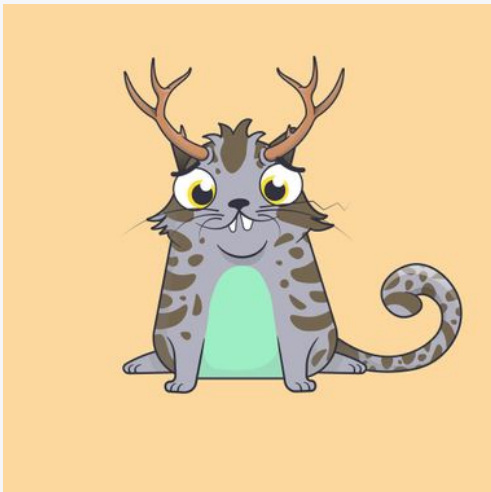# Monnaies numériques

Agenda

TD6: Ethereum

Creating an collectible token

Non fungible token

- A non fungible token (NFT) is an entry in a contract that represents ownership of an asset
- Most often, these are digital assets
- Non fungible means that each asset can have distinct properties, and therefore a distinct price
- These assets can be tradable

ERC721: In the beginning were the Kitties

- A standard for non fungible assets token (NFT)
- https://github.com/ethereum/EIPs/blob/master/EIPS/eip-721.md
- Started by AxiomD, the company behind Crypto Kitties

Registre d'élevage IFCE

- **Tout propriétaire ou détenteur d'animaux, appartenant à des espèces dont la chair ou les produits peuvent être consommés, doit tenir un registre d'élevage, régulièrement mis à jour.**
- **Pour les chiens: LOF**
- **Chaque animal est un asset non fongible**
- **Votre travail aujourd'hui: Digitaliser ce registre**

Tools

Truffle-hdwallet-provider + Infura

- A NPM package to manipulate wallets in truffle
- Lets you create, sign and broadcast transactions through hosted node providers
- Infura is a hosted node provider, that you can use for free for small scale deployment
- https://medium.com/coinmonks/deploy-your-smart-contract-directly-from-truffle-with-infura-ba1e1f1d40c2

TRUFFLE

Tasks list

- **Create a Git repository & share it with the teacher (2 pts)**
- **Create an ERC721 token contract (2 pts)**
- **Implement all ERC721 functions (2 pts)**
- **Implement a registerBreeder() function (2 pts)**
  - **Similar to whitelisting in ERC20**
- **Implement a declareAnimal() function (2 pts)**
  - **Specify what kind of animal**
  - **Chose 5 characteristics**
- **Implement a deadAnimal() function (2 pts)**
- **Implement a breedAnimal() function (2 pts)**
  - **Requires two breeders to be able to declare the offspring of two animals**
  - **At least 2 animal characteristics are deduced automatically**

Tasks list

- **Implement a createAuction() and bidOnAuction() function (3 pts)**
  - **Auctions run for 2 days**
  - **After it is completed, the new owner can call claimAuction() to collect his animal**
- **Implement a proposeToFight() function (3 pts)**
  - **Animal breeders can propose to fight against their animal, and stake money on the success of their animal**
  - **Other breeders can take up the challenge using agreeToFight() by staking a similar amount of money**
- **Deploy to the Rinkeby testnet (2 pts)**
  - **Offer token #3 to teacher**
- **Teacher Github: l-henri**

Merci

pour votre attention !

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