Coding Ethereum Smart Contracts: Hackpack

September 14, 2021 / 4:00 PM - 5:30 PM ET

Description

Smart Contracts are one of the easiest ways to take advantage of the Blockchain's value and use it in your project! The code looks very familiar to Java or JavaScript, but beware, the ecosystem around that is very very different. We will be diving straight into reading code, and you will get to write one or two of your own contracts! As long as you have basic programming knowledge, you should be able to adapt and create something.

Learning Outcomes

This is what you will walk away from the workshop able to do:
- Understand the purpose of a smart contract, what it is good for, and what it is not.
- Some basic concepts in Solidity, Ethereum's smart contract language.
- Be able to understand a more sophisticated smart contract, such as how to make - your own currency :)
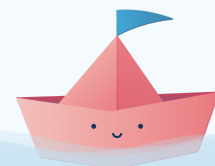- Be able to write a smart contract yourself!

Prerequisite Knowledge

In order to get the most out of this workshop you should be comfortable with the following concepts:
- Basic Object Oriented Programming concepts such as classes, methods, global variables, public/private modifiers, etc.
- Basic programming ability. Halfway through the workshop you will already be writing code :)

Pre-Workshop Checklist

Before the workshop, please make sure you complete the following items:

- Make sure you can load https://remix.ethereum.org/ and get familiar with its interface!
- Be ready to code! And don't be shy if I ask you to share your code with us in the chat during the exercises :)
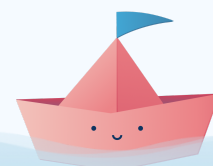- Get ready to learn!

Timeline (1.5 hour)

Time	Module	Description
15 min	Basic smart contract & Ethereum theory	We will go over a smart contracts basic value propositions, get to read and run your own smart contract, and learn about Ethereum (and my ill-informed investment decisions)
30 min	More sophisticated smart contract examples	Read and play with how to hold "elections" in 60 lines, as well as how to create your own currency.
15 min	Exercise	Write your own basic contract!
30 min	Challenge Exercise	A challenge for those willing to go the extra mile. We will get to write a Domain Name System where everyone can buy domain names with ETH currency.

Workshop Lead Contact

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Additional Resources

Hack the North Resources

Hack the North 2021 Event Schedule

Check this out to stay up-to-date on activities, workshops, and other key happenings this weekend.

Workshop-Specific Resources

Ethereum Whitepaper

For good general Blockchain understanding

Ethereum Yellowpaper

Goes very very deep into Ethereum's Virtual Machine, and how exactly it works to execute smart contracts correctly and consistently.
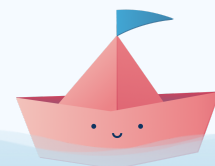
Solidity Documentation

The official documentation of solidity. If you haven't read this and want to do smart contracts, you really shouldn't be reading anything else.

OpenZeppelin

A generally useful library to help you write solidity contracts. It has many base contracts you can use for generic functions such as ownership, token handling, and safe math operations. The best part? It is security audited so less likely to have a vulnerability than if you were to write it yourself (though, you never know).

Truffle Suite

A framework for running, testing, debugging, and deploying smart contracts efficiently and correctly.

Web3 API

The official way to interact with the Ethereum blockchain from your code. This is a JavaScript API which connects to a running Ethereum node (e.g. Parity Ethereum) or adapters such as Metamask.

Metamask

An easy way you can integrate smart contracts into your project right now! Metamask is a browser extension that connects your website to the Ethereum blockchain and allows it to interact with contracts.

Parity Ethereum

An efficient Ethereum client. Good if you want to scrape Ethereum data, or run a full or lightweight Ethereum node.

Awesome Ethereum

A good broad list of resources around Ethereum.