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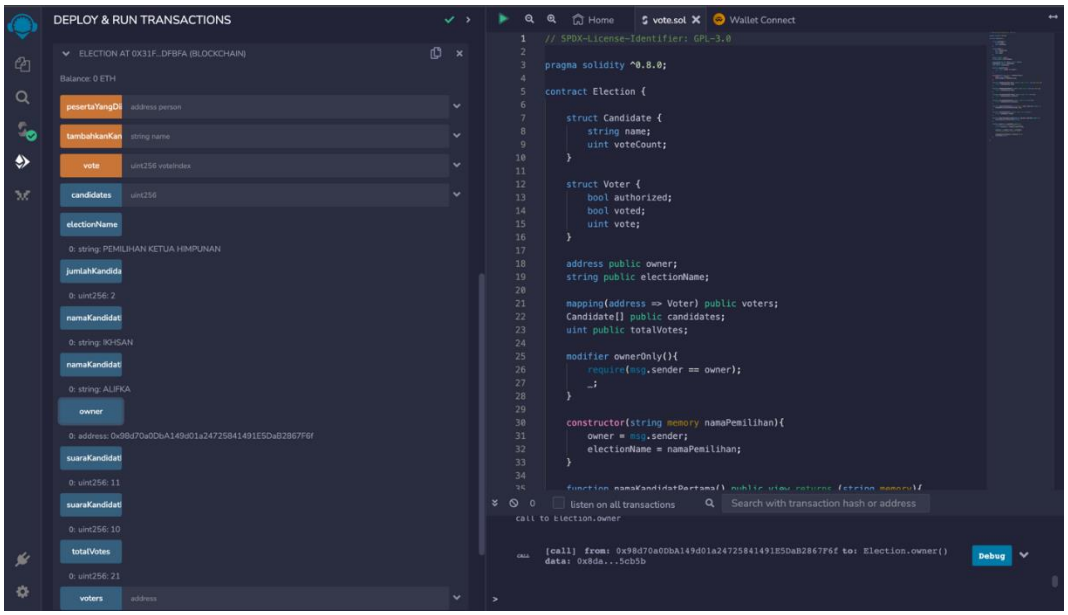
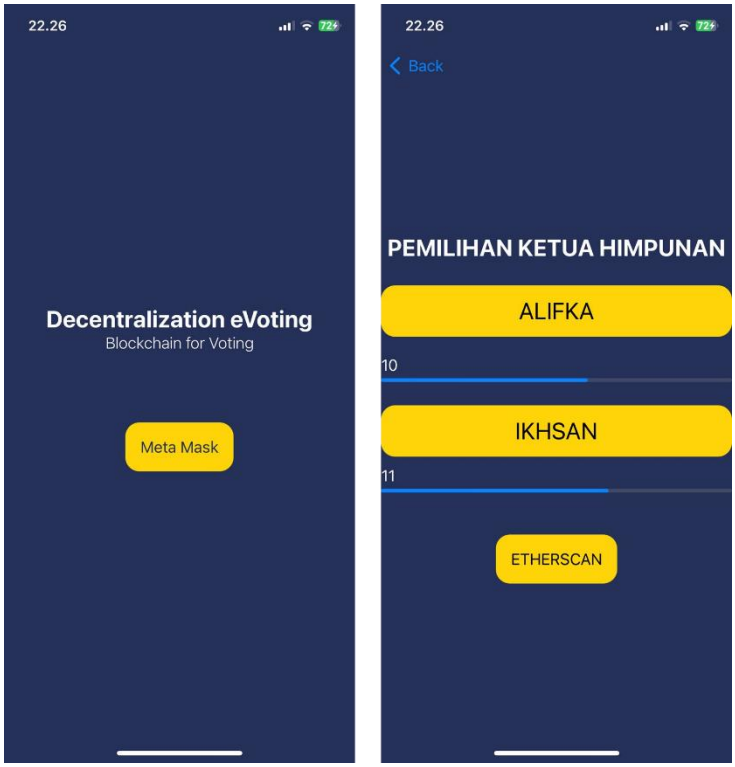
Lampiran 1

- Tampilan halaman untuk Penyelenggara



- Tampilan halaman *login* dan *voting* untuk pemilih



Lampiran 2

- Kode *SmartContract* sebelum dianalisis *vulnerability*

```
// SPDX-License-Identifier: GPL-3.0

pragma solidity ^0.8.0;

contract Election {

    struct Candidate {
        string name;
        uint voteCount;
    }

    struct Voter {
        bool authorized;
        bool voted;
        uint vote;
    }

    address public owner;
    string public electionName;

    mapping(address => Voter) public voters;
    Candidate[] public candidates;
    uint public totalVotes;

    modifier ownerOnly(){
        require(msg.sender == owner);
        _;
    }

    constructor(string memory namaPemilihan){
        owner = msg.sender;
        electionName = namaPemilihan;
    }

    function namaKandidatPertama() public view returns (string memory){
        return candidates[0].name;
    }

    function namaKandidatKedua() public view returns (string memory){
        return candidates[1].name;
    }

    function suaraKandidatPertama() public view returns(uint){
        return candidates[0].voteCount;
    }
```

```
    function suaraKandidatKedua() public view returns(uint){
        return candidates[1].voteCount;
    }

    function tambahkanKandidat(string memory name) ownerOnly public {
        candidates.push(Candidate(name, 0));
    }

    function jumlahKandidat() public view returns(uint) {
        return candidates.length;
    }

    function pesertaYangDiizinkan(address person) ownerOnly public {
        voters[person].authorized = true;
    }

    function vote(uint voteIndex) public {
        //require(!voters[msg.sender].voted);
        require(voters[msg.sender].authorized);

        voters[msg.sender].vote = voteIndex;
        //voters[msg.sender].voted = true;

        candidates[voteIndex].voteCount += 1;
        totalVotes += 1;
    }

}
```

- Kode *SmartContract* Setelah dilakukan analisis *vulnerability*

```
// SPDX-License-Identifier: GPL-3.0

pragma solidity ^0.8.0;

contract Election {
    struct Candidate {
        string name;
        uint voteCount;
    }

    struct Voter {
        bool authorized;
        bool voted;
        uint vote;
    }

    address public owner;
    string public electionName;

    mapping(address => Voter) public voters;
```

```
    Candidate[] internal candidates;
    uint public totalVotes;

    modifier ownerOnly() {
        require(msg.sender == owner);
        _;
    }

    constructor(string memory namaPemilihan) {
        owner = msg.sender;
        electionName = namaPemilihan;
    }

    function namaKandidatPertama() public view returns (string memory) {
        return candidates[0].name;
    }

    function namaKandidatKedua() public view returns (string memory) {
        return candidates[1].name;
    }

    function suaraKandidatPertama() public view returns (uint) {
        return candidates[0].voteCount;
    }

    function suaraKandidatKedua() public view returns (uint) {
        return candidates[1].voteCount;
    }

    function tambahkanKandidat(string memory name) public ownerOnly {
        candidates.push(Candidate(name, 0));
    }

    function jumlahKandidat() public view returns (uint) {
        return candidates.length;
    }

    function pesertaYangDiizinkan(address person) public ownerOnly {
        voters[person].authorized = true;
    }

    function vote(uint voteIndex) public {
        //require(!voters[msg.sender].voted);
        require(voters[msg.sender].authorized);

        voters[msg.sender].vote = voteIndex;
        //voters[msg.sender].voted = true;

        candidates[voteIndex].voteCount += 1;
        totalVotes += 1;
    }
}
```

Lampiran 3

- Kode untuk memanggil *function* pada *smartcontract* menggunakan library Web3.Swift

```
import Web3

class SmartContractInteraction: ObservableObject {

    @Published var judul: String = ""
    @Published var namaKandidatPertama: String = ""
    @Published var namaKandidatKedua: String = ""
    @Published var suaraKandidatPertama: BigUInt = 0
    @Published var suaraKandidatKedua: BigUInt = 0

    func callSmartContract() {

        let web3 = Web3(rpcURL: "https://goerli.infura.io/v3/049172870f3942feb27cd4e6dcd933ab")

        do {
            // define contract
            let contractABI = """
                [
                    {
                        "inputs": [
                            {
                                "internalType": "address",
                                "name": "person",
                                "type": "address"
                            }
                        ],
                        "name": "pesertaYangDiizinkan",
                        "outputs": [],
                        "stateMutability": "nonpayable",
                        "type": "function"
                    },
                    {
                        "inputs": [
                            {
                                "internalType": "string",
                                "name": "name",
                                "type": "string"
                            }
                        ],
                        "name": "tambahkanKandidat",
                        "outputs": [],
                        "stateMutability": "nonpayable",
                        "type": "function"
                    },
                    {
```

```
        "inputs": [
            {
                "internalType": "string",
                "name": "namaPemilihan",
                "type": "string"
            }
        ],
        "stateMutability": "nonpayable",
        "type": "constructor"
    },
    {
        "inputs": [
            {
                "internalType": "uint256",
                "name": "voteIndex",
                "type": "uint256"
            }
        ],
        "name": "vote",
        "outputs": [],
        "stateMutability": "nonpayable",
        "type": "function"
    },
    {
        "inputs": [
            {
                "internalType": "uint256",
                "name": "",
                "type": "uint256"
            }
        ],
        "name": "candidates",
        "outputs": [
            {
                "internalType": "string",
                "name": "name",
                "type": "string"
            },
            {
                "internalType": "uint256",
                "name": "voteCount",
                "type": "uint256"
            }
        ],
        "stateMutability": "view",
        "type": "function"
    },
    {
        "inputs": [],
        "name": "electionName",
        "outputs": [
            {
```

```
                "internalType": "string",
                "name": "",
                "type": "string"
            }
        ],
        "stateMutability": "view",
        "type": "function"
    },
    {
        "inputs": [],
        "name": "jumlahKandidat",
        "outputs": [
            {
                "internalType": "uint256",
                "name": "",
                "type": "uint256"
            }
        ],
        "stateMutability": "view",
        "type": "function"
    },
    {
        "inputs": [],
        "name": "namaKandidatKedua",
        "outputs": [
            {
                "internalType": "string",
                "name": "",
                "type": "string"
            }
        ],
        "stateMutability": "view",
        "type": "function"
    },
    {
        "inputs": [],
        "name": "namaKandidatPertama",
        "outputs": [
            {
                "internalType": "string",
                "name": "",
                "type": "string"
            }
        ],
        "stateMutability": "view",
        "type": "function"
    },
    {
        "inputs": [],
        "name": "owner",
        "outputs": [
            {
```

```
                "internalType": "address",
                "name": "",
                "type": "address"
            }
        ],
        "stateMutability": "view",
        "type": "function"
    },
    {
        "inputs": [],
        "name": "suaraKandidatKedua",
        "outputs": [
            {
                "internalType": "uint256",
                "name": "",
                "type": "uint256"
            }
        ],
        "stateMutability": "view",
        "type": "function"
    },
    {
        "inputs": [],
        "name": "suaraKandidatPertama",
        "outputs": [
            {
                "internalType": "uint256",
                "name": "",
                "type": "uint256"
            }
        ],
        "stateMutability": "view",
        "type": "function"
    },
    {
        "inputs": [],
        "name": "totalVotes",
        "outputs": [
            {
                "internalType": "uint256",
                "name": "",
                "type": "uint256"
            }
        ],
        "stateMutability": "view",
        "type": "function"
    },
    {
        "inputs": [
            {
                "internalType": "address",
                "name": "",
```

```
                    "type": "address"
                }
            ],
            "name": "voters",
            "outputs": [
                {
                    "internalType": "bool",
                    "name": "authorized",
                    "type": "bool"
                },
                {
                    "internalType": "bool",
                    "name": "voted",
                    "type": "bool"
                },
                {
                    "internalType": "uint256",
                    "name": "vote",
                    "type": "uint256"
                }
            ],
            "stateMutability": "view",
            "type": "function"
        }
    ]
    """.data(using: .utf8)!
    let contract = try web3.eth.Contract(json: contractABI, abiKey: nil, address: EthereumAddress(ethereumValue: "0x31F0a00a455Bc377f4b92D8650C9A07C371dFbfA"))

    //try call function "electionName" in the contract
    contract["electionName"]?().call() { response, error in
        if let response = response,
           let message = response[""] as? String {
            DispatchQueue.main.async {
                self.judul = message.description
            }
        }
        else {
            print(error?.localizedDescription ?? "Failed to get response")
        }
    }

    //try call function namaKandidatPertama from contract
    contract["namaKandidatPertama"]?().call() { response, error in
        if let response = response,
           let message = response[""] as? String {
            DispatchQueue.main.async {
                self.namaKandidatPertama = message.description
            }

        }
        else {
```

```
                print(error?.localizedDescription ?? "Failed to get response")
            }
        }

        //try call function namaKandidatKedua from contract
        contract["namaKandidatKedua"]?().call() { response, error in
            if let response = response,
               let message = response[""] as? String {
                DispatchQueue.main.async {
                    self.namaKandidatKedua = message.description
                }

            }
            else {
                print(error?.localizedDescription ?? "Failed to get response")
            }
        }

        contract["suaraKandidatPertama"]?().call() { response, error in
            if let response = response,
               let message = response[""] as? BigUInt {
                DispatchQueue.main.async {
                    self.suaraKandidatPertama = message
                }

            }
            else {
                print(error?.localizedDescription ?? "Failed to get response")
            }
        }

        contract["suaraKandidatKedua"]?().call() { response, error in
            if let response = response,
               let message = response[""] as? BigUInt {
                DispatchQueue.main.async {
                    self.suaraKandidatKedua = message
                }

            }
            else {
                print(error?.localizedDescription ?? "Failed to get response")
            }
        }


    } catch {
        // Error handling
        print(error.localizedDescription)
    }

  }
}
```

- Kode untuk melakukan transaksi atau voting pada kandidat pertama

```
import Web3

class SendTransaction0: ObservableObject {

    @Published var hash: String = ""

    func writeSmartContract0() {

        let web3 = Web3(rpcURL: "https://goerli.infura.io/v3/049172870f3942feb27cd4e6dcd933ab")

        do {
            let account = try! EthereumPrivateKey(hexPrivateKey:
"0x75f44eeb64f1802773eb6595062feb5f6e2063b6356a08b265de1c17a66ce050")


            let contractABI = """
                        [
                            {
                                "inputs": [
                                    {
                                        "internalType": "address",
                                        "name": "person",
                                        "type": "address"
                                    }
                                ],
                                "name": "pesertaYangDiizinkan",
                                "outputs": [],
                                "stateMutability": "nonpayable",
                                "type": "function"
                            },
                            {
                                "inputs": [
                                    {
                                        "internalType": "string",
                                        "name": "name",
                                        "type": "string"
                                    }
                                ],
                                "name": "tambahkanKandidat",
                                "outputs": [],
                                "stateMutability": "nonpayable",
                                "type": "function"
                            },
                            {
                                "inputs": [
                                    {
                                        "internalType": "string",
                                        "name": "namaPemilihan",
```

```
            "type": "string"
        }
    ],
    "stateMutability": "nonpayable",
    "type": "constructor"
},
{
    "inputs": [
        {
            "internalType": "uint256",
            "name": "voteIndex",
            "type": "uint256"
        }
    ],
    "name": "vote",
    "outputs": [],
    "stateMutability": "nonpayable",
    "type": "function"
},
{
    "inputs": [
        {
            "internalType": "uint256",
            "name": "",
            "type": "uint256"
        }
    ],
    "name": "candidates",
    "outputs": [
        {
            "internalType": "string",
            "name": "name",
            "type": "string"
        },
        {
            "internalType": "uint256",
            "name": "voteCount",
            "type": "uint256"
        }
    ],
    "stateMutability": "view",
    "type": "function"
},
{
    "inputs": [],
    "name": "electionName",
    "outputs": [
        {
            "internalType": "string",
            "name": "",
            "type": "string"
        }
```

```
    ],
    "stateMutability": "view",
    "type": "function"
},
{
    "inputs": [],
    "name": "jumlahKandidat",
    "outputs": [
        {
            "internalType": "uint256",
            "name": "",
            "type": "uint256"
        }
    ],
    "stateMutability": "view",
    "type": "function"
},
{
    "inputs": [],
    "name": "namaKandidatKedua",
    "outputs": [
        {
            "internalType": "string",
            "name": "",
            "type": "string"
        }
    ],
    "stateMutability": "view",
    "type": "function"
},
{
    "inputs": [],
    "name": "namaKandidatPertama",
    "outputs": [
        {
            "internalType": "string",
            "name": "",
            "type": "string"
        }
    ],
    "stateMutability": "view",
    "type": "function"
},
{
    "inputs": [],
    "name": "owner",
    "outputs": [
        {
            "internalType": "address",
            "name": "",
            "type": "address"
        }
```

```
    ],
    "stateMutability": "view",
    "type": "function"
},
{
    "inputs": [],
    "name": "suaraKandidatKedua",
    "outputs": [
        {
            "internalType": "uint256",
            "name": "",
            "type": "uint256"
        }
    ],
    "stateMutability": "view",
    "type": "function"
},
{
    "inputs": [],
    "name": "suaraKandidatPertama",
    "outputs": [
        {
            "internalType": "uint256",
            "name": "",
            "type": "uint256"
        }
    ],
    "stateMutability": "view",
    "type": "function"
},
{
    "inputs": [],
    "name": "totalVotes",
    "outputs": [
        {
            "internalType": "uint256",
            "name": "",
            "type": "uint256"
        }
    ],
    "stateMutability": "view",
    "type": "function"
},
{
    "inputs": [
        {
            "internalType": "address",
            "name": "",
            "type": "address"
        }
    ],
    "name": "voters",
```

```
                            "outputs": [
                                {
                                    "internalType": "bool",
                                    "name": "authorized",
                                    "type": "bool"
                                },
                                {
                                    "internalType": "bool",
                                    "name": "voted",
                                    "type": "bool"
                                },
                                {
                                    "internalType": "uint256",
                                    "name": "vote",
                                    "type": "uint256"
                                }
                            ],
                            "stateMutability": "view",
                            "type": "function"
                        }
                    ]
            """.data(using: .utf8)!
        let contract = try web3.eth.Contract(json: contractABI, abiKey: nil, address: EthereumAddress(ethereumValue: "0x31F0a00a455Bc377f4b92D8650C9A07C371dFbfA"))



        firstly {
            web3.eth.getTransactionCount(address: account.address, block: .latest)
        }.done { nonce in
            // Contract transaction
            guard let transaction = contract["vote"]?(BigUInt(0)).createTransaction(nonce: nonce, from: account.address, value: 0, gas: EthereumQuantity(150000), gasPrice: EthereumQuantity(quantity: 21.gwei)
            ) else{
                return
            }
            let signedTX = try transaction.sign(with: account, chainId: 5)

            firstly {
                web3.eth.sendRawTransaction(transaction: signedTX)
            }.done { txHash in
                self.hash = txHash.hex()
                print(txHash.hex())
            }.catch { error in
                print(error)
            }
        }.catch { error in
            print(error)
        }

    } catch {
```

```
            print("Is : ", error.localizedDescription)
        }
    }

}


extension EthereumTransaction{
    func signX(with privateKey: EthereumPrivateKey, chainId: Int = 0) throws ->
EthereumSignedTransaction {

        // These values are required for signing
        guard let nonce = nonce, let gasPrice = gasPrice, let gasLimit = gas, let value = value else {
            throw EthereumSignedTransaction.Error.transactionInvalid
        }

        let rlp = RLPItem(
            nonce: nonce,
            gasPrice: gasPrice,
            gasLimit: gasLimit,
            to: to,
            data: data,
            chainId: UInt(chainId)
        )

        let rawRlp = try RLPEncoder().encode(rlp)

        guard let signedTransaction = try? privateKey.sign(message: rawRlp) else { throw
EthereumSignedTransaction.Error.transactionInvalid }

        let v: BigUInt
        if chainId == 0 {
            v = BigUInt(signedTransaction.v) + BigUInt(27)
        } else {
            let sigV = BigUInt(signedTransaction.v)
            let big27 = BigUInt(27)
            let chainIdCalc = (BigUInt(chainId) * BigUInt(2) + BigUInt(8))
            v = sigV + big27 + chainIdCalc
        }

        return EthereumSignedTransaction(
            nonce: nonce,
            gasPrice: gasPrice,
            gasLimit: gasLimit,
            to: to,
            value: value,
            data: data,
            v: EthereumQuantity(quantity: v),
            r: EthereumQuantity(quantity: BigUInt(signedTransaction.r)),
            s: EthereumQuantity(quantity: BigUInt(signedTransaction.s)),
            chainId: EthereumQuantity(quantity: BigUInt(chainId))
        )
```

```
        }
}

extension RLPItem {
    /**
         * Create an RLPItem representing a transaction. The RLPItem must be an array of 6 items in the proper order.
         *
         * - parameter nonce: The nonce of this transaction.
         * - parameter gasPrice: The gas price for this transaction in wei.
         * - parameter gasLimit: The gas limit for this transaction.
         * - parameter to: The address of the receiver.
         * - parameter data: Input data for this transaction.
         */
        init(
            nonce: EthereumQuantity,
            gasPrice: EthereumQuantity,
            gasLimit: EthereumQuantity,
            to: EthereumAddress?,
            data: EthereumData,
            chainId: UInt
        ) {
            self = .array(
                .bigUInt(nonce.quantity),
                .bigUInt(gasPrice.quantity),
                .bigUInt(gasLimit.quantity),
                .bytes(to?.rawAddress ?? Bytes()),
                .string(""),
                .bytes(data.bytes),
                .init(integerLiteral: chainId),
                .init(integerLiteral: 0),
                .init(integerLiteral: 0)
            )
        }

}
```

- Kode untuk melakukan transaksi atau voting pada kandidat kedua

```
import Web3

class SendTransaction1: ObservableObject {

    @Published var hash: String = ""

    func writeSmartContract1() {

        let web3 = Web3(rpcURL: "https://goerli.infura.io/v3/049172870f3942feb27cd4e6dcd933ab")

        do {
```

```
        let account = try! EthereumPrivateKey(hexPrivateKey:
"0x75f44eeb64f1802773eb6595062feb5f6e2063b6356a08b265de1c17a66ce050")


        let contractABI = """
                        [
                            {
                                "inputs": [
                                    {
                                        "internalType": "address",
                                        "name": "person",
                                        "type": "address"
                                    }
                                ],
                                "name": "pesertaYangDiizinkan",
                                "outputs": [],
                                "stateMutability": "nonpayable",
                                "type": "function"
                            },
                            {
                                "inputs": [
                                    {
                                        "internalType": "string",
                                        "name": "name",
                                        "type": "string"
                                    }
                                ],
                                "name": "tambahkanKandidat",
                                "outputs": [],
                                "stateMutability": "nonpayable",
                                "type": "function"
                            },
                            {
                                "inputs": [
                                    {
                                        "internalType": "string",
                                        "name": "namaPemilihan",
                                        "type": "string"
                                    }
                                ],
                                "stateMutability": "nonpayable",
                                "type": "constructor"
                            },
                            {
                                "inputs": [
                                    {
                                        "internalType": "uint256",
                                        "name": "voteIndex",
                                        "type": "uint256"
                                    }
                                ],
                                "name": "vote",
```

```
    "outputs": [],
    "stateMutability": "nonpayable",
    "type": "function"
  },
  {
    "inputs": [
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        "internalType": "uint256",
        "name": "",
        "type": "uint256"
      }
    ],
    "name": "candidates",
    "outputs": [
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        "internalType": "string",
        "name": "name",
        "type": "string"
      },
      {
        "internalType": "uint256",
        "name": "voteCount",
        "type": "uint256"
      }
    ],
    "stateMutability": "view",
    "type": "function"
  },
  {
    "inputs": [],
    "name": "electionName",
    "outputs": [
      {
        "internalType": "string",
        "name": "",
        "type": "string"
      }
    ],
    "stateMutability": "view",
    "type": "function"
  },
  {
    "inputs": [],
    "name": "jumlahKandidat",
    "outputs": [
      {
        "internalType": "uint256",
        "name": "",
        "type": "uint256"
      }
    ],
    "stateMutability": "view",
```

```
        "type": "function"
    },
    {
        "inputs": [],
        "name": "namaKandidatKedua",
        "outputs": [
            {
                "internalType": "string",
                "name": "",
                "type": "string"
            }
        ],
        "stateMutability": "view",
        "type": "function"
    },
    {
        "inputs": [],
        "name": "namaKandidatPertama",
        "outputs": [
            {
                "internalType": "string",
                "name": "",
                "type": "string"
            }
        ],
        "stateMutability": "view",
        "type": "function"
    },
    {
        "inputs": [],
        "name": "owner",
        "outputs": [
            {
                "internalType": "address",
                "name": "",
                "type": "address"
            }
        ],
        "stateMutability": "view",
        "type": "function"
    },
    {
        "inputs": [],
        "name": "suaraKandidatKedua",
        "outputs": [
            {
                "internalType": "uint256",
                "name": "",
                "type": "uint256"
            }
        ],
        "stateMutability": "view",
```

```
        "type": "function"
    },
    {
        "inputs": [],
        "name": "suaraKandidatPertama",
        "outputs": [
            {
                "internalType": "uint256",
                "name": "",
                "type": "uint256"
            }
        ],
        "stateMutability": "view",
        "type": "function"
    },
    {
        "inputs": [],
        "name": "totalVotes",
        "outputs": [
            {
                "internalType": "uint256",
                "name": "",
                "type": "uint256"
            }
        ],
        "stateMutability": "view",
        "type": "function"
    },
    {
        "inputs": [
            {
                "internalType": "address",
                "name": "",
                "type": "address"
            }
        ],
        "name": "voters",
        "outputs": [
            {
                "internalType": "bool",
                "name": "authorized",
                "type": "bool"
            },
            {
                "internalType": "bool",
                "name": "voted",
                "type": "bool"
            },
            {
                "internalType": "uint256",
                "name": "vote",
                "type": "uint256"
```

```
                                }
                            ],
                            "stateMutability": "view",
                            "type": "function"
                        }
                    ]
            """.data(using: .utf8)!
        let contract = try web3.eth.Contract(json: contractABI, abiKey: nil, address: EthereumAddress(ethereumValue: "0x31F0a00a455Bc377f4b92D8650C9A07C371dFbfA"))



        firstly {
            web3.eth.getTransactionCount(address: account.address, block: .latest )
        }.done { nonce in
            // Contract transaction
            guard let transaction = contract["vote"]?(BigUInt(1)).createTransaction(nonce: nonce, from: account.address, value: 0, gas: EthereumQuantity(150000), gasPrice: EthereumQuantity(quantity: 21.gwei)
            ) else{
                return
            }
            let signedTX = try transaction.sign(with: account, chainId: 5)

            firstly {
                web3.eth.sendRawTransaction(transaction: signedTX)
            }.done { txHash in
                self.hash = txHash.hex()
                print(txHash.hex())
            }.catch { error in
                print(error)
            }
        }.catch { error in
            print(error)
        }

    } catch {
        print("Is : ", error.localizedDescription)
    }
  }

}
```

Lampiran 4

- Kode untuk menampilkan dan menghubungkan *wallet* dengan sistem *e-voting*

```
import SwiftUI
import Glaip


struct ContentView: View {

    @ObservedObject private var glaip = Glaip(title: "Dvote Prototype", description: "Dvote Login",
supportedWallets: [.MetaMask])

    @State private var showLoginScreen = false

    var body: some View {
        NavigationView {
            ZStack {
                Color(red: 38 / 255, green: 49 / 255, blue: 89 / 255)
                    .edgesIgnoringSafeArea(.all)
                VStack {
                    Text("Decentralization eVoting")
                        .font(.system(size: 25))
                        .fontWeight(.bold)
                        .foregroundColor(Color.white)
                    Text("Blockchain for Voting")
                        .fontWeight(.light)
                        .foregroundColor(Color.white)

                    Spacer()
                        .frame(height: 75)

                    Button("Meta Mask"){
                        glaip.loginUser(type: .MetaMask) { result in
                            switch result {
                            case .success(let user):
                                print(user.wallet.address)
                                showLoginScreen = true
                            case .failure(let error):
                                print(error)
                            }
                        }

                    }
                    .padding()
                    .foregroundColor(Color(red: 38 / 255, green: 49 / 255, blue: 89 / 255))

                    .background(Color.yellow)
                    .clipShape(RoundedRectangle(cornerRadius: 15))
```

```
                NavigationLink(destination: HellowView(), isActive: $showLoginScreen){
                    EmptyView()
                }
            }
        }
        .navigationBarHidden(true)
    }


}
}

struct ContentView_Previews: PreviewProvider {
    static var previews: some View {
        ContentView()
    }
}
```

- Kode untuk menampilkan *function* yang telah dipanggil dari *blockchain*

```
import SwiftUI

struct HellowView: View {

    @ObservedObject var smartContractInteraction = SmartContractInteraction()
    @ObservedObject var smartContractTransaction0 = SendTransaction0()
    @ObservedObject var smartContractTransaction1 = SendTransaction1()
    @State private var button1 = false
    @State private var button2 = false


    var body: some View {
        ZStack {
            Color(red: 38 / 255, green: 49 / 255, blue: 89 / 255)
                .edgesIgnoringSafeArea(.all)
            VStack{
                Group{
                    Text(smartContractInteraction.judul)
                        .foregroundColor(Color.white)
                        .fontWeight(.bold)
                        .font(.system(size: 25))

                    Spacer()
                        .frame(height: 25)
                }


                Group{

                    Button(smartContractInteraction.namaKandidatPertama){
```

```
                smartContractTransaction0.writeSmartContract0()
                smartContractInteraction.suaraKandidatPertama += 1
                button1 = true
            }
            .frame(height: 55)
            .frame(maxWidth: .infinity)
            .background(Color.yellow)
            .clipShape(RoundedRectangle(cornerRadius: 15))
            .foregroundColor(Color.black)
            .font(.system(size: 25))
            Spacer()
                .frame(height: 20)

            ProgressView(String(smartContractInteraction.suaraKandidatPertama)                ,value:
Double(smartContractInteraction.suaraKandidatPertama), total: 17)

            if button1 == true {
                Text(smartContractTransaction0.hash)
                    .contextMenu(ContextMenu(menuItems: {
                        Button("Copy"){
                            UIPasteboard.general.string = smartContractTransaction0.hash
                        }
                    }))

            }

            Spacer()
                .frame(height: 25)

            Button(smartContractInteraction.namaKandidatKedua){
                smartContractTransaction1.writeSmartContract1()
                smartContractInteraction.suaraKandidatKedua += 1
                button2 = true
            }
            .frame(height: 55)
            .frame(maxWidth: .infinity)
            .background(Color.yellow)
            .clipShape(RoundedRectangle(cornerRadius: 15))
            .foregroundColor(Color.black)
            .font(.system(size: 25))
            Spacer()
                .frame(height: 10)

            ProgressView(String(smartContractInteraction.suaraKandidatKedua),                value:
Double(smartContractInteraction.suaraKandidatKedua), total: 17)

            if button2 == true {
                Text(smartContractTransaction1.hash)
                    .contextMenu(ContextMenu(menuItems: {
                        Button("Copy"){
                            UIPasteboard.general.string = smartContractTransaction1.hash
                        }
```

```
                        }))
                    }
                }

                Group{
                    Spacer()
                        .frame(height: 45)

                    NavigationLink(destination:                                    EtherscanView(url:
"https://goerli.etherscan.io/address/0x31f0a00a455bc377f4b92d8650c9a07c371dfbfa")) {
                        Text("ETHERSCAN")
                            .padding()
                            .background(Color.yellow)
                            .cornerRadius(15)
                            .foregroundColor(Color.black)
                    }
                }
            }

            .onAppear{
                //self.smartContractTransaction0
                self.smartContractInteraction.callSmartContract()


            }
        }

    }

}


struct HellowView_Previews: PreviewProvider {
    static var previews: some View {
        HellowView()
    }
}
```

- Kode untuk menampilkan Etherscan (*ledger*)

```
import SwiftUI
import WebKit

struct EtherscanView: View {

    let url: String

    var body: some View {
        WebView(urlString: url)
    }
}
```

```
struct EtherscanView_Previews: PreviewProvider {
    static var previews: some View {
        EtherscanView(url: "https://www.google.com")
    }
}

struct WebView: UIViewRepresentable {

    let urlString: String?

    func makeUIView(context: Context) -> WebView.UIViewType {
        return WKWebView()
    }

    func updateUIView(_ uiView: WKWebView, context: Context) {
        if let safeString = urlString {
            if let url = URL(string: safeString) {
                let request = URLRequest(url: url)
                uiView.load(request)
            }
        }
    }
}
```

- Lampiran Lembar Perbaikan Skripsi

LEMBAR PERBAIKAN SKRIPSI

"IMPLEMENTASI *BLOCKCHAIN* PADA SISTEM *E-VOTING* BERBASIS *MOBILE*"

OLEH:

IRFANDI KURNIAWAN ANWAR
D121171504

Skripsi ini telah dipertahankan pada Ujian Akhir Sarjana tanggal 1 Agustus 2023.

Telah dilakukan perbaikan penulisan dan isi skripsi berdasarkan usulan dari penguji dan pembimbing skripsi.

Persetujuan perbaikan oleh tim penguji:

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Sekretaris	Adnan, S.T., M.T., Ph. D.	
Anggota	Dr. Amil Ahmad Ilham, S.T., M.IT.	
	Mukarramah Yusuf, B.Sc., M.Sc., Ph. D.	

Persetujuan Perbaikan oleh pembimbing:

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II	Adnan, S.T., M.T., Ph. D.	