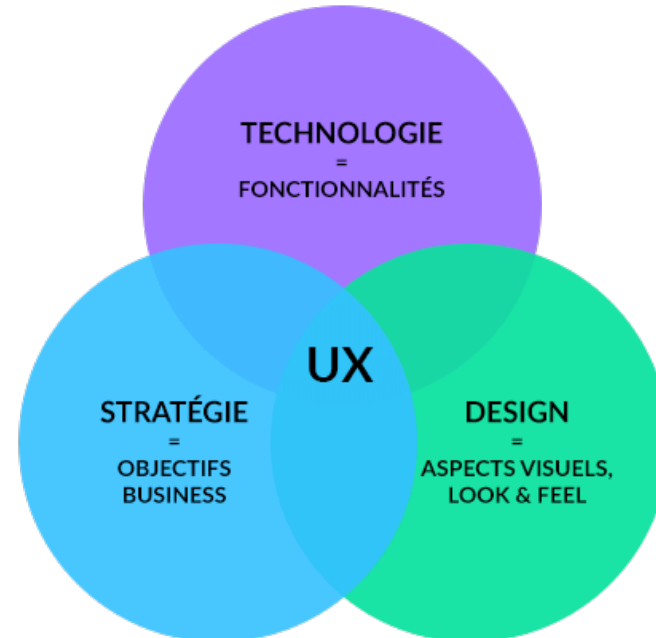# Monnaies numériques

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**

TECHNOLOGIE
=
FONCTIONNALITÉS

UX

STRATÉGIE
=
OBJECTIFS
BUSINESS

DESIGN
=
ASPECTS VISUELS,
LOOK & FEEL

BY CREADS

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
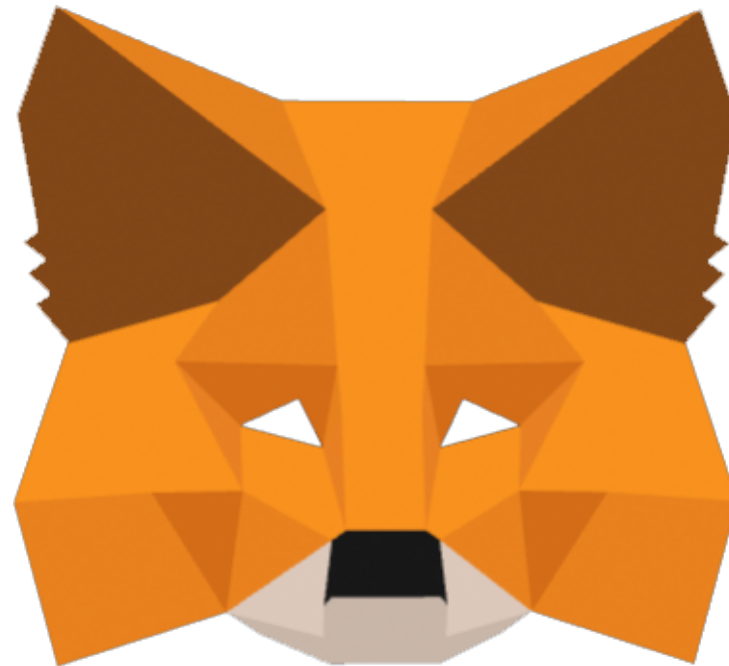- https://medium.com/coinmonks/deploy-your-smart-contract-directly-from-truffle-with-infura-ba1e1f1d40c2

TRUFFLE

WEB3

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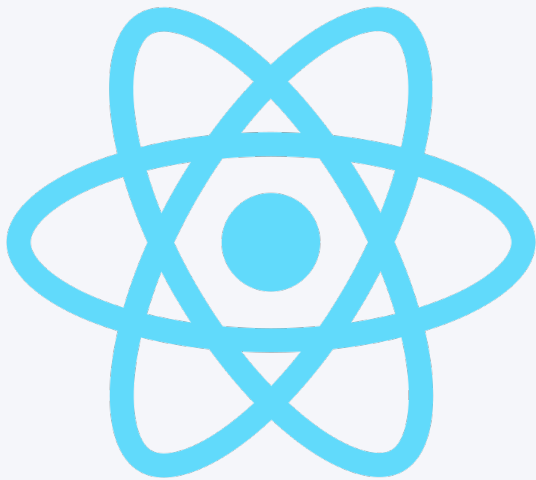
Metamask

- 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 cand send 0.1 ETH to mintToken() on the 2nd contract ton 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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