Road to Web3

Soumaya Erradi

Lead Software Developer & IT and Electronics Divulger

Soumaya Erradi

- Lead software developer @ Scaling parrots
- Frontend specialist
- Web3 enthusiast
- IT and electronics divulger

Web 3

Decentralized Web

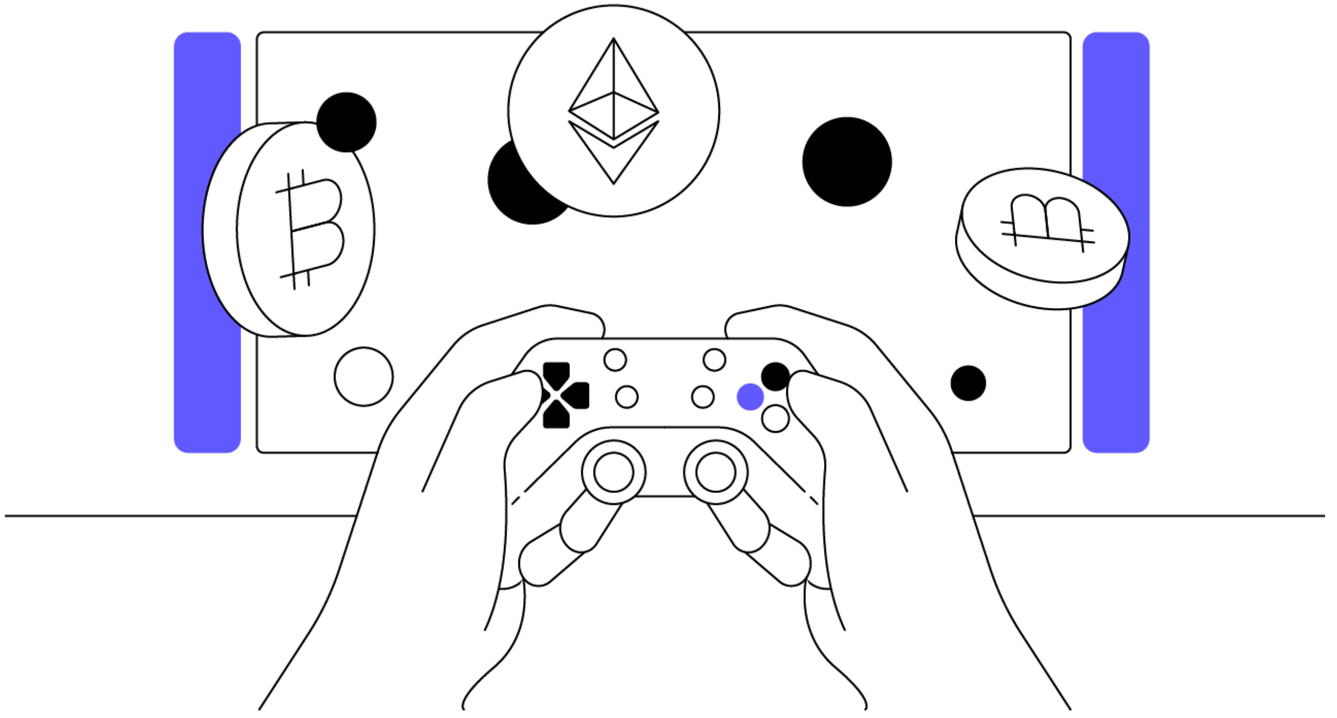
Blockchain Technology

Decentralized application (dApp)

=

Blockchain application

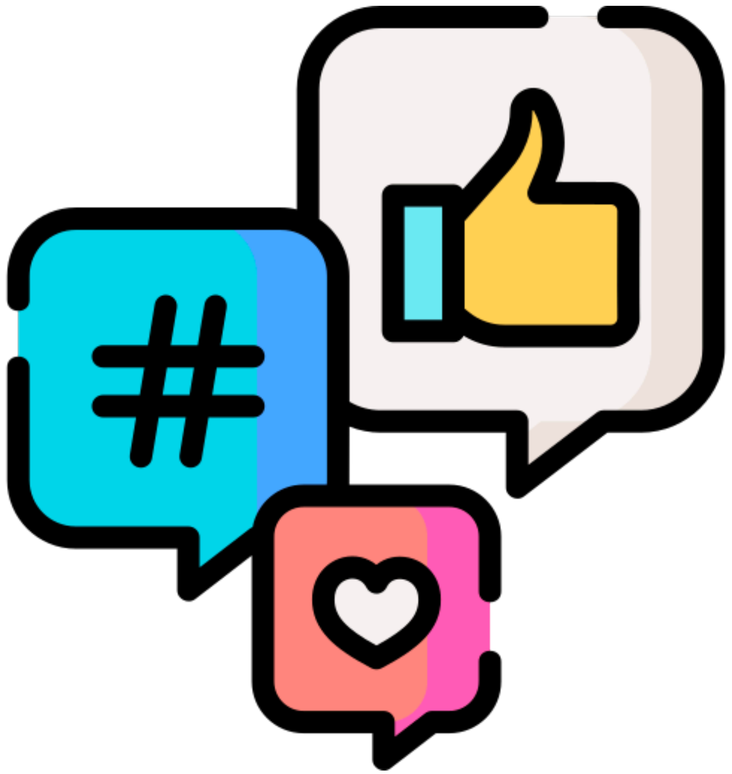
Use cases



GAMEFI

NFT
MARKETPLACE

DEFI



SOCIAL MEDIA

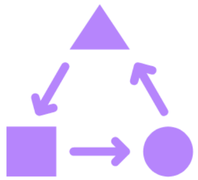
Why to Learn Web3 Development in 2023

Benefits of web3

Anti-monopoly
and Pro-privacy

Highly Secure

Data Ownership



Interoperability

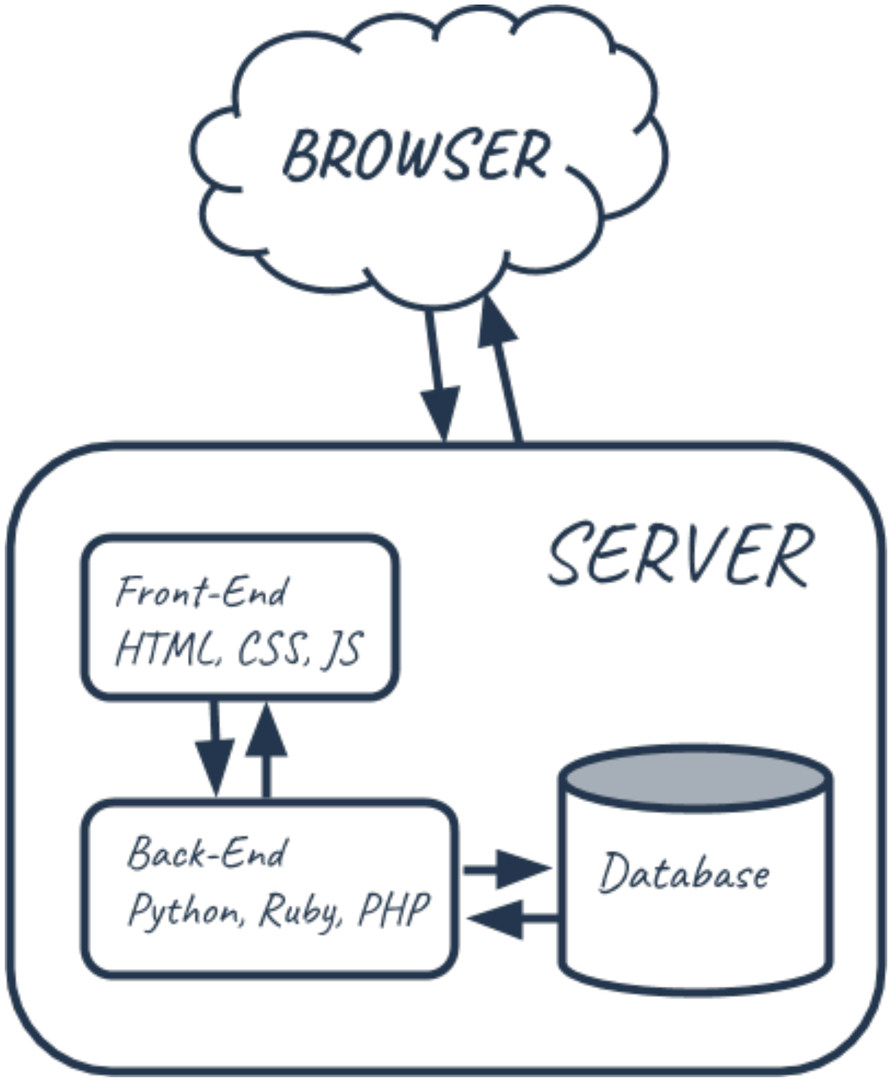
Permission less
blockchains

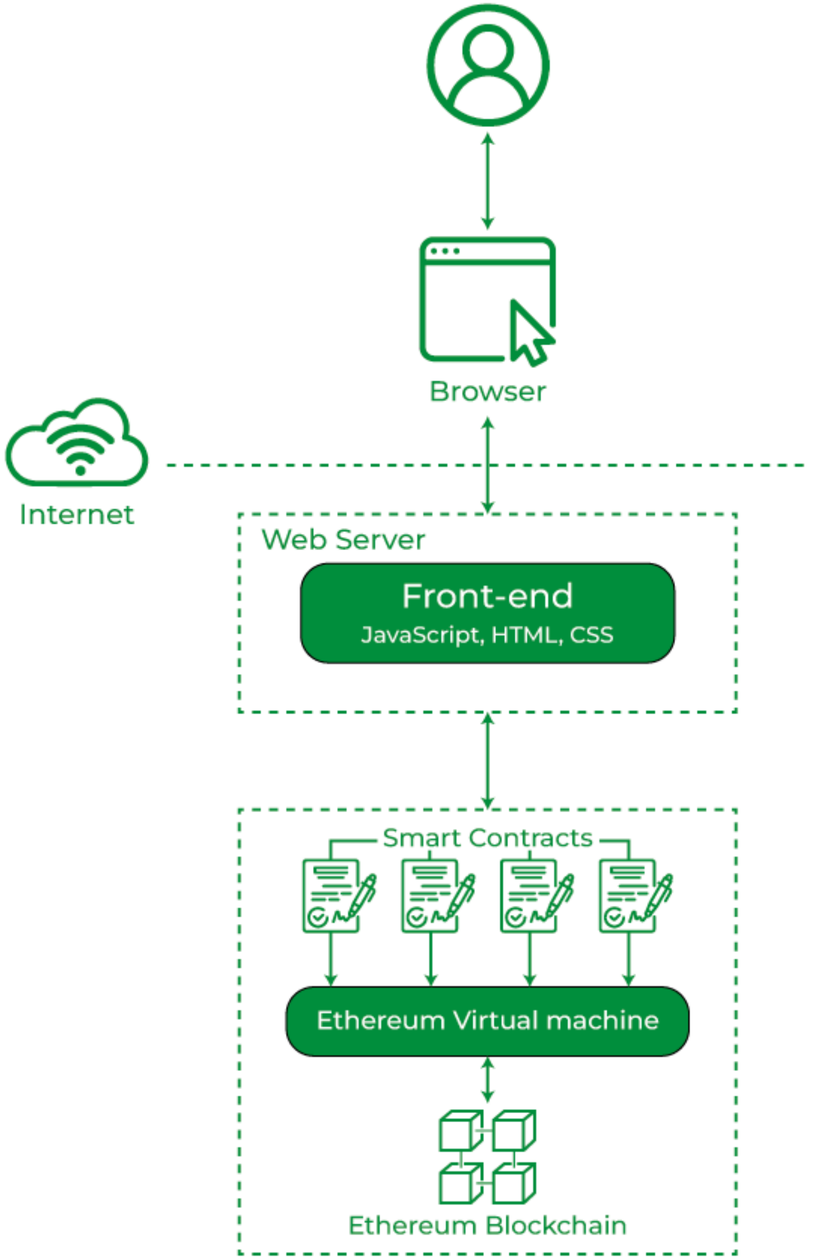
2023 goals

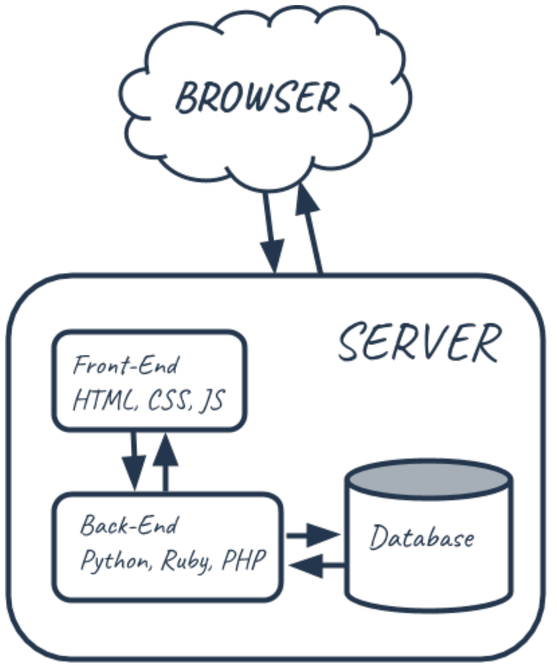
- Web3 initiatives will consume less energy and leverage technology to achieve green goals.
- With web 3.0, businesses will become more open and customer-focused. Everything that was flawed in how businesses were run regarding users' data will undergo a sea shift.
- "Utility NFTs" will have priority above "virtual art" NFTs. This should improve their grasp of this potentially disruptive technology and their place in the Web3 ecosystem.

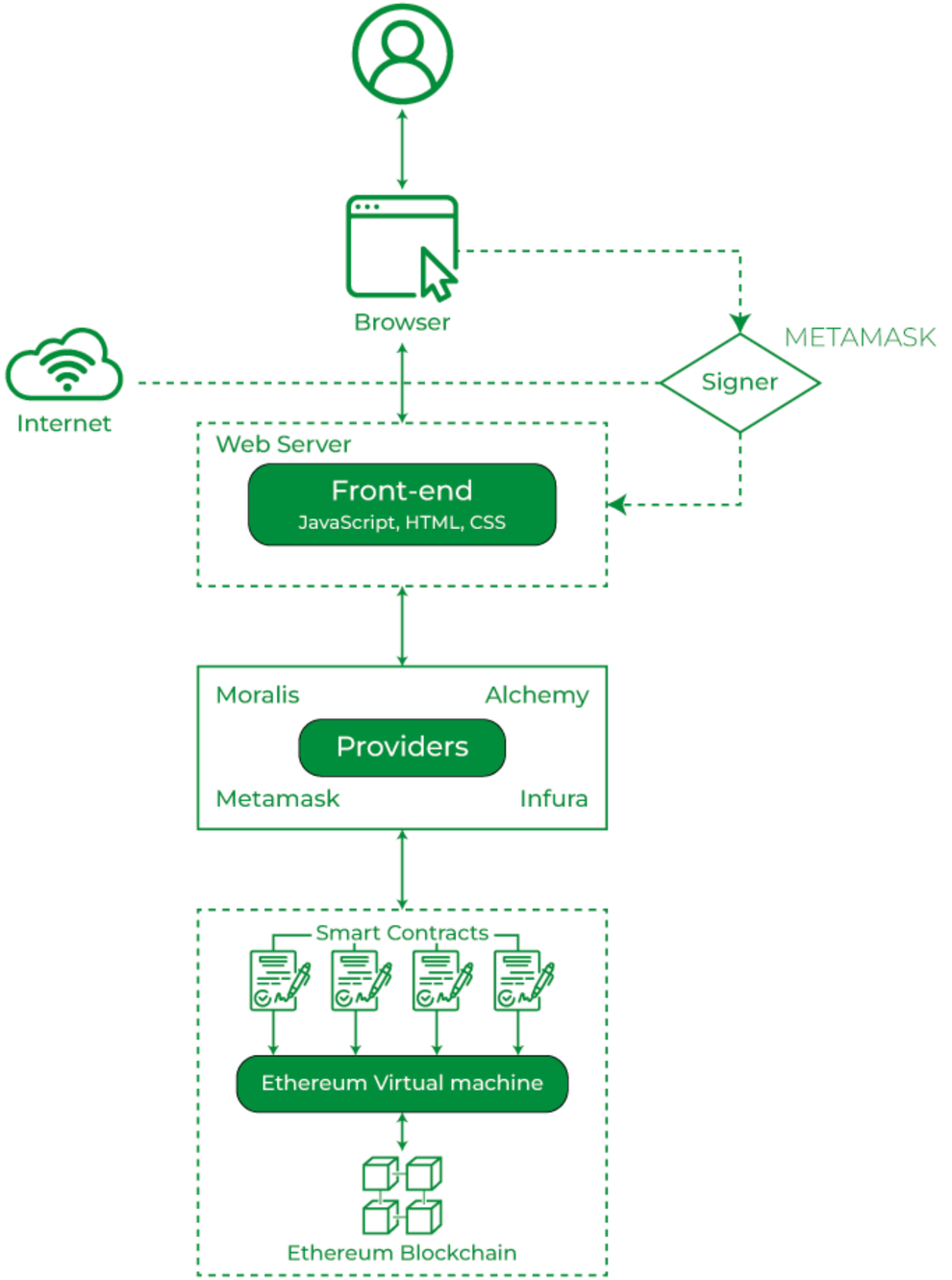
Blockchain application architecture

Web2


BROWSER
SERVER
Front-End
HTML, CSS, JS
Back-End
Python, Ruby, PHP
Database


Browser
Internet
Web Server
Front-end
JavaScript, HTML, CSS
Smart Contracts
Ethereum Virtual machine
Ethereum Blockchain


BROWSER
SERVER
Front-End
HTML, CSS, JS
Back-End
Python, Ruby, PHP
Database


Browser
METAMASK
Signer
Internet
Web Server
Front-end
JavaScript, HTML, CSS
Moralis
Alchemy
Providers
Metamask
Infura
Smart Contracts
Ethereum Virtual machine
Ethereum Blockchain

Web3 dev tools

Frontend framework/library

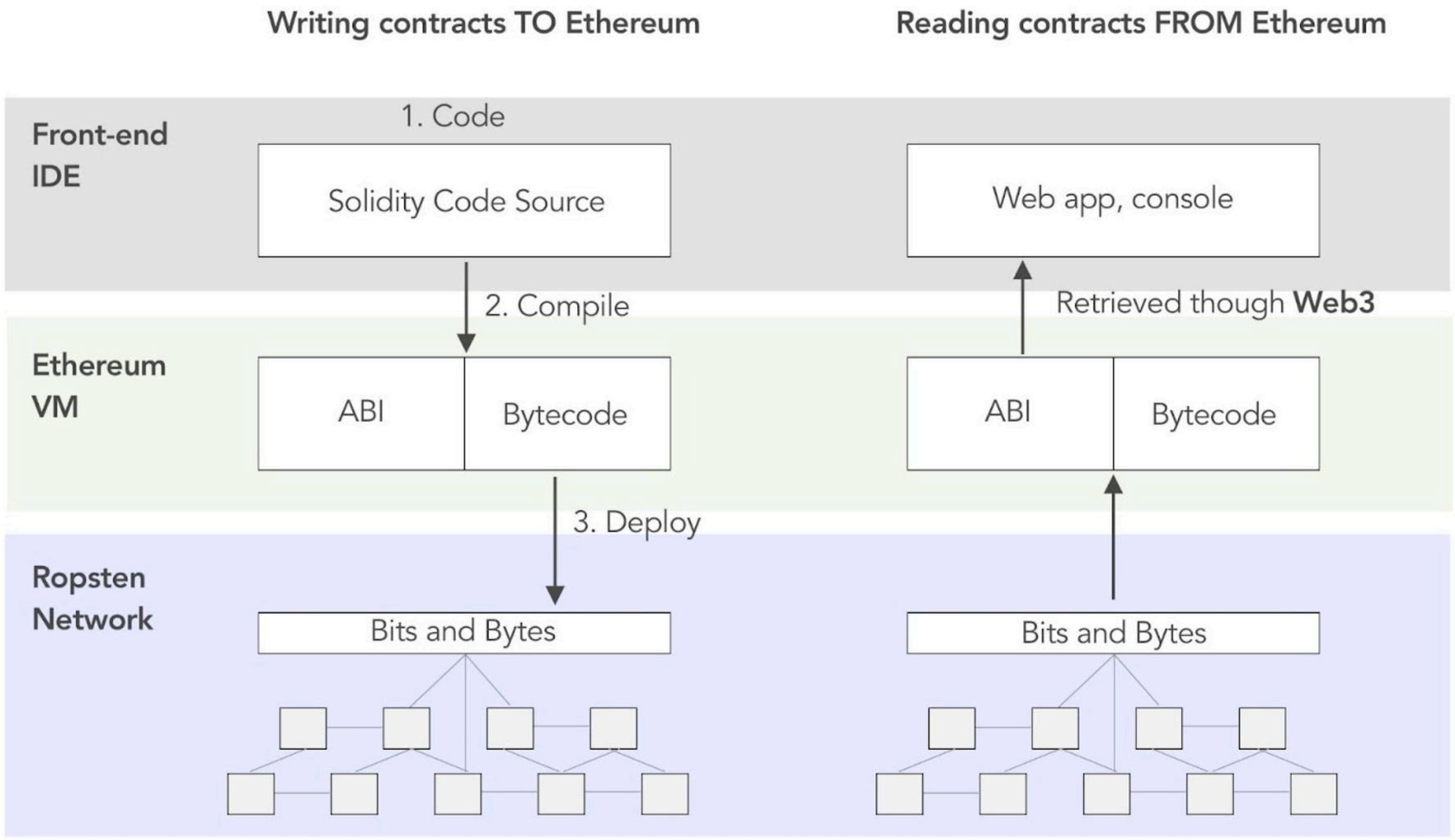
Wallet

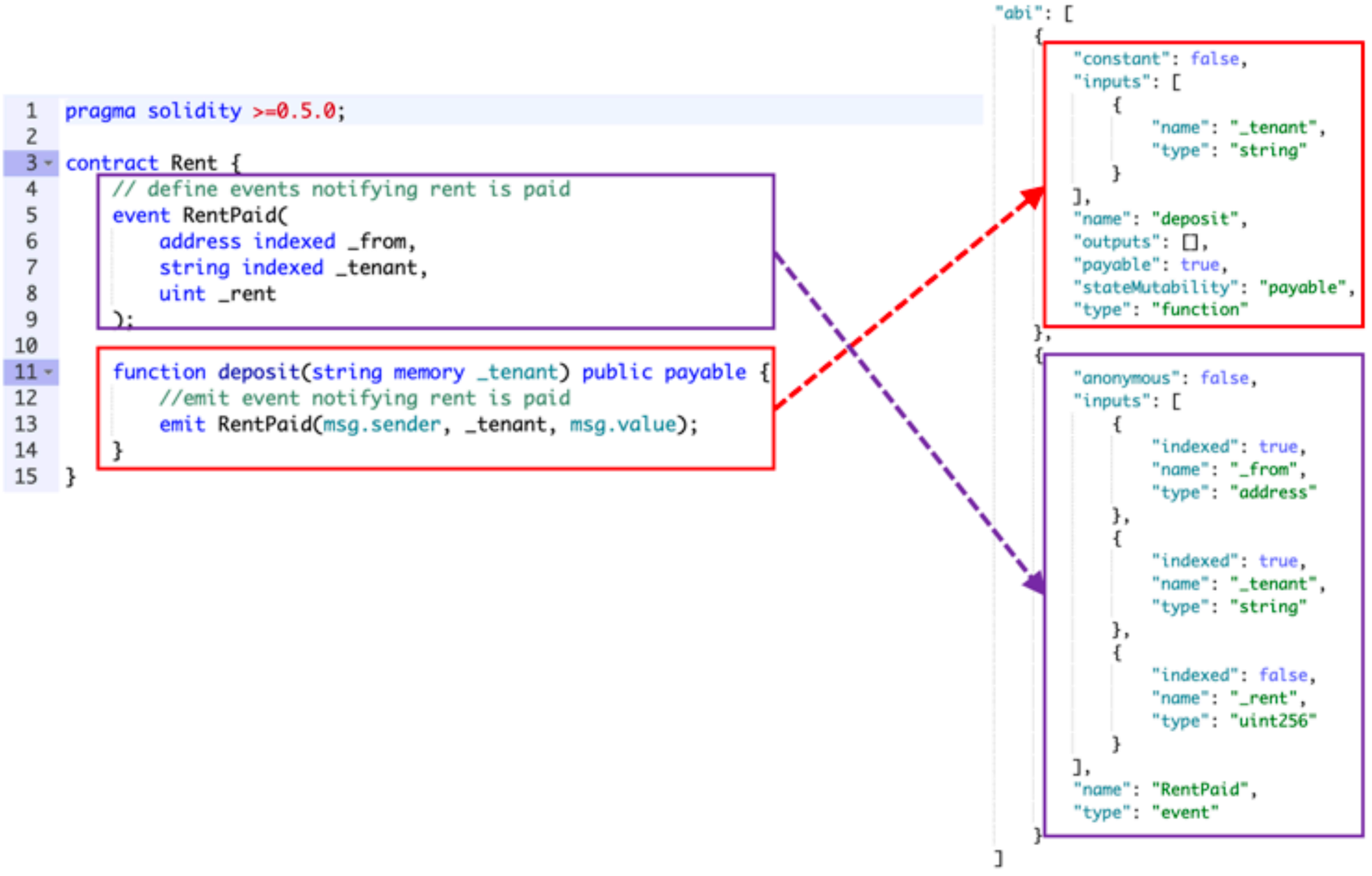
METAMASK

Library

ethers.js

Smart contract




pragma solidity >=0.5.0;
contract Rent {
// define events notifying rent is paid
event RentPaid(
address indexed _from,
string indexed _tenant,
uint _rent
);
function deposit(string memory _tenant) public payable {
//emit event notifying rent is paid
emit RentPaid(msg.sender, _tenant, msg.value);
}
}
"abi": [
{
"constant": false,
"inputs": [
{
"name": "_tenant",
"type": "string"
}
],
"name": "deposit",
"outputs": [],
"payable": true,
"stateMutability": "payable",
"type": "function"
},
{
"anonymous": false,
"inputs": [
{
"indexed": true,
"name": "_from",
"type": "address"
},
{
"indexed": true,
"name": "_tenant",
"type": "string"
},
{
"indexed": false,
"name": "_rent",
"type": "uint256"
}
],
"name": "RentPaid",
"type": "event"
}
]

Rinkeby Testnet Network

All Filters | Search by Address / Txn Hash / Block / Token / Ens

Home | Blockchain | Tokens | Misc | Rinkeby

Contract 0xBc84F3bf7Dd607a37F9e5848a6333e6c188d926c

Contract Overview

Balance: 0 Ether

More Info

More

My Name Tag: Not Available

Contract Creator: 0xc31eb6e317054a79bb… at txn 0x66c6c946e53be3f544…

Token Tracker: FundRequest (FND)

Transactions | Internal Txns | Erc20 Token Txns | Contract | Events

Code | Read Contract | Write Contract

Read Contract Information [Expand all] [Reset]

1. name
2. creationBlock
3. totalSupply
4. decimals
5. balanceOfAt
6. version

Let’s start 🚀

```
npm install ethers
```

```
import { ethers } from "ethers";
```

Ethers.js

- **Provider** – This is a class in Ethers.js that provides abstract read-only access to the blockchain

- **Contract** – This class is responsible for the connection to specific contracts on the network

```
const metamaskProvider = window.ethereum;

const web3provider = new ethers.providers.Web3Provider(metamaskProvider);

const addresses = await web3provider.send ("eth_requestAccounts", []);
```

```
const contractManager = new ethers.Contract(
        contractAddress,
        abi,
        provider
    );

contractManager[methodName](...args);
```

Let’s try it out!

DApp x Defi that displays our current BUSD balance and allow us to transfer BUSD to other wallets

BUSD

#	Monnaie	Cours	Volume sur 24 h	Plateformes d'échange	Capitalisation du marché	30 j	Circulation au cours 30 derniers jours
1	Tether USDT	1,00 $US	38 354 244 311 $US	375	68 036 017 402 $US	0.5%	
2	USD Coin USDC	1,00 $US	4 381 505 940 $US	350	50 098 293 645 $US	-4.9%	
3	Binance USD BUSD	1,00 $US	8 375 182 400 $US	130	20 991 657 339 $US	11.3%	
4	Dai DAI	1,00 $US	362 489 937 $US	212	6 423 535 062 $US	-2.1%	
5	Frax FRAX	1,00 $US	12 422 833 $US	32	1 361 776 369 $US	-6.0%	

Le 5 migliori stablecoin in base alla loro capitalizzazione. Fonte: CoinGecko

```
const provider = new ethers.providers.Web3Provider(window.ethereum);
const signer = provider.getSigner();
const userAddress = await signer.getAddress();



const busd = {
  address: "0x68ec573C119826db2eaEA1Efbfc2970cDaC869c4",
  abi: [
    "function balanceOf(address _owner) public view returns (uint256 balance)",
    "function transfer(address _to, uint256 _value) public returns (bool success)",
  ],
};

const busdContract = new ethers.Contract(busd.address, busd.abi, signer);

let busdBalance = await busdContract.balanceOf(userAddress);

console.log(busdBalance); // BigNumber {_hex: '0x7ce66c50e2840000', _isBigNumber: true}
console.log(ethers.utils.formatUnits(busdBalance, 18)); // 9.0
```

```
const busdContract = new ethers.Contract(busd.address, busd.abi, signer);

const tx = await busdContract.transfer(receiver, amount);

const receipt = await tx.wait();
```

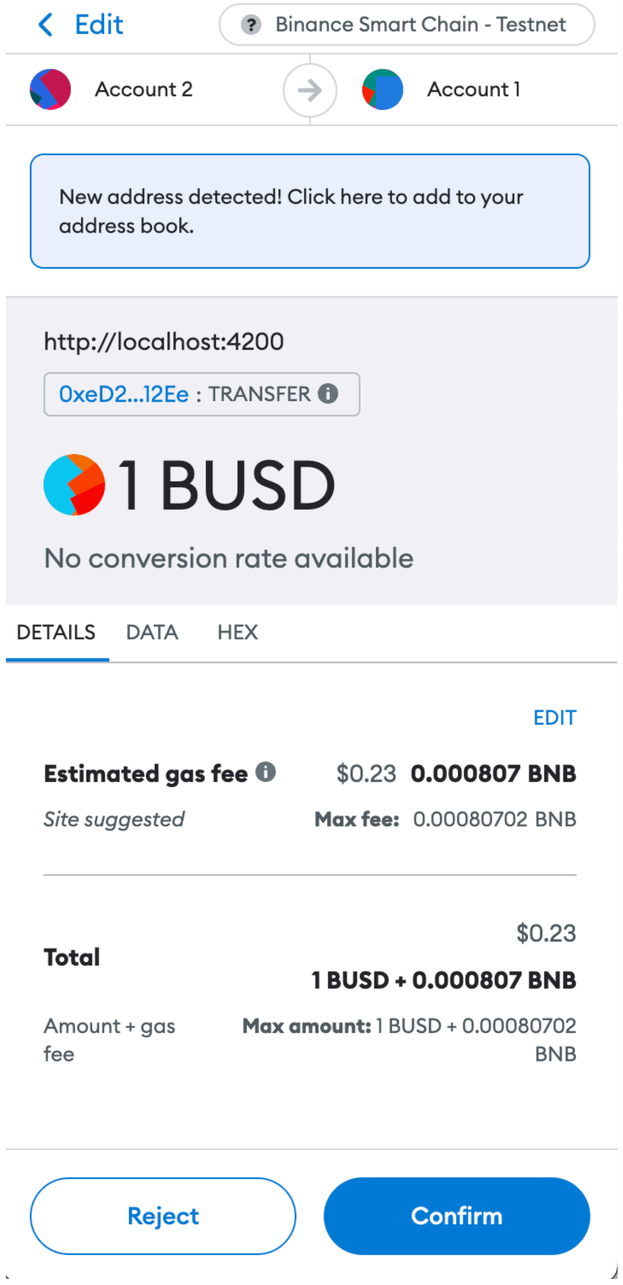
```
try {
    receiver = ethers.utils.getAddress(receiver);
} catch {
    console.error(`Invalid address: ${receiver}`);
}
```

```
try {
  amount = ethers.utils.parseUnits(amount, 6);
  if (amount.isNegative()) {
   throw new Error();
  }
} catch {
  console.error(`Invalid amount: ${amount}`);
}
```

```
if (balance.lt(amount)) {
    console.error(
        `Insufficient balance receiver send ${amount} (You have ${balance})`
        );
}
```

```
const tx = await busdContract.transfer(receiver, amount);
console.log (`Transaction hash: ${tx.hash}`);


const receipt = await tx.wait();
console.log (`Transaction confirmed in block ${receipt.blockNumber}`);
```


Edit
Binance Smart Chain - Testnet
Account 2
Account 1
New address detected! Click here to add to your address book.
http://localhost:4200
0xeD2...12Ee : TRANSFER
1 BUSD
No conversion rate available
DETAILS
DATA
HEX
EDIT
Estimated gas fee
$0.23
0.000807 BNB
Site suggested
Max fee: 0.00080702 BNB
Total
$0.23
1 BUSD + 0.000807 BNB
Amount + gas fee
Max amount: 1 BUSD + 0.00080702 BNB
Reject
Confirm

Demo

Soumaya Erradi
soumayaerradi

Overview | Repositories 35 | Projects | Packages | Stars 3

Find a repository... | Type | Language | Sort | New

web3-angular-demo Public

TypeScript 1 1 Updated 1 minute ago

Star

BRANCH NAME transfer

Thank you!

Soumaya Erradi

serradi92@gmail.com


@soumayaerradi