

A dark, atmospheric photograph of a canyon. In the foreground on the left, a large, textured tree trunk leans diagonally across the frame. The canyon walls are composed of layered, reddish-brown rock formations. A narrow path or streambed is visible at the bottom of the canyon, leading towards a bright opening at the top center. The overall lighting is dim, with a strong light source from the top center creating a silhouette effect and highlighting the textures of the rock and the tree.

DEVELOPING BLOCKCHAIN APPS

30 SECONDS ABOUT ME

- Loom Network - Founder
 - DigitalOcean.
 - Thomson Reuters.
- Go Developer 5 years
- Spoken all over the world
- Rode an elephant at my wedding
 - ชอบพูดไทยเวลาเมา



WHAT IS THE BLOCKCHAIN



APPS THAT CAN RUN ON BLOCKCHAIN

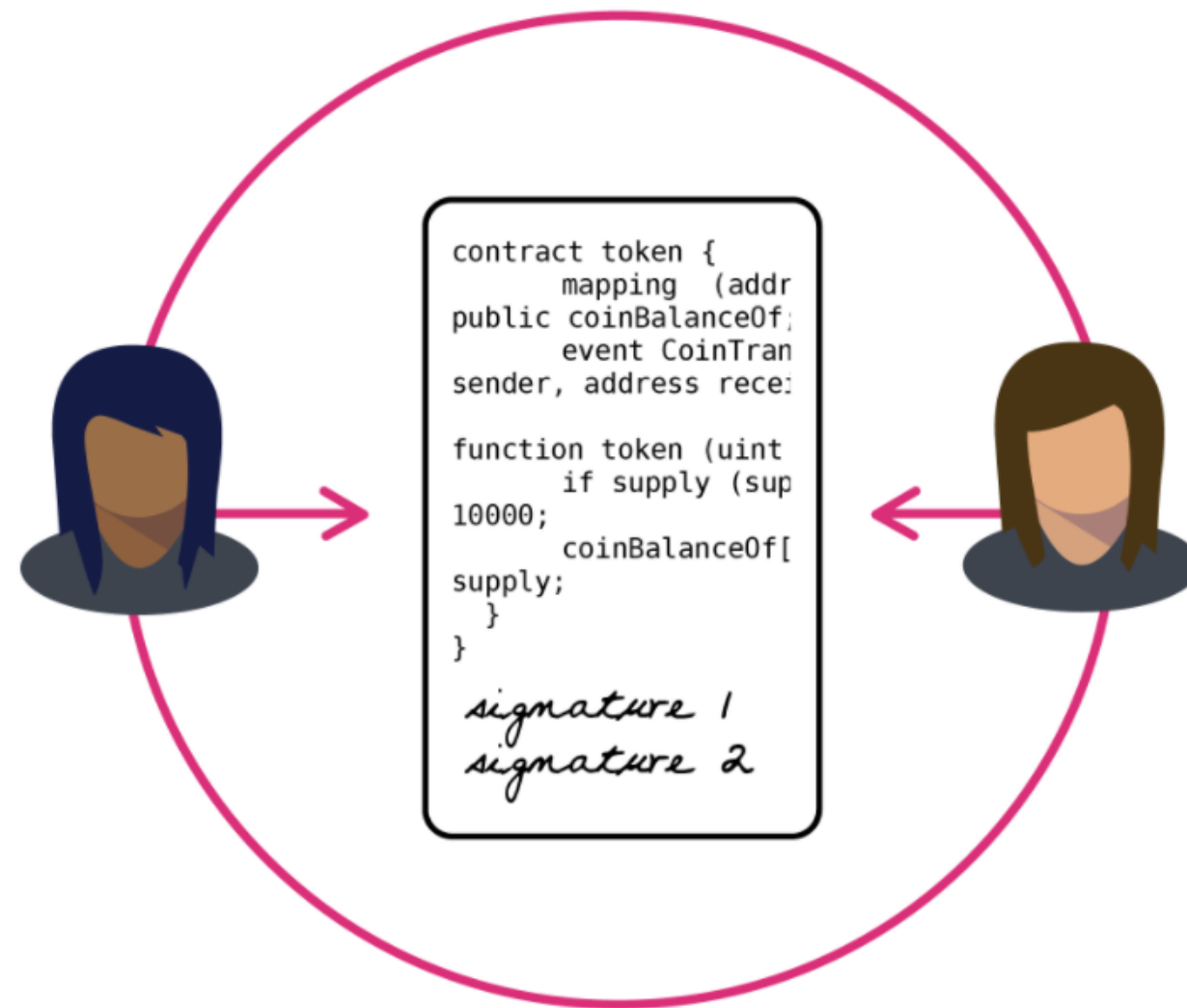
BITCOIN





ETHEREUM

SMART CONTRACTS



TRANSACTION EXPLORER



LOGIN | GO

HOME BLOCKCHAIN ACCOUNT TOKEN STATS TOOLS

 **Contract Address** 0xd18e21bb13d154a16793c6f89186a034a8116b74

Home / Contract Accounts / Address

Contract Overview

ETH Balance:

0 wei

Mined:

0

No Of Transactions:

17 txns

 **Misc**

Address Watch

Add To Watch List

Contract Creator:

0x9f7f3473e333dd1... at Txn 0x17a1cca2b867ba3...

 **QR CODE**



Transactions

Contract Source New

Comments

Latest 17 txns

TxHash	Block	Age	From		To	Value	[TxFee]
0x1276cabb542aac1...	1550903	4 mins ago	0x9f7f3473e333dd1...	➡	0xd18e21bb13d154...	0 wei	0.00063658
0xaedd17226e8f303...	1550900	6 mins ago	0x9f7f3473e333dd1...	➡	0xd18e21bb13d154...	0 wei	0.00099008
0x21b79237e388be...	1550868	12 mins ago	0x9f7f3473e333dd1...	➡	0xd18e21bb13d154...	0 wei	0.00063658
0x90ecbc1f8113731...	1550864	13 mins ago	0x9f7f3473e333dd1...	➡	0xd18e21bb13d154...	0 wei	0.00048894
0xddfd316bf25fe431...	1550711	50 mins ago	0x9f7f3473e333dd1...	➡	0xd18e21bb13d154...	0 wei	0.00048894
0x9e0f1069df9f954a...	1550709	51 mins ago	0x9f7f3473e333dd1...	➡	0xd18e21bb13d154...	0 wei	0.00098558
0x82532dbe97f0b9e...	1549035	7 hrs 25 mins ago	0x9f7f3473e333dd1...	➡	0xd18e21bb13d154...	0 wei	0.00053528
0x215b9a6158fe115...	1543006	1 day 7 hrs ago	0x9f7f3473e333dd1...	➡	0xd18e21bb13d154...	0 wei	0.00053528
0x09d5d37f044face...	1536938	2 days 7 hrs ago	0x9f7f3473e333dd1...	➡	0xd18e21bb13d154...	0 wei	0.00053528



SOLIDITY

Ethereum Virtual Machine

EthFiddle

CompileSecurity AuditShare

0.4.18

```
1 pragma solidity ^0.4.18;
2 // We have to specify what version of compiler this code will compile with
3
4 contract Voting {
5     /* mapping field below is equivalent to an associative array or hash.
6     The key of the mapping is candidate name stored as type bytes32 and value is
7     an unsigned integer to store the vote count
8     */
9
10    mapping (bytes32 => uint8) public votesReceived;
11
12    /* Solidity doesn't let you pass in an array of strings in the constructor (yet).
13    We will use an array of bytes32 instead to store the list of candidates
14    */
15
16    bytes32[] public candidateList;
17
18    /* This is the constructor which will be called once when you
19    deploy the contract to the blockchain. When we deploy the contract,
20    we will pass an array of candidates who will be contesting in the election
21    */
22    function Voting() {
23        candidateList = new bytes32[](3);
24        candidateList[0] = 'bob';
25        candidateList[1] = 'matt';
26        candidateList[2] = 'cat';
27    }
28
29    // This function returns the total votes a candidate has received so far
30    function totalVotesFor(bytes32 candidate) returns (uint8) {
31        if (validCandidate(candidate) == false) throw;
32        return votesReceived[candidate];
33    }
34
35    // This function increments the vote count for the specified candidate. This
36    // is equivalent to casting a vote
37    function voteForCandidate(bytes32 candidate) {
38        if (validCandidate(candidate) == false) throw;
39        votesReceived[candidate] += 1;
40    }
41
42    function validCandidate(bytes32 candidate) returns (bool) {
43        for(uint i = 0; i < candidateList.length; i++) {
44            if (candidateList[i] == candidate) {
45                return true;
46            }
47        }
48        return false;
49    }
50 }
```

Contract: Voting

function

totalVotesFor

candidate: bytes32

Call

function

validCandidate

candidate: bytes32

Call

function

votesReceived

: bytes32

Call

function

candidateList

: uint256

Call

function

voteForCandidate

candidate: bytes3

Call

constructor

Call

Compiler Output

Errors: :22:3: Warning: No visibility specified. Defaulting to "public".

function Voting() {

^

Spanning multiple lines.

:30:3: Warning: No visibility specified. Defaulting to "public".

function totalVotesFor(bytes32 candidate) returns (uint8) {

^

Spanning multiple lines.

:31:45: Warning: "throw" is deprecated in favour of "revert()", "require()" and "assert()".

if (validCandidate(candidate) == false) throw;

^____^

:37:3: Warning: No visibility specified. Defaulting to "public".

function voteForCandidate(bytes32 candidate) {

^

Spanning multiple lines.

:38:45: Warning: "throw" is deprecated in favour of "revert()", "require()" and "assert()".

if (validCandidate(candidate) == false) throw;

^

contract :Voting

function `totalVotesFor` candidate: bytes32 **Call**

function `validCandidate` candidate: bytes32 **Call**

function `votesReceived` : bytes32 **Call**

function `candidateList` : uint256 **Call**

function `voteForCandidate` candidate: bytes32 **Call**

constructor **Call**

Ethereum Wallet

WALLETSSENDTEST-NET | 5 peers | 108,737 9 minutes since last blockCONTRACTS1,869.42 ETHER

0.0ETHER1,679.27 ETHER

You want to send 0 ETHER.

SOLIDITY CONTRACT SOURCE CODECONTRACT BYTE CODE

```
47     event Transfer(address indexed from, address indexed to, uint256 value);
48
49     /* Initializes contract with initial supply tokens to the creator of the
50     function MyToken(uint256 _supply, string _name, string _symbol, uint8 _decimals) {
51         /* if supply not given then generate 1 million of the smallest unit c
52         if (_supply == 0) _supply = 1000000;
53
54         /* Unless you add other functions these variables will never change */
55         balanceOf[msg.sender] = _supply;
56         name = _name;
57         symbol = _symbol;
58
59         /* If you want a divisible token then add the amount of decimals the
60         decimals = _decimals;
61     }
62
63     /* Send coins */
64     function transfer(address _to, uint256 _value) {
65         /* if the sender doesn't have enough balance then stop */
66         if (balanceOf[msg.sender] < _value) throw;
67         if (balanceOf[_to] + _value < balanceOf[_to]) throw;
68
69         /* Add and subtract new balances */
70         balanceOf[msg.sender] -= _value;
71         balanceOf[_to] += _value;
72
73         /* Notify anyone listening that this transfer took place */
74         Transfer(msg.sender, _to, _value);
75     }
76 }
```

SELECT CONTRACT TO DEPLOY

MyToken

CONSTRUCTOR PARAMETERS

_supply - 256 bits unsigned integer

10000

_name - String

My DAO Shares

_symbol - String

%

_decimals - 8 bits unsigned integer

2

A photograph of a forest path in autumn. The path is covered in fallen brown leaves. Two people, a man and a woman, are walking away from the camera down the path. The trees on either side have dense foliage in shades of green, yellow, and brown. The word "CODING" is written in large, white, serif capital letters across the center of the image.

CODING

VOTING APP

A Simple Hello World Voting Application

Candidate	Votes
Rama	4
Nick	1
Jose	0

Vote

A photograph of a natural rock archway in a desert landscape. The arch is made of reddish-brown sandstone with visible horizontal layering. The sky is a clear, deep blue. In the background, through the arch, another rock formation is visible. The foreground shows the base of the arch and some sparse desert vegetation.

TESTRPC

CONTRACT CODE

```

pragma solidity ^0.4.11;

contract Voting {
    mapping (bytes32 => uint8) public votesReceived;

    bytes32[] public candidateList;

    function Voting(bytes32[] candidateNames) {
        candidateList = candidateNames;
    }

    // This function returns the total votes a candidate has received so far
    function totalVotesFor(bytes32 candidate) returns (uint8) {
        if (validCandidate(candidate) == false) throw;
        return votesReceived[candidate];
    }

    // This function increments the vote count for the specified candidate. This
    // is equivalent to casting a vote
    function voteForCandidate(bytes32 candidate) {
        if (validCandidate(candidate) == false) throw;
        votesReceived[candidate] += 1;
    }

    function validCandidate(bytes32 candidate) returns (bool) {
        for(uint i = 0; i < candidateList.length; i++) {
            if (candidateList[i] == candidate) {
                return true;
            }
        }
        return false;
    }
}

```



DEMO

```
web3 = new Web3(new Web3.providers.HttpProvider("http://localhost:8545"));

code = fs.readFileSync('Voting.sol').toString()
compiledCode = solc.compile(code)

abiDefinition = JSON.parse(compiledCode.contracts[':Voting'].interface)

VotingContract = web3.eth.contract(abiDefinition)

byteCode = compiledCode.contracts[':Voting'].bytecode

VotingContract.new(['Rama','Nick','Jose'],{data: byteCode, from: web3.eth.accounts[0], gas: 4700000}, function(err, deployedContract){
    if(!err) {
        if(!deployedContract.address) {
            console.log(deployedContract.transactionHash) // The hash of the transaction, which deploys the contract
            return
        }
        console.log("total votes for Rama-" + deployedContract.totalVotesFor.call('Rama').toLocaleString())
        console.log("total votes for Nick-" + deployedContract.totalVotesFor.call('Nick').toLocaleString())
        console.log("total votes for Jose-" + deployedContract.totalVotesFor.call('Jose').toLocaleString())
        console.log("contractaddress-    " + deployedContract.address)
    } else {
        console.log(err);
    }
});
```



PYTHON

GETTING STARTED



TRUFFLE

A large, illuminated fountain at night with many water jets spraying upwards, set against a city skyline. The water jets are lit with blue and green lights, creating a vibrant display. The city skyline in the background features several buildings with lit windows, and a tall street lamp is visible on the left side of the image.

COMMON PITFALLS

A serene sunset scene over a body of water. The sky is filled with soft, golden clouds, and the sun is low on the horizon, casting a warm glow. In the foreground, a wooden pier with a railing extends into the water. The water reflects the colors of the sky. In the background, there are silhouettes of mountains or hills.

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