Love AI Token

Smart Contract Audit Report

SYSFIXED

05 Feb 2023

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AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
Love AI Token	LoveAi	Binance Smart Chain

Addresses

Contract address	0x3c3B0708820Ffeb88C9aFd42f0114a8480Dfe833
Contract deployer address	0xc77d62E33D5506ae61A632005D2EBcE0b95aFf26

Project Website

http://loveai.me/

Codebase

https://bscscan.com/address/0x3c3B0708820Ffeb88C9aFd42f0114a8480Dfe833#code

SUMMARY

LoveAi is an Ai technology platform where everyone can send gift cards to their loved ones generated by Ai technology on our website. Everone can create a gift card for their friends,girlfriend-boyfriend, brother-sister, husband-wife, mother-father etc, through poetry and gift our $LOVEAi token in it. We will provide the gift card on our website through Ai technology.

Contract Summary

Documentation Quality

Love AI Token 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 Love AI Token with the discovery of several low issues.

Test Coverage

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

Audit Findings Summary

- SWC-101 | It is recommended to use vetted safe math libraries for arithmetic operations consistently on lines 445, 455, 463, 482, 484, 496, 497, 511, 513, 612, 612, 613, 694, 716, 716, 717, 732 and 752.
- 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 742 and 743.

CONCLUSION

We have audited the Love AI Token project released on February 2023 to discover issues and identify potential security vulnerabilities in Love AI Token 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 a satisfactory result with some low-risk issues.

The issues found in the Love AI Token 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, weak sources of randomness, tx.origin as a part of authorization control 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.

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.	PASS
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.	PASS
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 griefing 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	Saturday Feb 04 2023 12:45:03 GMT+0000 (Coordinated Universal Time)
Finished	Sunday Feb 05 2023 01:12:54 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	LoveAi.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-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 445

low SEVERITY

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

Source File

- LoveAi.sol

Locations

```
444   unchecked {
445   _approve(sender, _msgSender(), currentAllowance - amount);
446   }
447   }
448
449
```

SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 455

low SEVERITY

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

Source File

- LoveAi.sol

Locations

```
454   function increaseAllowance(address spender, uint256 addedValue) public virtual
returns (bool) {
455   _approve(_msgSender(), spender, _allowances[_msgSender()][spender] + addedValue);
456   return true;
457   }
458
459
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 463

low SEVERITY

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

Source File

- LoveAi.sol

Locations

```
462   unchecked {
463   _approve(_msgSender(), spender, currentAllowance - subtractedValue);
464   }
465
466   return true;
467
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 482

low SEVERITY

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

Source File

- LoveAi.sol

Locations

```
481   unchecked {
482   _balances[sender] = senderBalance - amount;
483   }
484   _balances[recipient] += amount;
485
486
```

SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

LINE 484

low SEVERITY

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

Source File

- LoveAi.sol

Locations

```
483   }
484   _balances[recipient] += amount;
485
486   emit Transfer(sender, recipient, amount);
487
488
```

SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

LINE 496

low SEVERITY

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

Source File

- LoveAi.sol

Locations

```
495
496   _totalSupply += amount;
497   _balances[account] += amount;
498   emit Transfer(address(0), account, amount);
499
500
```

SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

LINE 497

low SEVERITY

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

Source File

- LoveAi.sol

Locations

```
496   _totalSupply += amount;
497   _balances[account] += amount;
498   emit Transfer(address(0), account, amount);
499
500   _afterTokenTransfer(address(0), account, amount);
501
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 511

low SEVERITY

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

Source File

- LoveAi.sol

Locations

```
510   unchecked {
511   _balances[account] = accountBalance - amount;
512   }
513   _totalSupply -= amount;
514
515
```

SWC-101 | ARITHMETIC OPERATION "-=" DISCOVERED

LINE 513

low SEVERITY

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

Source File

- LoveAi.sol

Locations

```
512   }
513   _totalSupply -= amount;
514
515   emit Transfer(account, address(0), amount);
516
517
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 612

low SEVERITY

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

Source File

- LoveAi.sol

Locations

```
611
612   _mint(owner(), 5e8 * (10 ** decimals()));
613   swapTokensAtAmount = totalSupply() / 5_000;
614
615   swapEnabled = true;
616
```

SWC-101 | ARITHMETIC OPERATION "**" DISCOVERED

LINE 612

low SEVERITY

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

Source File

- LoveAi.sol

Locations

```
611
612   _mint(owner(), 5e8 * (10 ** decimals()));
613   swapTokensAtAmount = totalSupply() / 5_000;
614
615   swapEnabled = true;
616
```

SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 613

low SEVERITY

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

Source File

- LoveAi.sol

Locations

```
612   _mint(owner(), 5e8 * (10 ** decimals()));
613   swapTokensAtAmount = totalSupply() / 5_000;
614
615   swapEnabled = true;
616   }
617
```

SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 694

low SEVERITY

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

Source File

- LoveAi.sol

Locations

```
693   to == uniswapV2Pair &&
694   feeOnBuy + feeOnSell > 0 &&
695   swapEnabled
696   ) {
697   swapping = true;
698
```

SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 716

low SEVERITY

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

Source File

- LoveAi.sol

Locations

```
715   if (_totalFees > 0) {
716   uint256 fees = (amount * _totalFees) / 100;
717   amount = amount - fees;
718   super._transfer(from, address(this), fees);
719   }
720
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 716

low SEVERITY

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

Source File

- LoveAi.sol

Locations

```
715   if (_totalFees > 0) {
716   uint256 fees = (amount * _totalFees) / 100;
717   amount = amount - fees;
718   super._transfer(from, address(this), fees);
719   }
720
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 717

low SEVERITY

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

Source File

- LoveAi.sol

Locations

```
716   uint256 fees = (amount * _totalFees) / 100;
717   amount = amount - fees;
718   super._transfer(from, address(this), fees);
719   }
720
721
```

SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 732

low SEVERITY

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

Source File

- LoveAi.sol

Locations

```
731   function setSwapTokensAtAmount(uint256 newAmount) external onlyOwner{
732   require(newAmount > totalSupply() / 1_000_000, "SwapTokensAtAmount must be greater
than 0.0001% of total supply");
733   swapTokensAtAmount = newAmount;
734
735   emit SwapTokensAtAmountUpdated(swapTokensAtAmount);
736
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 752

low SEVERITY

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

Source File

- LoveAi.sol

Locations

```
751
752   uint256 newBalance = address(this).balance - initialBalance;
753   payable(marketingWallet).sendValue(newBalance);
754   emit SwapAndSendFee(tokenAmount, newBalance);
755   }
756
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 742

low SEVERITY

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

Source File

- LoveAi.sol

Locations

```
741   address[] memory path = new address[](2);
742   path[0] = address(this);
743   path[1] = uniswapV2Router.WETH();
744
745   uniswapV2Router.swapExactTokensForETHSupportingFeeOnTransferTokens(
746
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 743

low SEVERITY

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

Source File

- LoveAi.sol

Locations

```
742   path[0] = address(this);
743   path[1] = uniswapV2Router.WETH();
744
745   uniswapV2Router.swapExactTokensForETHSupportingFeeOnTransferTokens(
746   tokenAmount,
747
```

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