Web3 Cohort by 100xDevs

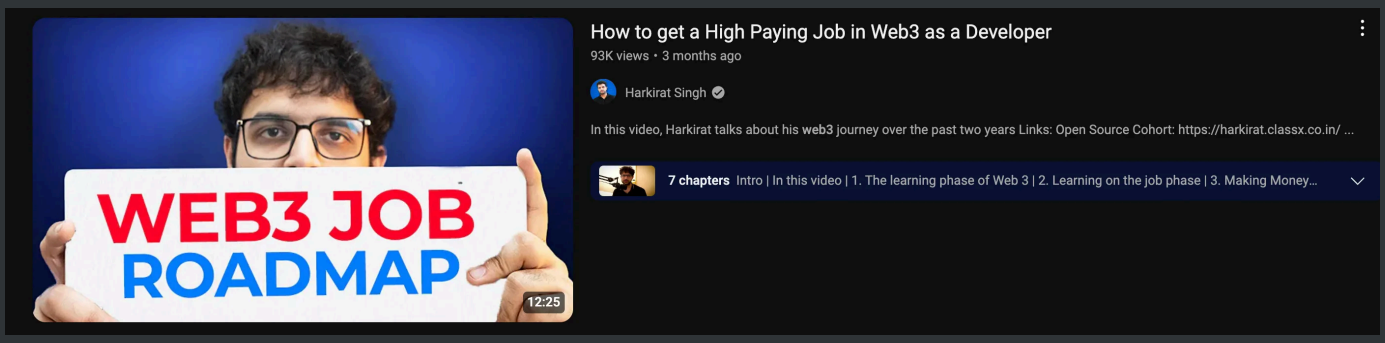
Goal

To create a Cohort of people who are great at Blockchains, Web3.

My background in Web3

Detailed video - https://www.youtube.com/watch?v=gYK8azCYjnU

Started working in Sept 2022. Worked at ~3 companies since. Primarily worked at Wallets, Exchanges and Gambling websites.

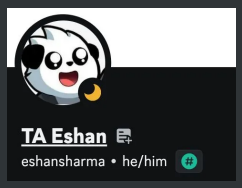


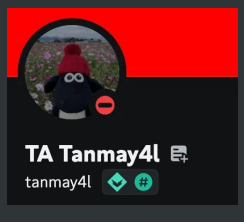
Syllabus

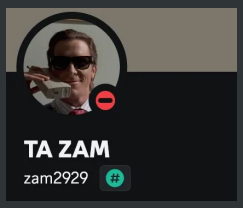
Easy - https://blog.100xdevs.com/Web3-Client-side-9375f2aa571f4644aa45c3b5a5b6927c?pvs=25

Hard - https://blog.100xdevs.com/Web3-Contracts-ce3796e9db0e45708bc173f718b23392

TAs







Cohort Projects

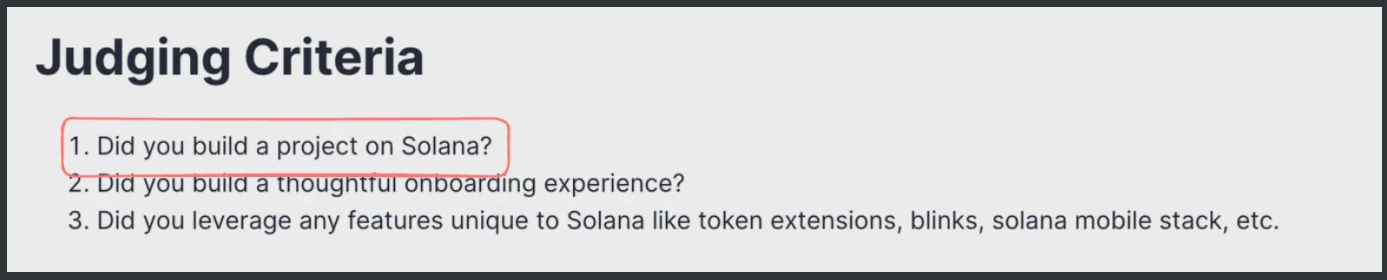
1. https://github.com/code100x/stake - **Harkirat Singh**
2. https://github.com/code100x/tiplink - Led by **@cb7chaitanya**, mentored by Harkirat

If you want to propose a project, please build a v1 for the Superteam hackathon and we can sponsor it further

Cohort 3.0 Exclusive Hackathon

Link - https://earn.superteam.fun/listings/project/100xdevs-solana-mini-hackathon-1/

We're doing an exclusive hackathon with $100 prize for the top 50 submissions



Focus on UX. Have a live link deployed.

Project ideas

1. Web3 Zapier - https://build.superteam.fun/ideas/automated-workflows
2. Whale Alert - https://x.com/cyversalerts/status/1813834131165286464
3. Liquidating an NFT to a token - https://build.superteam.fun/ideas/liquidating-an-nft-to-any-token
4. NFT viewing gallery (maybe in 3D) - ‣
5. Decentralized Fiver - End to End job portal to hire solana devs, pay them, escrow money from the job provider.
6. RPC aggregator - Let a user put in a bunch of RPCs from various providers (Helius, Alchemy, QuickNode) and you should figure out which one to forward requests to (Similar to https://www.ironforge.cloud/)
7. Wallet adapter for a web based wallet - ‣
8. Youtube channel opinions market - Let people trade on a coin associated to a Youtube channel. Creator can come and collect royalties

by connecting their YT account. https://www.youtube.com/watch?v=PZNgcH2Jtac

9. Tiplink (even tho we're building it saparately, if you want to build a better version with a twist, you should do it)
10. Github Bounty Dispenser. Make users give their Adhar/Pan. Make users link their github with their wallet address. Allow maintainers to approve bounties. Create a dashboard where you can track profiles of users/companies and a leaderboard of contributors based on bounty earned
11. UI Library for Solana - NFTCard, TokenCard, SwapCard

Why blockchains?

Inflating currencies

Government has been printing currencies left right and center. This leads to increasing inflation, price of everything goes up.

Holding on to cash is a losers bet in the long run. Holding on to any asset (Gold, Stock, real estate) is better compared to currencies like USD, INR.

Fractional reserve Banking

Banks dont have your money. They lend out most of it.

If there is a bank run (everyone goes to the bank to withdraw their money), banks wont be able to pay everyone

Silicon valley collapsed in 2022. I was in the US when it happened. Most YC companies had their funds in SVB. They were bailed out, but if not, you would've seen a lot of startups die.

Bailouts

The 2008 Financial crisis was triggered by a financial instrument called mortgage-backed securities.

Even though the banks at Wall Street were at fault, the government ended up bailing them out using Taxpayer money.

> 💡 A great movie to look at is **Big Short.** I've watched it ~5 times

INR Depreciation (even worse in countries like Japan)

1. USD

1. JPY

Currencies are not backed by assets anymore

How to create a new currency?

Right now, currencies can only be issued by central governments. You can't create your own `Kirat coin` and ask users to use it.

Even if I do issue a `Kirat coin` , no one would use it, and for good reasons -

1. I can print any number of Kirat coins, making myself richer
2. I become the central mint and verification athority for the coin.
3. No one would (or should) trust me

Intro to hashing

Hashing is a process that transforms input data (of any size) into a fixed-size string of characters.

Hash functions have several important properties:

1. **Deterministic**: The same input will always produce the same output.
2. **Fast computation**: The hash value can be quickly computed for any given data.
3. **Pre-image resistance**: It should be computationally infeasible to reverse the hash function (i.e., find the original input given its hash output).
4. **Small changes in input produce large changes in output**: Even a tiny change in the input should drastically change the hash output.
5. **Collision resistance**: It should be computationally infeasible to find two different inputs that produce the same hash output.

Is this a hashing algorithm?

What if I try “hashing” a string by increasing each alphabet’s value by one. Do you think this follows all the rules we’ve written above?

SHA-256

Lets try out a famous hash function, SHA-256 here - https://emn178.github.io/online-tools/sha256.html

Node.js code for generating SHA-256

```
const crypto = require('crypto');

const input = "100xdevs";
const hash = crypto.createHash('sha256').update(input).digest('hex');

console.log(hash)
```

Intro to Proof of work

Assignment #1

What if I ask you the following question — Give me an input string that outputs a SHA-256 hash that starts with `00000` . **How will you do it?**

A: You will have to brute force until you find a value that starts with `00000`

▶ Node.js code

Assignment #2

What if I ask you that the `input string` should start with `100xdevs` ? How would the code change?

▶ Node.js code

Assignment #3

What if I ask you to `find` a nonce for the following input -

```
harkirat => Raman | Rs 100
Ram => Ankit | Rs 10
```

▶ Node.js code

Assignment #4

Lets explore https://andersbrownworth.com/blockchain/

Intro to Bitcoin

Bitcoin white paper was released in 2008 - https://bitcoin.org/bitcoin.pdf

1. Introduction

2. Transactions

3. Timestamp server

4. Proof of work

5. Network

6. Incentive