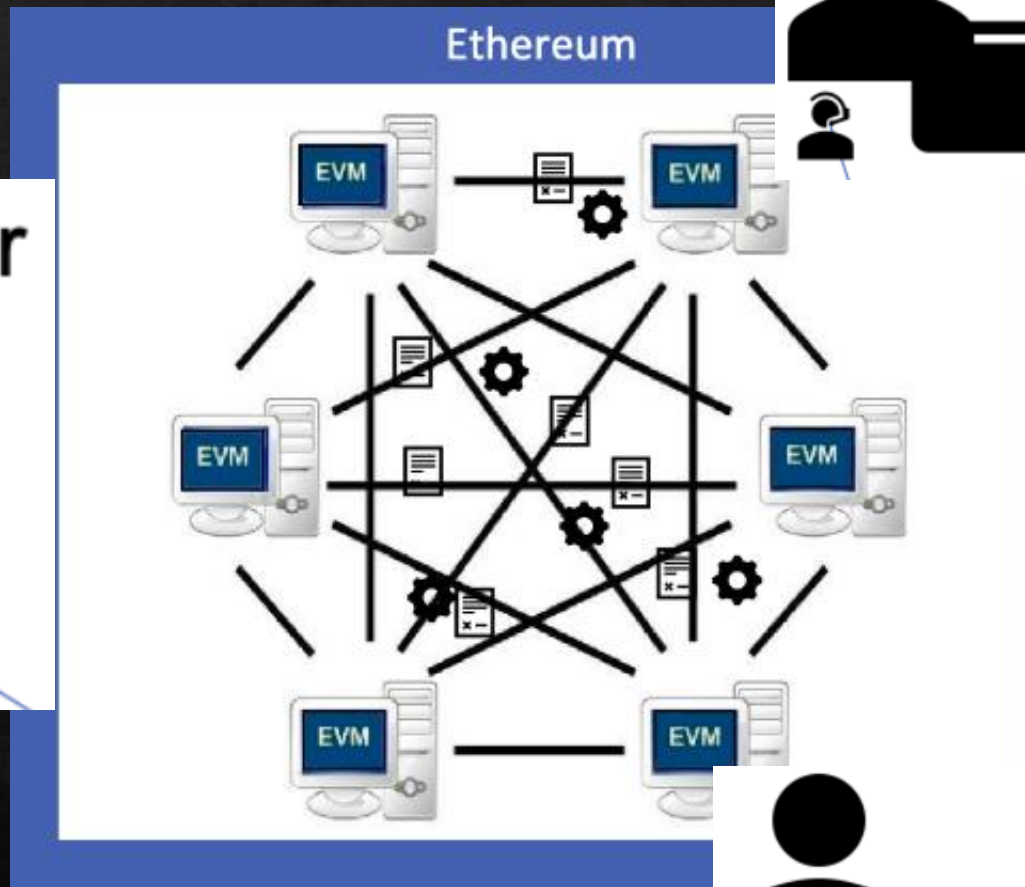
- ◆ Streamlit
- ◆ Python
- ◆ Solidity
- ◆ Pinata API
- ◆ Meta Mask
- ◆ Web 3.0
- ◆ OpenZeppelin library - for smart contract development (ERC20, ERC721)



# Approach

- ◆ Register the NFT with picture and appraisal value
- ◆ Mint tokens with a cap that is equal to appraisal value in USD
- ◆ Crowd sale
- ◆ Administer real estate revenues through a smart contract
- ◆ User interface in Streamlit

Seller

A black silhouette icon of a person sitting at a desk with a computer monitor and a headset, representing a seller.

Buyer

A black silhouette icon of a person sitting at a desk with a computer monitor and a headset, representing a buyer.

Buyer

A black silhouette icon of a person sitting at a desk with a computer monitor and a headset, representing a buyer.

Buyer

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# Testing and Evaluation

## ◆ Testing

- ▢ Run a complete cycle of transactions
- ▢ Interact with the smart contract

## ◆ Evaluation

- ▢ Verify results by viewing updated wallet balances



# Results and Conclusions

Streamlit Demonstration

LAUNCH APP:

# Challenges

## TEAM CHALLENGES

- ◆ Organizing meeting times
- ◆ Team members facing the homework deadline and other end of class obligations
- ◆ Learning Solidity in the limited time

## TECHNICAL CHALLENGES

- ◆ Trouble with connecting to Meta Mask and resetting password
- ◆ Multiple full stack interfaces to launch this program
- ◆ Running out of gas for deployment contracts with multiple elements
- ◆ Recoding the solidity.app to run in streamlit
  - ▢ Sending the msg.values() to the crowdsale contract in Streamlit



# Next Steps

- ◆ Smart contract for renters
  - ▢ Collect security deposit and rent directly from wallet
- ◆ Smart contract for sale
  - ▢ Distribute dividends every quarter
  - ▢ Property liquidation
  - ▢ Security approval for making a sale with 51% approval
- ◆ Linking multiple real estate NFT's with corresponding crowdsale events
- ◆ Draft a traditional legal document that defines how the real estate title is transferred through the Solidity smart contract