

Blockchain development on Ethereum

What is a Blockchain anyway

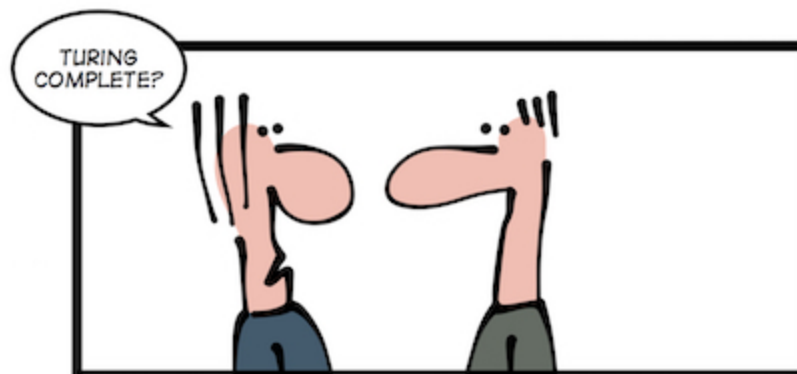
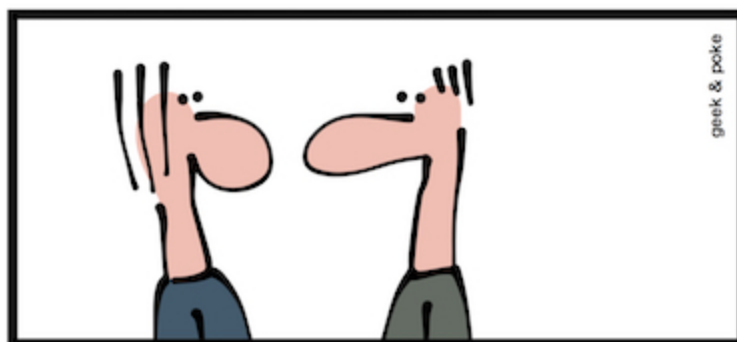
Bitcoin intuition

- distributed key value store
- rules for manipulation with decentral validation

Ledger

Alice	5.3
Bob	100
Frank	700
Carlos	3
Jane	1.3
Charlie	4.645
Scott	.00000001
Kristin	1

...



SOME GEEKS ARE SPOILSPORTS



ethereum

GOAL : UbudCoin - Our own "BitCoin"

Build it

```
contract UbudCoin {  
    mapping (address => uint) public balances;  
  
    function UbudCoin(address owner, uint balance) {  
        balances[owner] = balance;  
    }  
  
    function send(address to, uint amount) {  
        if(balances[msg.sender] >= amount) {  
            balances[msg.sender] -= amount;  
            balances[to] += amount;  
        }  
    }  
}
```


Test it with `dapple test --report`

```
import "dapple/test.sol";
import "../ubudcoin.sol";

contract CoinTest is Test {
    function testInit() {
        var coin = new UbudCoin(this, 42);
        //@log `uint coin.balances(this)`
        coin.send(0x01234, 12);
        uint newBalance = coin.balances(this);
        //@log `uint newBalance`
        assertTrue(newBalance == 30);
    }
}
```

See the report

```
CoinTest  
  test init  
  LOG:  42  
  LOG:  30  
  Passed!
```

```
Summary  
  Passed all 1 tests!
```

Deploy it with `dapple script run Deploy`

```
pragma solidity >= 0.4.0;
import "dapple/script.sol";
import "./ubudcoin.sol";

contract Deploy is Script {
    function Deploy() {
        address owner = msg.sender; // your address here
        var coin = new UbudCoin(owner, 100000);
        export("ubudcoin", coin);
    }
}
```

now we've got our coin!

```
0x3bd562bc1733f8e7b68ef8a95442c79b09e8e5e0
```

Create a UI

```
<h2>Address: <span id="address"></span></h2>
<h2>Balance: <span id="balance"></span></h2>

<input type="text" id="to" placeholder="to"/>
<input type="text" id="value" placeholder="value"/>

<button type="submit" id="sendBtn">send</button>
```

```
var interface = JSON.parse(classes.UbudCoin.interface);
var Coin = web3.eth.contract(interface);

var coin = Coin.at('0x3bd562bc1733f8e7b68ef8a95442c79b09');

var address = web3.eth.coinbase;
document.getElementById("address")
  .innerText = address;

coin.balances(address, (err, balance) => {
  document.getElementById("balance")
    .innerText = balance.toString(10);
});

document.getElementById("sendBtn")
  .addEventListener('click', () => {
    var to = document.getElementById("to").value
    var value = document.getElementById("value").value
    coin.send(to, value, {
      from: address
    }, (err, txHash) => {
      err ? alert(err) : alert(`Send: ${txHash}`)
    });
  });
```

et voilà - <https://ubudcoin.github.io/>

Resources

<https://github.com/ubudcoin/ubudcoin.github.io>