



Monnaies numériques

ESILV 2019/2020



Agenda



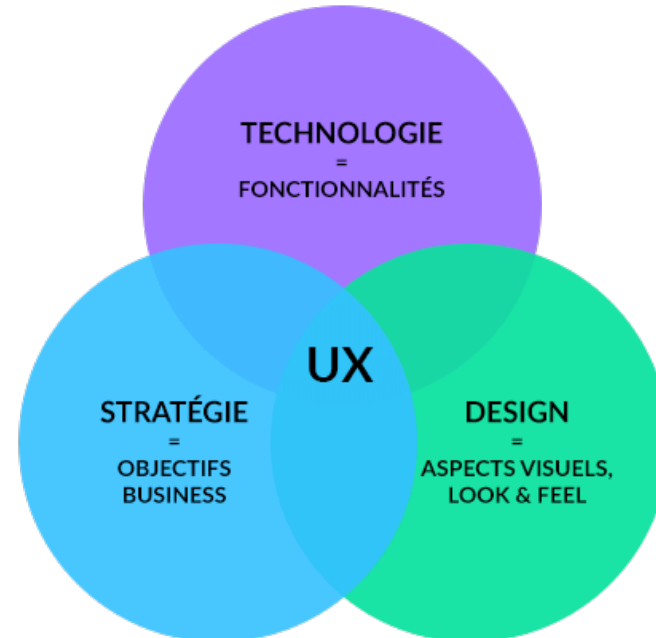
TD7: Web development

Creating a user interface for a smart contract



Interacting with a contract

- Writing a smart contract is like designing a motor engine
- Writing a UX is like designing the car shape
- While writing smart contract may seem more important, designing a good UX is at least as important



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



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>



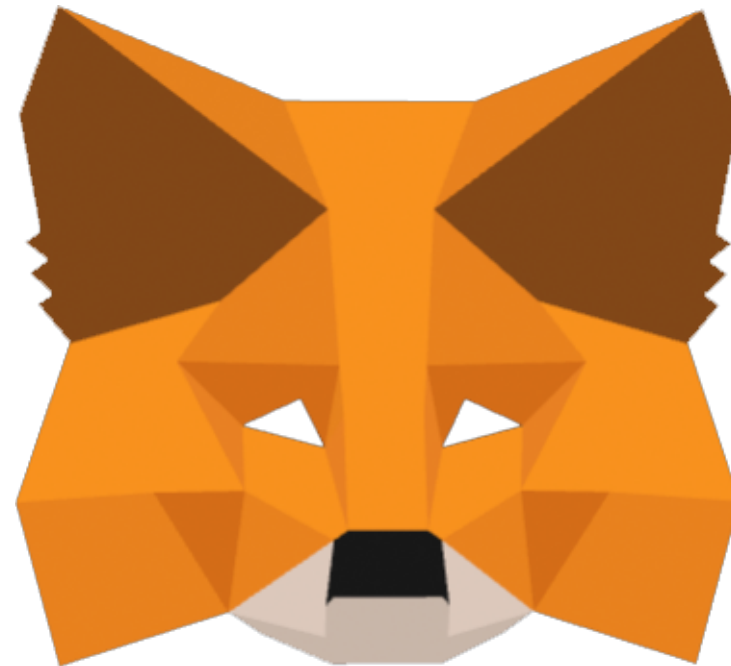
WEB3

- A Javascript library to interface with any Ethereum based blockchain
- Easy tools to integrate contracts in a webpage
- Straightforward APIs

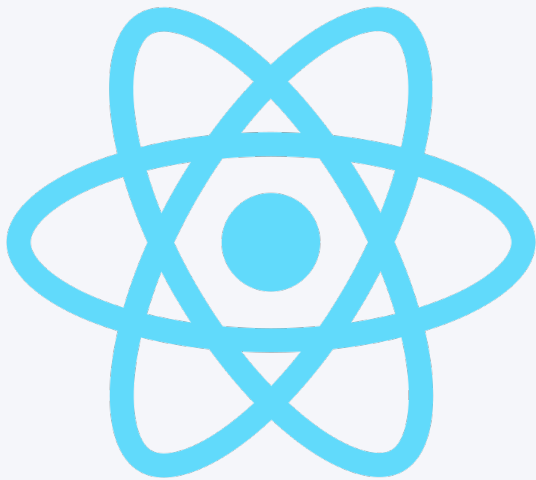


Metamask

- <https://metamask.io/>
- Browser based wallet
- Allows user to interact with the Ethereum Blockchain from their browser
- This time, you will use it as a DAPP developer
- It will give you access to information from the Blockchain on your app



React



- A javascript framework to create modern web apps
- Open source, created by Facebook
- A simple tool to integrate with WEB3

Tasks list

- Create a Git repository & share it with the teacher (2 pts)
- Create a functional ERC721 Mintable token contract (2 pts)
- Create a 'name' public variable to give a name to your token registry, and a counter to show total number of created token (2 pts)
- Create a react app (2 pts)
- Connect your app to the blockchain and display the ChainId and last block number (2 pts)
- Display the token registry name and the total token number in the app (2 pts)
- Create a webpage to show characteristics of a specific token (owner + characteristics if applicable) and a webpage to show how many tokens a user holds (2 pts)

Tasks list

- Create a second smart contract that is allowed to create new tokens on the first. Anyone can send 0.1 ETH to mintToken() on the 2nd contract to mint on the first (2 pts)
- Create a webpage to create a new token (buy a new token, and set an associated image) (2 pts)
- Adapt your app to be able to show tokens of other groups (showing the owner of a token, and the balance of a owner (2 pts)
- Deploy your dapp in a Docker container for easy deployment (2 pts)

Merci

pour votre attention !



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