fundOS

The future of crowdfunding*

*And maybe the internet?

Blockchain Basics.

Bitcoin

- A digital currency where every single transaction is recorded on the **blockchain**.
- A blockchain is basically a public ledger (or record) of all these transactions.
    - Can be thought of as a **database of transactions**.
- If you send $10 worth of bitcoin to a friend, that's recorded publicly on the blockchain.
- More complex system of verifications processes happening across a distributed network to **confirm these transactions**.
    - The blockchain is **distributed** across thousands of computers & checks to see that everything is in sync.

Ethereum

- Has a digital currency component similar to Bitcoin, called **Ether**.
- Instead of a blockchain of JUST financial transactions, this blockchain can also host **smart contracts**.
- A smart contract is basically just code (a set of instructions) that's injected into the public blockchain - so everyone can see them and **verify** them.
- Think of a smart contract as the code that powers a vending machine, but publicly exposed so you can see how it's actually working.

Smart Contracts

- Someone can write a smart contract in the programming language **Solidity** and deploy it to the Ethereum blockchain.
- Then, a frontend website can interact with the smart contract to enable transactions.
- Example: **Simple voting platform** > users vote on a specific topic by publicly announcing who they voted for on the blockchain (costs a fee).

Traditional Crowdfunding.

(Like Kickstarter)

Kickstarter

- User creates a project on a centralized platform - can’t see the source code, have to **trust** that Kickstarter won’t take your money, nothing can be independently verified.
- Kickstarter takes 5% of your project funding.
- Kickstarter payment processor, Stripe, takes 5% of your project funding.

- Example: Travel Jackets raised **$9,192,055**
- Payout to third parties: **~$920,000**

Future Crowdfunding.

(Like fundOS!!!)

fundOS

- A user connects their crypto wallet.
- A user pays a small *gas* fee to “publish” their crowdfunding project to the blockchain.
- Other users can send money, Ether, to fund a project they’re interested in.
  - IF project hits funding goal by deadline, pay creator
  - IF project does not hit funding goal by deadline, pay users back
  - *This is the smart contract. It’s just publicly viewable code that executes on its own*

```solidity
pragma solidity ^0.8.9;

import "hardhat/console.sol";


contract fundOS {
    // Constructor to initialize a project
    struct Project {
        address payable owner;
        uint fundingGoal;
        uint deadline;
        uint totalFunded;
        bool isFunded;
    }

    // Mapping to store the projects
    mapping(uint => Project) public projects;
    //Keep track of total number of projects
    uint public projectCount = 0;

    function createProject(uint _fundingGoal, uint _deadline) public {
    // Add a new project instance with projectCount as the key
    projects[projectCount] = Project({
        owner: payable(msg.sender), // Sets the owner of the project to the sender of the transaction (e.g. when creating a project on the frontend)
        fundingGoal: _fundingGoal, // Sets the unique funding goal for the project
        deadline: _deadline, // Sets the unique project deadline
        totalFunded: 0, // Initialize the totalFunded of a new project to 0
        isFunded: false // Initialize the isFunded flag to false - Sets boolean value to indicate that it has not yet been funded.
    });

    // Increment the project count
    projectCount++;
}
```

Hardhat: Testing Your Smart Contract

- Ethereum testing environment for writing & deploying smart contracts to your local network.
- Creates a local copy of the fake ethereum blockchain & gives you test accounts full of fake ethereum for testing purposes.

https://hardhat.org/

Future Considerations.

Downsides 

- Market (ETH) can rapidly fluctuate up or down.
- For now, a user creating a project is probably building it using dollars
    - A project that has met its funding goal could end up with a lot less “dollars” than they originally anticipated
- https://www.web3isgoinggreat.com/

Staking

- Can think of “staking” ethereum as earning interest on your $
- fundOS could implement staking by “pooling” all of users donated funds into a large pot (earns more $ over time with larger sum).

- With the money earned in interest:
  - fundOS can make profit without taking a cut of users funds
  - fundOS could help push projects over the finish line
  - fundOS could give money back to users and creators