

BLOCKCHAIN EM JAVASCRIPT

**CONCEITOS BÁSICOS DE UMA
BLOCKCHAIN UTILIZANDO JAVASCRIPT**



Lucas Inocente

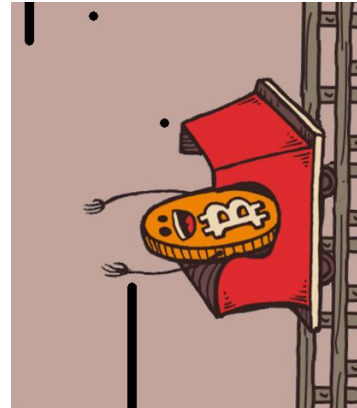
lucasinocente.com

Dev ilegra

**RECAPITULANDO
RAPIDINHO O QUE É
UMA BLOCKCHAIN**



**BITCOIN
2008/09**



Banco de dados

Imutável

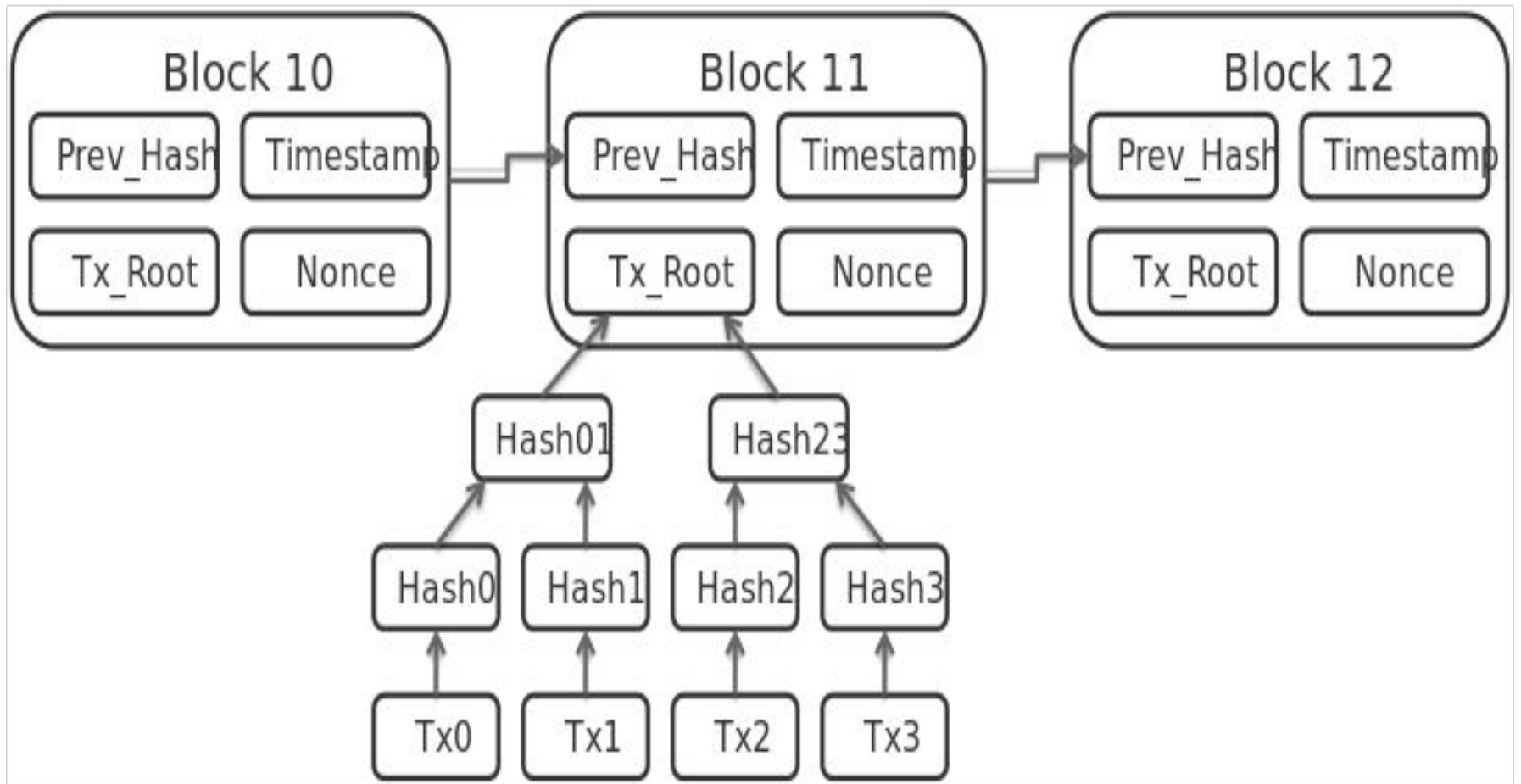
Criptografada

Rastreável

Distribuída

BLOCKCHAIN

CORRENTE DE BLOCOS



ISSO EM CÓDIGO

```
console.log(blockchain)
```

```
[ {}, {}, {} ]
```

BLOCKCHAIN

CORRENTE DE BLOCOS

BLOCK

BLOCO

```
class Block {
    constructor(index, prevHash, data) {
        this.index = index
        this.prevHash = prevHash
        this.data = data
        this.hash = this.getHash()
        this.timestamp = new Date()
    }
}
```

```
const sha256 = require('crypto-js/sha256')

getHash() {
  return sha256(
    this.index +
    this.previousHash +
    this.data +
    this.timestamp
  ).toString()
}
```

CHAIN

CORRENTE

```
let blockchain = [genesisBlock()]
```

```
const genesisBlock = () => {  
    return new Block(  
        0,  
        null,  
        "Bloco genesis"  
    )  
}
```



```
let blockchain = [genesisBlock()]
```

```
const genesisBlock = () => {
```

```
  return new Block(
```

```
    0,
```

```
    // constructor(
```

```
    null,
```

```
    // index,
```

```
    "Bloco genesis"
```

```
    // prevHash,
```

```
  )
```

```
    // data
```

```
}
```

```
  // )
```

```
console.log(blockchain)
```

```
[ {  
  "index": 0,  
  "prevHash": null,  
  "data": "Bloco Genesis",  
  "hash": "c57eab79dbf98e11...",  
  "timestamp": 15439822440000  
}]
```

**GERAR UM NOVO
BLOCO**

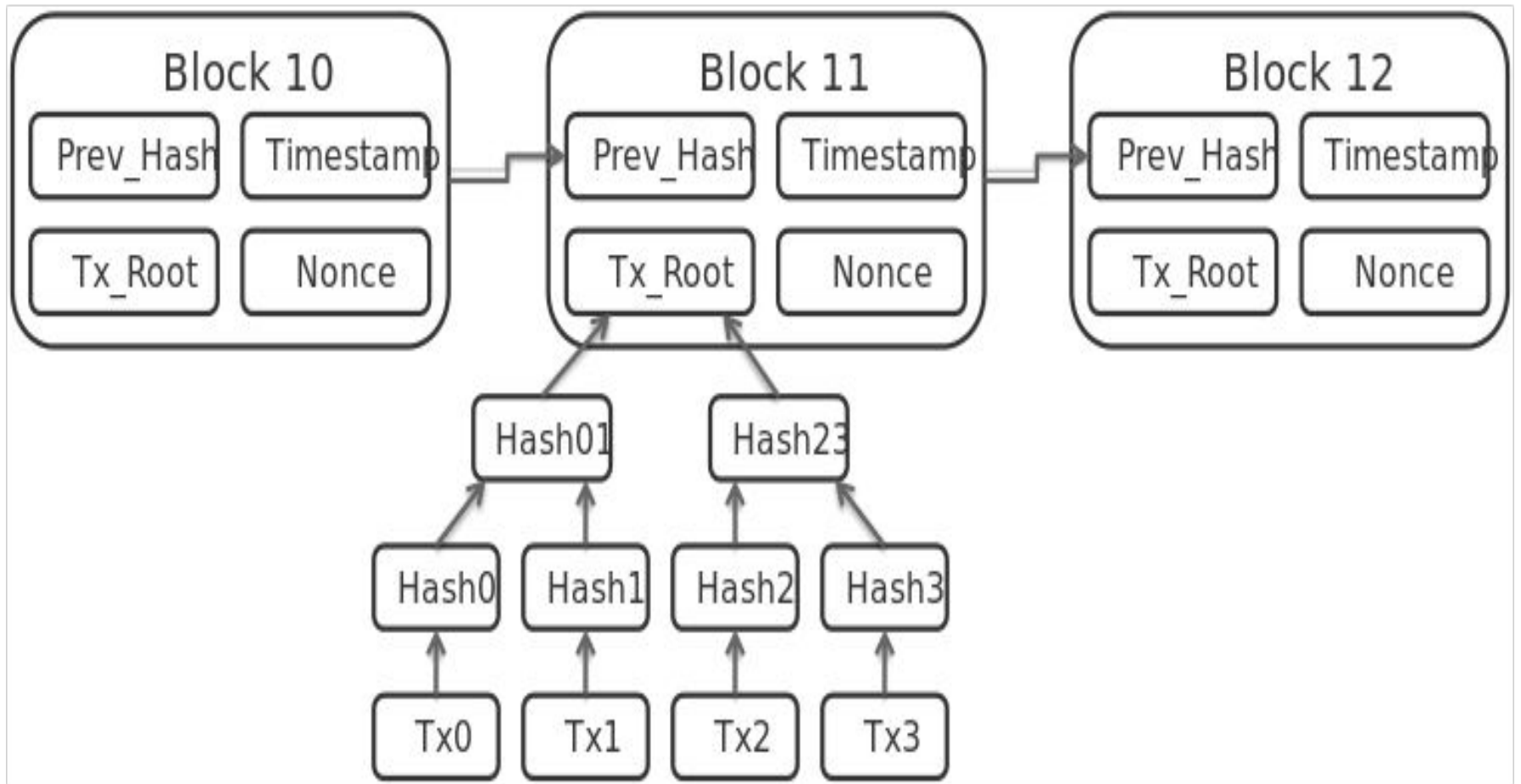
```
const genNextBlock = (data) => {  
  
  const prevBlock =  
    blockchain[blockchain.length - 1]  
  
  const nextIndex = prevBlock.index + 1  
  const prevHash = prevBlock.hash  
  
  return new Block(  
    nextIndex, prevHash, data  
  )  
}
```

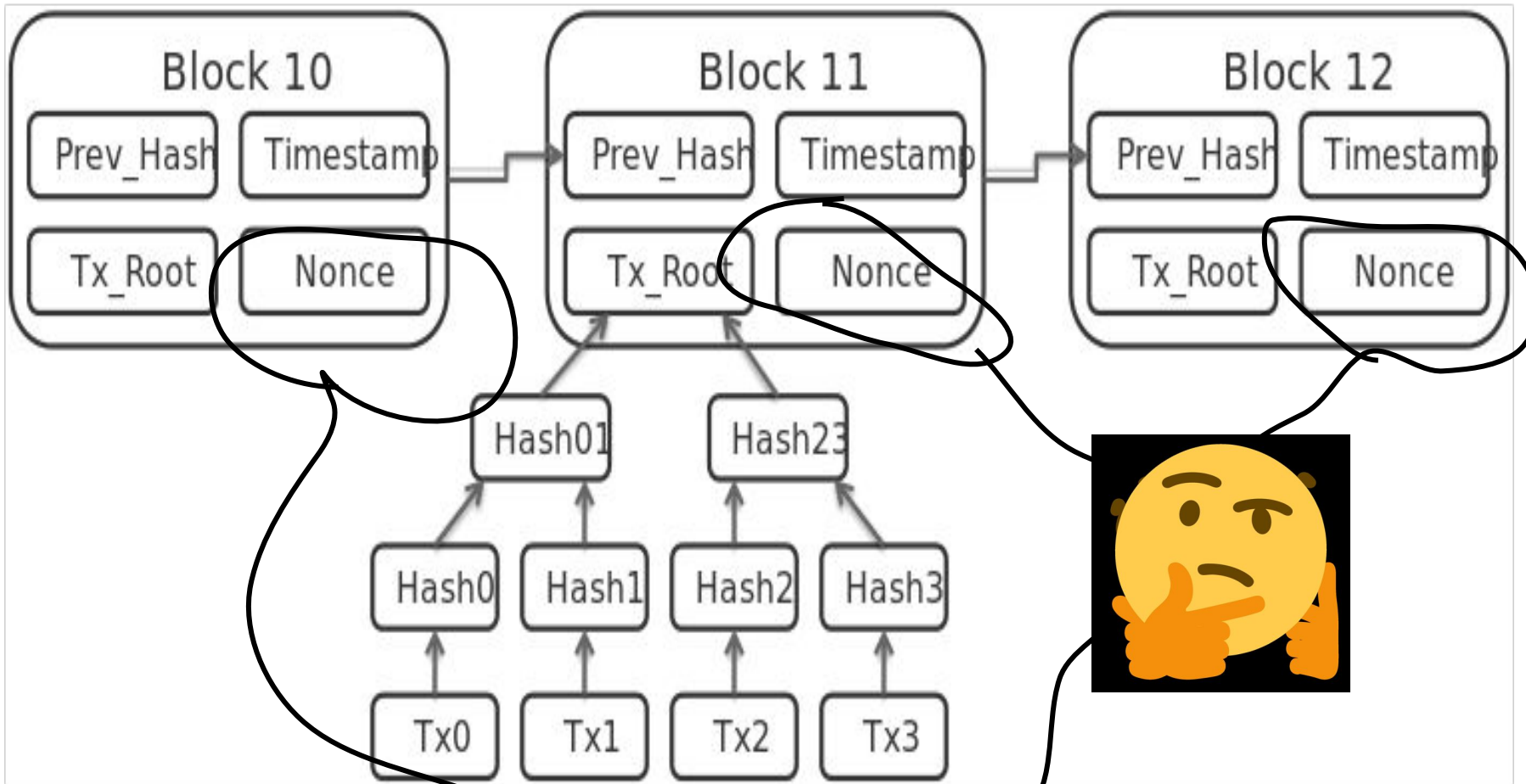
```
const addBlock = (data) => {  
  const block = genNextBlock(data)  
  blockchain.push(block)  
}
```

```
addBlock('TDC POA 2018')
```

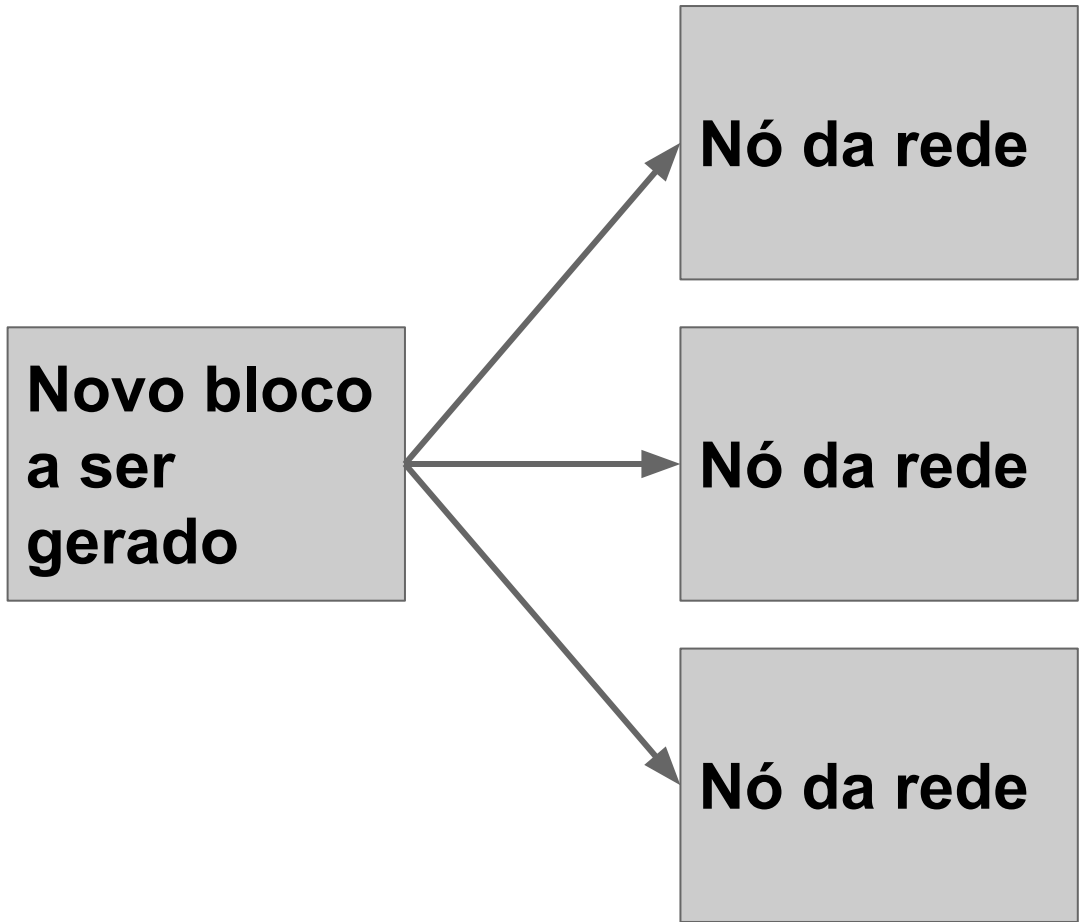
```
console.log(blockchain)
```

```
[{  
  "index": 0,  
  "prevHash": null,  
  "data": "Bloco Genesis",  
  "hash": "c57eab79dbf98e11...",  
  "timestamp": 15439822440000  
},  
{  
  "index": 1,  
  "prevHash": "c57eab79dbf98e11...",  
  "data": "TDC POA 2018",  
  "hash": "afe31dca45a66e52...",  
  "timestamp": 15439845678899  
}]
```





PROVA DE TRABALHO



`addBlock()`

`genHash()`

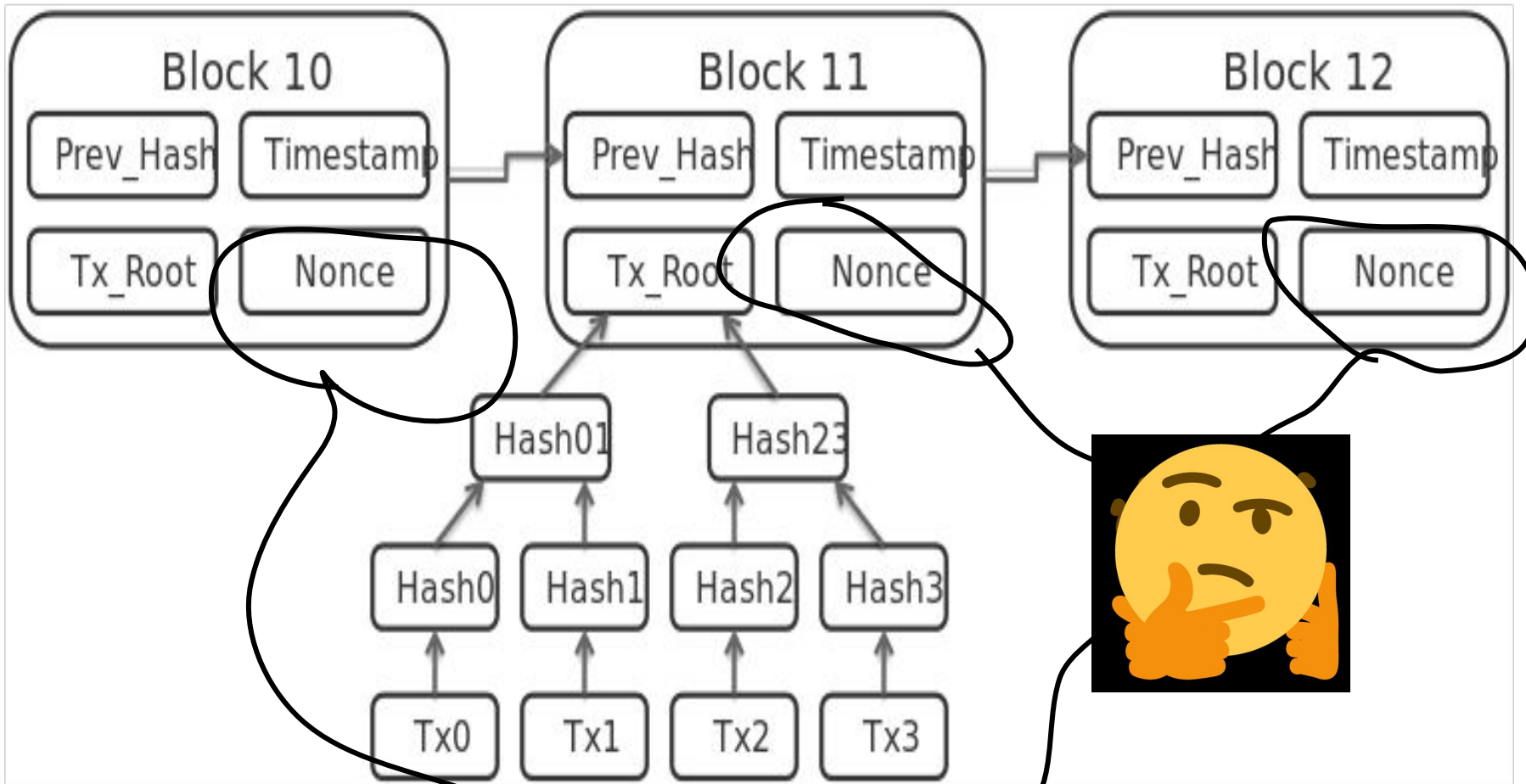
`etc()`

PROVA DE TRABALHO

**“é um protocolo utilizado para
prevenção de ataques”
- wikipedia**

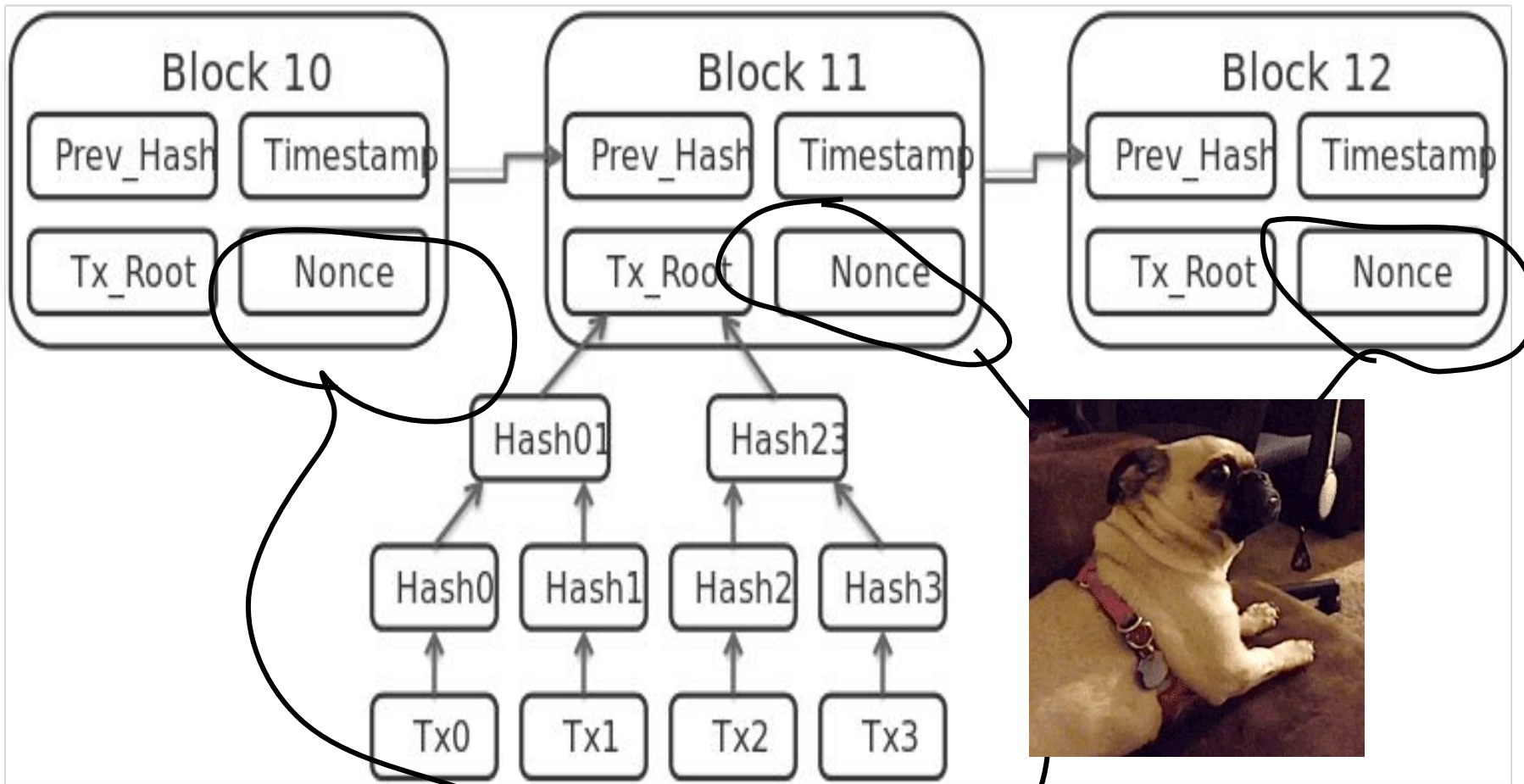
PROVA DE TRABALHO

**“deve ser trabalhosa de ser
criada, mas facilmente
verificada pelo avaliador”
- wikipedia**



**SHOW ME THE
CODE WORKING**

github.com/lucasinocente/proof-of-work



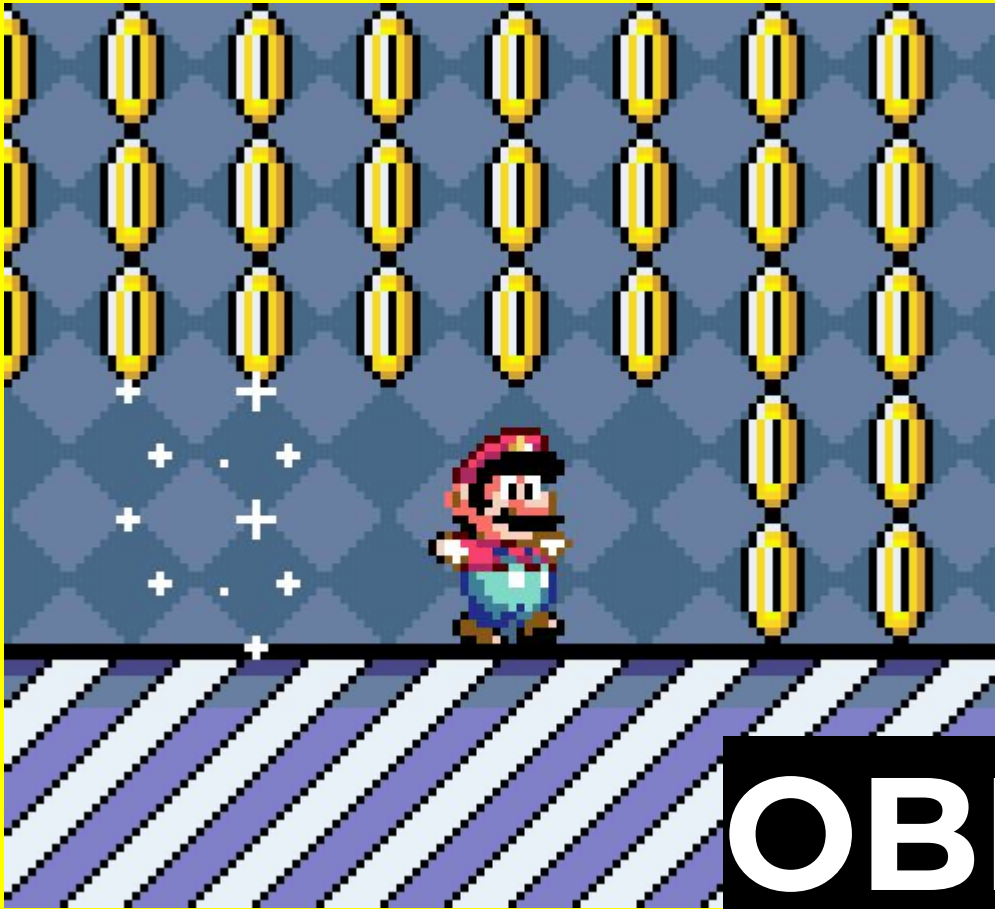
SAIBA MAIS

**Bloco, Validação, Prova de trabalho -
Como implementar o Blockchain em JavaScript com
menos de 80 linhas**

<https://medium.com/tableless/como-implementar-o-blockchain-em-javascript-com-menos-de-80-linhas-c2ff4852ee13>

**Mineração, transação, Pool, etc -
Build your own blockchain!**

<https://github.com/nambrot/blockchain-in-js>



OBIGADO!

Lucas Inocente

lucasinocente.com