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BLOCKCHAIN CLUB SVCT

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SVCT-BLOCKCHAIN CLUB

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Year:1st year
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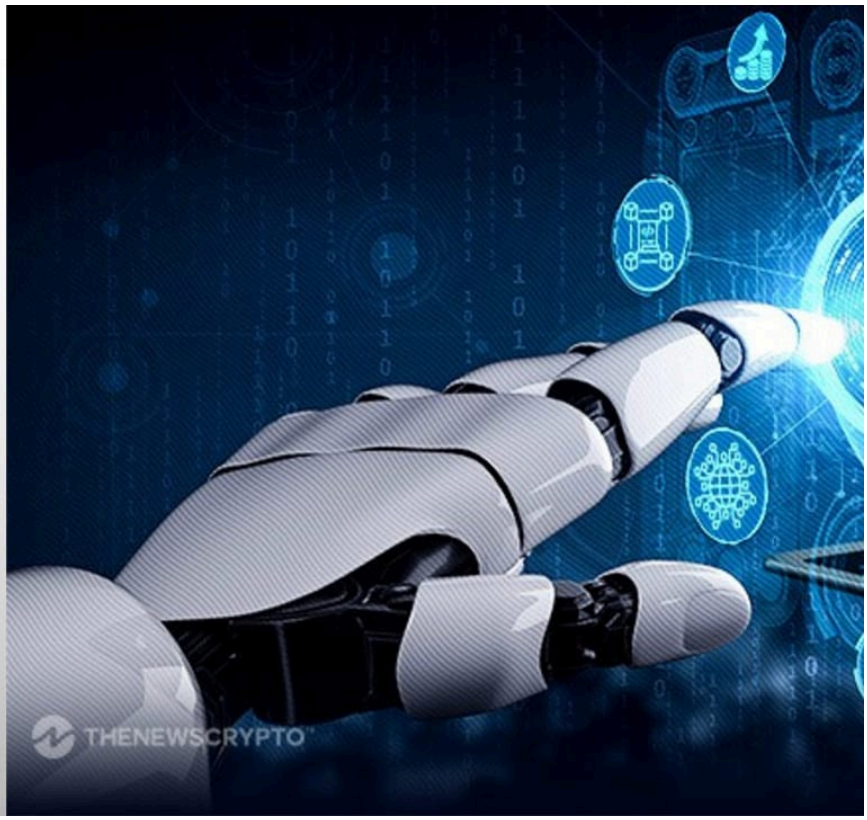
Ethereum blockchain and smart contractS

Topics:

- Ethereum overview
- Ethereum virtual machine
- Gas smartcontracts&fees
- Structure and solidity features



Ethereum overview

- ETHEREUM IS A DIGITAL PLATFORM THAT LET PEOPLE USE SMARTCONTRACTS .
- ITS CRYPTOCURRENCY ETHER IS SECOND ONLY TO BITCOIN.IT IS CREATED BY VITALIK BUTERIN AND OTHERS IN 2013,IT WENT LIVE IN 30TH JULY 2015.
- ETHEREUM ALLOWS ANYONE TO BUILD APPS THAT CAN'T BE CHANGED BY ONE PERSON OR COMPANY.
- THESE APPS OFFERS FINANCIAL SERVICES WITHOUT BANKS,LIKE BORROWING OR LENDING MONEY USING CRYPTOCURRENCY.
- ETHEREUM ALSO SUPPORTS NFTS,WHICH ARE UNQUE DIGITAL ITEMS .

ETHEREUM VIRTUAL MACHINE

IT IS LIKE THE BRAIN OF THE ETHEREUM MANAGING ITS OPERATIONS AND ENABLING THE SMART CONTRACTS.IT IS THE PART OF THE CLIENT SOFTWARE NEEDED TO RUN A NODE ON ETHEREUM.THE EVM SETS THE NODE FOR HOW THE ETHEREUM CHANGES OVER TIME,EXECUTING THE SMART CONTRACTS,PROCESSING TRANSACTIONS AND UPDATING ACCOUNT BALANCES.ITS MADE UP OF THE TWO UNIT THE CONTROL UNIT AND THE BALLOTING UNIT WORKING TOGETHER TO KEEP THE NETWORK RUINNING SMOOTHLY.

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WHAT is ether?

Ether is ethereums main cryptocurrency used to pay for computing tasks on the network.users pay eth to have their code executed by others .

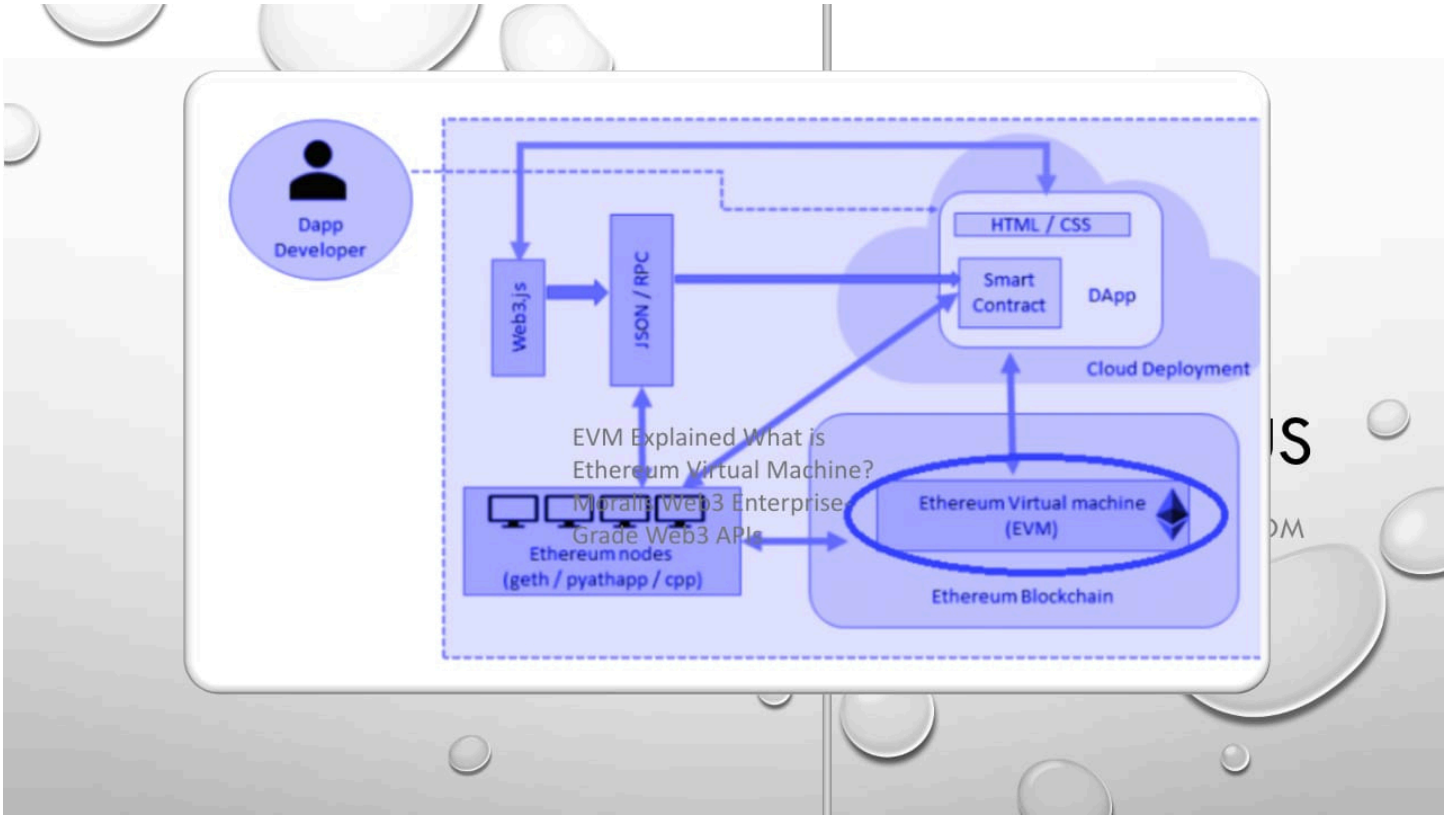
- Ethereum has two types of accounts:

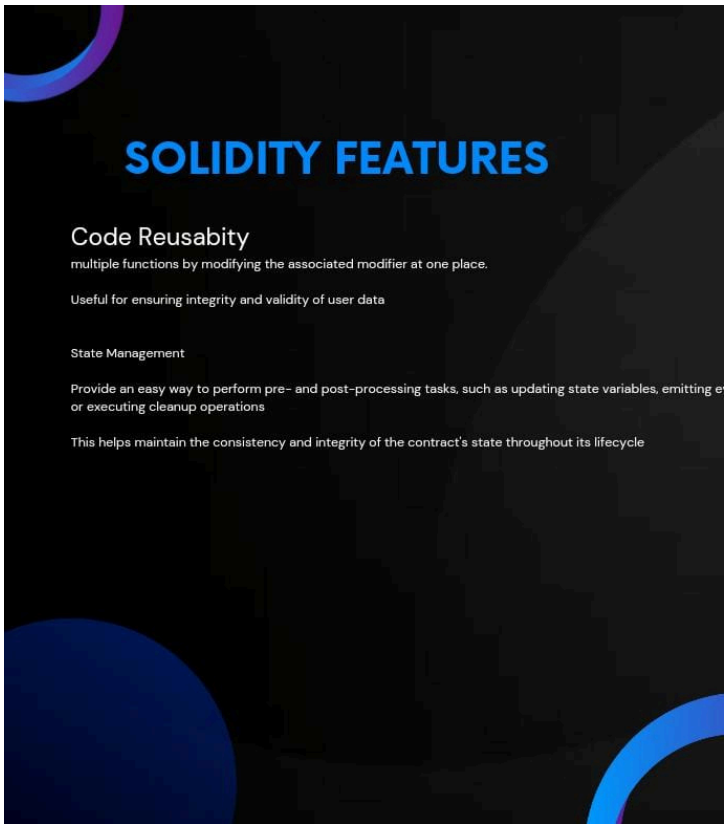
.externally owned accounts : controlled by private keys and used for transactions.

.contract accounts : with associated code that runs when triggered by eoa'S

HOW DOES THE ETHER WORKS?

- THE ETHEREUM PLATFORM IS FUELED BY ETHER COINS AT EVERY STEP.APPLICATIONS ARE REQUIRED BY ETHEREUMS CODE TO PAY FOR EVERY OPERATION THEY PERFORM .ETHER IS ALSO PROVIDED AS A REWARD TO USERS WHO CONTRIBUTE THE DECENTRALIZED NETWORK FOR MINING


Dapp
Developer
Web3.js
JSON / RPC
HTML / CSS
Smart
Contract
DApp
Cloud Deployment
Ethereum nodes
(geth / pyathapp / cpp)
Ethereum Virtual machine
(EVM)
Ethereum Blockchain
EVM Explained What is
Ethereum Virtual Machine?
Moralis Web3 Enterprise
Grade Web3 APIs


SOLIDITY FEATURES
Code Reusabity
multiple functions by modifying the associated modifier at one place.
Useful for ensuring integrity and validity of user data
State Management
Provide an easy way to perform pre- and post-processing tasks, such as updating state variables, emitting e
or executing cleanup operations
This helps maintain the consistency and integrity of the contract's state throughout its lifecycle

Solidity features

Modifiers

. Modifiers. are used to enforce access control within smart contracts.

Access Control

For instance, a modifier can be used to let only the contract owner or authorized users to execute specific functions, thereby enhancing security.

STATE VARIABLES AND CONSTANT

- In Solidity, state variables track a contract's state between function calls. Constants, once initialized, retain their values and are commonly used for unchangeable parameters or configurations within contracts.

ADVANCED SOLIDITY

.Advanced Solidity:

- Learn advanced Solidity features like inheritance

(sharing code between contracts), libraries (reusable code), interfaces (contract structure), and abstract contracts (blueprints for contracts).

INTRODUCTION TO TRUFFLE SUITE

- Truffle Suite is a top choice for Ethereum developers. It comes with tools like Truffle for development, Ganache for testing on your own blockchain, and Drizzle for connecting contracts to web apps. Truffle makes life easier by handling tasks like compiling, testing, and deploying contracts automatically.

BUILDING MORE COMPLEX SMART CONTRACT

- As developers get better at Solidity, they can make smarter contracts with more cool stuff. This means learning different ways to design them, keeping them safe, and making sure they use as little energy as possible to work well.

BEST PRACTICE FOR SECURITY

- Security is super important in blockchain because transactions can't be undone and are easily seen by everyone. To stay safe, avoid common issues like reentrancy attacks and unauthorized access. Use techniques like checking inputs, controlling access, and writing secure code to make sure your smart contracts are strong and safe.

PAYABLE AND NON PAYABLE FUNCTION

- Some functions in Solidity can get money (payable) while others can't (non-payable). Payable ones can receive cryptocurrency, while non-payable ones can't.