



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

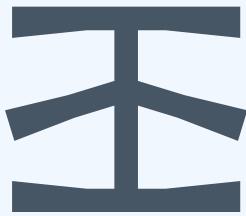


Mocha



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 can 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

The screenshot shows the homepage of Web3 University. At the top, there's a dark header with the Web3 University logo, social media links (Twitter, LinkedIn), and a 'CONNECT' dropdown. Below the header, a large purple banner features the text 'Blockchain Development' and a subtext about covering the fundamentals of web3 development. A 'Start Here' button is visible. To the right, there's a thumbnail for a tutorial titled 'How to Build Your First Smart Contract'. At the bottom of the page, there's a footer section with logos for various blockchain partners: Alchemy, al6z, Ankrum, buildspace, ChainShot, OpenSea, and Optimism. A blue 'GET STARTED' button is located on the right side of the footer.

web3 university

The screenshot shows the homepage of Ethhub. It has a dark, minimalist design. In the center, there's a stylized diamond or prism-like logo composed of geometric shapes. Below the logo, the word 'ETHHUB' is written in a bold, white, sans-serif font. Underneath 'ETHHUB', a smaller line of text reads 'A TRUSTED SOURCE IN A TRUSTLESS WORLD'. At the bottom of the page, there's a navigation bar with four buttons: 'HOME', 'NEWSLETTER', 'NEWSLETTER SIGNUP', and 'LOG IN'. Below the navigation bar, there are five small circular icons, likely for social media or other platform links. A small note at the very bottom states 'SUPPORT ETHHUB BY SPREADING THE WORD'.

Ethhub

Learning Resources

The screenshot shows the IBM Supply Chain and Blockchain blog page. At the top, there's a navigation bar with links like 'Products & Solutions', 'Consulting & Services', 'Learn & Support', and 'Explore more'. Below the navigation is a search bar and a menu icon. The main header is 'Blockchain development' with a sub-header 'Resources, guides and tips for blockchain development – for developers looking to build blockchain applications and networks.' To the right of the text is a blue square icon with a white barcode-like pattern and a bar chart graphic below it. Below the main header are two sections: 'Blockchain development' featuring a photo of a construction site and the text 'Building a digital trust ecosystem for mining in British Columbia'; and 'Fueling the financial industry with know your customer documents' featuring a photo of people in an office and the text 'Fueling the financial industry with know your customer documents'. On the right side, there's a sidebar titled 'Follow the conversation' with a Twitter search interface.

IBM Blog

The screenshot shows a blog post from the Alchemy blog. The title of the post is 'ERC-721 vs. ERC-721A: Batch Minting NFTs'. The post features a dark background with several colorful NFT cards displayed in a grid. Below the title, there's a brief description: 'An alternative implementation of the ERC721 standard created by Eric Wanck. Check the upcoming posts for more on how NFTs work.' The author of the post is Albert Ho (@thebigguyho), with a small profile picture. At the bottom of the post, there's a section titled 'Browse the blog' with a link to 'View all posts' and a series of category buttons: 'Topics', 'Innovations', 'Trends', 'Products', 'Algorithms', and 'APIs'.

Alchemy Blog

Learning Resources

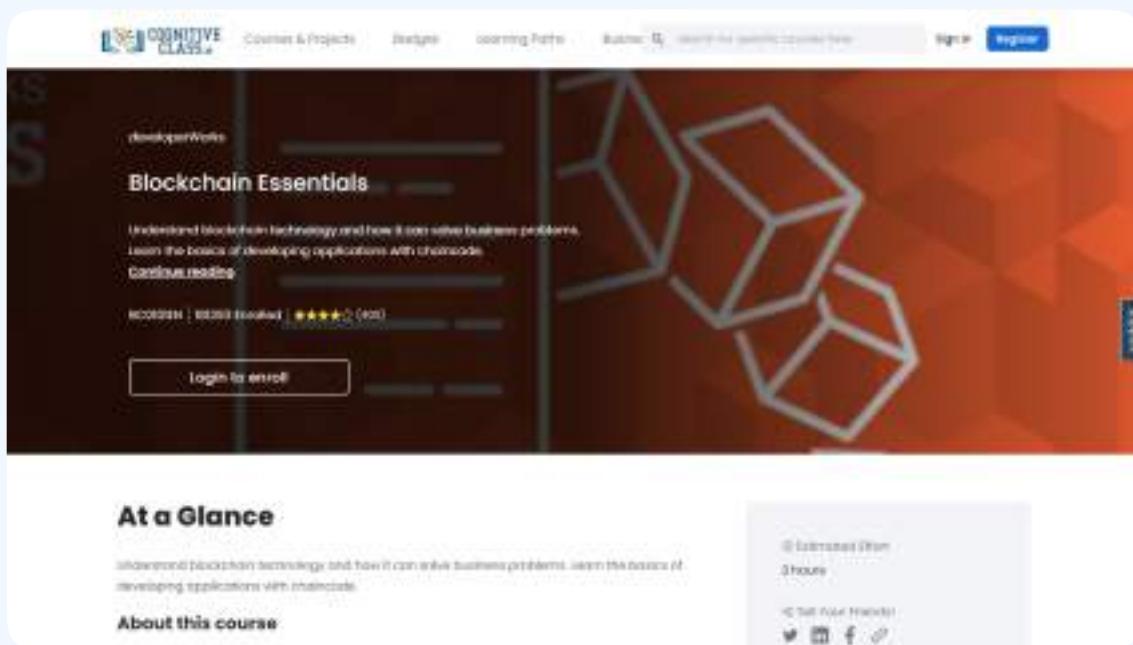
The screenshot shows a Udemy course page for 'Blockchain Theory 101'. The course has a rating of 4.2 stars from 11,246 reviews and 11,246 students. It is taught by Michael Lewis and is offered for free. The course description is: 'Basic description, applications, and implication of blockchain technology.' Below the course summary, there are sections for 'What you'll learn', 'Free courses or enroll in paid courses', and 'Try free courses or enroll in paid courses'.

Blockchain Theory 101

The screenshot shows a course page for 'The Web3 Developer Stack' on a platform. The course is dated April 12, 2022. It includes sections for 'Overview', 'Prerequisites', 'The Developer Stack', and 'Instructor'. The 'Overview' section describes a developer stack as a stack of technologies a developer possesses. The 'Prerequisites' section lists Node.js installed on your system, a Termiinal, a terminal application like GitBash, and willingness to learn. The 'The Developer Stack' section explains that we can imagine web3 as a car, with the core Web3 stack as the car's chassis, smart contracts/blockchain as the internal hardware components, wallets which act as the driver's license, and the node as the fuel that is needed to run the car. Links to further reading are provided at the bottom.

Web 3 Developer Stack

Learning Resources



The screenshot shows a course page for "Blockchain Essentials" on a learning platform. The course title is "Blockchain Essentials". Below it, a description reads: "Understand blockchain technology and how it can solve business problems. Learn the basics of developing applications with blockchain. Continuous reading". A progress bar indicates completion at 100% (30,000+ hours). A rating of 4.5 stars (100 reviews) is shown. A large orange button says "Login to enroll". To the right, there's a sidebar with a "Estimated time" of 3 hours and social sharing icons (Twitter, LinkedIn, Facebook, Email).

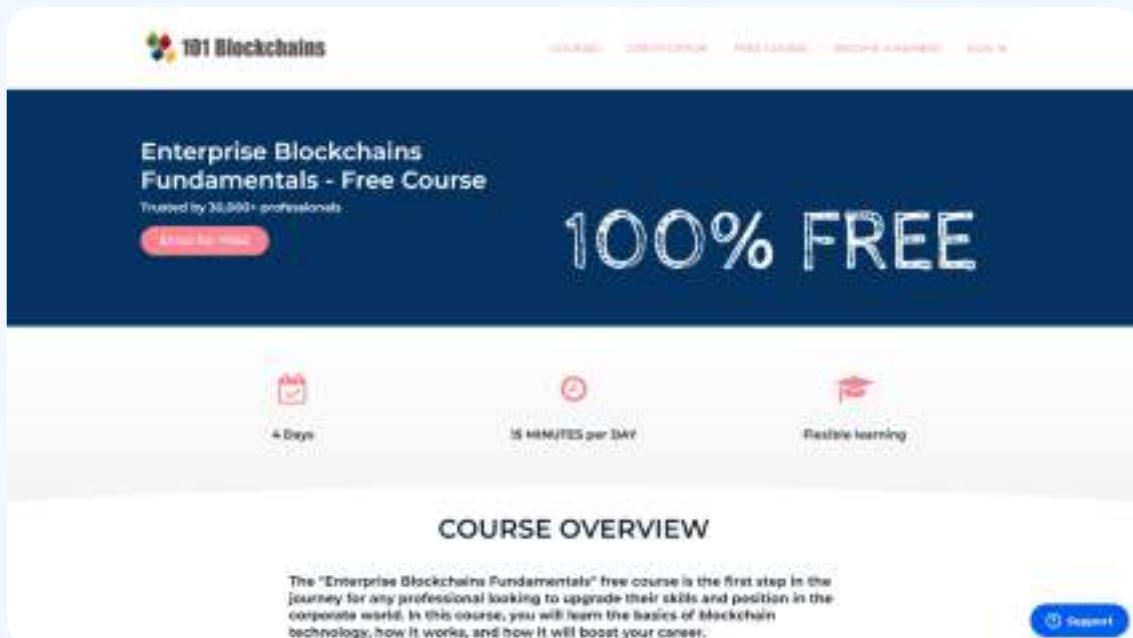
At a Glance

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

About this course

Estimated time
3 hours

Blockchain Essentials



The screenshot shows the homepage of 101 Blockchains. The main feature is a "Enterprise Blockchains Fundamentals - Free Course" with a "100% FREE" badge. It claims to be trusted by 30,000+ professionals. A red "Start Now" button is visible. Below the main banner, three icons represent course details: a calendar for "4 Days", a clock for "15 MINUTES per DAY", and a graduation cap for "Positive learning". A "COURSE OVERVIEW" section describes the course as the first step for professionals looking to upgrade their skills. A "Support" button is located in the bottom right corner.

Enterprise Blockchains Fundamentals - Free Course

Trusted by 30,000+ professionals

Start Now

4 Days

15 MINUTES per DAY

Positive learning

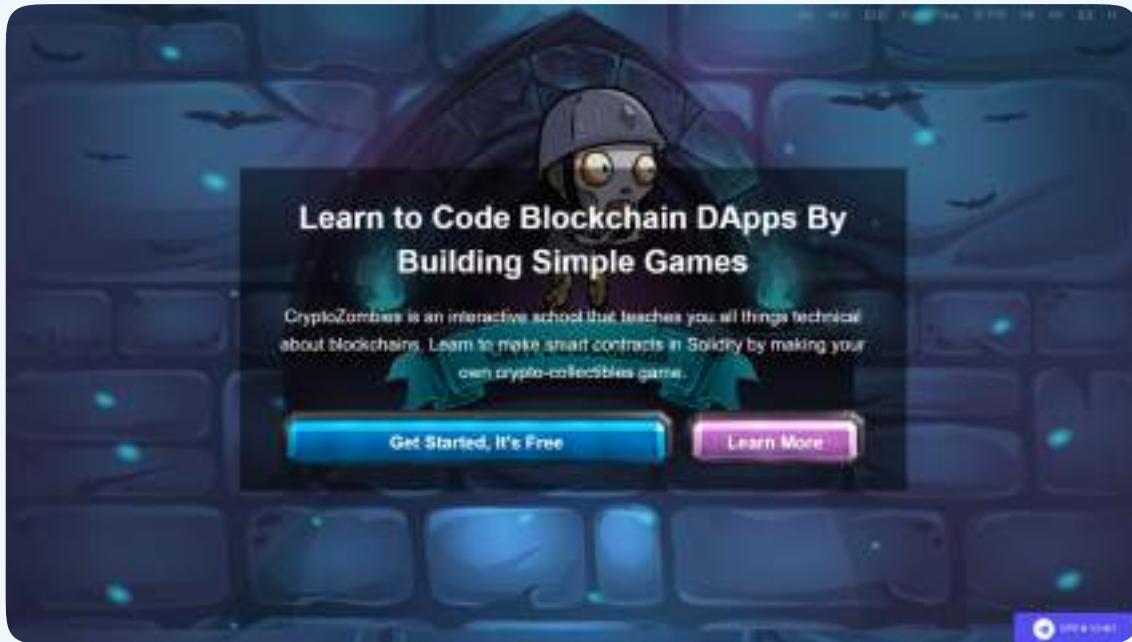
COURSE OVERVIEW

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

A screenshot of the Capture the Ether game interface. The top half has a teal background with a yellow flag icon and the text "Capture the Ether" and "THE GAME OF ETHEREUM SMART CONTRACT SECURITY". Below that is a white section with a red "LET'S PLAY >" button. The bottom half contains three columns of text: "What is this?", "How do I win?", and "What do I need to know first?".

What is this?
Capture the Ether is a game in which you hack Ethereum smart contracts to earn attest security.
It's meant to be both fun and educational.
This game is brought to you by [Riccardo](#), who blogs about smart contract development at [Proving 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 Ethereum function (or public state variable). The goal is always to make `attest()` return true.
If you're not that smart of being, there's a [cheatcode](#): <https://github.com/riccardosilvestri/capture-the-ether-cheatcode>

What do I need to know first?
The [tutorial](#) category is designed to introduce the basic tools you need, but if you're new to Ethereum smart contract development, head over to [Proving 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 [getting help](#).

Capture the Ether

Learning Resources

The screenshot shows the homepage of the Ethereum Smart Contract Best Practices document. At the top, there's a navigation bar with links for Home, General Philosophy, Development Recommendations, Attacks, Security Tools, Bug Bounty Programs, and About. Below the navigation is a section titled "Where to start?" which lists several sections: General Philosophy, Development Recommendations, Known Attacks, Security Tools, and Bug Bounty List. A note below this says "Contributions are welcome!" and provides instructions for contributing. The main content area contains a brief introduction about the document being a baseline for security considerations for intermediate Solidity programmers, maintained by Ethereum Core Developers with contributions from the broader Ethereum community. It also mentions that an English version has been provided (available in Chinese and Vietnamese).

Smart Contract Best Practices

The screenshot shows the GitHub repository page for "Awesome Solidity". The repository has 1.9k stars, 1.1k forks, and 1.1k issues. It includes sections for Code of Conduct, Contributors (with 10 profile icons), and a list of curated resources. The main content area lists various Solidity-related resources such as books, guides, and tools, each with a brief description and a link. Examples include "Solidity - The Definitive Guide" by Nick Johnson, "Solidity - A Simplified Introduction" by Matt Condon, and "Solidity - A Comprehensive Guide" by Solidity Guru.

Awesome Solidity

Learning Resources

The screenshot shows the Chainshot website's course selection interface. At the top, there's a navigation bar with links like 'HOME', 'COURSES', 'JOBS', and 'ABOUT'. Below the navigation, a large section titled 'Choose a Course' is displayed. It includes a sub-section header 'Choose From Multiple Paths to Shape Your Ethereum Coding Journey' and a note 'For Experienced Professionals and Beginners'. Three course cards are shown:

- JavaScript Crash Course**: A yellow card with a JS icon, describing it as a course for beginners.
- Aave Protocol**: A purple card with a ghost icon, describing it as a course for experienced professionals.
- Introduction to Solidity**: A blue card with a Solidity icon, describing it as a course for beginners.

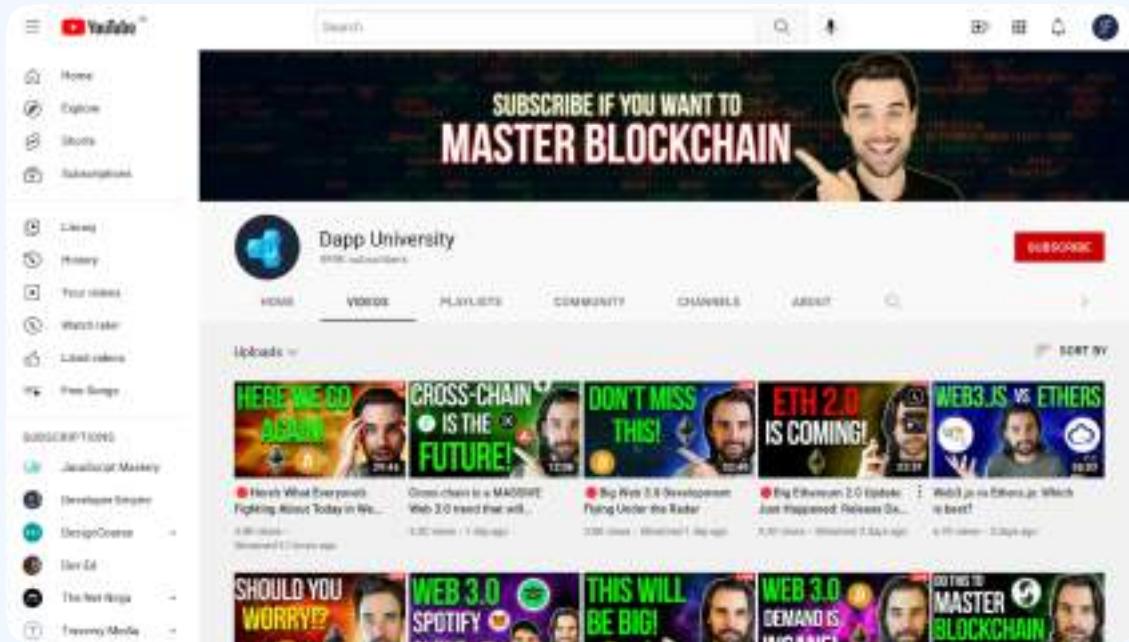
At the bottom of the main section, there are three horizontal buttons labeled 'View Details', 'View Details', and 'View Details' with orange arrows pointing right.

Chainshot

The screenshot shows the useWeb3 website's landing page. On the left, a sidebar menu lists various sections: Home, Jobs, Books, Code Challenges, Courses, Guides, Revites, Prospects, Starter Kits, Tutorials, Videos, Robotics, Grants, Gas, Tags, Latest, and Submit. The main content area has a heading 'useWeb3' with a subtitle '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, Explore, Learn, Build.' Below this is a 'Web3 Jobs' section with a sub-subtitle 'Browse all jobs to find your next, full-time or blockchain job at one of the leading companies in the space.' It features a grid of job categories: Engineering, Product, Sales, Marketing, People, Operations, Non-Tech, and Remote Web3. Further down is a 'Start learning' section with a sub-subtitle 'Explore the latest resources and get familiar with the core concepts and fundamentals. Learning from tutorials, courses, books, quizzes or code challenges and start building!' It features a 'Books' section with three cards: 'Mastering Ethereum', 'The Cryptoeconomics', and 'Token Economy'. At the bottom, there are sections for 'Code Challenges' and 'Cryptocurrencies', each with a 'View All' link.

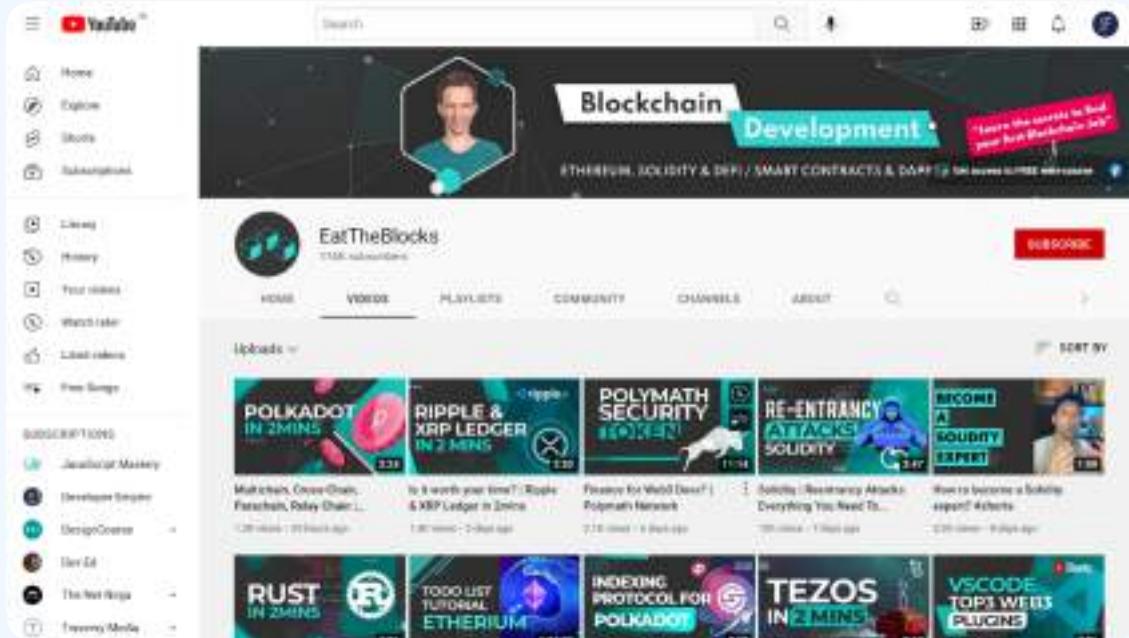
useWeb3

Learning Resources



The screenshot shows the YouTube channel page for 'Dapp University'. The channel has 1M subscribers. The banner at the top says 'SUBSCRIBE IF YOU WANT TO MASTER BLOCKCHAIN' with a photo of a smiling man pointing. Below the banner, there's a navigation bar with links to Home, Videos (which is selected), Playlists, Community, Channels, and About. On the left, there's a sidebar with links to Home, Explore, Shorts, Subscriptions, Library, History, Your videos, Watch later, Local videos, and Free songs. The main content area shows several video thumbnails under the heading 'Uploads'. The first few videos include titles like 'HERE WE GO AGAIN', 'CROSS-CHAIN IS THE FUTURE!', 'DON'T MISS THIS!', 'ETH 2.0 IS COMING!', and 'WEB3.JS VS ETHERS'. There are also smaller video thumbnails below them.

Dapp University



The screenshot shows the YouTube channel page for 'EatTheBlocks'. The channel has 1M subscribers. The banner at the top says 'Blockchain Development' with a photo of a person in a hexagonal frame. Below the banner, there's a navigation bar with links to Home, Videos (which is selected), Playlists, Community, Channels, and About. On the left, there's a sidebar with links to Home, Explore, Shorts, Subscriptions, Library, History, Your videos, Watch later, Local videos, and Free songs. The main content area shows several video thumbnails under the heading 'Uploads'. The first few videos include titles like 'POLKADOT IN 2 MINS', 'RIPPLE & XRP LEDGER IN 2 MINS', 'POLYMAT SECURITY', 'RE-ENTRANCY ATTACKS SOLIDITY', and 'BECOME A SOLDIERY EXPERT'. There are also smaller video thumbnails below them.

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!

