



The Web 3.0 Roadmap

Created by **JS Mastery**
Visit ***jsmastery.pro*** for more

What is Web 3.0 in simple terms?

Web 3.0 has the potential to change the internet as we know it forever. You're still early in catching the trend and building your first blockchain application, acquiring the skills to get a high-paying job, or creating your own web 3.0 projects that can make you money.

In Web 2.0 all the data is controlled by the Big Tech companies, such as Google, Apple, etc. In the decentralized web, no single person/company owns any data or information about anyone, and everything is visible to the public.

Web3, also known as the decentralized web, is the third and latest "phase" of the internet. Web3 is built on peer-to-peer networks of computers that talk to each other without middlemen.

Brought to you by JSM

This guide will provide you with useful information and actionable steps, but if you truly want to dominate the competition and secure a high-paying job as a full-stack software developer, jsmastery.pro is the answer.

Read until the end for more information and **special discounts!** 



Web 3.0 Roadmap

1 You should have Web 2.0 Skills

Most people make one mistake to dive straight into smart contracts without having a technical background in web development. Blockchain technologies are built on top of web technologies.

You can't learn Web 3.0 if you don't have a solid understanding of web 2.0. So before digging deeper into more web 3.0, better understand the fundamentals of web development in general.

Your Web 2.0 skills like React.js, Next.js will be beneficial because Decentralized Applications have a standard vanilla JavaScript or JavaScript framework Front-end.

Web 3.0 Roadmap

2 Learn the Fundamentals of Blockchain

As a Web 3.0 developer, you need to understand what the blockchain is, how it works, why do we use it. You first need to know about what you are working with.

So what is a blockchain?

A blockchain is a network of computers connected in some way, and they collectively run what is called a blockchain client.

Blockchain technology is no more related only to crypto coins.

Web 3.0 Roadmap

To learn and master the basics of blockchain technology. First, learn the fundamental things such as:

- **What the blockchain is**
- **How it works**
- **How to Interact with the blockchain**
- **How to connect our web applications to the blockchain**

And it is recommended that you get started with the Ethereum blockchain as it is very popular.

Also, one of the reasons to learn Ethereum blockchain first is there is a lot of technical support from its developer's team plus considerable community support.

Web 3.0 Roadmap

3 Learn About Smart Contracts

A Smart Contract is software stored on a blockchain-based platform that automatically executes an agreement. Smart contracts are how you can program the blockchain to perform a specific set of instructions, like you telling the blockchain what to do.

Smart contracts enable you to exchange anything of value while also eliminating the middle man. The self-executing feature of a smart contract is what makes it very important.

The smart contract code cannot be changed, which in technical terms, we say is immutable.

Web 3.0 Roadmap

Smart contracts can do everything, right from NFTs to creating your own Crypto Currency to handling the backend of dApps.

Here's the IBM definition for Smart Contracts:

Smart contracts are simply programs stored on a blockchain that run when predetermined conditions are met. They are typically used to automate an agreement's execution so that all participants can be immediately sure of the outcome without any intermediary's involvement or time loss.

— IBM

Web 3.0 Roadmap

Things to learn about Smart Contract

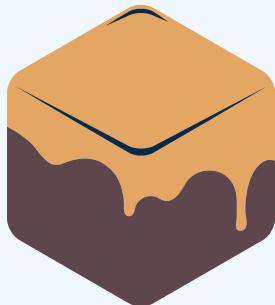
- Basics of Smart Contract
- Life Cycle of Smart Contract
- Interacting with smart contracts using web3.js

Compiling, Testing, Deploying Smart Contracts

Compiling, Testing, and Deploying Smart Contracts is an essential part, as we know those smart contracts, once deployed, are immutable, so you would like to test them before deploying.

Web 3.0 Roadmap

For Testing, you can go with:



Ganache

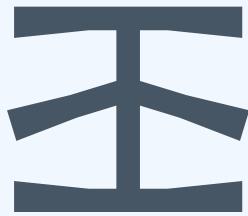


Mocha



Chai

For deployment purposes, you can use:



Infura



Hardhat



Truffle

Web 3.0 Roadmap

4

Learn Solidity

Knowing how to write smart contracts is essential in blockchain app development. So in which programming language do we write smart contracts? It's **Solidity**!

Of course, there are some other programming languages also, but Solidity is the most popular one. So understanding Solidity is crucial.

Solidity is an object-oriented programming language for writing smart contracts. It is used for implementing smart contracts on various blockchain platforms.

Web 3.0 Roadmap

Solidity is a relatively new programming language used for Ethereum blockchain, and it's a combination of a few languages. The creators of Solidity got inspired by JavaScript, Java, C++, rust, & many other languages, therefore making Solidity extraordinarily versatile & intuitive.

As you start to write code in Solidity, you'll notice that all of that seems similar, maybe from Java, JavaScript, but it will make sense as it's almost written in pure English.

Web 3.0 Roadmap

Here is a small code sample of solidity programming language

```
// My First Smart Contract
pragma solidity >=0.5.0 <0.7.0;
contract HelloWorld {
    function get()public pure returns (string memory){
        return 'Hello Contracts';
    }
}
```

Also, one more reason to learn Solidity is the job market. Many companies require developers who know Solidity well.

Web 3.0 Roadmap

5 Learn more about Decentralized applications

Once you build and deploy your smart contract, you'll need to create a friendly user interface at the front end so that any user use it. Remember I said earlier you should have Web 2.0 skills before starting blockchain development.

In the front-end interface, you create a DAPP (Decentralized application). The DAPP can be a mobile app or a web app, but it is usually a web app in most cases. The web app is usually just like your regular web apps with HTML, CSS, and JavaScript.

Web 3.0 Roadmap

And when building the dApp, there will be two essential tasks,

1. The integration with the blockchain
2. The integration with the wallet

We shall use a JavaScript library for integration with the blockchain, Web3.js, which is pretty helpful and easy to use.

Web 3.0 Roadmap

6 Learn about Metamask or any equivalent Crypto Wallet

A blockchain wallet helps someone exchange funds quickly. The transactions are secure, as they are cryptographically signed. A wallet is used to interact with the blockchain. The wallet is accessible from web devices, including mobile ones, and the privacy and identity of the user are maintained.

Blockchain wallet provides all the necessary features for safe and secure transfers and exchanges of funds between different parties. It is very similar to sending or receiving money through PayPal or any other gateway used today, but you use cryptocurrency instead.

Web 3.0 Roadmap

There are a lot of crypto wallets out there, but my recommendation would be first to learn how to integrate your smart contract with the Metamask wallet and then learn about the other wallets.

Metamask allows users to access their Ethereum wallet through a browser extension or mobile app, which users can then use to interact with decentralized applications.

Web 3.0 Roadmap

7

Learn Web3.js and Ethers.js to connect your dAPP

You'll need to interface with your front end to talk to the blockchain. Here are two popular choices to interface with blockchains that implement the Ethereum API, web3.js and ethers.js.

Web3.js is a collection of libraries that allow you to connect with a local or remote Ethereum node using HTTP, Websockets, & other communication protocols directly from your JavaScript Based front-end.

Ethers.js is a lightweight JavaScript library used to connect the JavaScript front-end with Smart Contracts as an alternative to Web3.js.

Web 3.0 Roadmap

8 Practice your skills by building a blockchain application.

After that, I suggest you should get your hands dirty with the technologies you have learned so far. Practice, Practice, and Practice!

To keep learning effectively, you have to challenge your capabilities. Take up a project well beyond your capabilities and stick to that project until you complete it. By the end of just 4–5 such assignments, you will be almost more proficient than others around you.

Web 3.0 Roadmap

9

Build your Portfolio

When you're comfortable working with blockchains/dApps, you should consider building your portfolio; a portfolio website shows evidence of expertise in your field. It can also help build trust with clients because they have direct evidence of the quality of your work.

A portfolio will be beneficial whether you are looking for Jobs or Internships. More importantly, potential clients and employers will sense confidence in you.

Learning Resources

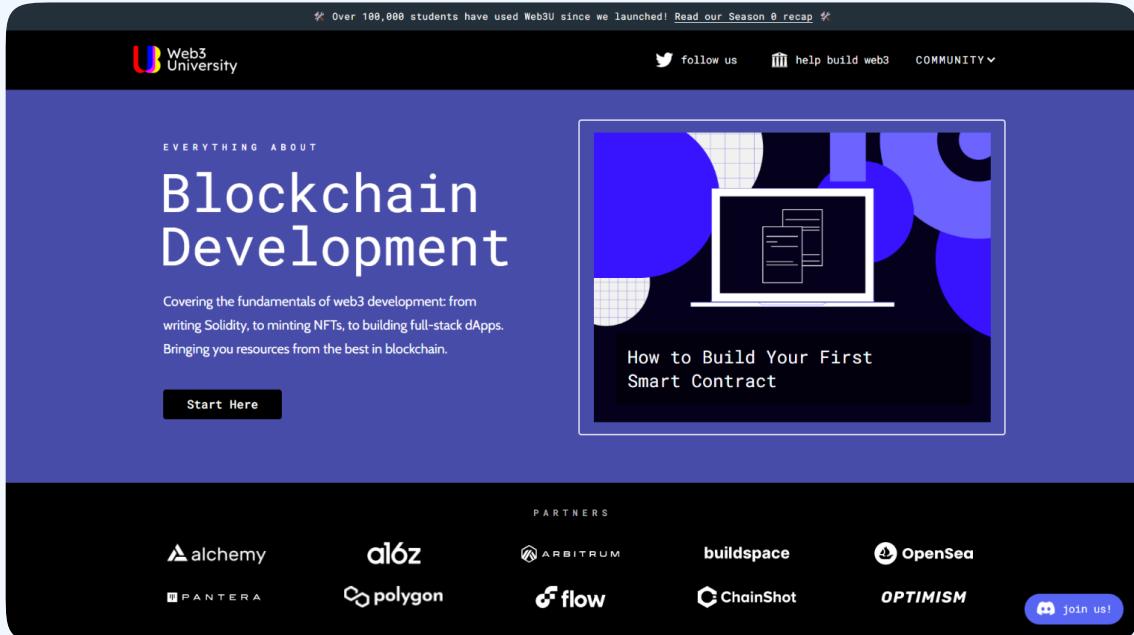


What Exactly is Web3?



Blockchain Explained- 2hr Course

Learning Resources



Over 100,000 students have used Web3U since we launched! Read our Season 0 recap [↗](#)

Web3 University

EVERYTHING ABOUT Blockchain Development

Covering the fundamentals of web3 development: from writing Solidity, to minting NFTs, to building full-stack dApps. Bringing you resources from the best in blockchain.

[Start Here](#)

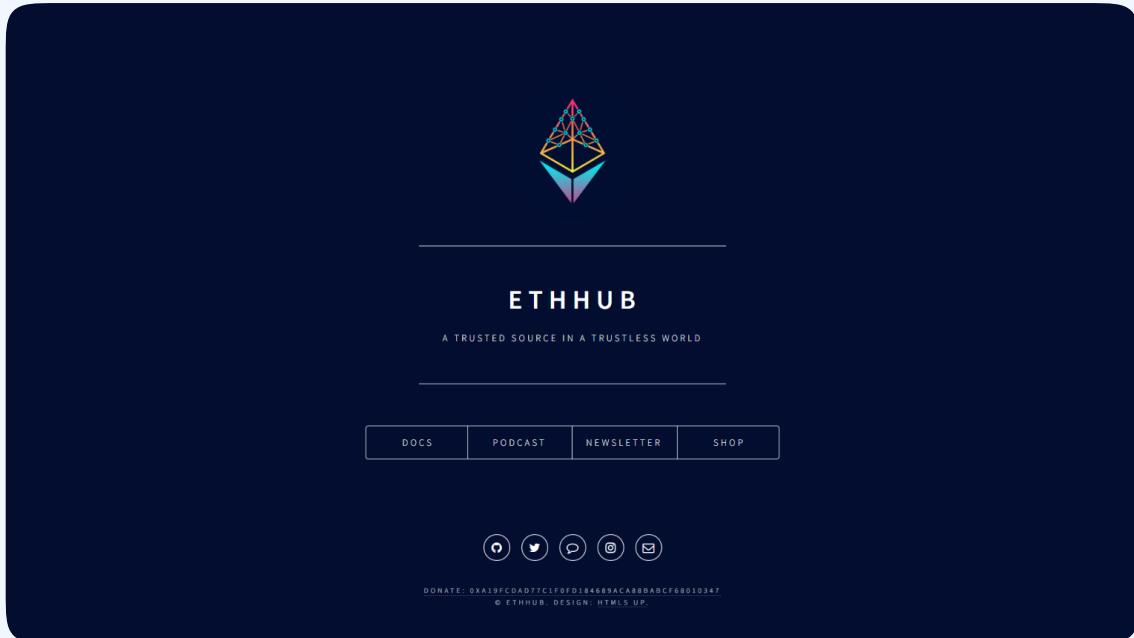
How to Build Your First Smart Contract

PARTNERS

alchemy al6z ARBITRUM buildspace OpenSea
PANTERA polygon flow ChainShot OPTIMISM

[join us!](#)

web3 university



ETHHUB

A TRUSTED SOURCE IN A TRUSTLESS WORLD

[DOCS](#) [PODCAST](#) [NEWSLETTER](#) [SHOP](#)

[🔗](#) [Twitter](#) [Discord](#) [GitHub](#) [Email](#)

DONATE: 0x410fC0aD7f1f0fD184689aC888aBCf68010347
© ETHHUB. DESIGN: HTML5 UP.

Ethhub

Learning Resources

IBM Let's Create Products & Solutions Consulting & Services Learn & Support Explore more

Search

IBM Supply Chain and Blockchain Blog Supply Chain Topics Blockchain Topics Supply Chain IBM Blockchain Newsletter Podcast

Blockchain development

Resources, guides and tips for blockchain development — for developers looking to build blockchain applications and networks.

Blockchain development

Blockchain development

Follow the conversation

Building a digital trust ecosystem for mining in British Columbia

Fueling the financial industry with open source cross-border payments

Blockchain development

IBM Blog

alchemy | Blog

Search...

Get started

ERC-721 vs. ERC-721A: Batch Minting NFTs

An alternative implementation of the ERC721 standard created by the Azuki team. Useful for optimizing batch mints to create NFTs.

Albert Hu @thatguyintech Mar 15, 2022

Browse the blog

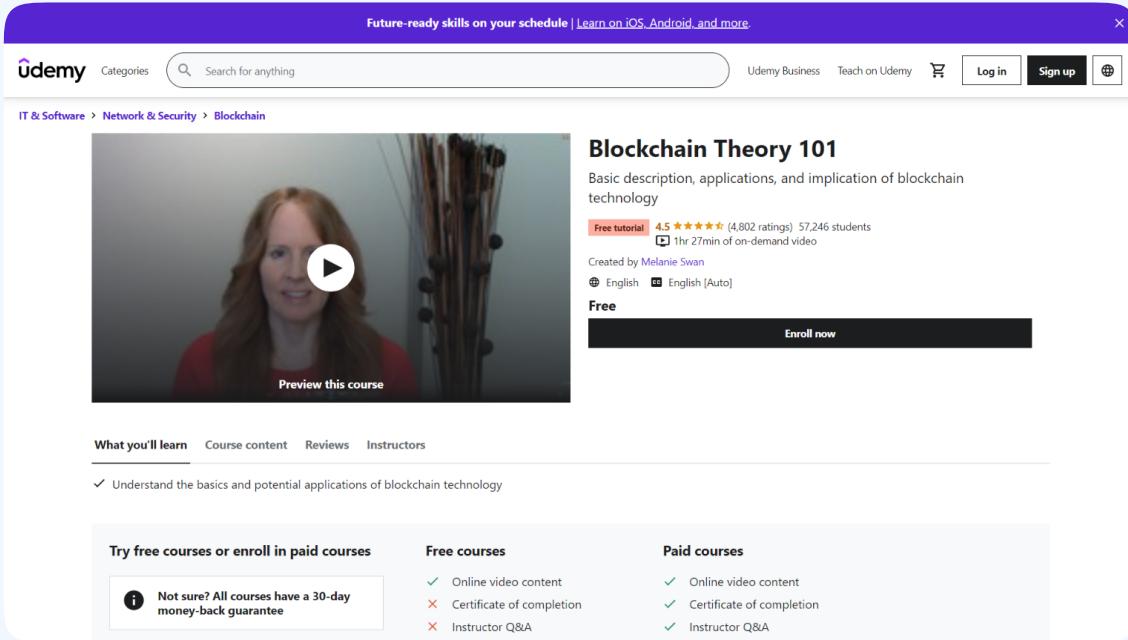
Want to learn more? Click on a category below for more from the blog.

Learn Announcements Tutorials Products Amplify NFTs

Series C1 Series C2 Series C3

Alchemy Blog

Learning Resources



Future-ready skills on your schedule | Learn on iOS, Android, and more. X

udemy Categories Udemy Business Teach on Udemy Log in Sign up Profile

IT & Software > Network & Security > Blockchain

Blockchain Theory 101

Basic description, applications, and implication of blockchain technology

Free tutorial 4.5 ★★★★☆ (4,802 ratings) 57,246 students

1 hr 27 min of on-demand video

Created by Melanie Swan

English English (Auto)

Free

Enroll now

What you'll learn Course content Reviews Instructors

✓ Understand the basics and potential applications of blockchain technology

Try free courses or enroll in paid courses

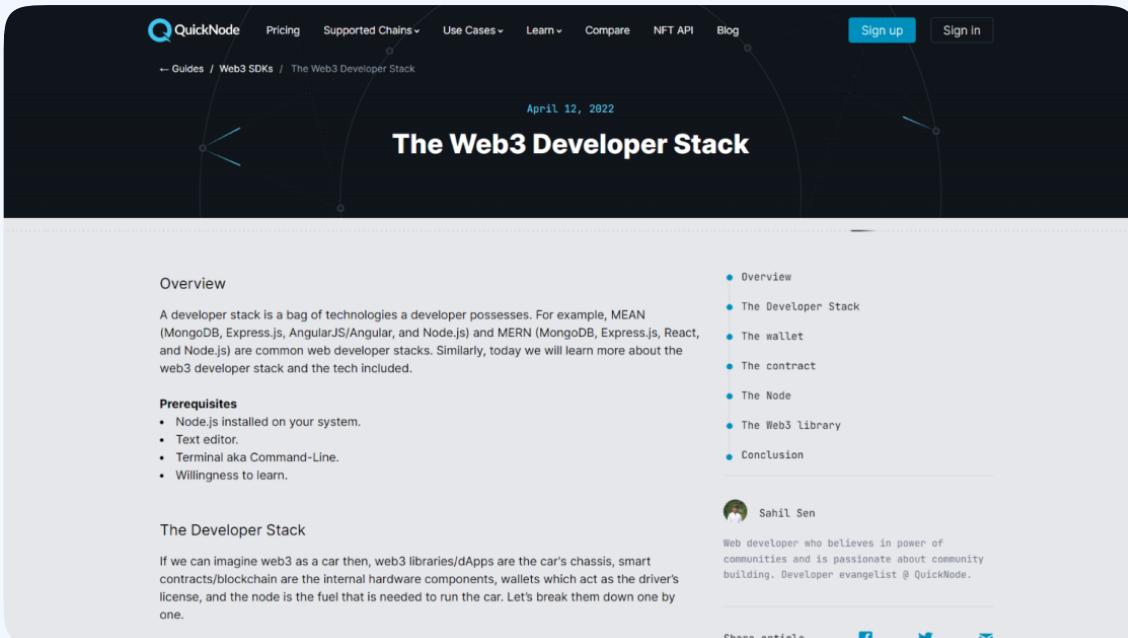
Free courses

- ✓ Online video content
- ✗ Certificate of completion
- ✗ Instructor Q&A

Paid courses

- ✓ Online video content
- ✓ Certificate of completion
- ✓ Instructor Q&A

Blockchain Theory 101



QuickNode Pricing Supported Chains Use Cases Learn Compare NFT API Blog Sign up Sign in

→ Guides / Web3 SDKs / The Web3 Developer Stack

April 12, 2022

The Web3 Developer Stack

Overview

A developer stack is a bag of technologies a developer possesses. For example, MEAN (MongoDB, Express.js, AngularJS/Angular, and Node.js) and MERN (MongoDB, Express.js, React, and Node.js) are common web developer stacks. Similarly, today we will learn more about the web3 developer stack and the tech included.

Prerequisites

- Node.js installed on your system.
- Text editor.
- Terminal aka Command-Line.
- Willingness to learn.

The Developer Stack

If we can imagine web3 as a car then, web3 libraries/dApps are the car's chassis, smart contracts/blockchain are the internal hardware components, wallets which act as the driver's license, and the node is the fuel that is needed to run the car. Let's break them down one by one.

Overview

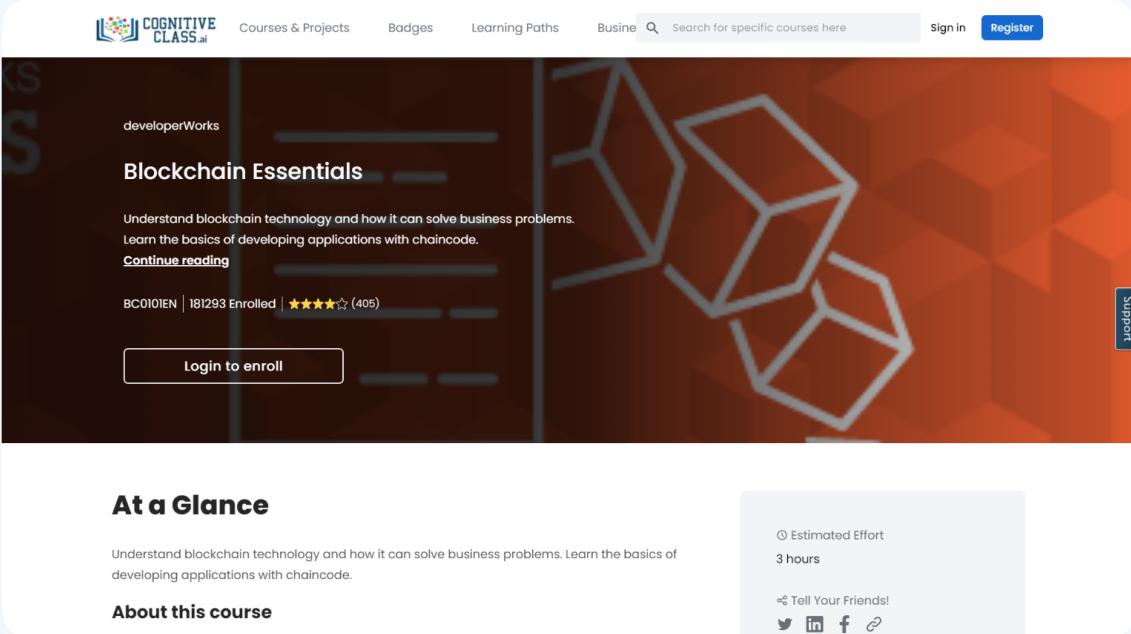
- The Developer Stack
- The wallet
- The contract
- The Node
- The Web3 library
- Conclusion

 **Sahil Sen**
Web developer who believes in power of communities and is passionate about community building. Developer evangelist @ QuickNode.

Share article   

Web 3 Developer Stack

Learning Resources



The screenshot shows a course page for 'Blockchain Essentials' on a platform. The course title is 'Blockchain Essentials'. The description states: 'Understand blockchain technology and how it can solve business problems. Learn the basics of developing applications with chaincode.' There is a 'Continue reading' link. The course has 181293 Enrolled students and a rating of 4.5 stars (405 reviews). A 'Login to enroll' button is visible. The background features a large orange hexagonal graphic. On the right, there is a 'Support' button. Below the course details, there is a 'At a Glance' section with a summary of the estimated effort (3 hours) and a 'Tell Your Friends!' button with social sharing icons.

At a Glance

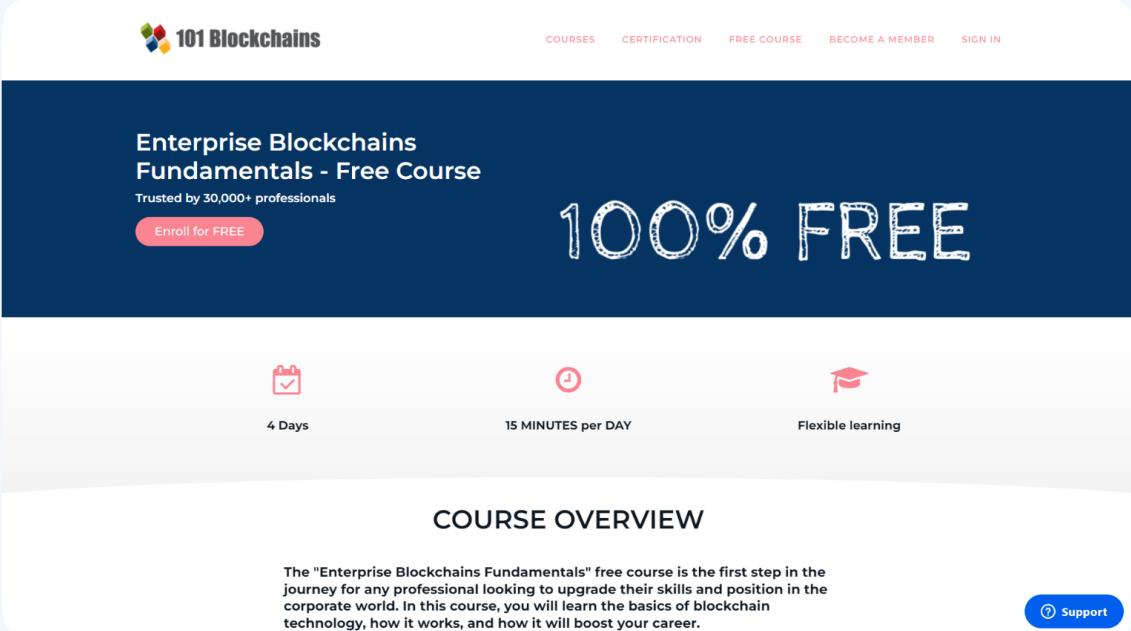
Understand blockchain technology and how it can solve business problems. Learn the basics of developing applications with chaincode.

[About this course](#)

Estimated Effort
3 hours

Tell Your Friends!

Blockchain Essentials



The screenshot shows a course page for 'Enterprise Blockchains Fundamentals - Free Course' on the 101 Blockchains website. The course is described as being trusted by 30,000+ professionals. A large '100% FREE' text is prominently displayed. Below it, there are three icons: a calendar icon for '4 Days', a clock icon for '15 MINUTES per DAY', and a graduation cap icon for 'Flexible learning'. The 'COURSE OVERVIEW' section includes a description of the course as the first step in a professional's journey to upgrade their skills in the corporate world, learning the basics of blockchain technology, how it works, and how it will boost their career. A 'Support' button is also present.

Enterprise Blockchains Fundamentals - Free Course

Trusted by 30,000+ professionals

100% FREE

4 Days

15 MINUTES per DAY

Flexible learning

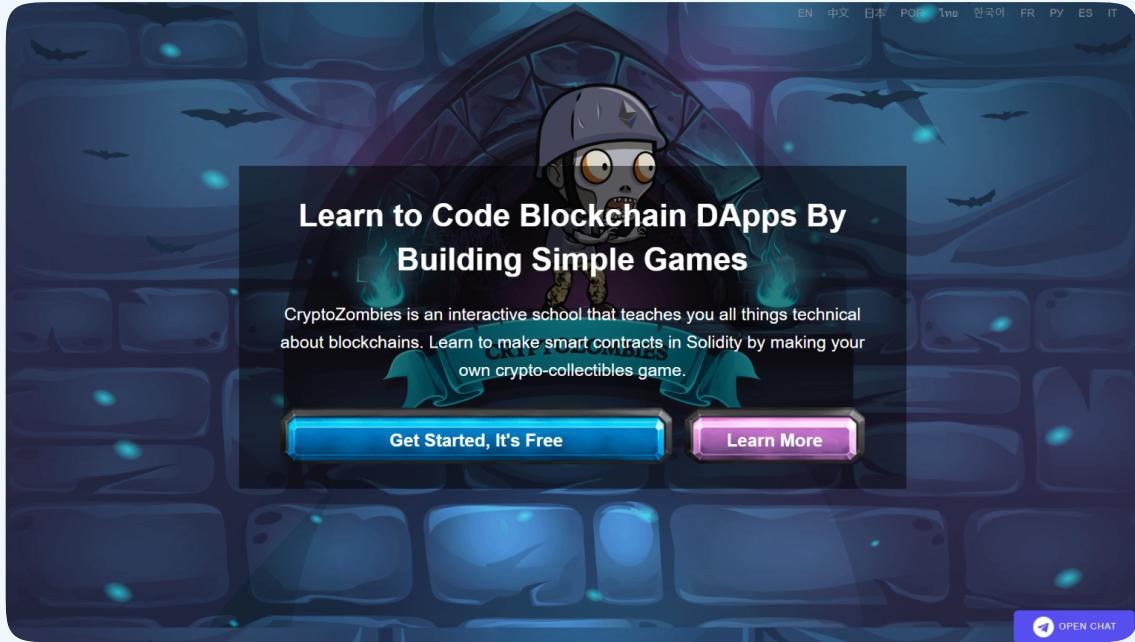
COURSE OVERVIEW

The "Enterprise Blockchains Fundamentals" free course is the first step in the journey for any professional looking to upgrade their skills and position in the corporate world. In this course, you will learn the basics of blockchain technology, how it works, and how it will boost your career.

Support

Blockchain Fundamentals

Learning Resources



Cryptozombies



What is this?

Capture the Ether is a game in which you hack Ethereum smart contracts to learn about security.

It's meant to be both fun and educational.

This game is brought to you by [@smarx](#), who blogs about smart contract development at [Program the Blockchain](#).

How do I win?

The game consists of a series of challenges in different categories. You earn points for every challenge you complete. Harder challenges are worth more points.

Each challenge is in the form of a smart contract with an `isComplete` function (or public state variable). The goal is always to make `isComplete()` return `true`.

If you're into that sort of thing, there's a [leaderboard](#).

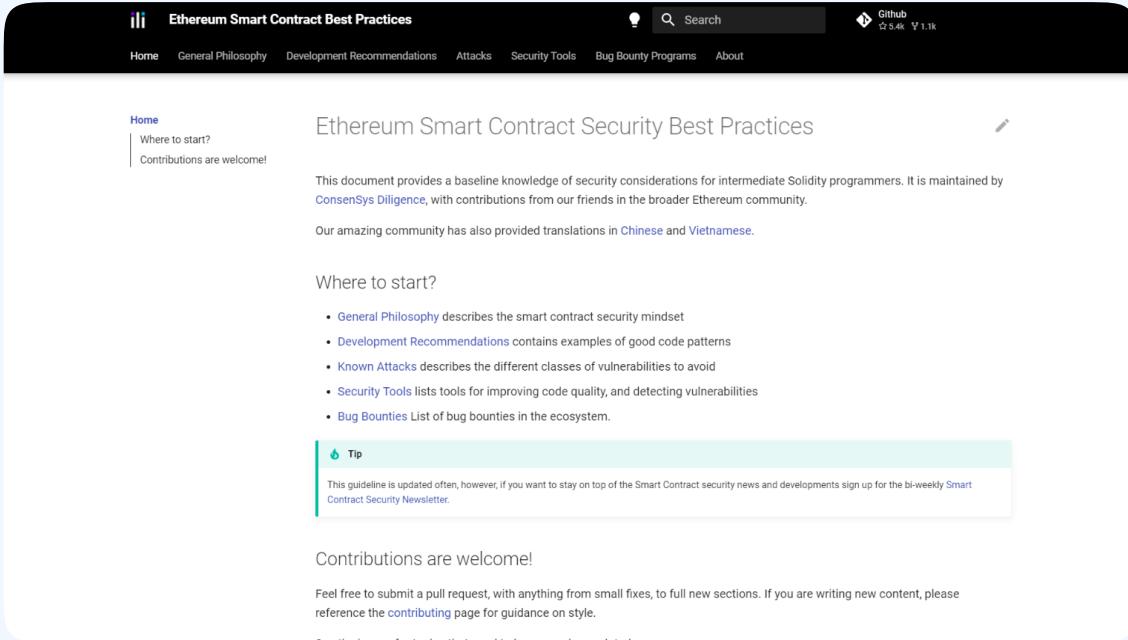
What do I need to know first?

The [warmup](#) category is designed to introduce the basic tools you need, but if you're brand new to Ethereum smart contract development, head over to [Program the Blockchain](#) first and do some background reading.

If you find you're missing some tools or knowledge, check out the [resources page](#) or consider [asking for help](#).

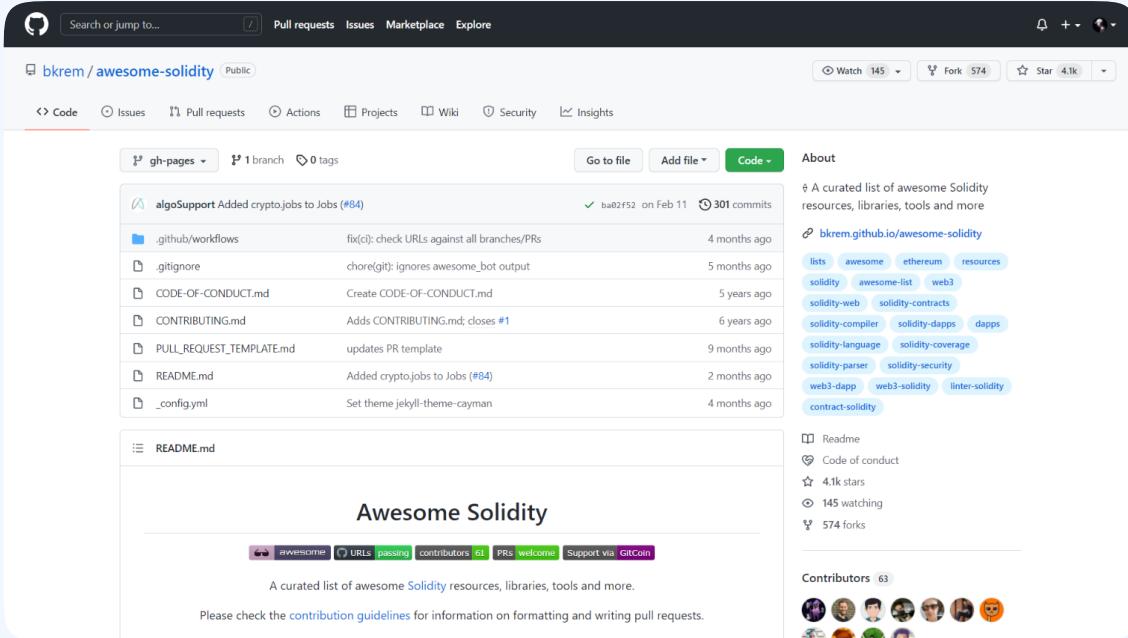
Capture the Ether

Learning Resources



The screenshot shows the homepage of the Ethereum Smart Contract Security Best Practices. The page has a dark header with the title and a navigation bar with links to Home, General Philosophy, Development Recommendations, Attacks, Security Tools, Bug Bounty Programs, and About. The main content area has a light background. It features a section titled "Where to start?" with a list of links: General Philosophy, Development Recommendations, Known Attacks, Security Tools, and Bug Bounties. Below this is a "Tip" box with a green border, containing a note about the newsletter. Further down is a "Contributions are welcome!" section with a note about pull requests and a "Code of conduct" link.

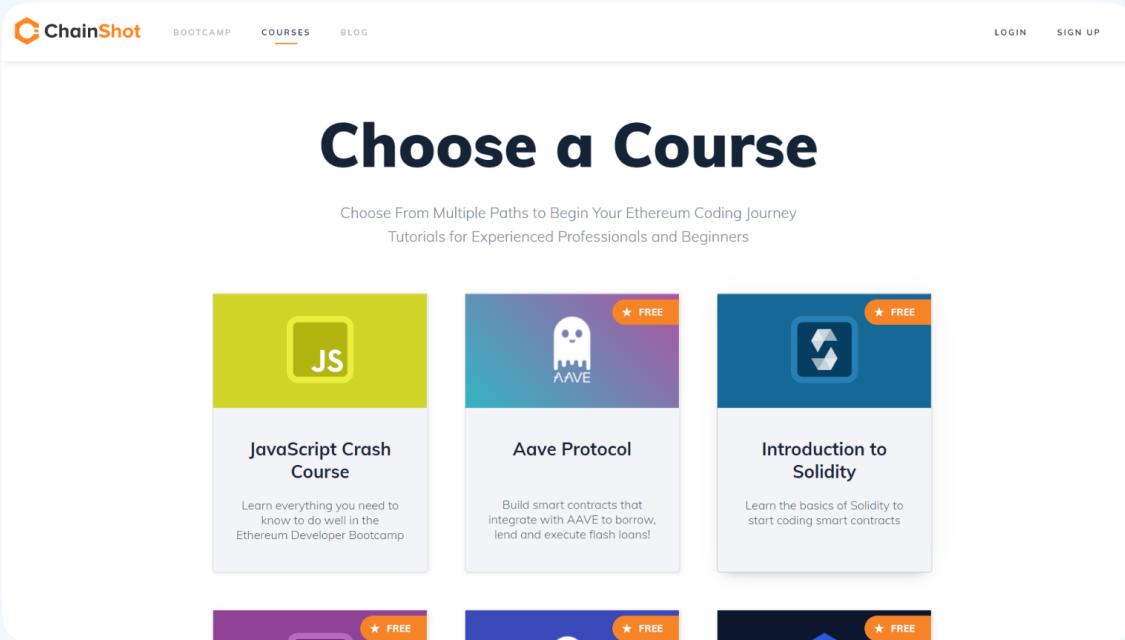
Smart Contract Best Practices



The screenshot shows the GitHub repository for "awesome-solidity". The repository has 145 stars, 574 forks, and 4.1k contributors. The repository page includes a list of files (gh-pages, .github/workflows, .gitignore, CODE-OF-CONDUCT.md, CONTRIBUTING.md, PULL_REQUEST_TEMPLATE.md, README.md, .config.yml) and a "Code" tab. The README file contains the text "Awesome Solidity" and a link to the repository. The repository page also features a "Contributors" section with a grid of profile icons.

Awesome Solidity

Learning Resources

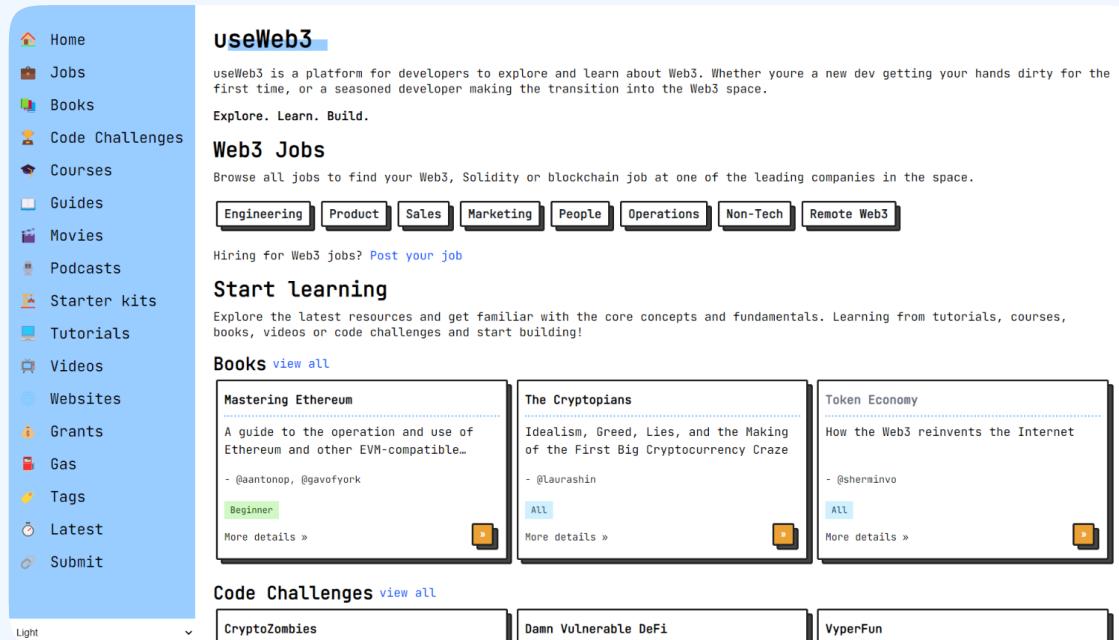


The screenshot shows the homepage of ChainShot, a platform for Ethereum coding. At the top, there's a navigation bar with the logo 'ChainShot', 'BOOTCAMP' (which is underlined), 'COURSES', and 'BLOG'. On the right, there are 'LOGIN' and 'SIGN UP' buttons. The main title 'Choose a Course' is prominently displayed in a large, bold, dark font. Below it, a subtitle reads 'Choose From Multiple Paths to Begin Your Ethereum Coding Journey' and 'Tutorials for Experienced Professionals and Beginners'. Three course cards are shown in a grid:

- JavaScript Crash Course** (Yellow background): 'Learn everything you need to know to do well in the Ethereum Developer Bootcamp'. It has a 'FREE' badge.
- Aave Protocol** (Blue background): 'Build smart contracts that integrate with AAVE to borrow, lend and execute flash loans!'. It has a 'FREE' badge.
- Introduction to Solidity** (Dark Blue background): 'Learn the basics of Solidity to start coding smart contracts'. It has a 'FREE' badge.

Below each card is a horizontal bar with a 'FREE' badge. The overall design is clean and modern, with a focus on the courses.

Chainshot



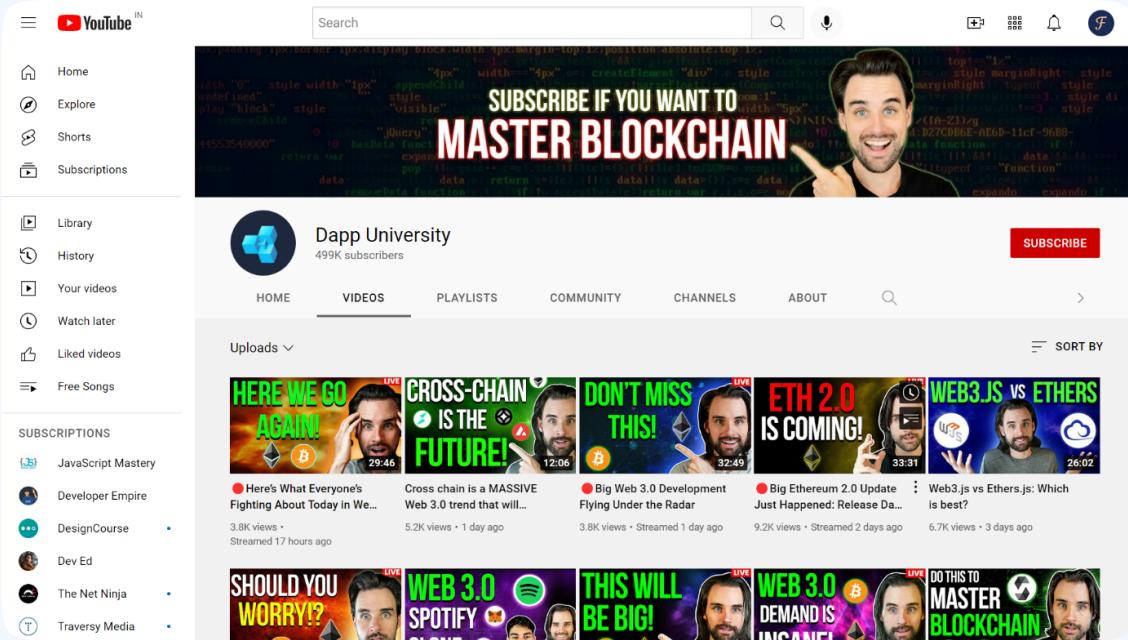
The screenshot shows the homepage of useWeb3, a platform for developers to learn about Web3. The left sidebar contains a navigation menu with the following items:

- Home
- Jobs
- Books
- Code Challenges
- Courses
- Guides
- Movies
- Podcasts
- Starter kits
- Tutorials
- Videos
- Websites
- Grants
- Gas
- Tags
- Latest
- Submit

The main content area has a blue header bar with the 'useWeb3' logo. Below it, the 'useWeb3' section is introduced with the text: 'useWeb3 is a platform for developers to explore and learn about Web3. Whether you're a new dev getting your hands dirty for the first time, or a seasoned developer making the transition into the Web3 space.' It features a 'Explore. Learn. Build.' tagline. The 'Web3 Jobs' section allows users to browse job opportunities, with categories like Engineering, Product, Sales, Marketing, People, Operations, Non-Tech, and Remote Web3. The 'Start learning' section provides resources for learning, including books, videos, and code challenges. Examples shown include 'Mastering Ethereum', 'The Cryptopians', and 'Token Economy'. The 'Code Challenges' section lists challenges like 'CryptoZombies', 'Damn Vulnerable DeFi', and 'HyperFun'.

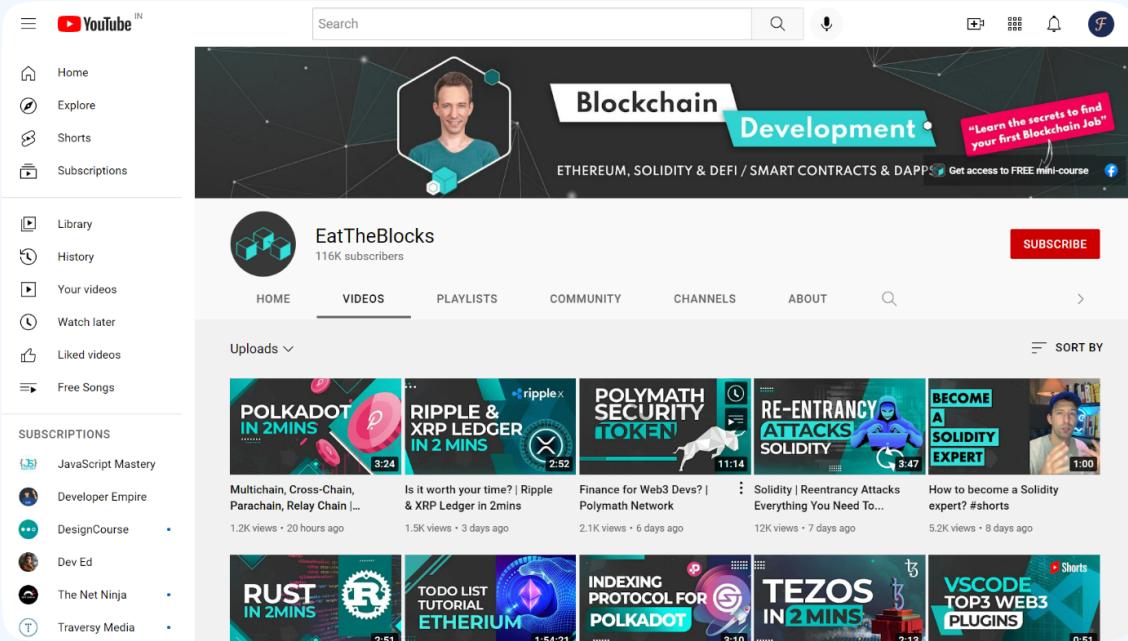
useWeb3

Learning Resources



The screenshot shows the YouTube channel page for 'Dapp University'. The channel has 499k subscribers. The 'VIDEOS' tab is selected, showing a grid of video thumbnails. The top video is titled 'SUBSCRIBE IF YOU WANT TO MASTER BLOCKCHAIN' and features a man pointing at the screen. Other video titles include 'HERE WE GO AGAIN!', 'CROSS-CHAIN IS THE FUTURE!', 'DON'T MISS THIS!', 'ETH 2.0 IS COMING!', 'WEB3JS VS ETHERS', 'SHOULD YOU WORRY?!', 'WEB 3.0 SPOTIFY', 'THIS WILL BE BIG!', 'WEB 3.0 DEMAND IS INSANE!', and 'DO THIS TO MASTER BLOCKCHAIN'. The channel also has a 'JavaScript Mastery' subscription.

Dapp University



The screenshot shows the YouTube channel page for 'EatTheBlocks'. The channel has 116k subscribers. The 'VIDEOS' tab is selected, showing a grid of video thumbnails. The top video is titled 'Blockchain Development' and features a man in a hexagon. Other video titles include 'POLKADOT IN 2MINS', 'RIPPLE & XRP LEDGER IN 2 MINS', 'POLYMAT SECURITY TOKEN', 'RE-ENTRANCY ATTACKS SOLIDITY', 'BECOME A SOLIDITY EXPERT', 'RUST IN 2MINS', 'TODO LIST TUTORIAL ETHERIUM', 'INDEXING PROTOCOL FOR POLKADOT', 'TEZOS IN 2MINS', and 'VS CODE TOP3 WEB3 PLUGINS'. The channel also has a 'JavaScript Mastery' subscription.

EatTheBlocks

Blockchain Project Ideas

Customers Loyalty tokens

Nowadays, companies provide traditional paper, coupons, discount and other sorts of reward and loyalty rewards to their customers.

You can build an app that allows companies to make use of this new digital format Blockchain loyalty tokens for their customers.

Pay Per Use

Tired of montly subscription fee model? Then build a platform where service providers give viewers an option to decide on a pay-per-use basis for digital content. This payment can be via micropayments in Ethereum based tokens.

Blockchain Project Ideas

Medical Records

It's really hard to keep your complete, accurate health records.

Create an app where you can publish your medical records safely on the blockchain. And, be assured that you or an authorized person can access it anywhere in the world.

Rent Parking

You can create an app using blockchain, where parking owners can rent out their long-term parking space that is unused, and other drivers can take benefit from it, especially drivers that only need temporary parking.

Blockchain Project Ideas

Registry of Land Ownership

Transferring ownership of a property from one person to another person.

Create a secured platform for real estate record keeping. It should record, track title and other property records.

Ride Sharing

Currently, most ride sharing systems are in the control of agencies.

You can create a real-time ridesharing service, powered by blockchain. This platform can synchronize empty seats with passengers in real time, matching like-minded people.

Blockchain Project Ideas

Crowdfunding

Build a secure and transparent blockchain-powered framework for crowdfunding.

Nowadays there are lots of wrong campaigns that can misuse everyone's money. With blockchain technology, you know more info, about the campaigns, to who are you sending money and where is the money going.

Polling system

Build a polling system, where people would be able to create a new poll, and in that poll, they would be able to mention different choices. Users would place their vote for one of the mentioned choices.

Blockchain Project Ideas

Charge For Consultation

You can provide a way to connect two or more people to exchange a paid knowledge via online voice or video call. Instead of per hour block, per minute rates can be set by experts.

Once both parties are happy, payment can deducted via the Ethereum blockchain.

Decentralized Hosting

With blockchain, you can split your website content into granules and distribute it all over the internet and then link them together using a blockchain registry. This eliminates web hosting costs and always accessible.

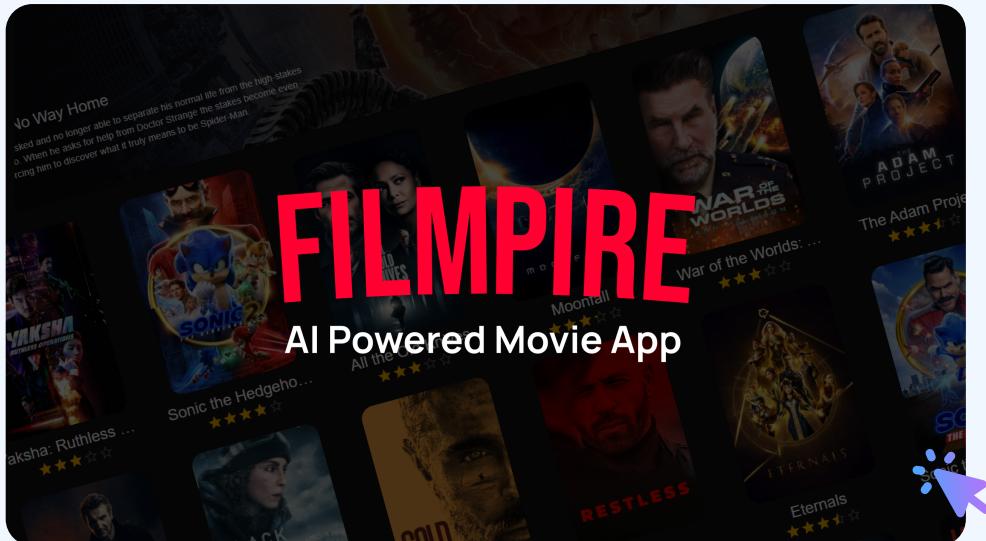
JS Mastery Pro

Looking to advance your career and understand the concepts & technologies that top-shelf employers are looking for?

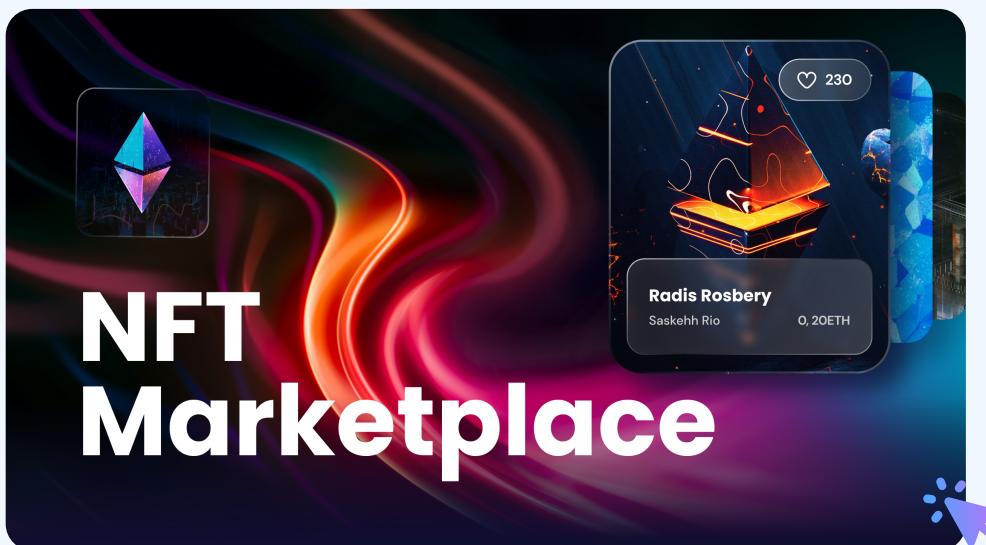
JS Mastery Pro offers two courses that will help you master libraries, tools, and technologies such as React.js, Next.js, Material UI, Solidity, Redux, and many more.

If your goal is to earn a high income while working on projects you love, JS Mastery Pro can help you develop your skills to become a top candidate for lucrative employment and freelance positions.





Become a React.js master as you create a stunning Netflix clone streaming app to showcase movies, actor bios, and more with advanced AI voice functionality.



Leverage Web 3.0 and blockchain technology to build a comprehensive NFT platform where users can discover, create, purchase, & sell non-fungible tokens.

Plus, if you really want to make a splash and add multiple group projects to your portfolio, join the JSM Masterclass Experience to set yourself above the rest and impress hiring managers.



Collaborate with other developers on exciting monthly group projects, have your code reviewed by industry experts, and participate in mock interviews and live Q&As. With two masterclass options available, this is the best way to truly launch your programming career and secure the job of your dreams!

Visit jsmastery.pro today to get started!

