

Cryptocurrency News?

Ethereum as a Platform

What is Ethereum's main strength?

- Ethereum can be used to build decentralized systems
- Turing-complete language allows for a multiplicity of applications
- Decentralized applications are called **dApps**
- What are some types of dApps?

Voting

- Recall last week
- Voting dApps can enforce one-voter-one-vote rule
- Protect against voter fraud (especially since many voting machines today have been proven vulnerable)
- Can introduce payments to voting schemes (more ETH = more weight, ETH as a deposit, etc.)
- Can safely delegate votes to other voters without worrying about fraud
- Irreversible votes

Gambling

- Recall the project
- A trustless system can be created for payouts to winners
- Can ensure no party can act maliciously by enforcing secure commits
 - What does this look like?
- Can circumvent government restrictions in order to participate in gambling protocols
 - Payouts can be automatically sent to your ETH address — no fiat involved

Cryptokitties!

- Cryptokitties is an marketplace of digital trading cards, but for cats
 - Cryptokitties actually significantly clogged the network during December 2017
- Ownership of these digital cats is written into ethereum's network
- Cats have sold for tens of thousands of dollars worth of ether
- Why is cryptokitties important? What did it show about Ethereum's capability?
 - Ethereum could be used as proof-of-ownership in a marketplace
 - Transfer of a "deed" to a digital property between users
 - Users' property could also interact with each other in certain ways on the network
 - Ideally, can be generalized for houses, cars, any type of property digital or physical
 - More secure than current forms of digital proof of ownership

Licensing

- Suppose you have some software or music that you want to sell
- Could set up dApp to have users pay for the right to use your product
 - License to the product could be automatically generated and granted as well
- Transactions to a contract could be proof of licensing
- Could use Ethereum to transfer licenses between users
 - All information is stored on the blockchain — including the license itself

Final

- Format
 - 5 True/False
 - 15 Multiple Choice
 - 5 Short Answer
 - 1 Extra Credit
- Is not cumulative
- Will focus on the following topics
 - Cryptocurrency Markets & ICOs
 - Altcoins and Proof-of-Stake
 - Ethereum Contracts
 - Ethereum as a Platform

Cryptocurrency Markets and ICOs

- Exchanges act as intermediaries for trading cryptocurrencies back and forth
- Several types of orders are available depending on exactly how you want to execute a trade
- Cryptocurrencies mostly launch using Initial Coin Offerings (ICOs)
 - Can be ERC20 or non-ERC20
- ERC20 Tokens run on top of Ethereum's network using smart contracts
- Your Ethereum address is also your ICO address for distribution
 - All addresses for ERC20 tokens are also valid Ethereum addresses
 - This is useful when you want to own many different cryptocurrencies — “one wallet fits all”

Altcoins and Proof-of-Stake

- There are many altcoins that serve different purposes
- Ethereum is the most popular altcoin today
- Ethereum was invented to solve several ongoing problems that Bitcoin has, and implements:
 - Faster block times
 - A different transaction fee scheme
 - Ethash instead of double SHA-256, soon to be Casper
 - Turing-Complete scripting language
 - Smart Contracts
 - Possibilities with applications is greatly enhanced compared to Bitcoin

Ethereum Contracts

- Solidity is the most popular Ethereum smart contract language
- Contracts are fundamentally different from user accounts
- Can be created and invoked
- Functions can be payable or non-payable
 - These are strict rules
- Smart Contracts can call each other and interact

Ethereum as a Platform

- Ethereum can be used to implement decentralized applications (dApps)
- dApps can be used for many purposes including (but not limited to):
 - Voting
 - Gambling
 - Trading
 - Licensing
- These purposes can be implemented in tons of different ways — lots of customizability
- dApps are usually trustless — this helps with decentralization and handling malicious parties

Questions?
