



# Artificial Intelligence Smart Contract Audit Report

# TABLE OF CONTENTS

## [Audited Details](#)

- Audited Project
- Blockchain
- Addresses
- Project Website
- Codebase

## [Summary](#)

- Contract Summary
- Audit Findings Summary
- Vulnerabilities Summary

## [Conclusion](#)

## [Audit Results](#)

## [Smart Contract Analysis](#)

- Detected Vulnerabilities

## [Disclaimer](#)

## [About Us](#)

# AUDITED DETAILS

## Audited Project

Project name	Token ticker	Blockchain
Artificial Intelligence	AI	Binance Smart Chain

## Addresses

Contract address	0x4c403b1879aa6a79ba9c599a393ccc5d9fd2e788
Contract deployer address	0xe1F0859D990b2BfcfAfbD0f48A8f30bCA15f86DC

## Project Website

<https://artificialintelligence.finance/>

## Codebase

<https://bscscan.com/address/0x4c403b1879aa6a79ba9c599a393ccc5d9fd2e788#code>

# SUMMARY

The AI That Writes Code for You Think about artificial intelligence writing code for you and constantly learning. Describe the software and features you want to encode. The AI will serve you the software with hundreds of visual options in a few minutes. You won't have to pay a hundred thousand dollars for custom software. The AI will encode your software for just a couple of hundred dollars. You won't have to wait months. The AI writes code fast, securely, and without a mistake. More Details, More Perfect Results You can describe a hunter and birds. You can tell the AI that if the hunter gets a more successful shoot, the level will be more complex. Furthermore, you can define ad frequencies and placements with a simple interface. Select hundreds of different hunter and bird images and assign them advanced movements and effects on AI advanced interface. Tell how the birds will fall after being shot and all the other details. The AI will code all the details for you. If the AI doesn't find the code for your project, it will research and learn. Thus, AI will be more intelligent and more advanced after each project.

## Contract Summary

### Documentation Quality

Artificial Intelligence provides a very good documentation with standard of solidity base code.

- The technical description is provided clearly and structured and also dont have any high risk issue.

### Code Quality

The Overall quality of the basecode is standard.

- Standard solidity basecode and rules are already followed by Artificial Intelligence with the discovery of several low issues.

### Test Coverage

Test coverage of the project is 100% ( Through Codebase )

## Audit Findings Summary

- SWC-100 SWC-108 | Explicitly define visibility for all state variables on lines 708.
- SWC-101 | It is recommended to use vetted safe math libraries for arithmetic operations consistently on lines 104, 136, 159, 160, 195, 231, 450, 732, 732, 733, 733, 738, 738, 739, 739, 859, 861, 897, 897, 901, 901, 946, 970, 976 and 861.
- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 5.

- SWC-110 SWC-123 | It is recommended to use of `revert()`, `assert()`, and `require()` in Solidity, and the new REVERT opcode in the EVM on lines 860, 861, 861, 947, 947, 948, 949, 1079 and 1080.



## CONCLUSION

We have audited the Artificial Intelligence project released on October 2021 to discover issues and identify potential security vulnerabilities in Artificial Intelligence Project. This process is used to find technical issues and security loopholes which might be found in the smart contract.

The security audit report provides satisfactory results with low-risk issues.

The issues found in the Artificial Intelligence smart contract code do not pose a considerable risk. The writing of the contract is close to the standard of writing contracts in general. The low-risk issues found are some arithmetic operation issues, a floating pragma is set, a state variable visibility is not set, and out-of-bounds array access which the index access expression can cause an exception in case of the use of an invalid array index value. The current pragma Solidity directive is `^0.6.12`. Specifying a fixed compiler version is recommended to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code. It is best practice to set the visibility of state variables explicitly. The default visibility for `inSwapAndLiquify` is internal. Other possible visibility settings are public and private.

# AUDIT RESULT

Article	Category	Description	Result
Default Visibility	SWC-100 SWC-108	Functions and state variables visibility should be set explicitly. Visibility levels should be specified consciously.	ISSUE FOUND
Integer Overflow and Underflow	SWC-101	If unchecked math is used, all math operations should be safe from overflows and underflows.	ISSUE FOUND
Outdated Compiler Version	SWC-102	It is recommended to use a recent version of the Solidity compiler.	PASS
Floating Pragma	SWC-103	Contracts should be deployed with the same compiler version and flags that they have been tested thoroughly.	ISSUE FOUND
Unchecked Call Return Value	SWC-104	The return value of a message call should be checked.	PASS
Unprotected Ether Withdrawal	SWC-105	Due to missing or insufficient access controls, malicious parties can withdraw from the contract.	PASS
SELFDESTRUCT Instruction	SWC-106	The contract should not be self-destructible while it has funds belonging to users.	PASS
Reentrancy	SWC-107	Check effect interaction pattern should be followed if the code performs recursive call.	PASS
Uninitialized Storage Pointer	SWC-109	Uninitialized local storage variables can point to unexpected storage locations in the contract.	PASS
Assert Violation	SWC-110 SWC-123	Properly functioning code should never reach a failing assert statement.	ISSUE FOUND
Deprecated Solidity Functions	SWC-111	Deprecated built-in functions should never be used.	PASS
Delegate call to Untrusted Callee	SWC-112	Delegatecalls should only be allowed to trusted addresses.	PASS

DoS (Denial of Service)	SWC-113 SWC-128	Execution of the code should never be blocked by a specific contract state unless required.	PASS
Race Conditions	SWC-114	Race Conditions and Transactions Order Dependency should not be possible.	PASS
Authorization through tx.origin	SWC-115	tx.origin should not be used for authorization.	PASS
Block values as a proxy for time	SWC-116	Block numbers should not be used for time calculations.	PASS
Signature Unique ID	SWC-117 SWC-121 SWC-122	Signed messages should always have a unique id. A transaction hash should not be used as a unique id.	PASS
Incorrect Constructor Name	SWC-118	Constructors are special functions that are called only once during the contract creation.	PASS
Shadowing State Variable	SWC-119	State variables should not be shadowed.	PASS
Weak Sources of Randomness	SWC-120	Random values should never be generated from Chain Attributes or be predictable.	PASS
Write to Arbitrary Storage Location	SWC-124	The contract is responsible for ensuring that only authorized user or contract accounts may write to sensitive storage locations.	PASS
Incorrect Inheritance Order	SWC-125	When inheriting multiple contracts, especially if they have identical functions, a developer should carefully specify inheritance in the correct order. The rule of thumb is to inherit contracts from more /general/ to more /specific/.	PASS
Insufficient Gas Griefing	SWC-126	Insufficient gas grieving attacks can be performed on contracts which accept data and use it in a sub-call on another contract.	PASS
Arbitrary Jump Function	SWC-127	As Solidity doesnt support pointer arithmetics, it is impossible to change such variable to an arbitrary value.	PASS



Typographical Error	SWC-129	A typographical error can occur for example when the intent of a defined operation is to sum a number to a variable.	PASS
Override control character	SWC-130	Malicious actors can use the Right-To-Left-Override unicode character to force RTL text rendering and confuse users as to the real intent of a contract.	PASS
Unused variables	SWC-131 SWC-135	Unused variables are allowed in Solidity and they do not pose a direct security issue.	PASS
Unexpected Ether balance	SWC-132	Contracts can behave erroneously when they strictly assume a specific Ether balance.	PASS
Hash Collisions Variable	SWC-133	Using abi.encodePacked() with multiple variable length arguments can, in certain situations, lead to a hash collision.	PASS
Hardcoded gas amount	SWC-134	The transfer() and send() functions forward a fixed amount of 2300 gas.	PASS
Unencrypted Private Data	SWC-136	It is a common misconception that private type variables cannot be read.	PASS

# SMART CONTRACT ANALYSIS

Started	Sunday Oct 17 2021 04:13:26 GMT+0000 (Coordinated Universal Time)
Finished	Monday Oct 18 2021 06:11:36 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	CoinToken.sol

## Detected Issues

ID	Title	Severity	Status
SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "*" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "/" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "/" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "%" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "*" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "**" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "%" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "*" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "**" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "*" DISCOVERED	low	acknowledged

SWC-101	ARITHMETIC OPERATION "**" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "++" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "*" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "**" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "*" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "**" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "++" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "**" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "**" DISCOVERED	low	acknowledged
SWC-101	COMPILER-REWRITABLE "<UINT> - 1" DISCOVERED	low	acknowledged

SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS PRAGMA ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged

# SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 104

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
103     function add(uint256 a, uint256 b) internal pure returns (uint256) {  
104         uint256 c = a + b;  
105         require(c >= a, "SafeMath: addition overflow");  
106  
107         return c;  
108     }
```

# SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 136

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
135   require(b <= a, errorMessage);  
136   uint256 c = a - b;  
137  
138   return c;  
139   }  
140
```

# SWC-101 | ARITHMETIC OPERATION "\*" DISCOVERED

LINE 159

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
158
159  uint256 c = a * b;
160  require(c / a == b, "SafeMath: multiplication overflow");
161
162  return c;
163
```

# SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 160

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
159     uint256 c = a * b;  
160     require(c / a == b, "SafeMath: multiplication overflow");  
161  
162     return c;  
163 }  
164
```



## SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 195

### low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

### Source File

- CoinToken.sol

### Locations

```
194   require(b > 0, errorMessage);
195   uint256 c = a / b;
196   // assert(a == b * c + a % b); // There is no case in which this doesn't hold
197
198   return c;
199
```

# SWC-101 | ARITHMETIC OPERATION "%" DISCOVERED

LINE 231

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
230     require(b != 0, errorMessage);
231     return a % b;
232 }
233 }
234
235
```

# SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 450

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
449     _owner = address(0);  
450     _lockTime = now + time;  
451     emit OwnershipTransferred(_owner, address(0));  
452 }  
453  
454
```

# SWC-101 | ARITHMETIC OPERATION "\*" DISCOVERED

LINE 732

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
731  _decimals = _DECIMALS;  
732  _tTotal = _supply * 10 ** _decimals;  
733  _rTotal = (MAX - (MAX % _tTotal));  
734  _taxFee = _txFee;  
735  _liquidityFee = _lpFee;  
736
```

# SWC-101 | ARITHMETIC OPERATION "\*\*" DISCOVERED

LINE 732

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
731  _decimals = _DECIMALS;  
732  _tTotal = _supply * 10 ** _decimals;  
733  _rTotal = (MAX - (MAX % _tTotal));  
734  _taxFee = _txFee;  
735  _liquidityFee = _lpFee;  
736
```

# SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 733

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
732  _tTotal = _supply * 10 ** _decimals;  
733  _rTotal = (MAX - (MAX % _tTotal));  
734  _taxFee = _txFee;  
735  _liquidityFee = _lpFee;  
736  _previousTaxFee = _txFee;  
737
```

# SWC-101 | ARITHMETIC OPERATION "%" DISCOVERED

LINE 733

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
732  _tTotal = _supply * 10 ** _decimals;  
733  _rTotal = (MAX - (MAX % _tTotal));  
734  _taxFee = _txFee;  
735  _liquidityFee = _lpFee;  
736  _previousTaxFee = _txFee;  
737
```

# SWC-101 | ARITHMETIC OPERATION "\*" DISCOVERED

LINE 738

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
737  _previousLiquidityFee = _lpFee;
738  _maxTxAmount = _MAXAMOUNT * 10 ** _decimals;
739  numTokensSellToAddToLiquidity = SELLMAXAMOUNT * 10 ** _decimals;
740
741
742
```



# SWC-101 | ARITHMETIC OPERATION "\*\*" DISCOVERED

LINE 738

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
737  _previousLiquidityFee = _lpFee;
738  _maxTxAmount = _MAXAMOUNT * 10 ** _decimals;
739  numTokensSellToAddToLiquidity = SELLMAXAMOUNT * 10 ** _decimals;
740
741
742
```

# SWC-101 | ARITHMETIC OPERATION "\*" DISCOVERED

LINE 739

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
738  _maxTxAmount = _MAXAMOUNT * 10 ** _decimals;  
739  numTokensSellToAddToLiquidity = SELLMAXAMOUNT * 10 ** _decimals;  
740  
741  
742  _rOwned[tokenOwner] = _rTotal;  
743
```

# SWC-101 | ARITHMETIC OPERATION "\*\*" DISCOVERED

LINE 739

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
738  _maxTxAmount = _MAXAMOUNT * 10 ** _decimals;  
739  numTokensSellToAddToLiquidity = SELLMAXAMOUNT * 10 ** _decimals;  
740  
741  
742  _rOwned[tokenOwner] = _rTotal;  
743
```

# SWC-101 | ARITHMETIC OPERATION "++" DISCOVERED

LINE 859

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
858     require(!_isExcluded[account], "Account is already excluded");
859     for (uint256 i = 0; i < _excluded.length; i++) {
860         if (_excluded[i] == account) {
861             _excluded[i] = _excluded[_excluded.length - 1];
862             _tOwned[account] = 0;
863         }
```

# SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 861

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
860     if (_excluded[i] == account) {  
861         _excluded[i] = _excluded[_excluded.length - 1];  
862         _tOwned[account] = 0;  
863         _isExcluded[account] = false;  
864         _excluded.pop();  
865     }
```

# SWC-101 | ARITHMETIC OPERATION "\*" DISCOVERED

LINE 897

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
896 function setNumTokensSellToAddToLiquidity(uint256 swapNumber) public onlyOwner {  
897     numTokensSellToAddToLiquidity = swapNumber * 10 ** _decimals;  
898 }  
899  
900 function setMaxTxPercent(uint256 maxTxPercent) public onlyOwner {  
901
```

# SWC-101 | ARITHMETIC OPERATION "\*\*" DISCOVERED

LINE 897

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
896 function setNumTokensSellToAddToLiquidity(uint256 swapNumber) public onlyOwner {  
897     numTokensSellToAddToLiquidity = swapNumber * 10 ** _decimals;  
898 }  
899  
900 function setMaxTxPercent(uint256 maxTxPercent) public onlyOwner {  
901
```

# SWC-101 | ARITHMETIC OPERATION "\*" DISCOVERED

LINE 901

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
900     function setMaxTxPercent(uint256 maxTxPercent) public onlyOwner {
901         _maxTxAmount = maxTxPercent * 10 ** _decimals;
902     }
903
904     function setSwapAndLiquifyEnabled(bool _enabled) public onlyOwner {
905
```



# SWC-101 | ARITHMETIC OPERATION "\*\*" DISCOVERED

LINE 901

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
900     function setMaxTxPercent(uint256 maxTxPercent) public onlyOwner {
901         _maxTxAmount = maxTxPercent * 10 ** _decimals;
902     }
903
904     function setSwapAndLiquifyEnabled(bool _enabled) public onlyOwner {
905
```

# SWC-101 | ARITHMETIC OPERATION "++" DISCOVERED

LINE 946

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
945  uint256 tSupply = _tTotal;
946  for (uint256 i = 0; i < _excluded.length; i++) {
947    if (_rOwned[_excluded[i]] > rSupply || _tOwned[_excluded[i]] > tSupply) return
    (_rTotal, _tTotal);
948    rSupply = rSupply.sub(_rOwned[_excluded[i]]);
949    tSupply = tSupply.sub(_tOwned[_excluded[i]]);
950
```

# SWC-101 | ARITHMETIC OPERATION "\*\*" DISCOVERED

LINE 970

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
969     return _amount.mul(_taxFee).div(  
970         10**2  
971     );  
972 }  
973  
974
```

# SWC-101 | ARITHMETIC OPERATION "\*\*" DISCOVERED

LINE 976

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
975     return _amount.mul(_liquidityFee).div(  
976         10**2  
977     );  
978 }  
979  
980
```

# SWC-101 | COMPILER-REWRITABLE "<UINT> - 1" DISCOVERED

LINE 861

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- CoinToken.sol

## Locations

```
860     if (_excluded[i] == account) {  
861         _excluded[i] = _excluded[_excluded.length - 1];  
862         _tOwned[account] = 0;  
863         _isExcluded[account] = false;  
864         _excluded.pop();  
865     }
```

## SWC-103 | A FLOATING PRAGMA IS SET.

LINE 5

### low SEVERITY

The current pragma Solidity directive is `""^0.6.12""`. It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

### Source File

- CoinToken.sol

### Locations

```
4
5  pragma solidity ^0.6.12;
6  // SPDX-License-Identifier: Unlicensed
7  interface IERC20 {
8
9
```

## SWC-108 | STATE VARIABLE VISIBILITY IS NOT SET.

LINE 708

### low SEVERITY

It is best practice to set the visibility of state variables explicitly. The default visibility for "inSwapAndLiquify" is internal. Other possible visibility settings are public and private.

### Source File

- CoinToken.sol

### Locations

```
707
708  bool inSwapAndLiquify;
709  bool public swapAndLiquifyEnabled = true;
710
711  uint256 public _maxTxAmount;
712
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 860

### low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

### Source File

- CoinToken.sol

### Locations

```
859   for (uint256 i = 0; i < _excluded.length; i++) {  
860     if (_excluded[i] == account) {  
861       _excluded[i] = _excluded[_excluded.length - 1];  
862       _tOwned[account] = 0;  
863       _isExcluded[account] = false;  
864     }
```



## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 861

### low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

### Source File

- CoinToken.sol

### Locations

```
860     if (_excluded[i] == account) {  
861         _excluded[i] = _excluded[_excluded.length - 1];  
862         _tOwned[account] = 0;  
863         _isExcluded[account] = false;  
864         _excluded.pop();  
865     }
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 861

### low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

### Source File

- CoinToken.sol

### Locations

```
860     if (_excluded[i] == account) {  
861         _excluded[i] = _excluded[_excluded.length - 1];  
862         _tOwned[account] = 0;  
863         _isExcluded[account] = false;  
864         _excluded.pop();  
865     }
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 947

### low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

### Source File

- CoinToken.sol

### Locations

```
946   for (uint256 i = 0; i < _excluded.length; i++) {  
947     if (_rOwned[_excluded[i]] > rSupply || _tOwned[_excluded[i]] > tSupply) return  
      (_rTotal, _tTotal);  
948     rSupply = rSupply.sub(_rOwned[_excluded[i]]);  
949     tSupply = tSupply.sub(_tOwned[_excluded[i]]);  
950   }  
951
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 947

### low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

### Source File

- CoinToken.sol

### Locations

```
946   for (uint256 i = 0; i < _excluded.length; i++) {  
947     if (_rOwned[_excluded[i]] > rSupply || _tOwned[_excluded[i]] > tSupply) return  
      (_rTotal, _tTotal);  
948     rSupply = rSupply.sub(_rOwned[_excluded[i]]);  
949     tSupply = tSupply.sub(_tOwned[_excluded[i]]);  
950   }  
951
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 948

### low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

### Source File

- CoinToken.sol

### Locations

```
947   if (_rOwned[_excluded[i]] > rSupply || _tOwned[_excluded[i]] > tSupply) return
    (_rTotal, _tTotal);
948   rSupply = rSupply.sub(_rOwned[_excluded[i]]);
949   tSupply = tSupply.sub(_tOwned[_excluded[i]]);
950   }
951   if (rSupply < _rTotal.div(_tTotal)) return (_rTotal, _tTotal);
952
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 949

### low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

### Source File

- CoinToken.sol

### Locations

```
948   rSupply = rSupply.sub(_rOwned[_excluded[i]]);
949   tSupply = tSupply.sub(_tOwned[_excluded[i]]);
950   }
951   if (rSupply < _rTotal.div(_tTotal)) return (_rTotal, _tTotal);
952   return (rSupply, tSupply);
953
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1079

### low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

### Source File

- CoinToken.sol

### Locations

```
1078     address[] memory path = new address[](2);
1079     path[0] = address(this);
1080     path[1] = uniswapV2Router.WETH();
1081
1082     _approve(address(this), address(uniswapV2Router), tokenAmount);
1083
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1080

### low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

### Source File

- CoinToken.sol

### Locations

```
1079     path[0] = address(this);  
1080     path[1] = uniswapV2Router.WETH();  
1081  
1082     _approve(address(this), address(uniswapV2Router), tokenAmount);  
1083  
1084
```



# DISCLAIMER

This report is subject to the terms and conditions (including without limitation, description of services, confidentiality, disclaimer and limitation of liability) set forth in the Services Agreement, or the scope of services, and terms and conditions provided to you ("Customer" or the "Company") in connection with the Agreement. This report provided in connection with the Services set forth in the Agreement shall be used by the Company only to the extent permitted under the terms and conditions set forth in the Agreement. This report may not be transmitted, disclosed, referred to, or relied upon by any person for any purposes, nor may copies be delivered to any other person other than the Company, without Sysfixed's prior written consent in each instance.

This report is not, nor should be considered, an "endorsement" or "disapproval" of any particular project or team. This report is not, nor should be considered, an indication of the economics or value of any "product" or "asset" created by any team or project that contracts Sysfixed to perform a security assessment. This report does not provide any warranty or guarantee regarding the absolute bug-free nature of the technology analyzed, nor do they provide any indication of the technologies proprietors, business, business model, or legal compliance.

This is a limited report on our findings based on our analysis, in accordance with good industry practice as of the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the below disclaimer below – please make sure to read it in full.

This report should not be used in any way to make decisions around investment or involvement with any particular project. This report in no way provides investment advice, nor should be leveraged as investment advice of any sort. This report represents an extensive assessing process intending to help our customers increase the quality of their code while reducing the high level of risk presented by cryptographic tokens and blockchain technology.

This report is provided for information purposes only and on a non-reliance basis and does not constitute investment advice. No one shall have any right to rely on the report or its contents, and Sysfixed and its affiliates (including holding companies, shareholders, subsidiaries, employees, directors, officers, and other representatives) (Sysfixed) owe no duty of care.

## ABOUT US

Sysfixed is a blockchain security certification organization established in 2021 with the objective to provide smart contract security services and verify their correctness in blockchain-based protocols. Sysfixed automatically scans for security vulnerabilities in Ethereum and other EVM-based blockchain smart contracts. Sysfixed a comprehensive range of analysis techniques—including static analysis, dynamic analysis, and symbolic execution—can accurately detect security vulnerabilities to provide an in-depth analysis report. With a vibrant ecosystem of world-class integration partners that amplify developer productivity, Sysfixed can be utilized in all phases of your project's lifecycle. Our team of security experts is dedicated to the research and improvement of our tools and techniques used to fortify your code.