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**Blockchain Security | Smart Contract Audits | KYC**

MADE IN GERMANY

# PyramidPad Audit

**Security Assessment**  
**16. March, 2022**

**For**



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Version	Date	Description
1.0	16. March 2022	<ul style="list-style-type: none"><li>• Layout project</li><li>• Automated- /Manual-Security Testing</li><li>• Summary</li></ul>

## **Network**

Binance Smart Chain (BEP20)

## **Website**

<https://pyramidpad.io/>

## **Telegram**

<https://t.me/pyramidpadchannel>



## Description

PYRAMID Launchpad is intended to be a high-performance platform that can provide multiple services on a single platform. We provide DeFi features such as Staking, Farming, and NFT Marketplace. Aiming to ease the gap between investors and fundraisers by allowing both sides to establish a win-win partnership with high security just by a simple clicks. With the solution for Multi Chain oriented, PYRAMID Launchpad will support all types of blockchain and lift their projects to a new level.

## Project Engagement

During the 12th of March 2022, **PyramidPad Team** engaged Solidproof.io to audit smart contracts that they created. The engagement was technical in nature and focused on identifying security flaws in the design and implementation of the contracts. They provided Solidproof.io with access to their code repository and whitepaper.

## Logo



## Contract Link v1.0

- <https://bscscan.com/address/0x828aa11755daf934cdbe19b0f491a81ff272e4bc#code>

# Vulnerability & Risk Level

Risk represents the probability that a certain source-threat will exploit vulnerability, and the impact of that event on the organization or system. Risk Level is computed based on CVSS version 3.0.

Level	Value	Vulnerability	Risk (Required Action)
<b>Critical</b>	9 - 10	A vulnerability that can disrupt the contract functioning in a number of scenarios, or creates a risk that the contract may be broken.	Immediate action to reduce risk level.
<b>High</b>	7 – 8.9	A vulnerability that affects the desired outcome when using a contract, or provides the opportunity to use a contract in an unintended way.	Implementation of corrective actions as soon as possible.
<b>Medium</b>	4 – 6.9	A vulnerability that could affect the desired outcome of executing the contract in a specific scenario.	Implementation of corrective actions in a certain period.
<b>Low</b>	2 – 3.9	A vulnerability that does not have a significant impact on possible scenarios for the use of the contract and is probably subjective.	Implementation of certain corrective actions or accepting the risk.
<b>Informational</b>	0 – 1.9	A vulnerability that have informational character but is not effecting any of the code.	An observation that does not determine a level of risk

# Auditing Strategy and Techniques Applied

Throughout the review process, care was taken to evaluate the repository for security-related issues, code quality, and adherence to specification and best practices. To do so, reviewed line-by-line by our team of expert pentesters and smart contract developers, documenting any issues as there were discovered.

## **Methodology**

The auditing process follows a routine series of steps:

1. Code review that includes the following:
  - i) Review of the specifications, sources, and instructions provided to SolidProof to make sure we understand the size, scope, and functionality of the smart contract.
  - ii) Manual review of code, which is the process of reading source code line-by-line in an attempt to identify potential vulnerabilities.
  - iii) Comparison to specification, which is the process of checking whether the code does what the specifications, sources, and instructions provided to SolidProof describe.
2. Testing and automated analysis that includes the following:
  - i) Test coverage analysis, which is the process of determining whether the test cases are actually covering the code and how much code is exercised when we run those test cases.
  - ii) Symbolic execution, which is analysing a program to determine what inputs causes each part of a program to execute.
3. Best practices review, which is a review of the smart contracts to improve efficiency, effectiveness, clarify, maintainability, security, and control based on the established industry and academic practices, recommendations, and research.
4. Specific, itemized, actionable recommendations to help you take steps to secure your smart contracts.

## Used Code from other Frameworks/Smart Contracts (direct imports)

Imported packages:

```
./RewardsContract.sol  
./IUniswapV2Pair.sol  
./IUniswapV2Factory.sol  
./IUniswapV2Router.sol  
./ERC20.sol  
./SafeMath.sol  
./IterableMapping.sol  
./Ownable.sol
```



## Tested Contract Files

This audit covered the following files listed below with a SHA-1 Hash.

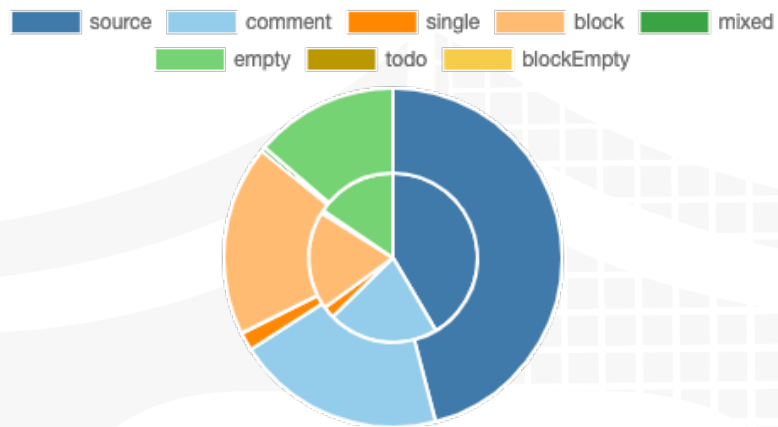
*A file with a different Hash has been modified, intentionally or otherwise, after the security review. A different Hash could be (but not necessarily) an indication of a changed condition or potential vulnerability that was not within the scope of this review.*

### v1.0

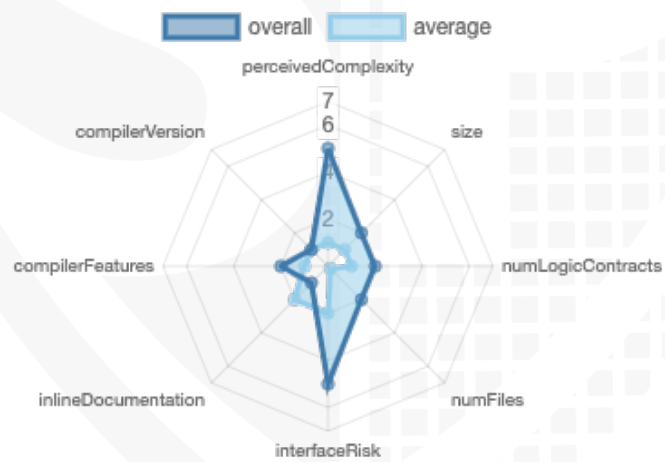
File Name	SHA-1 Hash
contracts/IUniswapV2Pair.sol	beda0799b41166573f964596c761bc832431292f
contracts/RewardsContract.sol	6b99fd6bd4fe3b1354ef02d2ba931b121287460e
contracts/SafeMathUint.sol	b51f5b2f13b7deb059a7da61f276c6d39ee53e63
contracts/Context.sol	70942164f4cdfae1033d1d28b97b67f21b6c351b
contracts/IUniswapV2Factory.sol	1d8fa1e48646a0ae817026a3d9c7d4100935129e
contracts/IERC20Metadata.sol	e5cf847105c6df0408fdb6e2e811bc67f0f8f687
contracts/SafeMathInt.sol	ab812e1de9262cf7aa79bd59f6efe297434d62e8
contracts/SafeMath.sol	464002d769a63f6c6e1fad36dc030b4bd116787f
contracts/IUniswapV2Router.sol	08147ffbfeca18860bad687970a7d4b6a79a5b71
contracts/pyratoken.sol	6582ba7ee585025836e4119763adf4c9b70d455a
contracts/Ownable.sol	5beb3f0b688e99fd999cad5f84a6f8e4d33de35f
contracts/IEnumerableMapping.sol	ca1135494803326477b8a00c442beba5ee7574b6
contracts/ERC20.sol	9c10c9fa33b09cbc9c2cd2eb787da6d0ceff1487
contracts/IERC20.sol	c50100d3d17c6d1cfc9a5b01bf31959952653fe8

# Metrics

## Source Lines v1.0



## Risk Level v1.0



## Capabilities

### Components

Version	Contracts	Libraries	Interfaces	Abstract
1.0	4	4	6	1

### Exposed Functions

*This section lists functions that are explicitly declared public or payable. Please note that getter methods for public stateVars are not included.*

Version	Public	Payable
1.0	102	5

Version	External	Internal	Private	Pure	View
1.0	74	83	3	22	39

### State Variables

Version	Total	Public
1.0	25	13

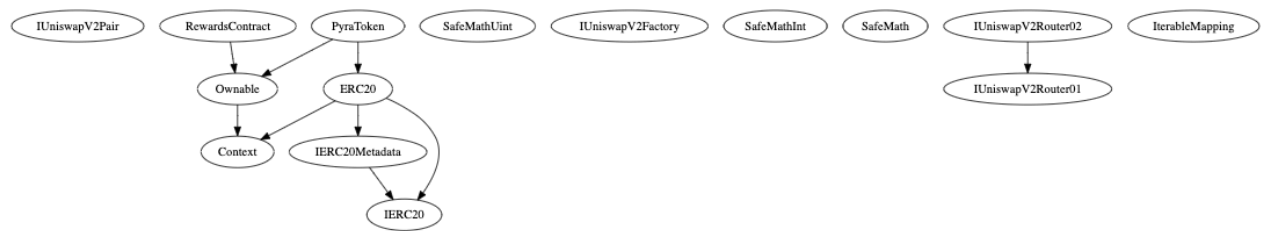
### Capabilities

Version	Solidity Versions observed	Experimental Features	Can Receive Funds	Uses Assembly	Has Destroyable Contracts
1.0	<code>^0.8.7</code>		yes		

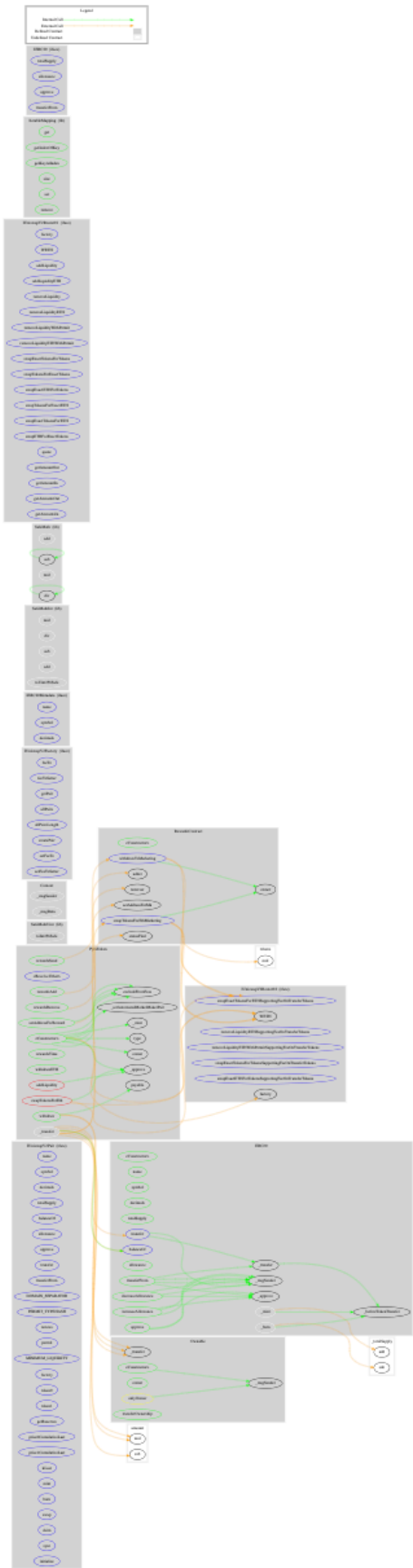
Version	Transfers ETH	Low-Level Calls	DelegateCall	Uses Hash Functions	EC Recover	New/Create/Create2
---------	---------------	-----------------	--------------	---------------------	------------	--------------------

1.0	yes					yes → NewContract: RewardsContract
-----	-----	--	--	--	--	---------------------------------------

# Inheritance Graph v1.0



# CallGraph v1.0



## Scope of Work/Verify Claims

The above token Team provided us with the files that needs to be tested (Github, Bscscan, Etherscan, files, etc.). The scope of the audit is the main contract (usual the same name as team appended with .sol).

We will verify the following claims:

1. Correct implementation of Token standard
2. Deployer cannot mint any new tokens
3. Deployer cannot burn or lock user funds
4. Deployer cannot pause the contract
5. Overall checkup (Smart Contract Security)

### Correct implementation of Token standard

ERC20				
Function	Description	Exist	Tested	Verified
TotalSupply	Provides information about the total token supply	✓	✓	✓
BalanceOf	Provides account balance of the owner's account	✓	✓	✓
Transfer	Executes transfers of a specified number of tokens to a specified address	✓	✓	✓
TransferFrom	Executes transfers of a specified number of tokens from a specified address	✓	✓	✓
Approve	Allow a spender to withdraw a set number of tokens from a specified account	✓	✓	✓
Allowance	Returns a set number of tokens from a spender to the owner	✓	✓	✓

## Write functions of contract v1.0

1. approve

2. decreaseAllowance

3. excludeFromFees

4. increaseAllowance

5. rewardsAdd

6. rewardsRemove

7. rewardsSend

8. rewardsTime

9. setAddressForReward

10. transfer

11. transferFrom

12. transferOwnership

13. withdraw

14. withdrawETH

## Deployer cannot mint any new tokens

Name	Exist	Tested	Status
Deployer cannot mint	✓	✓	✓
Max / Total Supply	1.000.000.000		





## Deployer cannot burn or lock user funds

Name	Exist	Tested	Status
Deployer cannot lock	✓	✓	✗
Deployer cannot burn	✓	✓	✓

Comments:

**v1.0**

- Deployer can add address to preventer mapping

## Deployer cannot pause the contract

Name	Exist	Tested	Status
Deployer cannot pause	—	—	—



## Overall checkup (Smart Contract Security)

Tested	Verified
✓	✓

### Legend

Attribute	Symbol
Verified / Checked	✓
Partly Verified	🚩
Unverified / Not checked	✗
Not available	—

# Modifiers and public functions

v1.0

transfer

approve

transferFrom

increaseAllowance

decreaseAllowance

transferOwnership

onlyOwner

rewardsAdd

onlyOwner

rewardsRemove

onlyOwner

rewardsSend

onlyOwner

setAddressForReward

onlyOwner

rewardsTime

onlyOwner

excludeFromFees

onlyOwner

withdrawETH

onlyOwner

withdraw

onlyOwner

adder

onlyOwner

setAddressForMk

onlyOwner

remover

onlyOwner

swapTokensForEthMarketing

onlyOwner

withdrawToMarketing

onlyOwner

## Comments

- Deployer can set following state variables without any limitations
  - baseFee
  - sellFee
- Deployer can enable/disable following state variables
  - preventer
  - \_isExcludedFromFees























- Deployer can set following addresses
  - marketingWallet
- Deployer should include old marketingWallet into fees before changing it to the new address

**Please check if an OnlyOwner or similar restrictive modifier has been forgotten.**



# Source Units in Scope

## v1.0

Type	File	Logic Contracts	Interfaces	Lines	nLines	nSLOC	Comment Lines	Complex. Score	Capabilities
	contracts/IUniswapV2Pair.sol	—————	1	55	10	5	1	55	—————
	contracts/RewardsContract.sol	1	—————	72	72	51	3	55	—————
	contracts/SafeMathUint.sol	1	—————	15	15	8	5	3	—————
	contracts/Context.sol	1	—————	24	24	10	12	1	—————
	contracts/IUniswapV2Factory.sol	—————	1	20	9	4	1	17	—————
	contracts/IERC20Metadata.sol	—————	1	19	14	4	6	9	
	contracts/SafeMathInt.sol	1	—————	59	59	29	20	14	—————
	contracts/SafeMath.sol	1	—————	47	47	32	2	8	—————
	contracts/IUniswapV2Router.sol	—————	2	141	8	4	1	64	
	contracts/pyratoken.sol	1	—————	187	183	133	4	139	 
	contracts/Ownable.sol	1	—————	47	47	23	14	17	—————
	contracts/IterableMapping.sol	1	—————	65	65	49	2	19	—————
	contracts/ERC20.sol	1	—————	286	270	85	154	80	—————
	contracts/IERC20.sol	—————	1	82	27	17	57	13	
	<b>Totals</b>	<b>9</b>	<b>6</b>	<b>1119</b>	<b>850</b>	<b>454</b>	<b>282</b>	<b>494</b>	 

## Legend

Attribute	Description
Lines	total lines of the source unit
nLines	normalized lines of the source unit (e.g. normalizes functions spanning multiple lines)
nSLOC	normalized source lines of code (only source-code lines; no comments, no blank lines)
Comment Lines	lines containing single or block comments
Complexity Score	a custom complexity score derived from code statements that are known to introduce code complexity (branches, loops, calls, external interfaces, ...)

# Audit Results

## AUDIT PASSED

### Critical issues

No critical issues

### High issues

No high issues

### Medium issues

No medium issues

### Low issues

Issue	File	Type	Line	Description
#1	Main	Contract doesn't import npm packages from source (like OpenZeppelin etc.)	-	We recommend to import all packages from npm directly without flatten the contract. Functions could be modified or can be susceptible to vulnerabilities
#2	Main	A floating pragma is set	3	The current pragma Solidity directive is „^0.8.7“.
#3	Main	Missing Zero Address Validation (missing-zero-check)	87, 109, 29	Check that the address is not zero
#4	Main	Missing Events Arithmetic	94+95	Emit an event for critical parameter changes

### Informational issues

Issue	File	Type	Line	Description
-------	------	------	------	-------------

#1	Main	State variables that could be declared constant (constable-states)	27, 28	Add the `constant` attributes to state variables that never change
#2	Main	Functions that are not used	173, 156	Remove unused functions
#3	Main	Unused state variables	11	Remove unused state variables
#4	Main	NatSpec documentation missing	-	If you started to comment your code, also comment all other functions, variables etc.

## Commented Code exist

There are some instances of code being commented out in the following files that should be removed:

File	Line	Comment
SafeMath	43	// assert(a == b * c + a % b); // There is no case in which this doesn't hold

## Recommendation

Remove the commented code, or address them properly.

## Audit Comments

We recommend you to use the special form of comments (NatSpec Format, Follow link for more information <https://docs.soliditylang.org/en/v0.5.10/natspec-format.html>) for your contracts to provide rich documentation for functions, return variables and more. This helps investors to make clear what that variables, functions etc. do.

## 16. March 2022:

- Read whole report for more information



## SWC Attacks

ID	Title	Relationships	Status
<a href="#">SW C-1 36</a>	Unencrypted Private Data On-Chain	<a href="#">CWE-767: Access to Critical Private Variable via Public Method</a>	PASSED
<a href="#">SW C-1 35</a>	Code With No Effects	<a href="#">CWE-1164: Irrelevant Code</a>	PASSED
<a href="#">SW C-1 34</a>	Message call with hardcoded gas amount	<a href="#">CWE-655: Improper Initialization</a>	PASSED
<a href="#">SW C-1 33</a>	Hash Collisions With Multiple Variable Length Arguments	<a href="#">CWE-294: Authentication Bypass by Capture-replay</a>	PASSED
<a href="#">SW C-1 32</a>	Unexpected Ether balance	<a href="#">CWE-667: Improper Locking</a>	PASSED
<a href="#">SW C-1 31</a>	Presence of unused variables	<a href="#">CWE-1164: Irrelevant Code</a>	NOT PASSED
<a href="#">SW C-1 30</a>	Right-To-Left-Override control character (U+202E)	<a href="#">CWE-451: User Interface (UI) Misrepresentation of Critical Information</a>	PASSED
<a href="#">SW C-1 29</a>	Typographical Error	<a href="#">CWE-480: Use of Incorrect Operator</a>	PASSED
<a href="#">SW C-1 28</a>	DoS With Block Gas Limit	<a href="#">CWE-400: Uncontrolled Resource Consumption</a>	PASSED

<a href="#">SW C-1 27</a>	Arbitrary Jump with Function Type Variable	<a href="#">CWE-695: Use of Low-Level Functionality</a>	<b>PASSED</b>
<a href="#">SW C-1 25</a>	Incorrect Inheritance Order	<a href="#">CWE-696: Incorrect Behavior Order</a>	<b>PASSED</b>
<a href="#">SW C-1 24</a>	Write to Arbitrary Storage Location	<a href="#">CWE-123: Write-what-where Condition</a>	<b>PASSED</b>
<a href="#">SW C-1 23</a>	Requirement Violation	<a href="#">CWE-573: Improper Following of Specification by Caller</a>	<b>PASSED</b>
<a href="#">SW C-1 22</a>	Lack of Proper Signature Verification	<a href="#">CWE-345: Insufficient Verification of Data Authenticity</a>	<b>PASSED</b>
<a href="#">SW C-1 21</a>	Missing Protection against Signature Replay Attacks	<a href="#">CWE-347: Improper Verification of Cryptographic Signature</a>	<b>PASSED</b>
<a href="#">SW C-1 20</a>	Weak Sources of Randomness from Chain Attributes	<a href="#">CWE-330: Use of Insufficiently Random Values</a>	<b>PASSED</b>
<a href="#">SW C-11 9</a>	Shadowing State Variables	<a href="#">CWE-710: Improper Adherence to Coding Standards</a>	<b>PASSED</b>
<a href="#">SW C-11 8</a>	Incorrect Constructor Name	<a href="#">CWE-665: Improper Initialization</a>	<b>PASSED</b>
<a href="#">SW C-11 7</a>	Signature Malleability	<a href="#">CWE-347: Improper Verification of Cryptographic Signature</a>	<b>PASSED</b>

<a href="#">SW C-11 6</a>	Timestamp Dependence	<a href="#">CWE-829: Inclusion of Functionality from Untrusted Control Sphere</a>	<b>PASSED</b>
<a href="#">SW C-11 5</a>	Authorization through tx.origin	<a href="#">CWE-477: Use of Obsolete Function</a>	<b>PASSED</b>
<a href="#">SW C-11 4</a>	Transaction Order Dependence	<a href="#">CWE-362: Concurrent Execution using Shared Resource with Improper Synchronization ('Race Condition')</a>	<b>PASSED</b>
<a href="#">SW C-11 3</a>	DoS with Failed Call	<a href="#">CWE-703: Improper Check or Handling of Exceptional Conditions</a>	<b>PASSED</b>
<a href="#">SW C-11 2</a>	Delegatecall to Untrusted Callee	<a href="#">CWE-829: Inclusion of Functionality from Untrusted Control Sphere</a>	<b>PASSED</b>
<a href="#">SW C-11 1</a>	Use of Deprecated Solidity Functions	<a href="#">CWE-477: Use of Obsolete Function</a>	<b>PASSED</b>
<a href="#">SW C-11 0</a>	Assert Violation	<a href="#">CWE-670: Always-Incorrect Control Flow Implementation</a>	<b>PASSED</b>
<a href="#">SW C-1 09</a>	Uninitialized Storage Pointer	<a href="#">CWE-824: Access of Uninitialized Pointer</a>	<b>PASSED</b>
<a href="#">SW C-1 08</a>	State Variable Default Visibility	<a href="#">CWE-710: Improper Adherence to Coding Standards</a>	<b>PASSED</b>
<a href="#">SW C-1 07</a>	Reentrancy	<a href="#">CWE-841: Improper Enforcement of Behavioral Workflow</a>	<b>PASSED</b>
<a href="#">SW C-1 06</a>	Unprotected SELFDESTRUCT Instruction	<a href="#">CWE-284: Improper Access Control</a>	<b>PASSED</b>

<a href="#">SW</a> <a href="#">C-1</a> <a href="#">05</a>	Unprotected Ether Withdrawal	<a href="#">CWE-284: Improper Access Control</a>	<b>PASSED</b>
<a href="#">SW</a> <a href="#">C-1</a> <a href="#">04</a>	Unchecked Call Return Value	<a href="#">CWE-252: Unchecked Return Value</a>	<b>PASSED</b>
<a href="#">SW</a> <a href="#">C-1</a> <a href="#">03</a>	Floating Pragma	<a href="#">CWE-664: Improper Control of a Resource Through its Lifetime</a>	<b>NOT PASSED</b>
<a href="#">SW</a> <a href="#">C-1</a> <a href="#">02</a>	Outdated Compiler Version	<a href="#">CWE-937: Using Components with Known Vulnerabilities</a>	<b>PASSED</b>
<a href="#">SW</a> <a href="#">C-1</a> <a href="#">01</a>	Integer Overflow and Underflow	<a href="#">CWE-682: Incorrect Calculation</a>	<b>PASSED</b>
<a href="#">SW</a> <a href="#">C-1</a> <a href="#">00</a>	Function Default Visibility	<a href="#">CWE-710: Improper Adherence to Coding Standards</a>	<b>PASSED</b>

The logo features the words "Solid Roofed" in a white, elegant script font. The text is set against a dark blue background that includes a faint, stylized grid pattern and a large, light blue circular graphic element behind the letters.

**Blockchain Security | Smart Contract Audits | KYC**

