SMART CONTRACT AUDITS AND BLOCKCHAIN SECURITY

SAFUAUDIT

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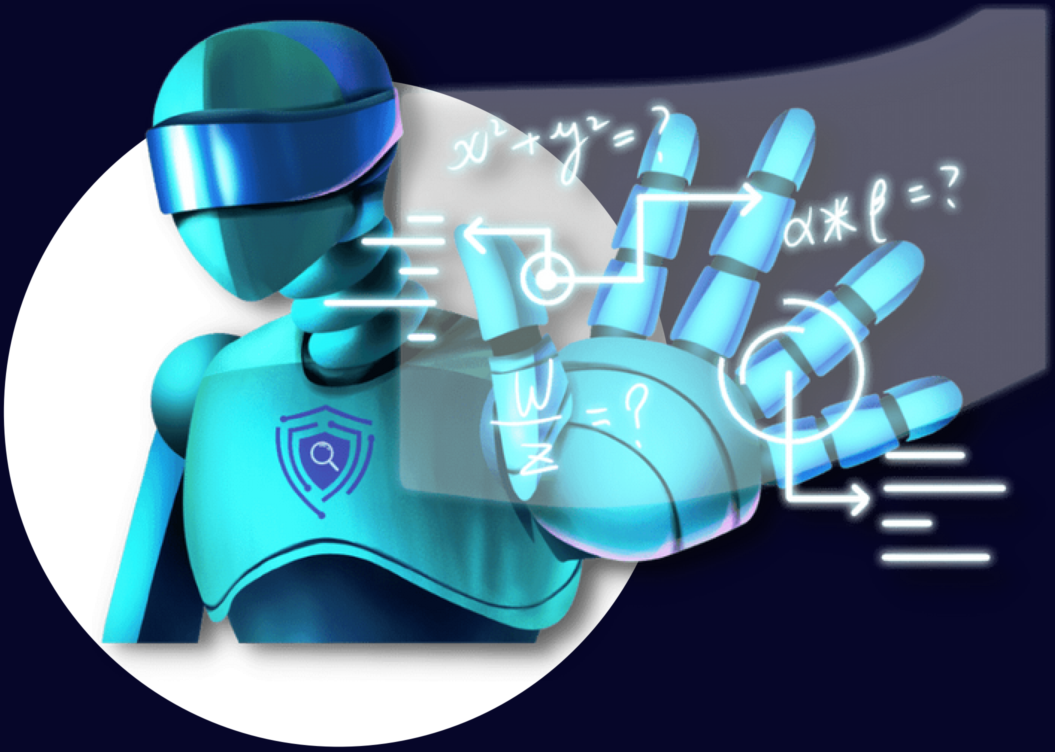

PROJECT: PI DOGE

DATE: July 17, 2022

www.safuaudit.com

INTRODUCTION

Client	Pi Doge (PiDoge)
Language	Solidity
Contract address	0x79A072E26087BF05938b9A0F91cB2bb6e56501b2
Owner	0xA0C263cf3dBed24c8e25f4b1666dcc6ce23d509f
Deployer	0xA0C263cf3dBed24c8e25f4b1666dcc6ce23d509f
SHA1-Hash	9676000c6bcb027aae6197451b1159d177e94b26
Decimals	9
Supply	1,000,000,000,000
Platform	Binance Smart Chain
Compiler	v0.8.14+commit.80d49f37
Optimization	No with 200 runs
Website	https://pidoge.net/
Telegram	https://t.me/Pidogeglobal
Twitter	https://twitter.com/Pidoge_bsc

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APPROACH

Audit Details

Our comprehensive audit report provides a full overview of the audited system's architecture, smart contract codebase, and details on any vulnerabilities found within the system.

Audit Goals

The audit goal is to ensure that the project is built to protect investors and users, preventing potentially catastrophic vulnerabilities after launch, that lead to scams and rugpulls.

Code Quality

Our analysis includes both automatic tests and manual code analysis for the following aspects:

- Exploits
- Back-doors
- Vulnerability
- Accuracy
- Readability

Tools

- Remix IDE
- Mythril
- Open Zeppelin Code Analyzer
- Solidity Code Complier
- Hardhat

RISK CLASSIFICATION

CRITICAL

Issues on this level are critical to the smart contract's performance/functionality and should be fixed before moving to a live environment.

MEDIUM

Issues on this level could potentially bring problems and should eventually be fixed.

MINOR

Issues on this level are minor details and warning that can remain unfixed but would be better fixed at some point in the future

INFORMATIONAL

Information level is to offer suggestions for improvement of efficacity or security for features with a risk free factor.

OVERVIEW

Fees

- Buy Fees: 0%
- Sell Fees: 15%

Fees privileges

- Can't set buy fees over 23% & sell fees over 23%

Ownership

- Owned

Minting

- No mint function

Max Tx Amount

- Can't set max Tx amount

Pause function

- Can't pause trading

Blacklist

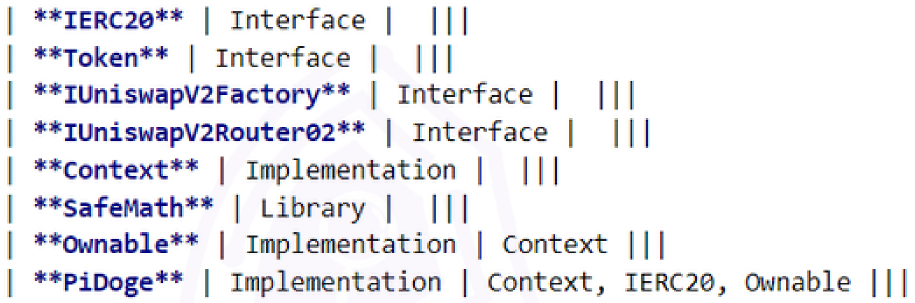
- Can't blacklist

Other privileges

- Can exclude multiple accounts from fees

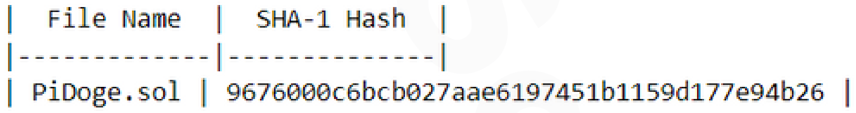
CONTRACT INSPECTION

Imported contracts or frameworks used:

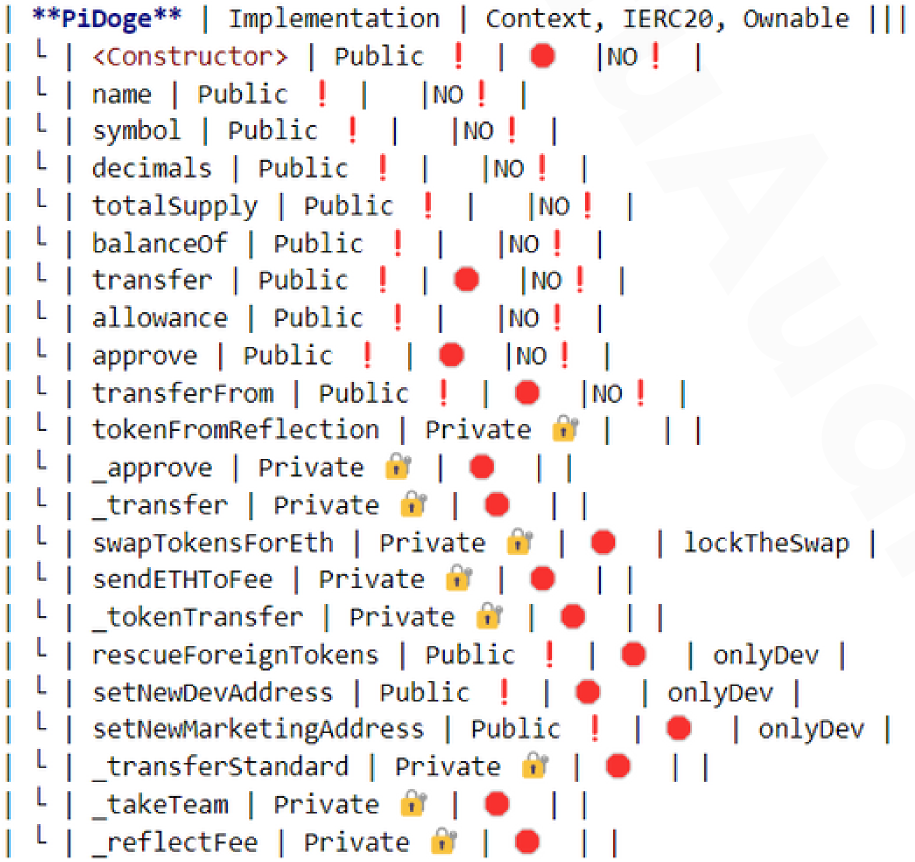


```
| **IERC20** | Interface |  |||
| **Token** | Interface |  |||
| **IUniswapV2Factory** | Interface |  |||
| **IUniswapV2Router02** | Interface |  |||
| **Context** | Implementation |  |||
| **SafeMath** | Library |  |||
| **Ownable** | Implementation | Context |||
| **PiDoge** | Implementation | Context, IERC20, Ownable |||
```

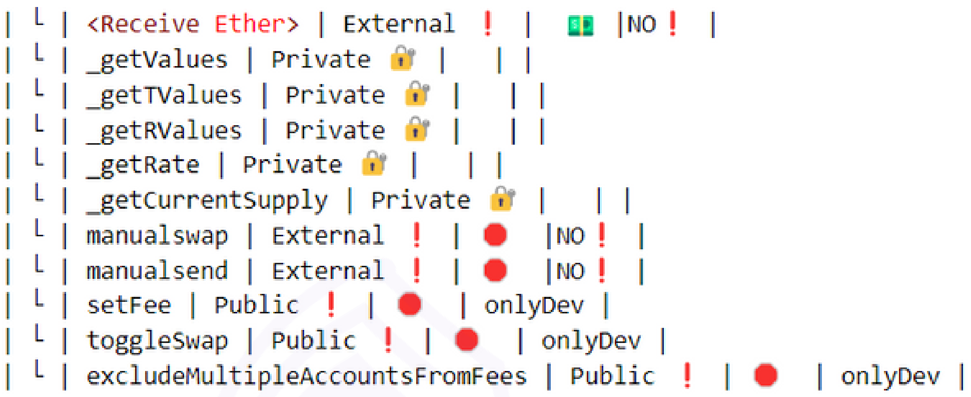
Tested Contract File:



```
|  File Name  |  SHA-1 Hash  |
|-------------|--------------|
| PiDoge.sol | 9676000c6bcb027aae6197451b1159d177e94b26 |
```



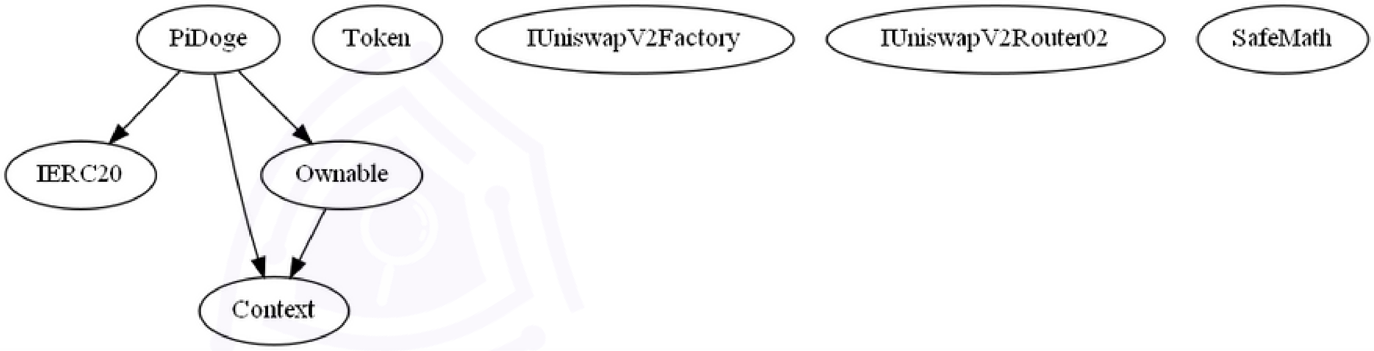
```
| **PiDoge** | Implementation | Context, IERC20, Ownable |||
| └ | <Constructor> | Public ❗ | 🔴  |NO❗ |
| └ | name | Public ❗ |   |NO❗ |
| └ | symbol | Public ❗ |   |NO❗ |
| └ | decimals | Public ❗ |   |NO❗ |
| └ | totalSupply | Public ❗ |   |NO❗ |
| └ | balanceOf | Public ❗ |   |NO❗ |
| └ | transfer | Public ❗ | 🔴  |NO❗ |
| └ | allowance | Public ❗ |   |NO❗ |
| └ | approve | Public ❗ | 🔴  |NO❗ |
| └ | transferFrom | Public ❗ | 🔴  |NO❗ |
| └ | tokenFromReflection | Private 🔐 |   | |
| └ | _approve | Private 🔐 | 🔴  | |
| └ | _transfer | Private 🔐 | 🔴  | |
| └ | swapTokensForEth | Private 🔐 | 🔴  | lockTheSwap |
| └ | sendETHToFee | Private 🔐 | 🔴  | |
| └ | _tokenTransfer | Private 🔐 | 🔴  | |
| └ | rescueForeignTokens | Public ❗ | 🔴  | onlyDev |
| └ | setNewDevAddress | Public ❗ | 🔴  | onlyDev |
| └ | setNewMarketingAddress | Public ❗ | 🔴  | onlyDev |
| └ | _transferStandard | Private 🔐 | 🔴  | |
| └ | _takeTeam | Private 🔐 | 🔴  | |
| └ | _reflectFee | Private 🔐 | 🔴  | |
```



```
| └ | <Receive Ether> | External ❗ | 💵 |NO❗ |
| └ | _getValues | Private 🔐 | | |
| └ | _getTValues | Private 🔐 | | |
| └ | _getRValues | Private 🔐 | | |
| └ | _getRate | Private 🔐 | | |
| └ | _getCurrentSupply | Private 🔐 | | |
| └ | manualswap | External ❗ | 🛑 |NO❗ |
| └ | manualsend | External ❗ | 🛑 |NO❗ |
| └ | setFee | Public ❗ | 🛑 | onlyDev |
| └ | toggleSwap | Public ❗ | 🛑 | onlyDev |
| └ | excludeMultipleAccountsFromFees | Public ❗ | 🛑 | onlyDev |
```

Symbol	Meaning
🛑	Function can modify state
💵	Function is payable
🔐	Private function
🔒	Internal function
NO❗	Function has no modifier

INHERITANCE TREE



Inheritance is a feature of the object-oriented programming language. It is a way of extending the functionality of a program, used to separate the code, reduces the dependency, and increases the re-usability of the existing code. Solidity supports inheritance between smart contracts, where multiple contracts can be inherited into a single contract.

MANUAL FUNCTIONS ANALYSIS

The contract is verified to check if functions do and work as they should and malicious code is not inserted.

	Tested	Result
Transfer	Yes	Passed
Total Supply	Yes	Passed
Buy Back	Yes	N/A
Burn	Yes	N/A
Mint	Yes	N/A
Rebase	Yes	N/A
Pause	Yes	N/A
Blacklist	Yes	N/A
Lock	Yes	N/A
Max Transaction	Yes	N/A
Transfer Ownership	Yes	Passed
Renounce Ownership	Yes	Passed

VULNERABILITIES TEST

ID	Description	
V-01	Function Default Visibility	Passed
V-02	Integer Overflow and Underflow	Passed
V-03	Outdated Compiler Version	Passed
V-04	Floating Pragma	Minor
V-05	Unchecked Call Return Value	Passed
V-06	Unprotected Ether Withdrawal	Passed
V-07	Unprotected SELF-DESTRUCT Instruction	Passed
V-08	Re-entrancy	Passed
V-09	State Variable Default Visibility	Passed
V-10	Uninitialized Storage Pointer	Passed
V-11	Assert Violation	Passed
V-12	Use of Deprecated Solidity Functions	Passed
V-13	Delegate Call to Untrusted Callee	Passed
V-14	DoS with Failed Call	Passed
V-15	Transaction Order Dependence	Passed
V-16	Authorization through tx.origin	Passed
V-17	Block values as a proxy for time	Passed

V-18	Signature Malleability	**Passed**
V-19	Incorrect Constructor Name	**Passed**
V-20	Shadowing State Variables	**Passed**
V-21	Weak Sources of Randomness from Chain Attributes	**Passed**
V-22	Missing Protection against Signature Replay Attacks	**Passed**
V-23	Lack of Proper Signature Verification	**Passed**
V-24	Requirement Violation	**Passed**
V-25	Write to Arbitrary Storage Location	**Passed**
V-26	Incorrect Inheritance Order	**Passed**
V-27	Insufficient Gas Griefing	**Passed**
V-28	Arbitrary Jump with Function Type Variable	**Passed**
V-29	DoS With Block Gas Limit	**Passed**
V-30	Typographical Error	**Passed**
V-31	Right-To-Left-Override control character (U+202E)	**Passed**
V-32	Presence of unused variables	**Passed**
V-33	Unexpected Ether balance	**Passed**
V-34	Hash Collisions With Multiple Variable Length Arguments	**Passed**
V-35	Message call with the hardcoded gas amount	**Passed**
V-36	Code With No Effects (Irrelevant/Dead Code)	**Passed**
V-37	Unencrypted Private Data On-Chain	**Passed**

FINDINGS

ID	Category	Issue	Severity
CE-OF	Centralization	Owner Accessible Functions	Minor
V-01	Vulnerabilities	Unlocked Compiler	Minor
GO-01	Gas Optimization	Public Function could be Declared External	Informational
CS-01	Coding Standards	Meaningless State Variables	Informational

CE-OF: Owner Accessible Functions

Description

The owner has the permission through **onlyOwner** modifier to the following:

1. renounceOwnership()
2. transferOwnership()

The owner has the permission through **onlyDev** modifier to the following:

1. rescueForeignTokens()
2. setNewDevAddress()
3. setNewMarketingAddress()
4. setFee()
5. toggleSwap()
6. excludeMultipleAccountsFromFees()

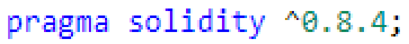
The role OnlyOwner has authority over the above functions that can manipulate the project functionality without restrictions. Any compromise to the owner account may allow a hacker to take advantage of this authority.

Recommendation

- We advise the client to carefully manage the privilege accounts' private key to avoid any potential risks of being hacked.
- Renounce Ownership at some point in time.

V-01: Unlocked Compiler

Line #7



```
pragma solidity ^0.8.4;
```

Description

Contracts should be deployed with the same compiler version and flags that they have been tested with thoroughly. Locking the pragma helps to ensure that contracts do not accidentally get deployed using, for example, an outdated compiler version that might introduce bugs that affect the contract system negatively.

Recommendation

- Lock the pragma version and also consider known bugs (https://github.com/ethereum/solidity/releases) for the compiler version that is chosen.

GO-01: Public Function could be Declared External

Description

The following functions are declared as public and are not invoked in any of the contracts contained within the project's scope.

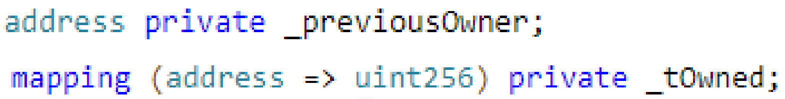
- rescueForeignTokens() - Line #304
- setFee() - Line #392
- setNewMarketingAddress() - Line #318
- toggleSwap() - Line #403
- excludeMultipleAccountsFromFees() - Line #407

Recommendation

- Use the external attribute for functions never called from the contract to save gas.

CS-01: Meaningless State Variables

Line # 97, 131:



```
address private _previousOwner;
mapping (address => uint256) private _tOwned;
```

Description

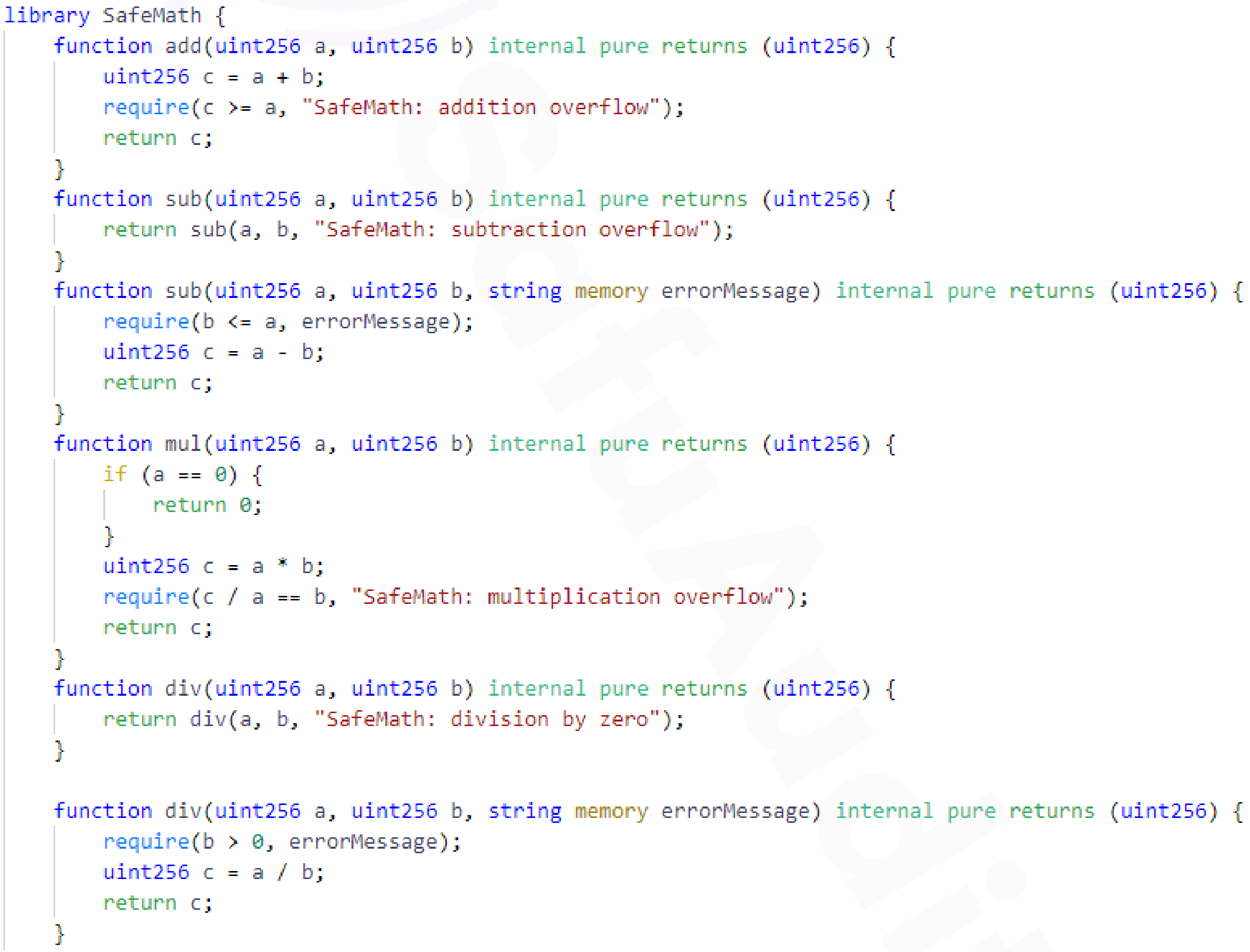
_previousOwner and **_tOwned** are never used

Recommandation

- We recommend removing the variables for code clarity

GOOD PRACTICES ✓

- The owner cannot mint new tokens after deployment
- The owner cannot set taxes above 23%
- The owner cannot stop or pause the contract
- The owner cannot set a transaction limit
- The smart contract utilizes "SafeMath" to prevent overflows



```
library SafeMath {
    function add(uint256 a, uint256 b) internal pure returns (uint256) {
        uint256 c = a + b;
        require(c >= a, "SafeMath: addition overflow");
        return c;
    }
    function sub(uint256 a, uint256 b) internal pure returns (uint256) {
        return sub(a, b, "SafeMath: subtraction overflow");
    }
    function sub(uint256 a, uint256 b, string memory errorMessage) internal pure returns (uint256) {
        require(b <= a, errorMessage);
        uint256 c = a - b;
        return c;
    }
    function mul(uint256 a, uint256 b) internal pure returns (uint256) {
        if (a == 0) {
            return 0;
        }
        uint256 c = a * b;
        require(c / a == b, "SafeMath: multiplication overflow");
        return c;
    }
    function div(uint256 a, uint256 b) internal pure returns (uint256) {
        return div(a, b, "SafeMath: division by zero");
    }

    function div(uint256 a, uint256 b, string memory errorMessage) internal pure returns (uint256) {
        require(b > 0, errorMessage);
        uint256 c = a / b;
        return c;
    }
```

WEBSITE 🌐

Website	https://pidoge.net/
Domain Registry	https://www.hostinger.com
Domain Expiry Date	2023-07-14
Response Code	200
SSL Checker and HTTPS Test	Passed
Deprecated HTML tags	Passed
Robots.txt	Informative
Sitemap Test	Informative
SEO Friendly URL	Passed
Responsive Test	Passed
JS Error Test	Minor
Console Errors Test	Informative
Site Loading Speed Test	2.5 seconds - Passed
HTTP2 Test	Passed
Safe Browsing Test	Passed

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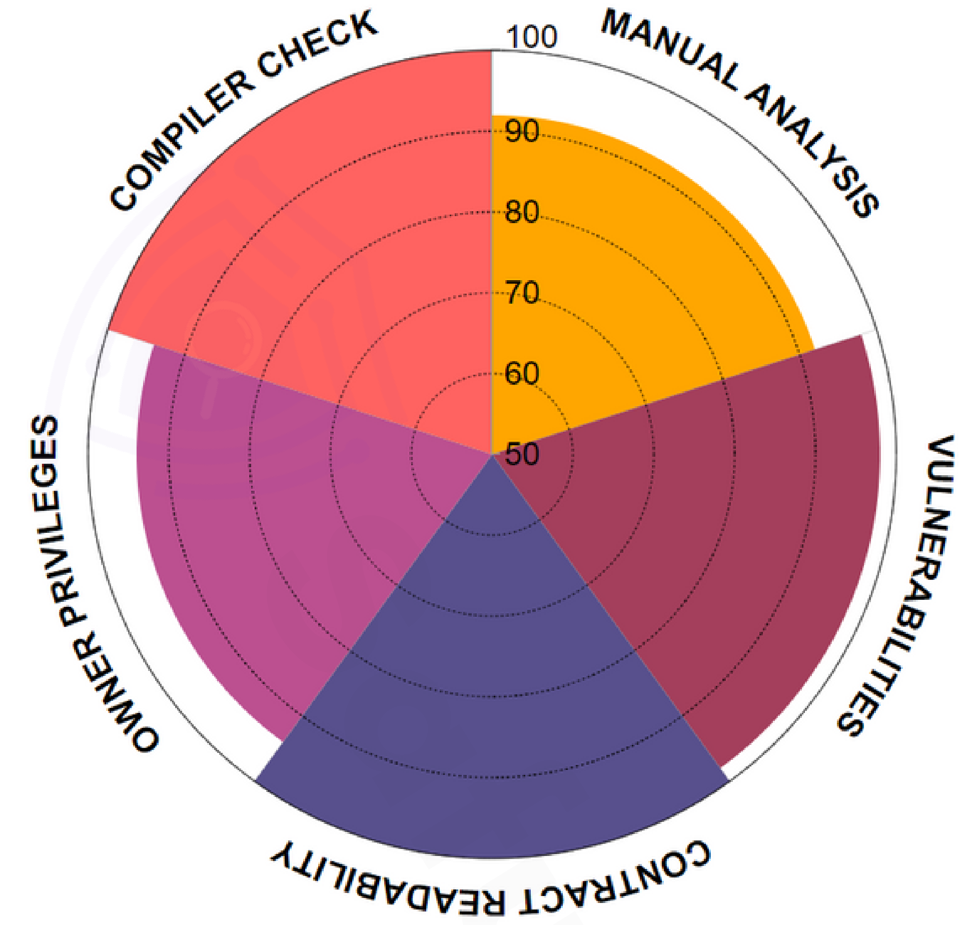
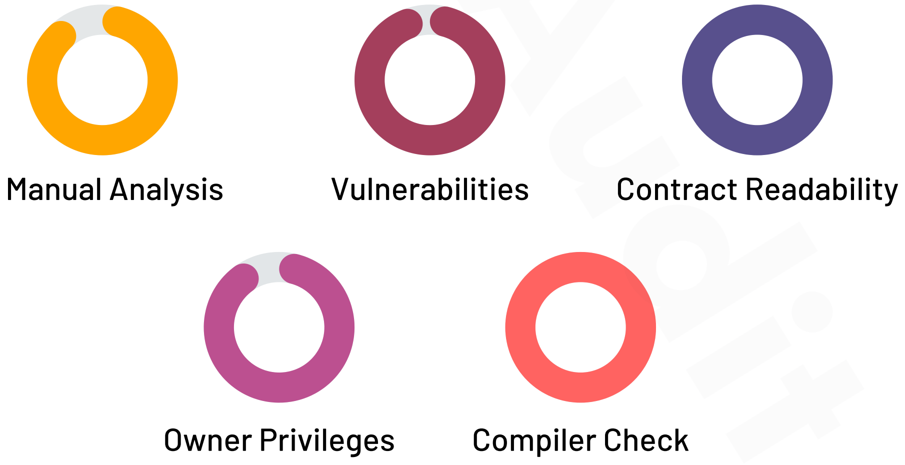
The purpose of the audit is to analyze the on-chain smart contract source code and to provide a basic overview of the project.

While we have used all the information available to us for this straightforward investigation, you should not rely on this report only — we recommend proceeding with several independent audits Be aware that smart contracts deployed on a blockchain aren't secured enough against external vulnerability or a hack. Be aware that active smart contract owner privileges constitute an elevated impact on the smart contract safety and security. Therefore, SafuAudit does not guarantee the explicit security of the audited smart contract. The analysis of the security is purely based on the smart contracts alone. No applications or operations were reviewed for security. No product code has been reviewed.

RATING

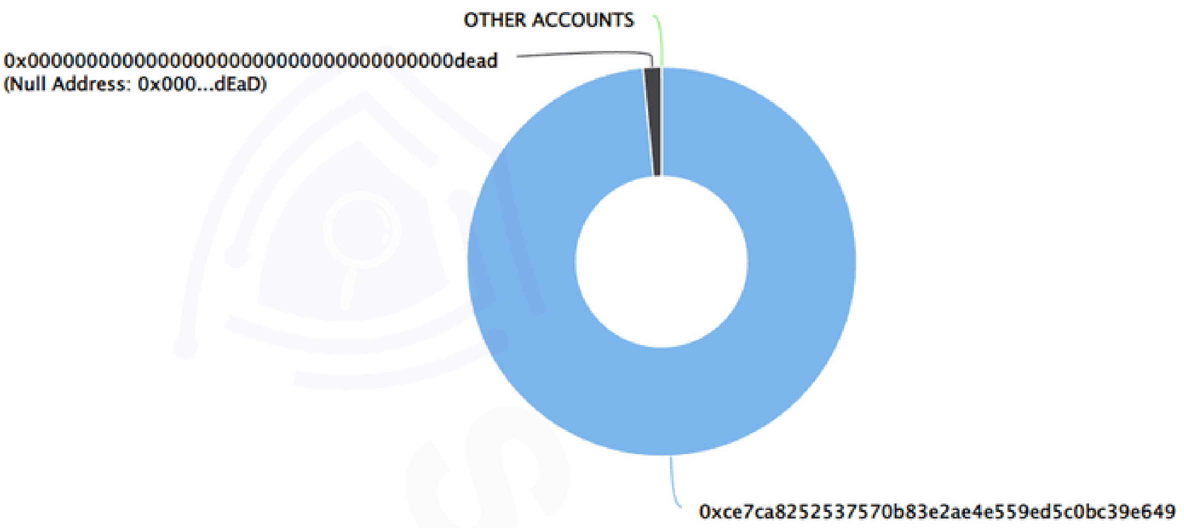


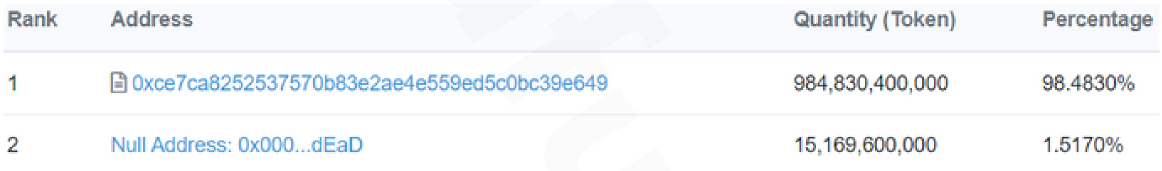


Final Score: **96.8**

SUMMARY

Top 10 holders





Rank	Address	Quantity (Token)	Percentage
1	0xce7ca8252537570b83e2ae4e559ed5c0bc39e649	984,830,400,000	98.4830%
2	Null Address: 0x000...dEaD	15,169,600,000	1.5170%

CONCLUSION

Project Pi Doge (PiDoge) does not contain any severe issues or risk characteristics.

SafuAudit has tested the security based on manual and automated tests. Please note that we don't offer any warranties for business model.

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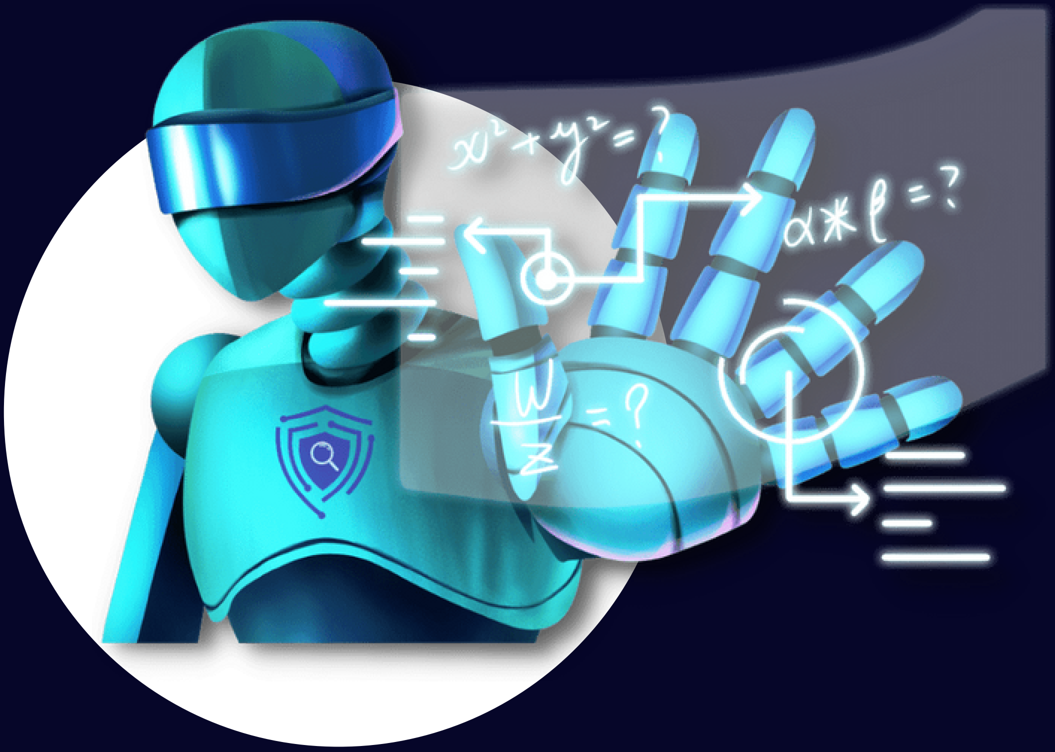

"Only in growth, reform, and change, paradoxically enough, is true security to be found."

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