SmartDivorce Contract(SDC)

SDC is a smart contract deployed on the Ethereum blockchain, designed to facilitate divorce proceedings in a decentralized, transparent, and secure manner. This contract allows parties involved in a divorce (husband, wife, and their lawyer) to initiate and finalize divorce proceedings, while ensuring privacy, fairness, and enforceability of the process.

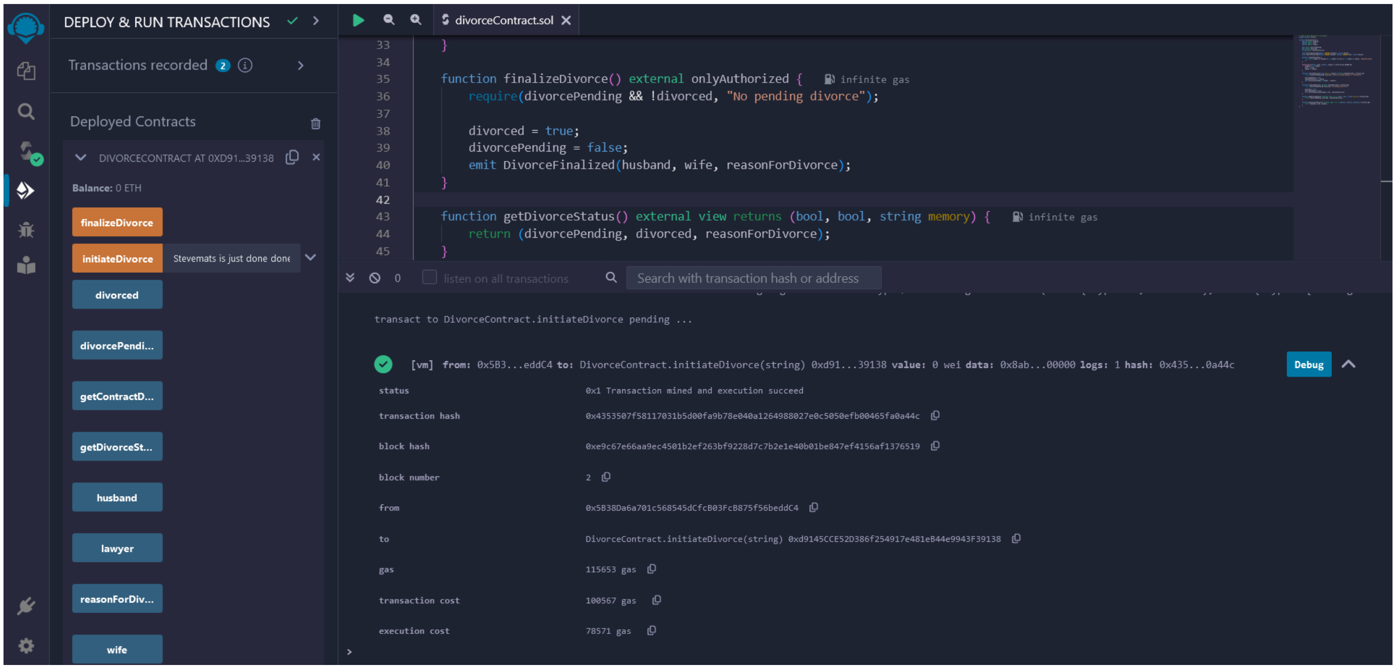
Features

- **Initiation of Divorce Proceedings:** Any authorized party (husband, wife, or their lawyer) can initiate divorce proceedings by providing a reason for divorce.
- **Finalization of Divorce:** Once divorce proceedings are initiated, any authorized party can finalize the divorce, marking the end of the proceedings.
- **Privacy Protection:** The contract ensures privacy by allowing only authorized parties to interact with it. Sensitive information such as reasons for divorce is stored securely on the blockchain.

- **Transparency:** All actions taken within the contract, including the initiation and finalization of divorce proceedings, are recorded on the blockchain and can be verified by all parties involved.
- **Security:** Robust security measures are implemented to prevent unauthorized access and ensure the integrity of the divorce proceedings.

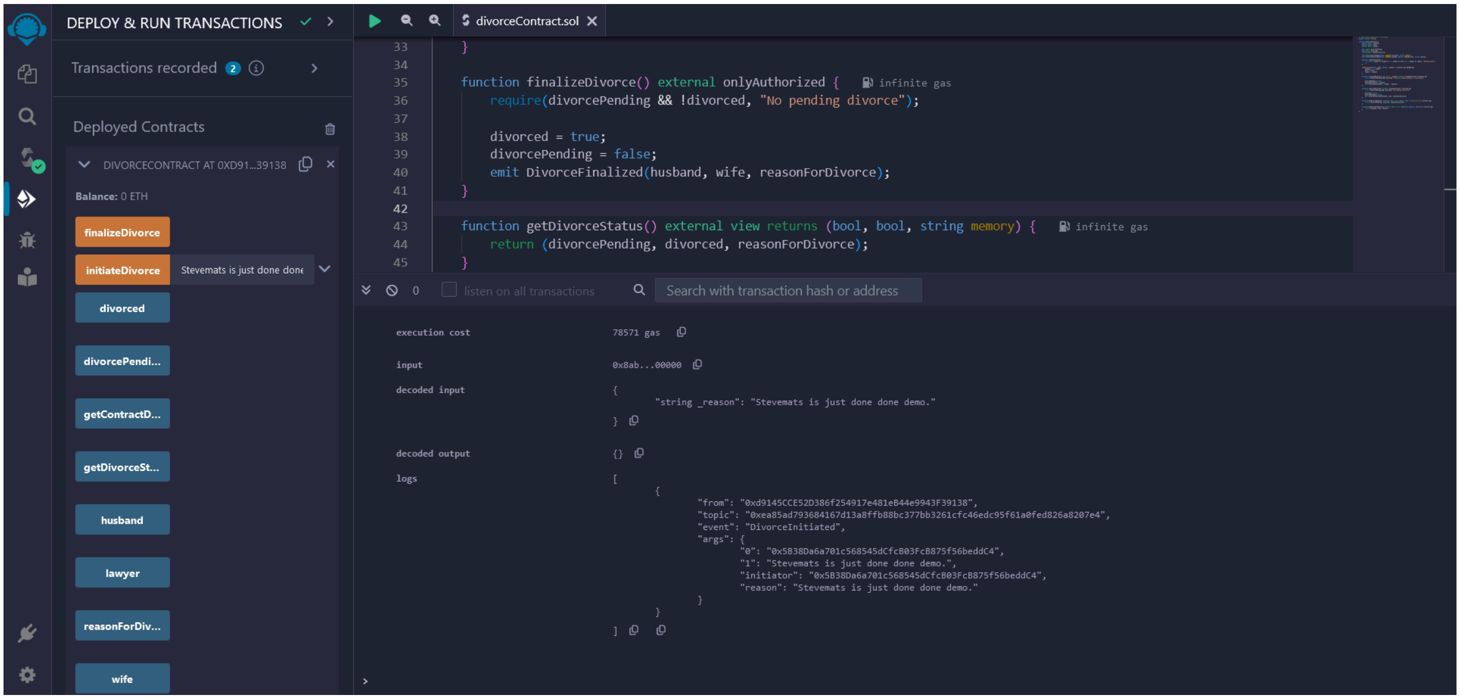
Smart Contract Functions

1. **initiateDivorce(string _reason):** Initiates divorce proceedings with the provided reason. Only authorized parties can call this function.



```
    }

    function finalizeDivorce() external onlyAuthorized {    infinite gas
        require(divorcePending && !divorced, "No pending divorce");

        divorced = true;
        divorcePending = false;
        emit DivorceFinalized(husband, wife, reasonForDivorce);
    }

    function getDivorceStatus() external view returns (bool, bool, string memory) {    infinite gas
        return (divorcePending, divorced, reasonForDivorce);
    }
```

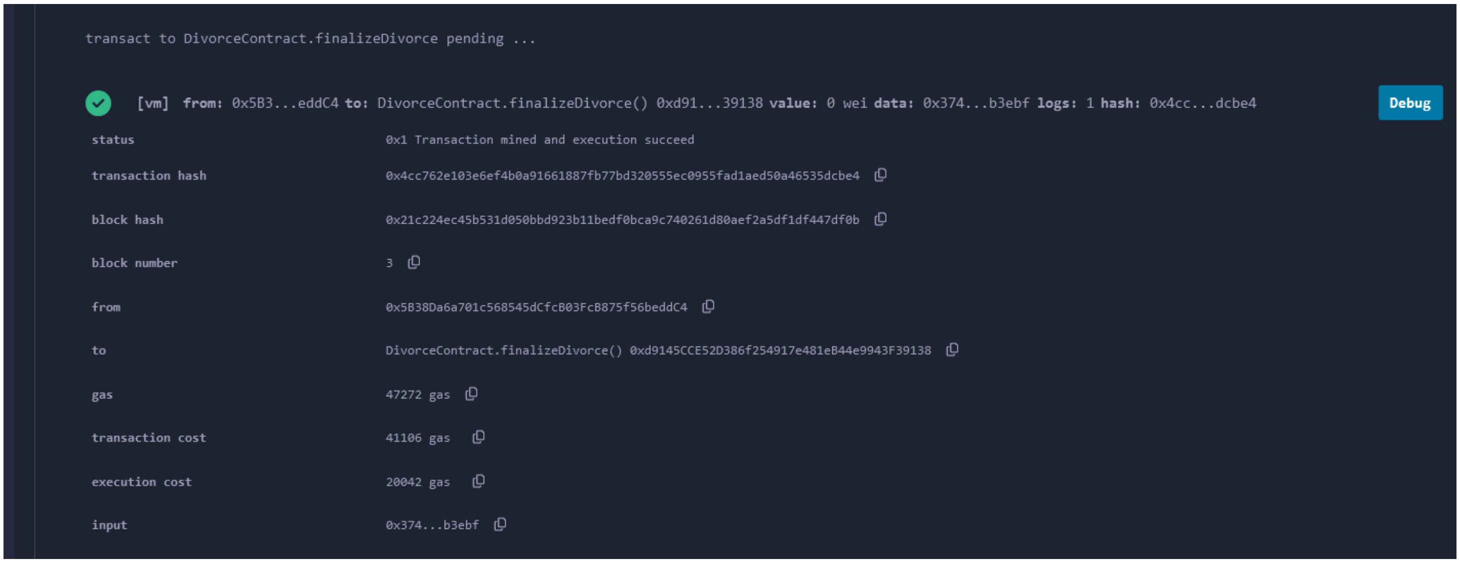
```
transact to DivorceContract.initiateDivorce pending ...

[vm] from: 0x5B3...eddC4 to: DivorceContract.initiateDivorce(string) 0xd91...39138 value: 0 wei data: 0x8ab...00000 logs: 1 hash: 0x435...0a44c
status                      0x1 Transaction mined and execution succeed
transaction hash            0x4353507f58117031b5d00fa9b78e040a1264988027e0c5050efb00465fa0a44c
block hash                  0xe9c67e66aa9ec4501b2ef263bf9228d7c7b2e1e40b01be847ef4156af1376519
block number                2
from                        0x5B38Da6a701c568545dCfcB03FcB875f56beddC4
to                          DivorceContract.initiateDivorce(string) 0xd9145CCE52D386f254917e481eB44e9943F39138
gas                         115653 gas
transaction cost            100567 gas
execution cost              78571 gas
```



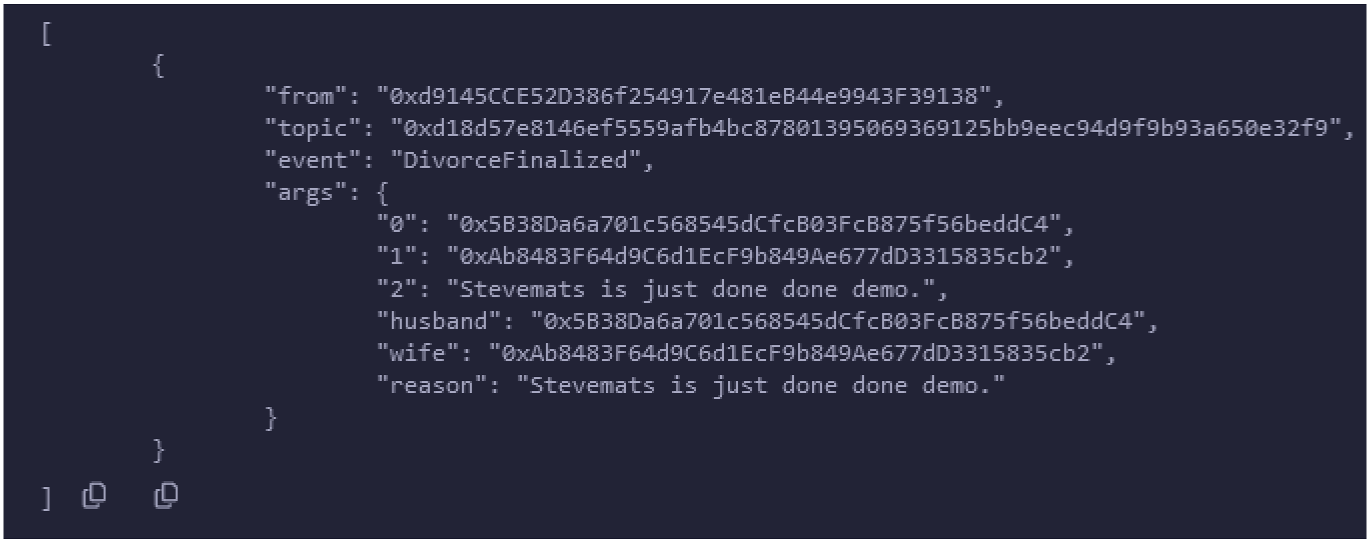
```
    }

    function finalizeDivorce() external onlyAuthorized {    infinite gas
        require(divorcePending && !divorced, "No pending divorce");

        divorced = true;
        divorcePending = false;
        emit DivorceFinalized(husband, wife, reasonForDivorce);
    }

    function getDivorceStatus() external view returns (bool, bool, string memory) {    infinite gas
        return (divorcePending, divorced, reasonForDivorce);
    }
```

```
execution cost              78571 gas
input                       0x8ab...00000
decoded input               {
                                  "string _reason": "Stevemats is just done done demo."
                            }
decoded output              {}
logs                        [
                                  {
                                        "from": "0xd9145CCE52D386f254917e481eB44e9943F39138",
                                        "topic": "0xea85ad793684167d13a8ffb88bc377bb3261cfc46edc95f61a0fed826a8207e4",
                                        "event": "DivorceInitiated",
                                        "args": {
                                              "0": "0x5B38Da6a701c568545dCfcB03FcB875f56beddC4",
                                              "1": "Stevemats is just done done demo.",
                                              "initiator": "0x5B38Da6a701c568545dCfcB03FcB875f56beddC4",
                                              "reason": "Stevemats is just done done demo."
                                        }
                                  }
                            ]
```

2. **finalizeDivorce():** Finalizes the divorce proceedings. Only authorized parties can call this function.

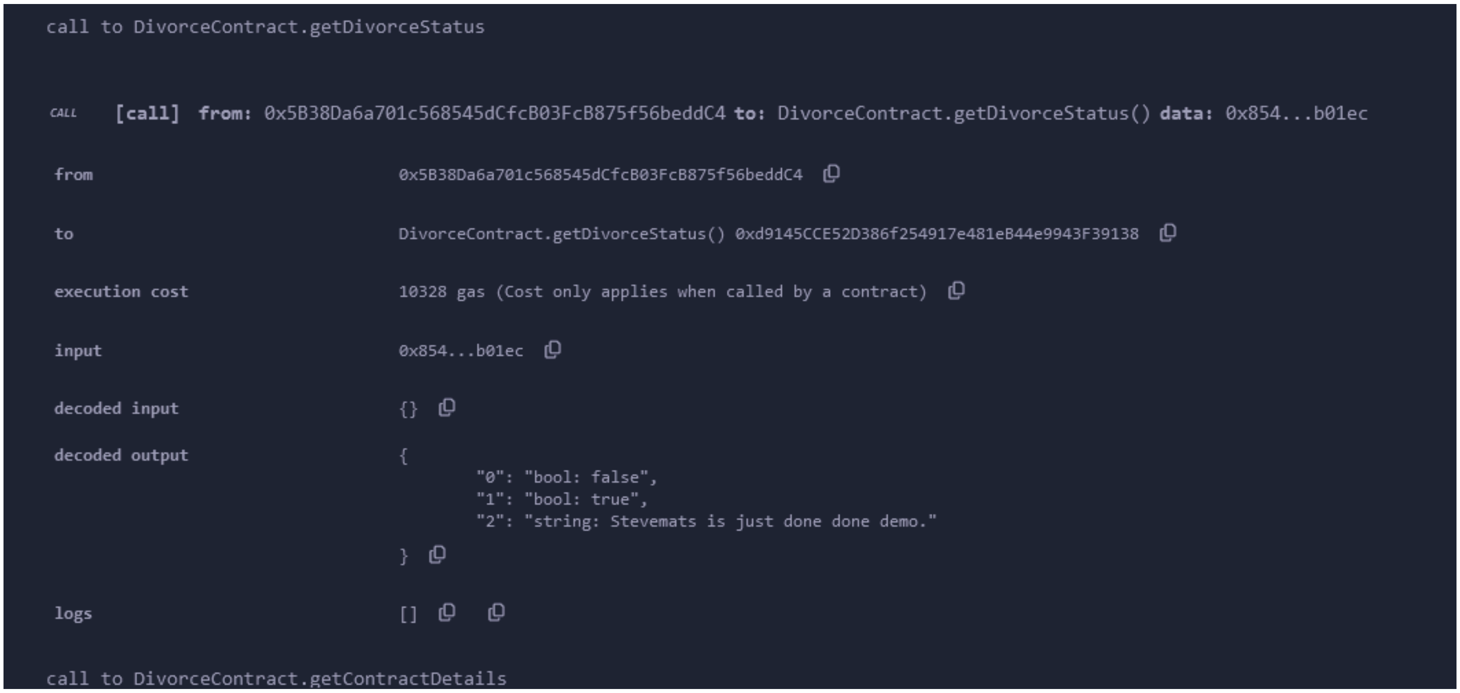


```
transact to DivorceContract.finalizeDivorce pending ...

[vm]  from: 0x5B3...eddC4 to: DivorceContract.finalizeDivorce() 0xd91...39138 value: 0 wei data: 0x374...b3ebf logs: 1 hash: 0x4cc...dcbe4
status                  0x1 Transaction mined and execution succeed
transaction hash        0x4cc762e103e6ef4b0a91661887fb77bd320555ec0955fad1aed50a46535dcbe4
block hash              0x21c224ec45b531d050bbd923b11bedf0bca9c740261d80aef2a5df1df447df0b
block number            3
from                    0x5B38Da6a701c568545dCfcB03FcB875f56beddC4
to                      DivorceContract.finalizeDivorce() 0xd9145CCE52D386f254917e481eB44e9943F39138
gas                     47272 gas
transaction cost        41106 gas
execution cost          20042 gas
input                   0x374...b3ebf
```



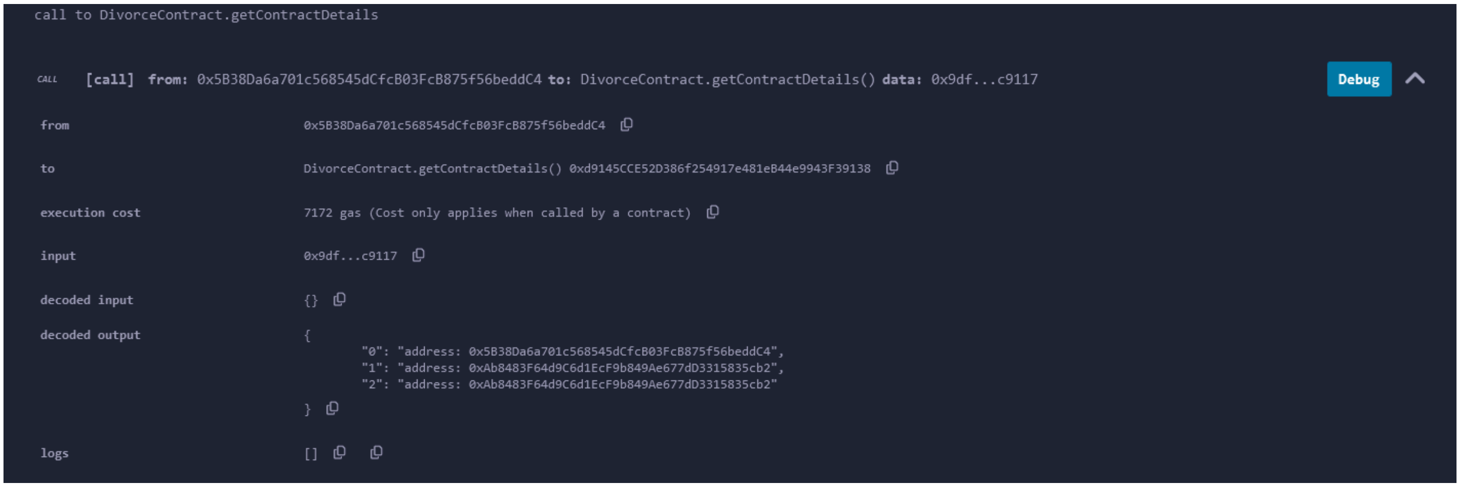
```
[
        {
                "from": "0xd9145CCE52D386f254917e481eB44e9943F39138",
                "topic": "0xd18d57e8146ef5559afb4bc87801395069369125bb9eec94d9f9b93a650e32f9",
                "event": "DivorceFinalized",
                "args": {
                        "0": "0x5B38Da6a701c568545dCfcB03FcB875f56beddC4",
                        "1": "0xAb8483F64d9C6d1EcF9b849Ae677dD3315835cb2",
                        "2": "Stevemats is just done done demo.",
                        "husband": "0x5B38Da6a701c568545dCfcB03FcB875f56beddC4",
                        "wife": "0xAb8483F64d9C6d1EcF9b849Ae677dD3315835cb2",
                        "reason": "Stevemats is just done done demo."
                }
        }
]
```

3. **getDivorceStatus():** Retrieves the current status of divorce proceedings, including whether divorce is pending or finalized, and the reason for divorce (if provided).



```
call to DivorceContract.getDivorceStatus

CALL  [call] from: 0x5B38Da6a701c568545dCfcB03FcB875f56beddC4 to: DivorceContract.getDivorceStatus() data: 0x854...b01ec

from               0x5B38Da6a701c568545dCfcB03FcB875f56beddC4

to                 DivorceContract.getDivorceStatus() 0xd9145CCE52D386f254917e481eB44e9943F39138

execution cost     10328 gas (Cost only applies when called by a contract)

input              0x854...b01ec

decoded input      {}

decoded output     {
                           "0": "bool: false",
                           "1": "bool: true",
                           "2": "string: Stevemats is just done done demo."
                   }

logs               []

call to DivorceContract.getContractDetails
```

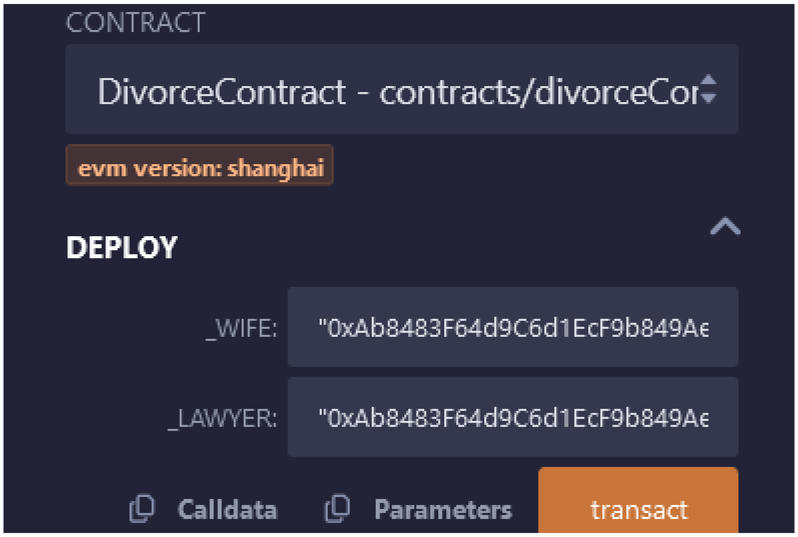
4. **getContractDetails():** Retrieves the addresses of the husband, wife, and lawyer involved in the divorce proceedings.



```
call to DivorceContract.getContractDetails

CALL  [call] from: 0x5B38Da6a701c568545dCfcB03FcB875f56beddC4 to: DivorceContract.getContractDetails() data: 0x9df...c9117

from               0x5B38Da6a701c568545dCfcB03FcB875f56beddC4

to                 DivorceContract.getContractDetails() 0xd9145CCE52D386f254917e481eB44e9943F39138

execution cost     7172 gas (Cost only applies when called by a contract)

input              0x9df...c9117

decoded input      {}

decoded output     {
                           "0": "address: 0x5B38Da6a701c568545dCfcB03FcB875f56beddC4",
                           "1": "address: 0xAb8483F64d9C6d1EcF9b849Ae677dD3315835cb2",
                           "2": "address: 0xAb8483F64d9C6d1EcF9b849Ae677dD3315835cb2"
                   }

logs               []
```

Usage

1. **Deployment:** Deploy the Divorce Contract smart contract on the Ethereum blockchain using Remix IDE available at remix[.]ethereum[.]com at the time of this writing, or use other Ethereum development environments.
2. **Initialization:** Provide the Ethereum addresses of the wife and lawyer as constructor arguments during contract deployment.


CONTRACT

DivorceContract - contracts/divorceCor

evm version: shanghai

DEPLOY

_WIFE: "0xAb8483F64d9C6d1EcF9b849Ae

_LAWYER: "0xAb8483F64d9C6d1EcF9b849Ae

3. **Interact with the Contract:** Authorized parties (husband, wife, and lawyer) can interact with the contract by calling its functions using their Ethereum accounts.
4. **Testing:** Use Remix IDE or other Ethereum development tools to test the contract's functionalities in a simulated environment before deploying it in a real-world scenario.

> Considerations you should look into if you come accross this project & think of improving on it:

Security Considerations

- **Access Control:** Implement proper access control mechanisms to ensure that only authorized parties (husband, wife, and lawyer) can initiate or finalize divorce proceedings.
- **Secure Transactions:** Use secure communication channels and cryptographic techniques to protect sensitive information and prevent unauthorized access to Ethereum accounts.

- **Code Auditing:** Regularly audit the smart contract code for security vulnerabilities and employ best practices in smart contract development to minimize the risk of exploitation.
- **Emergency Stop Mechanism:** Consider implementing an emergency stop mechanism to halt contract operations in case of unforeseen security threats or vulnerabilities.

Legal Compliance

- **Consultation with Legal Experts:** Consult with legal experts to ensure that the Divorce Contract complies with relevant laws and regulations in the jurisdiction where it will be used.
- **Privacy Regulations:** Address any legal concerns related to data privacy and protection of personal information stored on the blockchain.
- **Enforceability:** Ensure that the decisions and actions taken within the contract are legally enforceable in the relevant jurisdiction, and consider the implications of blockchain technology on traditional legal frameworks.

Impovable Areas //ToDo

- **Multi-Signature Functionality:** Implementing a multi-signature functionality to require multiple parties to sign off on important actions such as initiating or finalizing divorce proceedings, enhancing security and accountability.

- **Arbitration Mechanism:** Integrating an arbitration mechanism to resolve disputes that may arise during divorce proceedings, providing an alternative to traditional legal processes.
- **Integration with Legal Services:** Partnering with legal service providers to offer additional services such as legal advice, document preparation, and dispute resolution through the Divorce Contract platform.
- **Enhanced Privacy Options:** Exploring advanced privacy-preserving techniques such as zero-knowledge proofs or secure multi-party computation to further protect sensitive information while maintaining transparency and accountability.

Project Page

> Github - https://github.com/stevemats/SmartDivorceContract