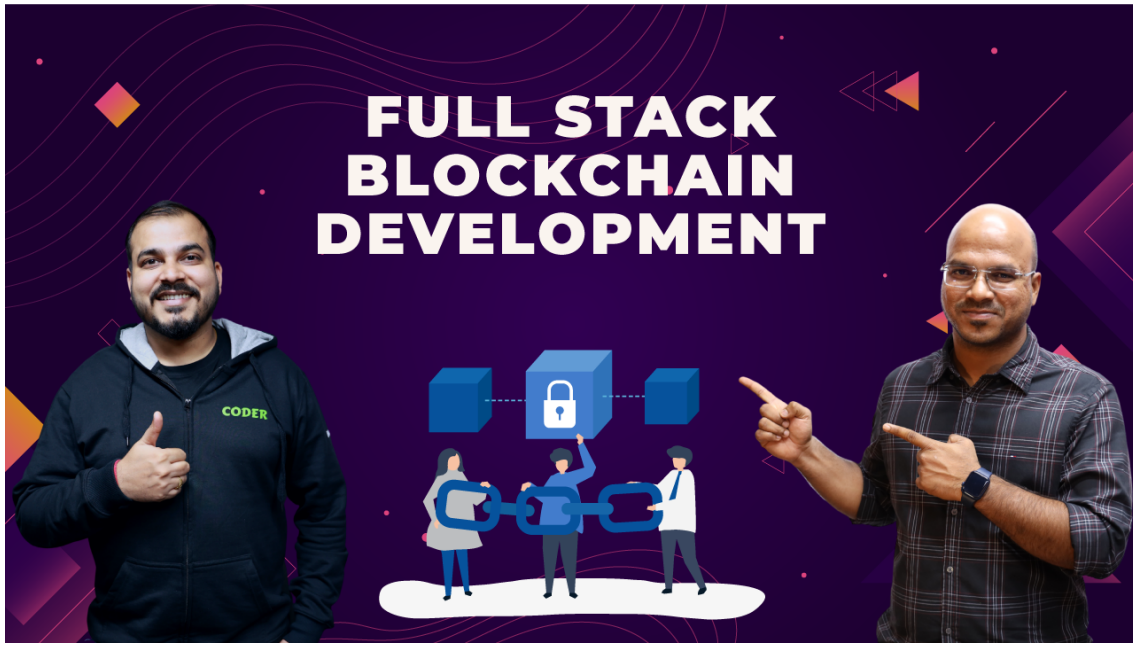


Welcome to ineuron.ai



## Full Stack Blockchain Development

### Description:

Full Stack Blockchain Development course is a live mentor-led certification program with by iNeuron. In this course you will learn the entire stack required to work in Permissionless Blockchain development. This course focuses on latest Blockchain industry standards like Ethereum Blockchain, Solidity, Decentralized Autonomous Organisations, Decentralized Finance, Non Fungible Tokens, Polygon Network, Polkadot Blockchain, Oracles along with complete development stack in Javascript and many more Blockchain concepts.

**Start Date:** 23rd July 2022

**Doubt Clear Time:** 08:00 PM to 10:00 PM (IST) Thursday

**Course Time:** 03:00 PM - 06:00 PM (IST) Sat - Sun

### Features:

# Course material

- # Course resources
- # On demand recorded videos
- # Practical exercises
- # Quizzes
- # Assignments
- # Course completion certificate

### **What we learn:**

- # Web 1.0 vs Web 2.0 vs Web 3.0
- # What is Blockchain technology?
- # Bitcoin Blockchain
- # Ethereum Blockchain
- # Solidity
- # Oracles
- # DAO
- # DeFi
- # NFT
- # Layer 2 Blockchain
- # Truffle Suite
- # Hardhat
- # Polkadot

### **Requirements:**

- # System with Internet Connection
- # Interest to learn
- # Dedication

**Instructor:****Name:**

krish naik

**Description:**

Having 10+ years of experience in Data Science and Analytics with product architecture design and delivery. Worked in various product and service based Company. Having an experience of 5+ years in educating people and helping them to make a career transition.

**Name:**

Sanjeevan Thorat

**Description:**

Data Scientist and Blockchain developer, with experience in developing and managing end to end solutions. I have hands-on experience in Python Programming Language, Machine Learning Deep Learning and Natural language processing. Blockchain development experience in smart contracts, Decentralised Finance applications, DAOs, NFTs and Oracles running on Ethereum and Polygon blockchains. I have worked with various clients for different industry projects in the blockchain space. I specialize in building smart contracts on the Ethereum blockchain along with JavaScript integration for enhancing user experience to generate maximum returns on investment.

**Name:**

Navin Reddy

**Description:**

I am Corporate Java trainer. Since past few years successfully trained many professionals at JP Morgan, Accenture, Polaris and L&T infotech. My youtube channel "Telusko" presently has 1.7 million subscribers. Passionate about Java Technology for over a decade and moved on as a corporate trainer. I am certified blockchain developer and Currently, building Applications running on Blockchain (dapps).

**>Course Introduction:**

>>Course overview

>>A brief history of internet technologies

>>Web 1.0 vs Web 2.0 vs Web 3.0

>>What is Blockchain technology?

>>Why do we need Blockchain technology?

>>The connected world and the Blockchain: A disruptive computing paradigm

>>Centralized vs Decentralized networks

>>Distributed Systems overview

**>Web Development:**

>>What is Web Development?

>>Client-Server Architecture

>>What are APIs?

>>What is Front-end web development?

>>What is Back-end web development?

>>Components of Full-Stack Web Development Applications

## **>HTML:**

>>How do websites work?

>>Preview

>>HTML vs CSS vs Javascript

>>HTML files

>>Doctype & HTML Boilerplate

>>Spaces & Line Breaks

>>Heading Tag

>>Paragraph & Pre Tag

>>Difference between Elements, Attributes & Tags

>>Comments

>>Useful Tags

>>Nesting of Tags

>>Extensions in HTML

>>Live Server in VSCode

>>Formatting Tags

>>Article in HTML

>>Time & Address Tag

>>Quote & Cite

- >>Strike
- >>Progress Bar
- >>Anchor Tag Styling
- >>Image Tag
- >>HTML Table
- >>List
- >>Input Tags,iframe
- >>Forms
- >>Video & Audio
- >>iframe
- >>Embed pdf
- >>Maps
- >>Symbols
- >>Meta Tags
- >>SVG
- >>Emoji
- >CSS:**

- >>CSS Introduction
- >>Inline vs Internal vs External
- >>Priority between Inline, Internal & External
- >>Multiple Properties in Single Element
- >>Types of Selectors
- >>Priority between Id, Class & Element

- >>Comments
- >>Colors
- >>Backgroud
- >>Border
- >>Height & Width
- >>Padding
- >>Margin
- >>Box Model
- >>Text Properties
- >>Anchor Tag Styling
- >>Fonts
- >>Cursor
- >>!Important in CSS
- >>Box Shadow
- >>Opacity
- >>Filter
- >>Gradient
- >>Overflow
- >>List
- >>Tables
- >>Box Slzing
- >>Inherit & Initial
- >>Object Fit
- >>Pseudo Classes

>>Pseudo Elements

>>Display

>>Position

>>Z-Index

>>Floats

>>2D Transform

>>Transitions

>>Flex

>>Flex Direction & Wrap

>>Justify & Align in Flex

>>Order in Flex

>>Grow & Basis in Flex

>>Align Items in Flex

>>Grids

>>Rows, Columns & Gap in Grids

>>Justify & Align in Grids

>>CSS Validator (Final Video)

**>Javascript:**

>>Introduction

>>Running Javascript in Browser

>>Console

>>Strings & Numbers

>>var, let & const



- >>Data Types
- >>Type Conversions
- >>Arithmetic Operators
- >>Assignment Operator
- >>Comparision Operator
- >>Logir Not, Or and And
- >>Swap Numbers
- >>String Handling
- >>String Searching
- >>Arrays
- >>Objects
- >>Dates
- >>Maths
- >>If & Else
- >>Challenge - If & Else
- >>Switch Case
- >>Challenge - Switch Case
- >>JS Loops
- >>For Loops
- >>Nested Loops
- >>Break & Continue
- >>Arrays, Strings & Objects
- >>For-in
- >>For-of

- >>While Loops
- >>Do while Loops
- >>Loops Exercies
- >>Functions
- >>Variable Scopes in Functions
- >>Nested Functions
- >>Parameters & Arguments
- >>How function is useful?
- >>Return in Function
- >>Anonymous Functions
- >>Calculator Exercise
- >>Arrow Functions
- >>forEach
- >>maps
- >>String Literals
- >>Filter, Reduce & Every
- >>Spread Operator
- >>Challenege
- >>Window & Document
- >>Document Access
- >>innerText & innerHTML
- >>HTML Calculator
- >>Query Selector
- >>Styling in JS

- >>Advance DOM Manipulation
- >>Events
  - >>Basic Events
  - >>Time Events
  - >>Pop-up Boxes
  - >>Error Handling
  - >>Form Validation
  - >>Asynchronous JS
  - >>this keyword
  - >>useStrict
  - >>Hoisting
  - >>Local Storage
  - >>Session Storage
  - >>Cookies
  - >>Cookies vs Local Storage vs Session Storage
  - >>JSON vs Object literals
  - >>API
  - >>Fetching
  - >>Methods & Status Codes
  - >>Post Method
  - >>Put Method
  - >>Guess the Number
  - >>Generators
  - >>Regex

## **>The JavaScript Standard**

### **Library:**

- >>The JavaScript Standard

- >>Sets and Maps

- >>Typed Arrays and Binary Data

- >>Pattern Matching with Regular Expressions

- >>Dates and Times

- >>Error Classes

- >>JSON Serialization and Parsing

- >>The Internationalization API

- >>The Console API

- >>URL APIs

- >>Timers

### **>Iterators and Generators:**

- >>What are Iterators and Generators?

- >>How Iterators Work?

- >>Implementing Iterable Objects

- >>Generators

- >>Advanced Generator Features

### **>Asynchronous JavaScript:**

- >>What is Asynchronous JavaScript?

>>Asynchronous Programming with Callbacks

>>Promises

>>Async and await

>>Asynchronous Iteration

## **>Working with Web Browsers:**

>>JavaScript in Web Browsers

>>Web Programming Basics

>>Events

>>Scripting Documents

>>Scripting CSS

>>Document Geometry and Scrolling

>>Web Components

>>SVG: Scalable Vector Graphics

>>Audio APIs

>>Location, Navigation, and History

>>Networking Concepts

>>Storage

>>Worker Threads and Messaging

## **>Node js:**

>>What is Node.js?

>>Client-Server Architecture

>>Single-Threaded Model

- >>Multi-Threaded Model
- >>Multi-Threaded vs Event-Driven
- >>What is Node.js?
- >>Node.js Features
- >>Node.js Installation
- >>Node.js First Example
- >>Blocking vs Non-blocking
- >>Global Objects
- >>File System
- >>Callbacks
- >>Events
- >>Node js Architecture
- >>NPM(Node Package Manager)
- >>Node.js Modules
- >>Node.js Modules Types
- >>Core Modules
- >>Local Modules
- >>3rd Party Modules
- >>JSON File
- >>Variables
- >>Operators
- >>Functions
- >>Objects
- >>File Systems

>>Events

>>HTTP Module

>>Creating a Web Server using Node.js

>>Node.js NPM Tutorial

>>What is NPM?

>>Main Functions of NPM

>>Need For NPM

>>NPM Packages

>>NPM Installation

>>JSON File

>>Node.js Express Tutorial

>>Introduction to Express.js

>>Features of Express.js

>>Getting Started with Express.js

>>Routing Methods

>>Building RESTful API with Node.js

>>What is REST API?

>>Features of REST API

>>Principles of REST API

>>Methods of REST API

>>Building REST API with Node.js

>>Contact List MERN App

**>React JS:**

- >>Introduction to React
- >>Why should you learn React?
- >>Features of React
- >>React applications
- >>React App & JSX
- >>Functional Components
- >>Applying CSS Styles
- >>Click Events
- >>useState Hook
- >>Lists & Keys
- >>Props & Prop Drilling
- >>Controlled Component Inputs
- >>Project Challenge
- >>useEffect Hook
- >>JSON Server
- >>Fetch API Data
- >>CRUD Operations
- >>Fetch Data Challenge
- >>React Router
- >>Router Hooks
- >>Links
- >>Flexbox Components
- >>Axios API Requests
- >>Custom React Hooks



>>Context API & useContext Hook

>>Build & Deploy Your React Apps

## **>Javascript Projects:**

>>Creating shopping cart app with User Interface

## **>Bitcoin Blockchain:**

>>History of currencies

>>Fiat currencies

>>Disadvantages of fiat currencies

>>Global financial system

>>How Central Banks work?

>>The 2008 Global Financial Crisis

>>Aftermath of 2008 recession

>>Creation of Bitcoin- A new decentralised digital currency

>>Bitcoin message hash implementation in Javascript

>>Immutable ledger practical implementation

>>Genesis block

>>Timestamp server

>>Merkel trees

>>Bitcoin as a State Transition System

>>Unspent Transaction outputs(UTXOs) Javascript implementation

>>Bitcoin whitepaper

>>What is a block?

- >>Components of a Bitcoin block
- >>Bitcoin Blockchain live implementation
- >>Distributed Blockchain
- >>Centralized vs Distributed Blockchain
- >>consensus mechanism
- >>Why do we need consensus mechanism in Blockchain networks?
- >>Byzantine generals problem
- >>Byzantine fault tolerance- A solution to Byzantine generals problem
- >>BFT javascript implementation
- >>Bitcoin nodes
- >>Bitcoin miners
- >>Blockchain mining operation
- >>Mempool
- >>Bitcoin difficulty adjustment
- >>Bitcoin halving cycle
- >>Competing chain problem
- >>Maintaining immutability - Longest Chain rule
- >>Block validation
- >>consensus rules
- >>Double Spend Validation
- >>Transaction Input and Output Validation
- >>Coinbase Transaction Reward Validation
- >>Coinbase Maturity
- >>Coinbase Transaction Block Height

>>Signature Check Counting

>>SigChecks

>>Mining incentive

>>Mining optimized hardware

>>CPU processing power

>>GPUs for mining

>>Application Specific Integrated Circuits(ASIC) miners

>>CPU vs GPU vs ASIC miners

>>Distributed peer to peer Blockchain live implementation

>>Distributed peer to peer Blockchain Javascript implementation

>>Token transaction live implementation using distributed peer to peer blockchain

>>Coinbase transaction live implementation using distributed peer to peer blockchain

>>Token and Coinbase transaction Javascript implementation

>>Bitcoin public key and private key

>>Public key and private key generation

>>Bitcoin addresses

>>Bitcoin digital signatures

>>Signing a peer to peer message with private key- Javascript implementation

>>Verifying peer to peer message using public key and digital signature-implementation

>>Signing and verifying currency transaction- implementation

>>Complete Bitcoin Blockchain implementation with transaction signatures

**>Probable attacks in Bitcoin**

**blockchain:**

>>Sybil Attack

>>Race Attack

>>Finney Attack

>>Vector76 Attack

>>51% Attack

## **>Bitcoin Project:**

>>Building a Blockchain using Javascript

## **>Ethereum Blockchain:**

>>Module overview

>>Understanding the drawbacks of Bitcoin blockchain

>>Lack of Turing-completeness

>>Value-blindness

>>Lack of state

>>Blockchain-blindness

>>Origin of Ethereum- The programmable currency

>>The Decentralized Applications revolution and modern state of blockchain systems

>>Decentralized Applications vs Centralized Applications

>>Ethereum Accounts overview

>>Contract Accounts(CA)

>>Externally Owned Accounts(EOA)

>>Fields in Ethereum accounts

>>Ethereum Account messages

- >>Ethereum Account transactions
- >>Ethereum Addresses
- >>Units of Ether
- >>Ether Gas
- >>Computing total gas cost for Ethereum transactions
- >>Ethereum gas price Javascript implementation
- >>Ethereum as a State Transition Function
- >>Ethereum Architecture
- >>Ethereum Virtual Machine(EVM)
- >>EVM nodes vs mining nodes
- >>EVM Bytecode
- >>EVM Instruction Set
- >>EVM Opcode
- >>EVM Storage
- >>EVM Memory
- >>EVM Stack
- >>Geth setup and EVM practical
- >>Converting bytecode to opcode
- >>Application Binary Interface(ABI)
- >>Understanding end-to-end Ethereum Blockchain transaction in Javascript
- >>Ethereum Smart Contracts architecture
- >Ethereum 2.0:**
- >>Why was Ethereum 2.0 proposed?

- >>Energy usage in Proof of Work
- >>Gas costs in Ethereum 1.0
- >>Potential scalability issues
- >>Moving from Proof of Work to Proof of Stake
- >>Proof of Stake in Ethereum 2.0
- >>Validators
- >>Staking
- >>Attestation
- >>Crosslinks
- >>Finality
- >>consensus clients
- >>Execution clients
- >>Sharding
- >>Shard chains
- >>Beacon chain
- >>Data rollup in Ethereum 2.0
- >>Forking in Blockchain
- >>Hard Fork
- >>Soft Fork
- >>The DAO attack and Ethereum Hard Fork

## **>Solidity:**

- >>What is Solidity?
- >>Why should you learn Solidity programming?

>>Introduction to Smart Contracts

>>Solidity Installation

>>Remix IDE

>>Installing Solidity in npm / Node.js

>>Layout of a Solidity Source File

>>SPDX License Identifier

>>Pragmas

>>Comments in Solidity

>>Structure of a Smart Contract

### **>Solidity Value Types:**

>>Solidity datatypes

>>Booleans

>>Integers

>>Address Type

>>Address Literals

>>Contract Types

>>Byte Type

>>String Types

>>Enums in Solidity

### **>Solidity Reference Types:**

>>Data locations- storage,memory and callback

>>Solidity Arrays

>>Fixed Arrays

>>Dynamic Arrays

>>Bytes and Strings as Arrays

>>Array Slicing

>>Structs

>>Mapping Types

## **>Solidity Units and Global Variables:**

>>Ether Units

>>Time Units

## **>Solidity Control Structures:**

>>If statement

>>If/else statement

>>Nested if/else statements

>>Solidity Loops

>>For loop

>>While loop

>>Do-while loop

>>Break statement

>>Continue statement

## **>ABI Encoding and Decoding**

## **Functions:**



>>ABI encoder

>>ABI decoder

## **>Cryptographic Functions:**

>>Keccak256

>>SHA256

>>Ripemd160

>>Ecrecover

## **>Smart Contracts:**

>>Creating Smart Contracts

>>Constructor

>>Scope visibility

>>State variable visibility

>>Functions

>>Function visibility

>>Getter functions

>>Setter functions

>>Function modifiers

>>Return variables and returning multiple values

>>Immutable state variables

>>Payable functions

>>Fallback functions

- >>View functions
- >>Pure functions
- >>Function overloading
- >>Function overriding
- >>Solidity Events
- >>Block and Transaction details
- >>Solidity Inheritance
- >>Single Inheritance
- >>Multiple Inheritance
- >>Heirarchical Inheritance
- >>Multilevel Inheritance
- >>Abstract Contracts
- >>Solidity Interfaces
- >>Solidity Libraries

## **>Solidity                      Programming**

### **Applications:**

- >>Ether Wallet
- >>Multi Sig Wallet
- >>Iterable Mapping
- >>ERC20
- >>ERC721
- >>Uni-directional Payment Channel
- >>Bi-directional Payment Channel

>>NFT Auction

>>Crowd Fund

>>Time Lock

## **>Common Ethereum Blockchain**

### **Hacks and Loopholes:**

>>Re-Entrancy Attack

>>Self Destruct

>>Accessing Private Data

>>Denial of Service

>>Phishing with tx.origin

>>Hiding Malicious Code with External Contract

>>Honeypot

>>Front Running

>>Block Timestamp Manipulation

>>Signature Replay

>>Bypass Contract Size Check

## **>Introduction to Blockchain**

### **Development Frameworks:**

>>Introduction to Smart Contract Development in Production

>>Web3 libraries for Javascript

>>Smart Contract development tools

>>Web3 Providers

>>Wallets

## >Truffle Suite:

>>Truffle overview

>>Truffle Installation

>>Creatin a new project in Truffle

>>Exploring project directories in Truffle

>>Compiling Smart Contracts

>>Building Artifacts

>>Handling Dependencies

>>Reading and writing Smart Contract data

>>Smart Contract Transactions in Truffle

>>Function calls in Truffle

>>Abstractions

>>Executing Contract functions

>>Making Transactions

>>Processing Transaction results

>>Catching events

>>Add a new contract to the network

>>Sending ether to a contract

>>Invoking overloaded methods

>>Using enumerations

>>Preserving Files and Content to Storage Platforms

>>Inter Planetary File System(IPFS)

- >>Filecoin
- >>Textile Buckets
- >>Running Migrations
- >>Initial Migration
- >>Truffle Deployer
- >>Network considerations
- >>Truffle Deployer API
- >>Integrating Truffle with Metamask
- >>Using Truffle Dashboard
- >>Using truffle Debugger
- >>Truffle Develop and Truffle Console
- >>Writing and executing external scripts
- >>Testing Smart Contracts
- >>Writing Automated Tests in Javascript
- >>Writing Automated Tests in Solidity
- >>Truffle Build Process
- >>Truffle Boxes
- >>Ethereum Name Service
- >>Truffle Event System
- >>Network Configuration and Dapp Deployment
- >>Ganache- Ethereum Client for Truffle Suite
- >>Installing Ganache
- >>Ganache Workspaces
- >>Ganache Ethereum Workspace

>>Understanding Workspace Default Configuration in Ganache

>>Managing Ganache configurations and settings

>>Configuring Truffle to connect to Ganache

>>Managing Truffle projects in Ganache

>>Exploring the Contracts page

>>Exploring the Transactions page

>>Linking and unlinking a Truffle project

>>Ganache Workspaces

>>Creating Workspaces

>>Deleting Workspaces

>>Editing Workspaces

>>Ethereum Workspace

>>Loading Existing Workspaces

>>Switching Workspaces

**>Hardhat:**

>>Introduction To Hardhat - Ethereum development environment for professionals

>>Hardhat Installation

>>Creating a Hardhat project

>>Configuring Ethereum Networks

>>Configuring the compiler

>>Compiling your contracts

>>Artifacts

>>Writing deployment scripts

- >>Deploying the Contracts
- >>Testing Smart Contracts
- >>Running tests with Ganache
- >>Running tests on Visual Studio Code
- >>Running multiple tests in parallel
- >>Running tasks
- >>Hardhat Console
- >>Creating custom tasks
- >>Hardhat Runtime Environment(HRE)
- >>Hardhat Plugins
- >>Optimizing Plugins
- >>Verbose Logging for debugging
- >>Solutions to common runtime problems

## **>Web3.js:**

- >>Introduction to Web3.js
- >>Why should you learn Web3.js?
- >>Applications of Web3.js
- >>Installing Web3.js using NPM
- >>Web3 modules
- >>Creating a new Web3 instance
- >>Introduction to Web3 Providers
- >>Setting up a Web3 Provider
- >>Batch request

- >>Extending Web3 modules
- >>Introduction to Web3.eth
- >>Checksum addresses overview
- >>Fetching default blockchain details
- >>Transaction methods
- >>Block Node methods
- >>Subscriber Methods
- >>Web3.js Smart Contract objects and methods
- >>User wallet and account methods
- >>Interacting with Ethereum node accounts using web3.eth.personal
- >>Working with ABI in web3.js
- >>Commonly used utilities in web3.js
- >>Hardhat automated testing with Web3.js and Truffle

## **>Ethers.js:**

- >>What is Ethers?
- >>Ethers.js Features
- >>Installing Ethers.js using NPM
- >>Connecting to Ethereum: MetaMask
- >>Connecting to Ethereum: RPC
- >>Building blocks of Ethers.js- Signers,Providers and Contracts

## **>Ethers.js Providers:**

- >>What are Providers?



- >>Ethers.js provider API overview
- >>Provider Account methods
- >>Blocks Methods
- >>Ethereum Naming Service (ENS) Methods
- >>EnsResolver
- >>Logs Methods
- >>Network Status Methods
- >>Transactions Methods
- >>Event Emitter Methods
- >>Inspection Methods
- >>BaseProvider
- >>JsonRpcProvider
- >>JsonRpcSigner
- >>JsonRpcUncheckedSigner
- >>StaticJsonRpcProvider
- >>Node-Specific Methods
- >>API Providers
- >>EtherscanProvider
- >>InfuraProvider
- >>AlchemyProvider
- >>CloudflareProvider
- >>PocketProvider
- >>AnkrProvider
- >>Other Providers

>>FallbackProvider

>>IpcProvider

>>JsonRpcBatchProvider

>>UrlJsonRpcProvider

>>Web3Provider

>>WebSocketProvider

## **>Smart Contract Interaction:**

>>Creating new Smart Contract instance

>>Contract Properties

>>Contract Methods

>>Events

>>ContractFactory

>>Creating ContractFactory Instances

>>ContractFactory Interface Properties

>>ContractFactory Methods

>>Meta-Class

>>Deploying a Contract

>>Connecting to a Contract

## **>Ethereum Blockchain Projects:**

>>Building cryptocurrency with ICO

>>Building decentralized ecommerce website

>>Building decentralized voting application

>>Decentralized music sharing app

>>Token contract swap application

>>Full stack email dapp

## **>Oracles:**

>>What is a Blockchain Oracle?

>>Solving the Oracle problem

>>Decentralized Oracles

>>Types of Blockchain Oracles

>>Applications of Blockchain oracles

## **>Chainlink overview:**

>>Introduction to Chainlink

>>Understanding the Chainlink Ecosystem

>>Chainlink Features

>>Chainlink Applications as Decentralized Oracles

## **>Data Feeds:**

>>Introduction to Data Feeds

>>Using Data Feeds

>>Fetchin Historical Cryptocurrency Price Data

>>Chainlink Feed Registry

>>Using ENS with Data Feeds

## **>Custom Data Feeds:**

>>Using any API

>>Make a GET Request

>>Multi-Variable Responses

>>Large Responses

>>Make an Existing Job Request

>>Find Existing Jobs

>>Contract Addresses

### **>Oracle Projects:**

>>Live cryptocurrency trading using chainlink

>>Insurance Dapp using chainlink

### **>The Graph:**

>>The Graph Protocol

>>The Graph architecture

>>Edge and Node

>>Everest Registry

>>Graph Protocol

>>The Graph vs Etherscan

>>Graph-cli Installation

>>Creating new subgraphs

>>Writing subgraphs

>>Publishing a Subgraph to the Decentralized Network

## **>GraphQL API:**

>>Queries

>>Sorting

>>Pagination

>>Filtering

>>Time-travel queries

>>Fulltext Search Queries

>>Validation

>>Schema

>>Entities

>>Signalling

>>Curation

>>Delegators

>>Consumers

>>Deploying subgraphs

>>Subgraph logging

>>Graph protocol testnet using docker compose

>>Ethereum node monitoring using The Graph, Prometheus and Grafana

## **>The Graph Networking:**

>>Introduction to indexers

>>Revenue streams

>>Distribution

>>Allocation life cycles

>>Querying and indexing subgraphs

>>IPFS Hash convertor

## **>AssemblyScript API for The Graph:**

>>Installing AssemblyScript API

>>API Reference

>>Versions

>>Built-in Types

>>Store API

>>Ethereum API

>>Logging API

>>IPFS API

>>Crypto API

>>JSON API

>>Type Conversions Reference

>>Data Source Metadata

>>Entity and DataSourceContext

## **>Project:**

>>Building a Full-stack Blockchain Application using Ethereum, Polygon,Next.js and GraphQL

## **>Decentralized Autonomous**

## **Organisations(DAO):**

- >>What are DAOs?
- >>Why do we need DAOs?
- >>DAO membership
  - >>Token-based membership
  - >>Share-based membership
- >>How do DAOs work?
- >>Properties of DAOs
- >>Ethereum and DAOs
- >>Understanding Governance Mechanisms
- >>DAOs and the principal-agent problem
- >>Building Decentralized Autonomous Organisations
  - >>Defining the DAO purpose
  - >>Building the DAO voting mechanism
  - >>Creating the governance token
  - >>DAO fund management
  - >>Initial Coin Offering (ICO)
  - >>Creating a DAO on Aragon
  - >>Creating a DAO using Snapshot
  - >>Building a DAO using DAOstack Alchemy
- >**Creating a Custom DAO**

## **Project:**

- >>Understanding custom DAOs

- >>Finding the purpose for our Custom DAO
- >>Designing the voting architecture
- >>Implementing the voting architecture in Solidity
- >>Designing the components of the governance token(DAO cryptocurrency)
- >>Creating the governance token in Solidity
- >>Fund Management for our custom DAO
- >>Designing the Multi-signature wallet for Fund Management
- >>Creating the Multi-signature wallet in Solidity
- >>Testing DAO Smart Contracts
- >>Deploying the DAO to testnet

## **>NFT Platforms:**

- >>What are NFT Platforms/Marketplaces?
- >>CryptoKitties
- >>Opensea
- >>Rarible
- >>Decentraland
- >>Binance NFT
- >>Enjin Marketplace
- >>Axie Marketplace
- >>Foundation
- >>Nifty Gateway
- >>Mintable
- >>Theta Drop



## **>NFT Transaction Fees:**

>>Gas Fees in NFT

>>What are one-time Gas Fees NFT?

>>Recurring Gas Fees

>>Actions in Gas Fees

>>Check Ethereum Gas Fee

>>Create and Sell NFTs without Gas Fees

>>NFT Marketplace Fees

## **>NFT project:**

>>Building a complete NFT Marketplace with User Interface

## **>Polygon Blockchain(MATIC):**

>>Introduction to Polygon Blockchain

>>Why should you use Polygon network?

>>Layer 1 vs Layer 2 Blockchains

>>Features of Polygon Blockchain

>>Polygon Architecture

>>Zero-Knowledge cryptography

>>Zero-Knowledge rollups

## **>Polygon Projects:**

>>Retail supply chain Application using Polygon Network

>>Building a Social media Dapp on Polygon

## **>Polkadot:**

>>Polkadot Overview

>>Polkadot Whitepaper

>>Polkadot Architecture

>>Parachains

>>Parathreads

>>Substrate Installation

## **>Substrate Fundamentals:**

>>Runtime environment and setup

>>Extrinsics

>>Account Abstractions

>>Transaction Pool

>>Session Keys

>>Transaction Weight

>>Execution

>>Off-Chain Features

## **>Runtime Development:**

>>Frames

>>Macros

>>Metadata

>>Storage

>>Origins

>>Events and Errors

>>Weights and Fees

>>Benchmarking

>>Debugging

>>Testing

>>Randomness

>>Chain Specification

>>Upgrades

>>Pallet Coupling

>>Custom RPCs

>>Smart Contract Toolkits

## **>Development Integration:**

>>Polkadot-JS

>>Client Libraries

>>Substrate Connect

## **>Development Tools:**

>>SR tool

>>Subxt

>>Tx Wrapper

>>Sub Flood

>>Substrate Archive

>>Sidecar

>>Polkadot Launch

**>Advanced topics in Polkadot:**

>>Account Info

>>SCALE Codec for Substrate

>>Consensus

>>Block Import

>>Executor

>>Cryptography

>>Storage

>>SS58 Address Format

>>Hash Collections