Smart Contract
Security Audit
V1

SEAROCK Smart Contract

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Background

The purpose of the audit was to achieve the following:

- Ensure that the smart contract functions as intended.
- Identify potential security issues with the smart contract.

The information in this report should be used to understand the risk exposure of the smart contract, and as a guide to improve the security posture of the smart contract by remediating the issues that were identified.

Project Information

- **Name**: SEAROCK
- **Ticker**: SEAROC
- **Platform**: Binance Smart Chain Network
- **Contract Address**: 0xC1C576d154f29cc2B9df67C399DE2154031B253D
- **Code:**

https://bscscan.com/address/0xc1c576d154f29cc2b9df67c399de2154031b253d#code

Contracts address deployed to test net (BSC)

SEAROCK (SEAROC)Token contract on BSC test net to test every function by the auditor.

https://testnet.bscscan.com/address/0x3c5e6228c518174fd6c2ef7e9e3b59f425d02ea3

Executive Summary

According to our assessment, the customer`s solidity smart contract is **Secured**.

Well Secured	
Secured	✓
Poor Secured	
Insecure	

Automated checks are with remix IDE. All issues were performed by the team, which included the analysis of code functionality, manual audit found during automated analysis were manually reviewed and applicable vulnerabilities are presented in the audit overview section. The general overview is presented in the Project Information section and all issues found are located in the audit overview section.

Team found 0 critical, 0 high, 1 medium, 2 low, 0 very low-level issues and 1 note in all solidity files of the contract

The files:

SEAROCK.sol

File and Function Level Report

File in Scope:

Contract Name	SHA 256 hash	Contract Address
SEAROCK.sol	**118e393b14c9f8e1b790d83065c13733a9c80306c8bf01831fbab4b10e329de9**	0x3c5e6228c518174fd6c2ef7e9e3b59f425d02ea3

- Contract: SEAROCK
- Inherit: BEP20
- Observation: All passed including security check
- Test Report: passed
- Score: passed
- Conclusion: passed

Function	Test Result	Type / Return Type	Score
name	✓	Read / public	**Passed**
symbol	✓	Read / public	**Passed**
allowance	✓	Read / public	**Passed**
decimals	✓	Read / public	**Passed**
nonces	✓	Read / public	**Passed**
balanceOf	✓	Read / public	**Passed**
Owner	✓	Read / public	**Passed**
totalSuppy	✓	Read / public	**Passed**
checkpoints	✓	Read / public	**Passed**
DELEGATION_TYPEHASH	✓	Read / public	**Passed**
delegates	✓	Read / public	**Passed**

DOMAIN_TYPEHASH	✓	Read / public	**Passed**
getCurrentVotes	✓	Read / public	**Passed**
numCheckpoints	✓	Read / public	**Passed**
getOwner	✓	Read / public	**Passed**
decreaseAllowance	✓	Write / public	**Passed**
increaseAllowance	✓	Write / public	**Passed**
mint	✓	Write / public	**Passed**
delegateBySig	✓	Write / public	**Passed**
delegate	✓	Write / public	**Passed**
approve	✓	Write / public	**Passed**
transfer	✓	Write / public	**Passed**
transferFrom	✓	Write / public	**Passed**
mint	✓	Write / public	**Passed**
transferOwnership	✓	Write / public	**Passed**
renounceOwnership	✓	Write / public	**Passed**

Issues Checking Status

No.	Issue Description	Checking Status
1	Compiler warnings.	**Passed**
2	Race conditions and Reentrancy. Cross-function race conditions.	**Passed**
3	Possible delays in data delivery.	**Passed**
4	Oracle calls.	**Passed**
5	Design Logic.	**Passed**
6	Timestamp dependence.	**Passed with Notes**
7	Integer Overflow and Underflow.	**Passed**
8	DoS with Revert.	**Passed**
9	DoS with block gas limit.	**Passed with Notes**
10	Methods execution permissions.	**Passed**
11	Economy model. If application logic is based on an incorrect economic model, the application would not function correctly and participants would incur financial losses. This type of issue is most often found in bonus rewards systems, Staking and Farming contracts, Vault and Vesting contracts, etc.	**Passed**
12	The impact of the exchange rate on the logic.	**Passed**
13	Private user data leaks.	**Passed**
14	Malicious Event log.	**Passed**
15	Scoping and Declarations.	**Passed**
16	Uninitialized storage pointers.	**Passed**
17	Arithmetic accuracy.	**Passed**

Severity Definitions

Risk Level	Description
Critical	Critical vulnerabilities are usually straightforward to exploit and can lead to tokens loss etc.
High	High-level vulnerabilities are difficult to exploit; however, they also have significant impact on smart contract execution, e.g. public access to crucial functions
Medium	Medium-level vulnerabilities are important to fix; however, they can’t lead to tokens lose
Low	Low-level vulnerabilities are mostly related to outdated, unused etc. code snippets, that can’t have significant impact on execution
Note	Lowest-level vulnerabilities, code style violations and info statements can’t affect smart contract execution and can be ignored.

Audit Findings

Critical:

No Critical severity vulnerabilities were found

High:

No High severity vulnerabilities were found

Medium:

#Centralization Risks

Description

The owner has the authority to :

- Can mint new tokens. this represents a risk for the users because in that case their funds will be lower if the owner mints more SEAROC.

```
function mint(address _to, uint256 _amount) public onlyOwner {
        _mint(_to, _amount);
        _moveDelegates(address(0), _delegates[_to], _amount);
    }
```

Remediation

Make these functions internal in next version or the team should announce the investors before mint more tokens to give them time if they want to do anything.

The auditor recommended adding the max supply of the token, when the owner mints new tokens can't mint more than the max supply

P.S: This issue is common to the majority of Some Token's smart contracts.

Status: Acknowledged by the Auditee

Low:

#Missing zero address validation

Description

When the owner wants to mint new tokens, it has to check for the zero address to make, he didn't mint for the burn address. Otherwise, the mint function will act like the burn function.

```
function mint(address _to, uint256 _amount) public onlyOwner {
        _mint(_to, _amount);
        _moveDelegates(address(0), _delegates[_to], _amount);}
```

Remediation

Use the require statement to check for zero addresses.

Status: Acknowledged by the Auditee.

#Use of block.timestamp for comparisons

Description

The value of block.timestamp can be manipulated by the miner. And conditions with strict equality is difficult to achieve -block.timestamp

Remediation

Avoid use of block.timestamp

Status: Acknowledged

Very Low:

No Very Low severity vulnerabilities were found.

Notes:

#Compiler version is old

Description

The compiler being used was released a year – a year and half ago. It's recommended to use more recent compiler version, there can be benefits like reduction in bytecode size etc.

Status: Acknowledged

Automatic Testing

1- Check for security

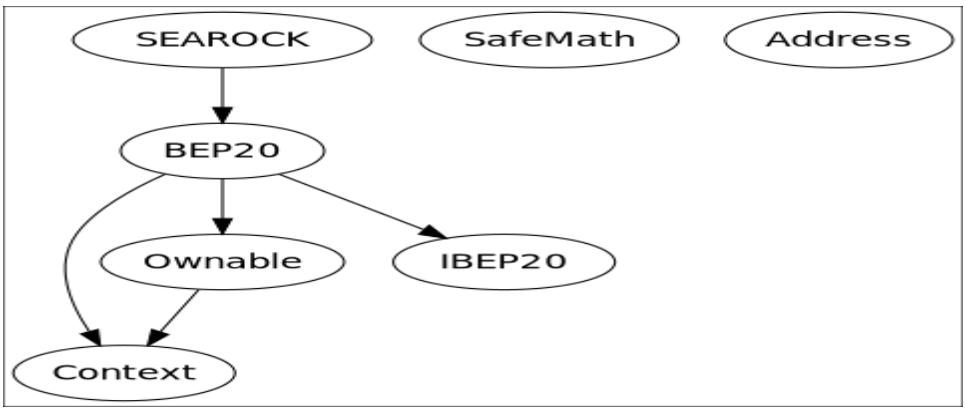
118e393b14c9f8e1b790d83065c13733a9c80306c8bf01831fbab4b10e329de9

File: SEARO... | Language: solidity | Size: 37000 bytes | Date: 2022-06-08T16:38:59.445Z

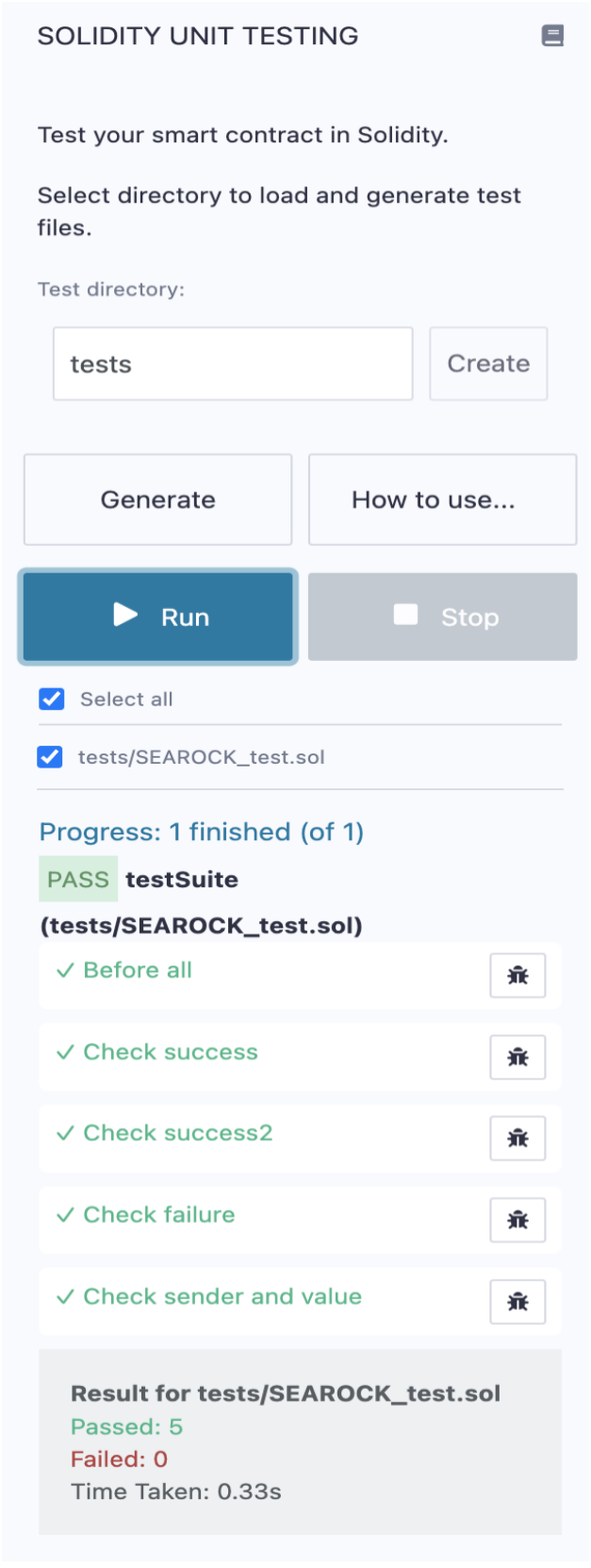
Critical	High	Medium	Low	Note
0	0	0	0	0

2- SOLIDITY STATIC ANALYSIS

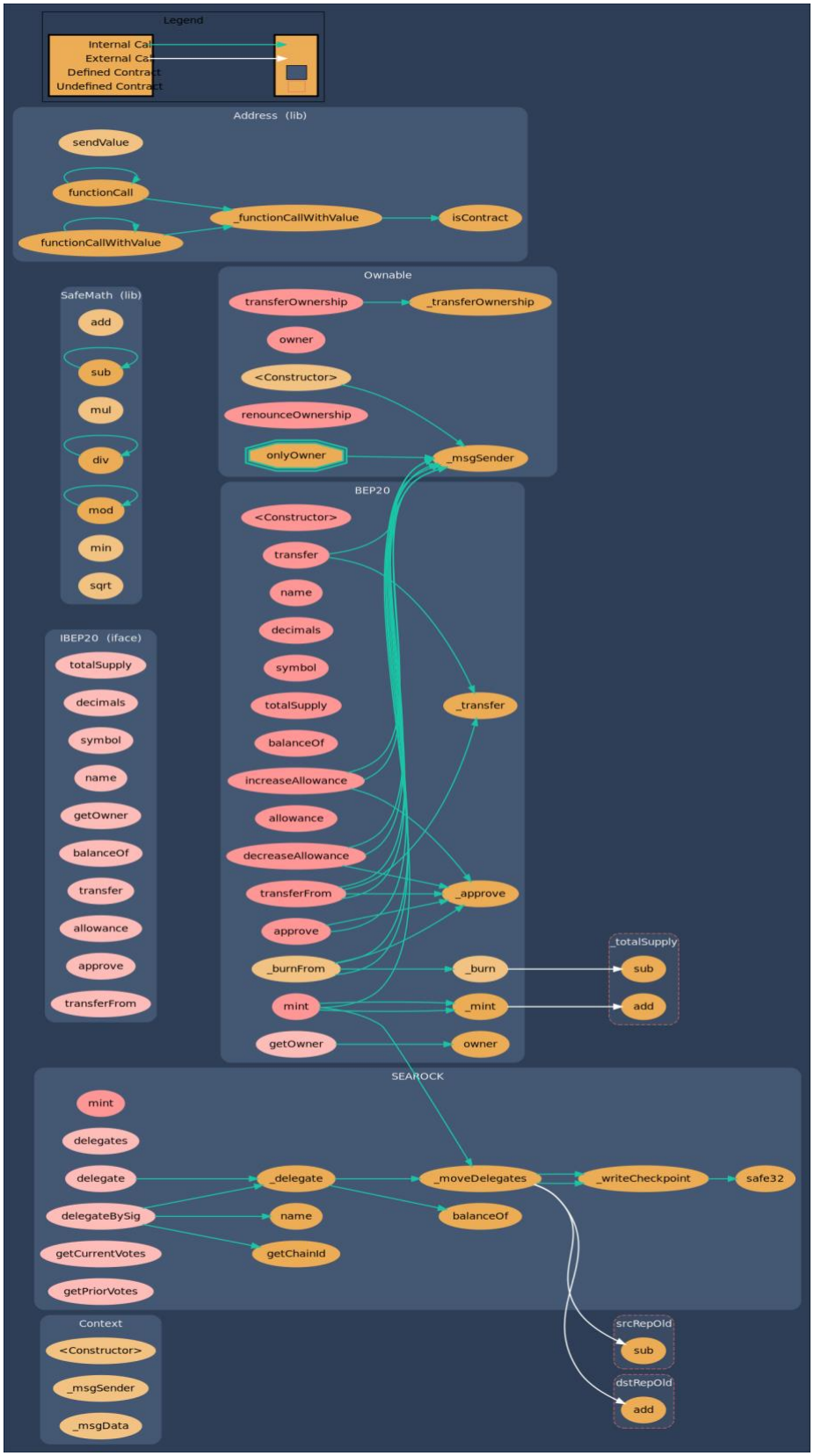
3- Inheritance graph



4- SOLIDITY UNIT TESTING



5- Call graph


Legend
Internal Call
External Call
Defined Contract
Undefined Contract
Address (lib)
sendValue
functionCall
functionCallWithValue
_functionCallWithValue
isContract
SafeMath (lib)
add
sub
mul
div
mod
min
sqrt
Ownable
transferOwnership
_transferOwnership
owner
<Constructor>
renounceOwnership
onlyOwner
_msgSender
BEP20
<Constructor>
transfer
name
decimals
symbol
totalSupply
balanceOf
increaseAllowance
allowance
decreaseAllowance
transferFrom
approve
_burnFrom
mint
getOwner
_transfer
_approve
_burn
_mint
owner
IBEP20 (iface)
totalSupply
decimals
symbol
name
getOwner
balanceOf
transfer
allowance
approve
transferFrom
_totalSupply
sub
add
SEAROCK
mint
delegates
delegate
delegateBySig
getCurrentVotes
getPriorVotes
_delegate
name
getChainId
balanceOf
_moveDelegates
_writeCheckpoint
safe32
Context
<Constructor>
_msgSender
_msgData
srcRepOld
sub
dstRepOld
add

Unified Modeling Language (UML)

Functions signature

```
Sighash   |   Function Signature
========================
16279055  =>  isContract(address)
39509351  =>  increaseAllowance(address,uint256)
119df25f  =>  _msgSender()
8b49d47e  =>  _msgData()
8da5cb5b  =>  owner()
715018a6  =>  renounceOwnership()
f2fde38b  =>  transferOwnership(address)
d29d44ee  =>  _transferOwnership(address)
18160ddd  =>  totalSupply()
313ce567  =>  decimals()
95d89b41  =>  symbol()
06fdde03  =>  name()
893d20e8  =>  getOwner()
70a08231  =>  balanceOf(address)
a9059cbb  =>  transfer(address,uint256)
dd62ed3e  =>  allowance(address,address)
095ea7b3  =>  approve(address,uint256)
23b872dd  =>  transferFrom(address,address,uint256)
771602f7  =>  add(uint256,uint256)
b67d77c5  =>  sub(uint256,uint256)
e31bdc0a  =>  sub(uint256,uint256,string)
c8a4ac9c  =>  mul(uint256,uint256)
a391c15b  =>  div(uint256,uint256)
b745d336  =>  div(uint256,uint256,string)
f43f523a  =>  mod(uint256,uint256)
71af23e8  =>  mod(uint256,uint256,string)
7ae2b5c7  =>  min(uint256,uint256)
677342ce  =>  sqrt(uint256)
24a084df  =>  sendValue(address,uint256)
a0b5ffb0  =>  functionCall(address,bytes)
241b5886  =>  functionCall(address,bytes,string)
2a011594  =>  functionCallWithValue(address,bytes,uint256)
d525ab8a  =>  functionCallWithValue(address,bytes,uint256,string)
36455e42  =>  _functionCallWithValue(address,bytes,uint256,string)
a457c2d7  =>  decreaseAllowance(address,uint256)
a0712d68  =>  mint(uint256)
30e0789e  =>  _transfer(address,address,uint256)
4e6ec247  =>  _mint(address,uint256)
6161eb18  =>  _burn(address,uint256)
104e81ff  =>  _approve(address,address,uint256)
a22b35ce  =>  _burnFrom(address,uint256)
40c10f19  =>  mint(address,uint256)
587cde1e  =>  delegates(address)
5c19a95c  =>  delegate(address)
c3cda520  =>
```

```
delegateBySig(address,uint256,uint256,uint8,bytes32,bytes32)
b4b5ea57  =>  getCurrentVotes(address)
782d6fe1  =>  getPriorVotes(address,uint256)
a28a42b3  =>  _delegate(address,address)
955f9fd8  =>  _moveDelegates(address,address,uint256)
ee59e77f  =>  _writeCheckpoint(address,uint32,uint256,uint256)
869d1f83  =>  safe32(uint256,string)
3408e470  =>  getChainId()
```

Automatic general report

Files Description Table

File Name	SHA-1 Hash
/Users/macbook/Desktop/smart contracts/SEAROCK.sol	5eea8594ae4ef88c2df054d5d73992f29ca7b4c6

Contracts Description Table

Contract	Type	Bases		
└	**Function Name**	**Visibility**	**Mutability**	**Modifiers**
Context	Implementation			
└	<Constructor>	Internal 🔒	🛑	
└	_msgSender	Internal 🔒		
└	_msgData	Internal 🔒		
Ownable	Implementation	Context		
└	<Constructor>	Internal 🔒	🛑	
└	owner	Public ❗	NO❗	
└	renounceOwnership	Public ❗	🛑	onlyOwner
└	transferOwnership	Public ❗	🛑	onlyOwner
└	_transferOwnership	Internal 🔒	🛑	
IBEP20	Interface			
└	totalSupply	External ❗	NO❗	
└	decimals	External ❗	NO❗	
└	symbol	External ❗	NO❗	
└	name	External ❗	NO❗	
└	getOwner	External ❗	NO❗	
└	balanceOf	External ❗	NO❗	
└	transfer	External ❗	🛑	NO❗
└	allowance	External ❗	NO❗	
└	approve	External ❗	🛑	NO❗
└	transferFrom	External ❗	🛑	NO❗
SafeMath	Library			
└	add	Internal 🔒		
└	sub	Internal 🔒		
└	sub	Internal 🔒		
└	mul	Internal 🔒		
└	div	Internal 🔒		
└	div	Internal 🔒		
└	mod	Internal 🔒		
└	mod	Internal 🔒		
└	min	Internal 🔒		
└	sqrt	Internal 🔒		

Address	Library			
└	isContract	Internal 🔒		
└	sendValue	Internal 🔒	🛑	
└	functionCall	Internal 🔒	🛑	
└	functionCall	Internal 🔒	🛑	
└	functionCallWithValue	Internal 🔒	🛑	
└	functionCallWithValue	Internal 🔒	🛑	
└	_functionCallWithValue	Private 🔐	🛑	
BEP20	Implementation	Context, IBEP20, Ownable		
└	<Constructor>	Public ❗	🛑	NO❗
└	getOwner	External ❗		NO❗
└	name	Public ❗		NO❗
└	decimals	Public ❗		NO❗
└	symbol	Public ❗		NO❗
└	totalSupply	Public ❗		NO❗
└	balanceOf	Public ❗		NO❗
└	transfer	Public ❗	🛑	NO❗
└	allowance	Public ❗		NO❗
└	approve	Public ❗	🛑	NO❗
└	transferFrom	Public ❗	🛑	NO❗
└	increaseAllowance	Public ❗	🛑	NO❗
└	decreaseAllowance	Public ❗	🛑	NO❗
└	mint	Public ❗	🛑	onlyOwner
└	_transfer	Internal 🔒	🛑	
└	_mint	Internal 🔒	🛑	
└	_burn	Internal 🔒	🛑	
└	_approve	Internal 🔒	🛑	
└	_burnFrom	Internal 🔒	🛑	
SEAROCK	Implementation	BEP20		
└	mint	Public ❗	🛑	onlyOwner
└	delegates	External ❗		NO❗
└	delegate	External ❗	🛑	NO❗
└	delegateBySig	External ❗	🛑	NO❗
└	getCurrentVotes	External ❗		NO❗
└	getPriorVotes	External ❗		NO❗
└	_delegate	Internal 🔒	🛑	
└	_moveDelegates	Internal 🔒	🛑	
└	_writeCheckpoint	Internal 🔒	🛑	
└	safe32	Internal 🔒		
└	getChainId	Internal 🔒		

Legend

Symbol	Meaning
🛑	Function can modify state
💵	Function is payable

Conclusion

The contracts are written systematically. Team found no critical issues. So, it is no need to redeploy the contract.

Since possible test cases can be unlimited and developer level documentation (code flow diagram with function level description) not provided, for such an extensive smart contract protocol, we provide no such guarantee of future outcomes. We have used all the latest static tools and manual observations to cover maximum possible test cases to scan Everything.

Security state of the reviewed contract is “ Secured”.

✓ No volatile code.
✓ No many high severity issues were found.

Disclaimer

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 the team on the basis of what it says or doesn't say, or how team produced it, and it is important for you to conduct your own independent investigations before making any decisions. team go into more detail on this in the below disclaimer below – please make sure to read it in full.

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