



The Web 3.0 Roadmap

Created by **JS Mastery**

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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.

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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.

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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.

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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.

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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

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Things to learn about Smart Contract

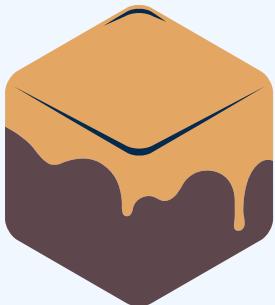
- Basics of Smart Contract
- Life Cycle of Smart Contract
- Interacting with smart contracts using web3.js

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.

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For Testing, you can go with:



Ganache

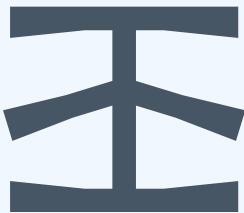


Mocha



Chai

For deployment purposes, you can use:



Infura



Hardhat



Truffle

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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.

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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.

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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.

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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.

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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.

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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.

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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.

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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.

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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.

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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 banner with the text "Over 100,000 students have used Web3U since we launched! Read our Season 0 recap". Below the banner is the Web3 University logo. To the right are links for "follow us" (Twitter), "help build web3", and "COMMUNITY". The main title "EVERYTHING ABOUT Blockchain Development" is prominently displayed. A sub-section titled "How to Build Your First Smart Contract" features an image of a laptop displaying code. Below the main title, there's a brief description: "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." A "Start Here" button is located below this text. At the bottom of the page, there's a "PARTNERS" section featuring logos for Alchemy, a16z, Pantera, Polygon, Arbitrum, flow, buildspace, ChainShot, OpenSea, Optimism, and a "join us!" button.

web3 university

The screenshot shows the homepage of Ethhub. It features a dark blue header with the Ethhub logo, which is a stylized diamond shape composed of geometric lines and points. Below the header is a horizontal line. The word "ETHHUB" is centered in a bold, white, sans-serif font. Underneath it, the tagline "A TRUSTED SOURCE IN A TRUSTLESS WORLD" is written in a smaller, white, all-caps font. Another horizontal line follows. At the bottom of the header, there are four white rectangular buttons with black text: "DOCS", "PODCAST", "NEWSLETTER", and "SHOP". Below the header is a dark blue footer area. In the center, there are five small circular icons with white symbols: a play button, a Twitter bird, a video camera, an Instagram camera, and an envelope. At the very bottom, there is some very small, faint text.

Ethhub

Learning Resources

The screenshot shows the IBM Supply Chain and Blockchain Blog homepage. At the top, there's a navigation bar with links like 'Let's Create', 'Products & Solutions', 'Consulting & Services', 'Learn & Support', and 'Explore more'. Below the navigation is a search bar and user icons. The main header 'Blockchain development' is displayed with a subtext 'Resources, guides and tips for blockchain development – for developers looking to build blockchain applications and networks.' To the right is a blue icon of a bar chart. Below the header, there are three cards: one showing a yellow truck in a quarry with the text 'Building a digital trust ecosystem for mining in British Columbia'; another showing people in an office with the text 'Fueling the financial industry with open source cross-border payments'; and a third card for 'Follow the conversation' with a Twitter feed for @IBMBlockchain.

IBM Blog

The screenshot shows a blog post from the Alchemy Blog titled 'ERC-721 vs. ERC-721A: Batch Minting NFTs'. The post features a dark background with a grid of colorful NFT thumbnails. The author is Albert Hu (@thatguyintech) and it was published on Mar 10, 2022. Below the post, there's a section titled 'Browse the blog' with links to 'Learn', 'Announcements', 'Tutorials', 'Products', 'Amplify', and 'NFTs'. There are also social media sharing buttons for LinkedIn, Facebook, and Twitter.

Alchemy Blog

Learning Resources

The screenshot shows a Udemy course page for 'Blockchain Theory 101'. At the top, there's a purple header bar with the text 'Future-ready skills on your schedule | Learn on iOS, Android, and more.' Below it is the Udemy navigation bar with categories, a search bar, and links for 'Udemy Business', 'Teach on Udemy', 'Log in', 'Sign up', and a profile icon.

The main content area shows the course title 'Blockchain Theory 101' in bold. Below it is a brief description: 'Basic description, applications, and implication of blockchain technology'. A thumbnail image of the instructor, Melanie Swan, is displayed. To the right of the thumbnail, there's a 'Free tutorial' button, a rating of 4.5 stars from 4,802 ratings, and 57,246 students. Below this, it says 'Created by Melanie Swan' and 'English [Auto]'. A large 'Free' button is prominent, followed by an 'Enroll now' button.

Below the main course details, there's a section titled 'What you'll learn' with a list of bullet points. Underneath that is a section titled 'Try free courses or enroll in paid courses' with two columns: 'Free courses' and 'Paid courses', each listing several items.

Blockchain Theory 101

The screenshot shows an article titled 'The Web3 Developer Stack' on the QuickNode website. The top navigation bar includes links for 'Pricing', 'Supported Chains', 'Use Cases', 'Learn', 'Compare', 'NFT API', and 'Blog'. There are also 'Signup' and 'Sign in' buttons.

The main content area features a large heading 'The Web3 Developer Stack' with a timestamp 'April 12, 2022'. Below the heading is a detailed description of what a developer stack is, mentioning MEAN and MERN stacks. It then describes the web3 developer stack and its components.

On the left side, there's a 'Prerequisites' section with a bulleted list of requirements. On the right side, there's a 'Table of Contents' with a list of sections. At the bottom, there's a bio for the author, Sahil Son, and social sharing options.

Web 3 Developer Stack

Learning Resources

The screenshot shows a course page for 'Blockchain Essentials' on a platform. At the top, there's a navigation bar with links for 'Courses & Projects', 'Badges', 'Learning Paths', 'Business', a search bar, and buttons for 'Sign in' and 'Register'. Below the header, the course title 'Blockchain Essentials' is displayed, along with a brief description: 'Understand blockchain technology and how it can solve business problems. Learn the basics of developing applications with chaincode.' A 'Continue reading' link is also present. To the right of the text is a large, stylized graphic of interlocking 3D cubes. Below the description, course statistics are shown: 'BC0101EN | 181293 Enrolled | ★★★★☆ (405)'. A 'Login to enroll' button is located at the bottom left of the main content area.

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 landing page for a free course. At the top, the '101 Blockchains' logo is visible, along with navigation links for 'COURSES', 'CERTIFICATION', 'FREE COURSE', 'BECOME A MEMBER', and 'SIGN IN'. The main headline reads 'Enterprise Blockchains Fundamentals - Free Course' with a note that it is 'Trusted by 30,000+ professionals'. A prominent red button says 'Enroll for FREE'. To the right of the headline, the word '100% FREE' is written in large, white, outlined letters. Below this, three icons represent course details: a calendar icon for '4 Days', a clock icon for '15 MINUTES per DAY', and a graduation cap icon for 'Flexible learning'. Further down, a section titled 'COURSE OVERVIEW' contains a brief description of the course: '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.' A blue 'Support' button is located in the bottom right corner of this section.

Blockchain Fundamentals

Learning Resources



Cryptozombies

A screenshot of the Capture the Ether game interface. The top half of the screen has a teal background with a yellow flag icon and the text "Capture the Ether" and "THE GAME OF ETHEREUM SMART CONTRACT SECURITY". Below this is an orange "LET'S PLAY >" button. The bottom half of the screen is white and contains three sections 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 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 Best Practices" repository on GitHub. The page has a dark header with the repository name and a navigation bar below it. The main content area features a title "Ethereum Smart Contract Security Best Practices" and a paragraph about the document's purpose and contributors. It includes a "Where to start?" section with a bulleted list of links and a "Tip" box. At the bottom, there's a "Contributions are welcome!" section with a note for pull requests.

Smart Contract Best Practices

The screenshot shows the GitHub page for the "awesome-solidity" repository. It features a navigation bar with links like "Code", "Issues", and "Pull requests". The main content area displays a list of files and their commit history. On the right side, there's a sidebar with sections for "About", "Contributors", and "Code of conduct". The "About" section contains a brief description and a list of tags related to Solidity and Ethereum.

Awesome Solidity

Learning Resources

The screenshot shows the ChainShot website's course selection interface. At the top, there are navigation links for 'HOME', 'BOOTCAMP', 'COURSES' (which is underlined), and 'BLOG'. On the right, there are 'LOGIN' and 'SIGN UP' buttons. The main heading 'Choose a Course' is displayed in large, bold, dark blue text. Below it, a sub-headline 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** (FREE): A yellow card with a JS icon. Description: 'Learn everything you need to know to do well in the Ethereum Developer Bootcamp.'
- Aave Protocol** (FREE): A purple card with an Aave icon. Description: 'Build smart contracts that integrate with AAVE to borrow, lend and execute flash loans!'
- Introduction to Solidity** (FREE): A blue card with a Solidity icon. Description: 'Learn the basics of Solidity to start coding smart contracts.'

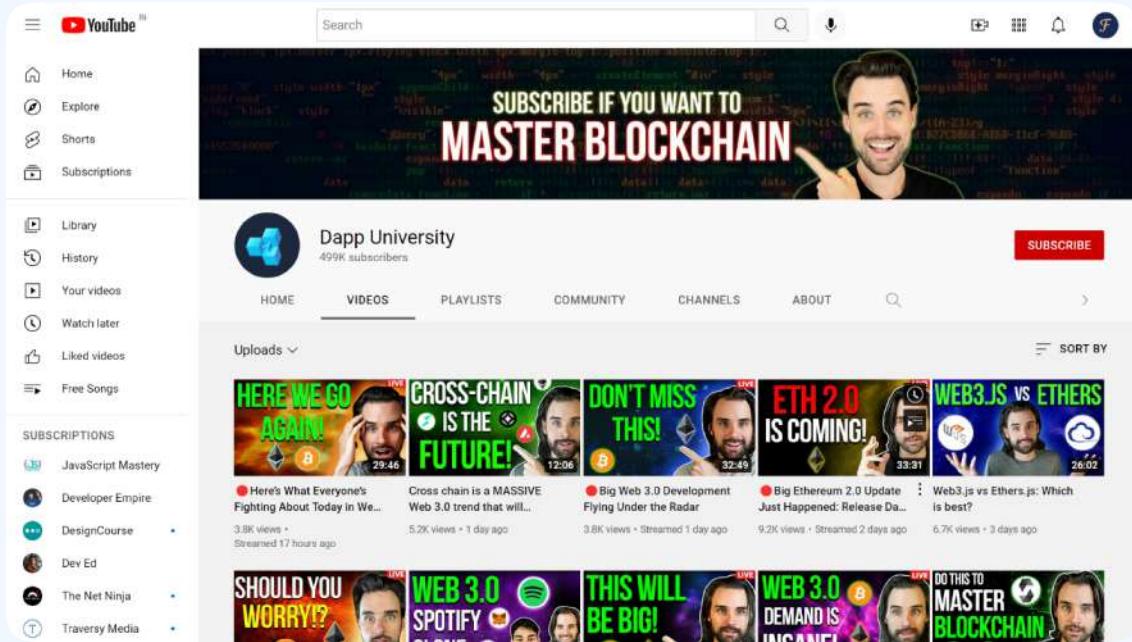
Below the cards, there are three horizontal buttons labeled 'FREE'.

Chainshot

The screenshot shows the useWeb3 platform homepage. On the left, a sidebar menu lists various categories: Home, Jobs, Books, Code Challenges, Courses, Guides, Movies, Podcasts, Starter Kits, Tutorials, Videos, Websites, Grants, Gas, Tags, Latest, and Submit. The 'Courses' section is currently selected. The main content area has a header '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.' Below this, there's a 'Explore. Learn. Build.' section. The 'Web3 Jobs' section features a list of job categories: Engineering, Product, Sales, Marketing, People, Operations, Non-Tech, and Remote Web3. There's also a link 'Hiring for Web3 jobs? Post your job'. The 'Start learning' section encourages users to 'Explore the latest resources and get familiar with the core concepts and fundamentals. Learning from tutorials, courses, books, videos or code challenges and start building!'. It includes sections for 'Books' (with a 'view all' link) and 'Code Challenges' (with a 'view all' link). The 'Books' section displays three cards: 'Mastering Ethereum' (Beginner level), 'The Cryptopians' (All level), and 'Token Economy' (All level). The 'Code Challenges' section shows three cards: 'CryptoZombies', 'Damn Vulnerable DeFi', and 'HyperFun'.

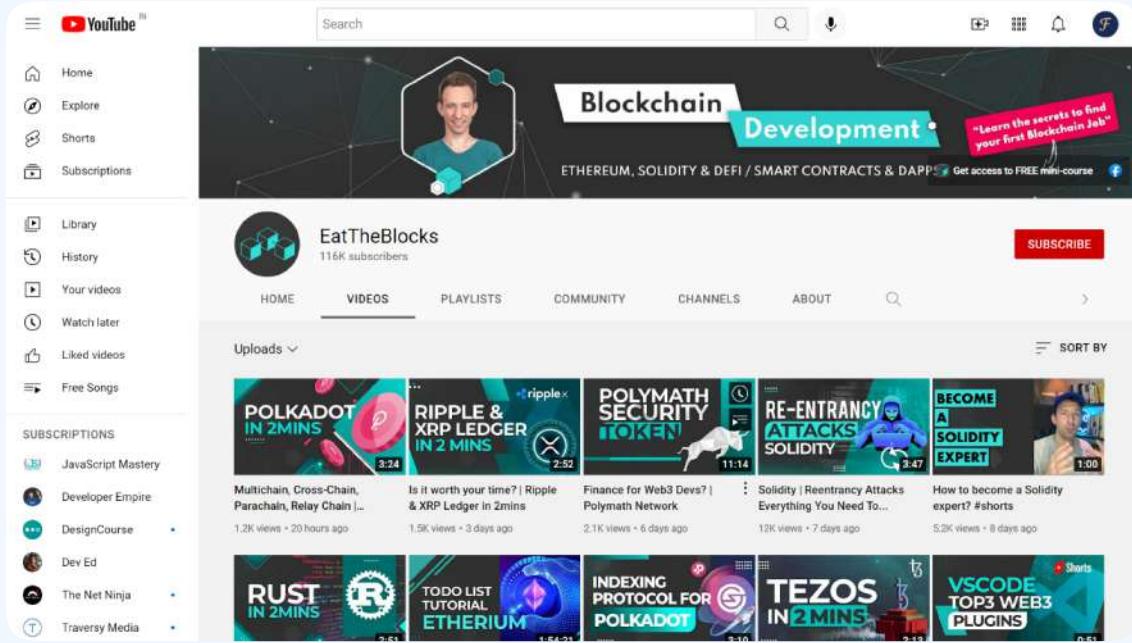
useWeb3

Learning Resources



The screenshot shows the YouTube channel page for 'Dapp University'. The channel has 499k subscribers. The banner at the top says 'SUBSCRIBE IF YOU WANT TO MASTER BLOCKCHAIN' with a photo of a smiling man. Below the banner, there's a navigation bar with links to Home, Explore, Shorts, Subscriptions, Library, History, Your videos, Watch later, Liked videos, and Free songs. The 'VIDEOS' tab is selected, showing a grid of video thumbnails. Some visible 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'. Each thumbnail includes a small image of the host and some text and numbers indicating view count and upload date.

Dapp University



The screenshot shows the YouTube channel page for 'EatTheBlocks'. The channel has 116k subscribers. The banner at the top features a hexagonal frame around a portrait of a smiling person, with the text 'Blockchain Development' and a callout 'Learn the secrets to find your first Blockchain Job'. Below the banner, there's a navigation bar with links to Home, Explore, Shorts, Subscriptions, Library, History, Your videos, Watch later, Liked videos, and Free songs. The 'VIDEOS' tab is selected, showing a grid of video thumbnails. Some visible 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'. Each thumbnail includes a small image of the host and some text and numbers indicating view count and upload date.

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?

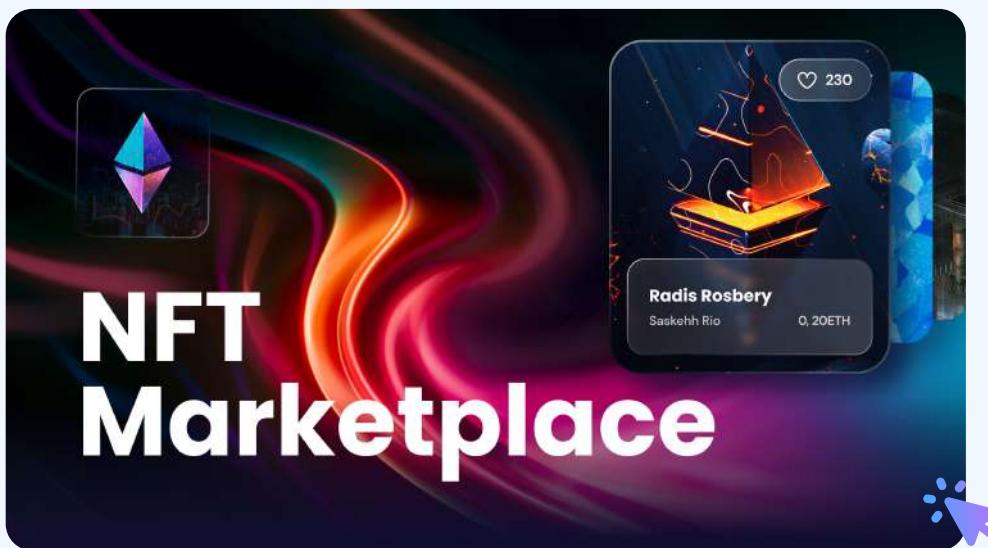
JS Mastery Pro offers two courses that will help you master libraries, tools, and technologies such as React.js, Next.js, Material UI, Solidity, Redux, and many more.

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!

