Blockchain development on Ethereum

What is a Blockchain anyway

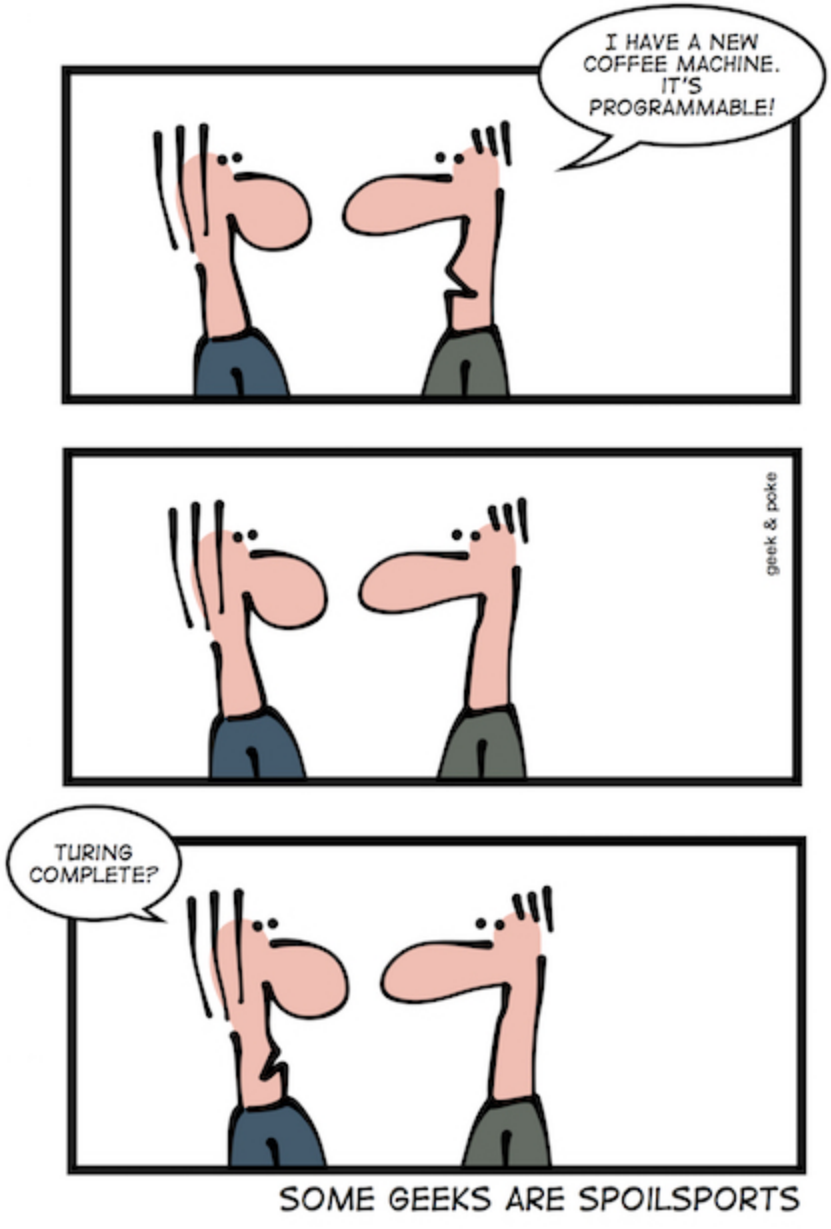
Bitcoin intuition

- 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

. . .


I HAVE A NEW COFFEE MACHINE. IT'S PROGRAMMABLE!
geek & poke
TURING COMPLETE?
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 ammount) {
    if(balances[msg.sender] >= ammount) {
      balances[msg.sender] -= ammount;
      balances[to] += ammount;
    }
  }
}
```

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(0x0123456789012345678901234567890123456789,
    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('0x3bd562bc1733f8e7b68ef8a95442c79b0

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