Formal Verification in Scala

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What is The DAO

Basics

- Investment fund
- Autonomous
- Voting right based on invested amount

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- Investment fund
- Autonomous
- Voting right based on invested amount

Technology

- An open-source software
- Written in Solidity
- Build on Ethereum blockchain

Initial Phase

- Defines the contract
- Minimum ETH needed
- Fixed end time

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- Defines the contract
- Minimum ETH needed
- Fixed end time

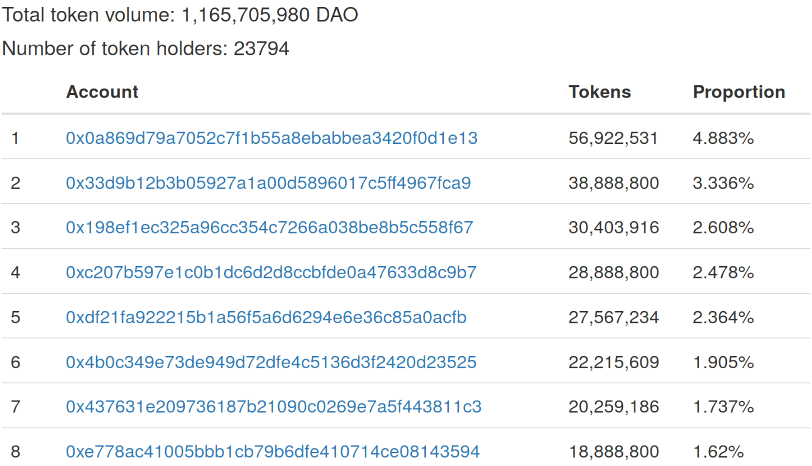
```
contract DAO is DAOInterface {
  uint constant minProposalDebatePeriod = 2 weeks;
  uint public proposalDeposit;
  mapping (address => bool) public allowedRecipients;

  function DAO(uint _proposalDeposit) {
    proposalDeposit = _proposalDeposit;
    allowedRecipients[address(this)] = true;
  }
}
```

Investors

- Invest in The DAO
- A Ethereum wallet address
- Gets DAO tokens
- Receive reward

Example Investors



Total token volume: 1,165,705,980 DAO

Number of token holders: 23794

	Account	Tokens	Proportion
1	0x0a869d79a7052c7f1b55a8ebabbea3420f0d1e13	56,922,531	4.883%
2	0x33d9b12b3b05927a1a00d5896017c5ff4967fca9	38,888,800	3.336%
3	0x198ef1ec325a96cc354c7266a038be8b5c558f67	30,403,916	2.608%
4	0xc207b597e1c0b1dc6d2d8ccbfde0a47633d8c9b7	28,888,800	2.478%
5	0xdf21fa922215b1a56f5a6d6294e6e36c85a0acfb	27,567,234	2.364%
6	0x4b0c349e73de949d72dfe4c5136d3f2420d23525	22,215,609	1.905%
7	0x437631e209736187b21090c0269e7a5f443811c3	20,259,186	1.737%
8	0xe778ac41005bbb1cb79b6dfe410714ce08143594	18,888,800	1.62%

Proposal

- Recipient
- Amount
- Deadline
- Creator

Proposal

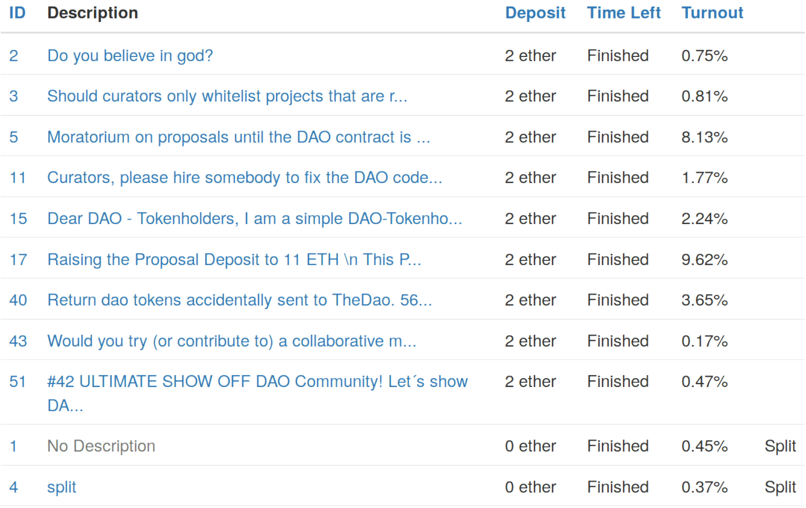
- Recipient
- Amount
- Deadline
- Creator

```
struct Proposal {
  address recipient;
  uint amount;
  string description;
  uint votingDeadline;
  uint proposalDeposit;
  address creator;
}
```

Example Proposal

Mobotiq's vision of modular Electric Vehicles that can be rented P2P is a perfect fit for the blockchain. Integration with Ethereum could enable the development of fully autonomous, self-renting vehicles.

Proposal List



ID	Description	Deposit	Time Left	Turnout	
2	Do you believe in god?	2 ether	Finished	0.75%	
3	Should curators only whitelist projects that are r...	2 ether	Finished	0.81%	
5	Moratorium on proposals until the DAO contract is ...	2 ether	Finished	8.13%	
11	Curators, please hire somebody to fix the DAO code...	2 ether	Finished	1.77%	
15	Dear DAO - Tokenholders, I am a simple DAO-Tokenho...	2 ether	Finished	2.24%	
17	Raising the Proposal Deposit to 11 ETH \n This P...	2 ether	Finished	9.62%	
40	Return dao tokens accidentally sent to TheDao. 56...	2 ether	Finished	3.65%	
43	Would you try (or contribute to) a collaborative m...	2 ether	Finished	0.17%	
51	#42 ULTIMATE SHOW OFF DAO Community! Let´s show DA...	2 ether	Finished	0.47%	
1	No Description	0 ether	Finished	0.45%	Split
4	split	0 ether	Finished	0.37%	Split

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Curator

- Controls the whitelist
- Checks proposals

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- Profitableness
- Law
- Voting problem
- The stalker