



# Super Moon Lotto 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
Super Moon Lotto	SML	Binance Smart Chain

## Addresses

Contract address	0x4d43e0b1eC8D829A4bB6ABaa8C2C41bF3c580A7F
Contract deployer address	0x0fbC2C9B1C65662Cdd969C5466414552833D50a5

## Project Website

<https://supermoonlotto.com/>

## Codebase

<https://bscscan.com/address/0x4d43e0b1eC8D829A4bB6ABaa8C2C41bF3c580A7F#code>

# SUMMARY

New token mechanism is here! We aim to be the Biggest Lotto Game in the world ! Holders have FREE LOTTO TICKETS EVERY WEEK to win the weekly Jackpot.

- 1) 0.1 BTC added to the Jackpot monthly.
  - 2) 4% of total transaction volume from the previous week will be added to weekly Jackpot (self generating)!
  - 3) a pre-reserved number of tokens from Super Moon Lotto
- \*\*\*IF NO ONE WINS THE JACKPOT, we will take 5 balls away in the next draw, and we will keep taking 5 balls away until our holders hit the jackpot \*\*\*

## | Contract Summary

### Documentation Quality

Super Moon Lotto provides a very good documentation with standard of solidity base code.

- The technical description is provided clearly and structured and also don't have any high risk issue.

### Code Quality

The Overall quality of the basecode is standard.

- Standard solidity basecode and rules are already followed by Super Moon Lotto 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 729, 734, 736, 737, 738 and 739.
- SWC-101 | It is recommended to use vetted safe math libraries for arithmetic operations consistently on lines 104, 136, 159, 160, 195, 231, 458, 702, 703, 741, 742, 768, 769, 899, 901, 949, 956, 958, 969, 1020, 1056, 1062, 1068, 1074, 1292, 1294, 1296, 1300, 1303, 1305, 1309, 1310, 1312, 1321, 1323, 1326, 1327, 1329, 1334, 1335, 1301, 1321, 1326 and 1327.
- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 5.
- SWC-110 | It is recommended to use of revert(), assert(), and require() in Solidity, and the new REVERT opcode in the EVM on lines 727, 900, 901, 950, 959, 960, 1021, 1022, 1023, 1204, 1205, 1304, 1311, 1323, 1326, 1327, 1328, 1341, 1342, 1343, 1344 and 1345.

## CONCLUSION

We have audited the Super Moon Lotto project released on December 2022 to discover issues and identify potential security vulnerabilities in Super Moon Lotto 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 code on Super Moon Lotto smart contract 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, a public state variable with array type causing reachable exception by default 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.	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
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
Assert Violation	SWC-110	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	Delegate calls 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
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
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

# SMART CONTRACT ANALYSIS

Started	Thursday Dec 01 2022 22:28:27 GMT+0000 (Coordinated Universal Time)
Finished	Friday Dec 02 2022 23:37:41 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	SuperMoonLotto.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	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-101	COMPILER-REWRITABLE "<UINT> - 1" DISCOVERED	low	acknowledged
SWC-101	COMPILER-REWRITABLE "<UINT> - 1" DISCOVERED	low	acknowledged
SWC-101	COMPILER-REWRITABLE "<UINT> - 1" DISCOVERED	low	acknowledged
SWC-101	COMPILER-REWRITABLE "<UINT> - 1" 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-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
SWC-110	PUBLIC STATE VARIABLE WITH ARRAY TYPE CAUSING REACHABLE EXCEPTION BY DEFAULT.	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

- SuperMoonLotto.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

- SuperMoonLotto.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

- SuperMoonLotto.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

- SuperMoonLotto.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

- SuperMoonLotto.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

- SuperMoonLotto.sol

## Locations

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

# SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 458

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
457     _owner = address(0);  
458     _lockTime = block.timestamp + time;  
459     emit OwnershipTransferred(_owner, address(0));  
460 }  
461  
462
```

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

LINE 702

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
701  uint256 private constant MAX = ~uint256(0);
702  uint256 private _tTotal = 1000000 * 10**6 * 10**9; //CHANGE_OPTIONAL: total supply
of token. Recommended to keep unchanged
703  uint256 private _rTotal = (MAX - (MAX % _tTotal));
704  uint256 private _tFeeTotal;
705
706
```

# SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 703

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
702  uint256 private _tTotal = 1000000 * 10**6 * 10**9; //CHANGE_OPTIONAL: total supply
    of token. Recommended to keep unchanged
703  uint256 private _rTotal = (MAX - (MAX % _tTotal));
704  uint256 private _tFeeTotal;
705
706  string private _name = "Super Moon Lotto";          //CHANGE_REQUIRED: name of token
707
```

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

LINE 741

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
740
741  uint256 public _maxTxAmount = 20000 * 10**6 * 10**9;
//CHANGE_OPTIONAL: max amount of tokens that can be transferred per transaction
742  uint256 private numTokensSellToAddToLiquidity = 20000 * 10**6 * 10**9;
//CHANGE_OPTIONAL: minimum number of tokens in contract to be sent to Pancakeswap pool
743  // uint256 public _jpPortion = 300 * 10**6 * 10**9;
744  event MinTokensBeforeSwapUpdated(uint256 minTokensBeforeSwap);
745
```

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

LINE 742

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
741  uint256 public _maxTxAmount = 20000 * 10**6 * 10**9;  
    //CHANGE_OPTIONAL: max amount of tokens that can be transferred per transaction  
742  uint256 private numTokensSellToAddToLiquidity = 20000 * 10**6 * 10**9;  
    //CHANGE_OPTIONAL: minimum number of tokens in contract to be sent to Pancakeswap pool  
743  // uint256 public _jpPortion = 300 * 10**6 * 10**9;  
744  event MinTokensBeforeSwapUpdated(uint256 minTokensBeforeSwap);  
745  event SwapAndLiquifyEnabledUpdated(bool enabled);  
746
```

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

LINE 768

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
767     constructor (address dexAddress) {  
768         _rOwned[_msgSender()] = _rTotal.div(10**2).mul(90);  
769         _rOwned[_moonJPAddress] = _rTotal.div(10**2).mul(10);  
770  
771         IUniswapV2Router02 _uniswapV2Router = IUniswapV2Router02(dexAddress);  
772     }
```

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

LINE 769

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
768  _rOwned[_msgSender()] = _rTotal.div(10**2).mul(90);
769  _rOwned[_moonJPAddress] = _rTotal.div(10**2).mul(10);
770
771  IUniswapV2Router02 _uniswapV2Router = IUniswapV2Router02(dexAddress);
772  // Create a uniswap pair for this new token
773
```

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

LINE 899

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
898   require(!_isExcluded[account], "Account is already excluded");
899   for (uint256 i = 0; i < _excluded.length; i++) {
900       if (_excluded[i] == account) {
901           _excluded[i] = _excluded[_excluded.length - 1];
902           _tOwned[account] = 0;
903       }
```

# SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 901

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
900     if (_excluded[i] == account) {  
901         _excluded[i] = _excluded[_excluded.length - 1];  
902         _tOwned[account] = 0;  
903         _isExcluded[account] = false;  
904         _excluded.pop();  
905     }
```

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

LINE 949

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
948     uint256 eachPortion =
_rOwned[_moonWalletAddress].div(10).div(_numberOfSecondPrizeWinner);
949     for (uint256 i = 0; i < winningAddresses.length; i++) {
950         _rOwned[winningAddresses[i]] = _rOwned[winningAddresses[i]].add(eachPortion);
951     }
952     _rOwned[_moonWalletAddress] =
_rOwned[_moonWalletAddress].sub(_rOwned[_moonWalletAddress].div(10));
953
```

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

LINE 956

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
955  _numberOfFirstPrizeWinner = winningAddresses.length ;
956  uint256 _jpPortion = _rTotal.div(10**2).mul(10).mul(_jpRatio).div(10**3);
957  uint256 eachPortion = _rOwned[_moonWalletAddress].div(_numberOfFirstPrizeWinner);
958  for (uint256 i = 0; i < winningAddresses.length; i++) {
959    _rOwned[winningAddresses[i]] = _rOwned[winningAddresses[i]].add(eachPortion);
960  }
```

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

LINE 958

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
957 uint256 eachPortion = _rOwned[_moonWalletAddress].div(_numberOfFirstPrizeWinner);
958 for (uint256 i = 0; i < winningAddresses.length; i++) {
959     _rOwned[winningAddresses[i]] = _rOwned[winningAddresses[i]].add(eachPortion);
960     _rOwned[winningAddresses[i]] = _rOwned[winningAddresses[i]].add(_jpPortion);
961     _rOwned[_moonJPAddress] = _rOwned[_moonJPAddress].sub(_jpPortion);
962 }
```

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

LINE 969

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
968     _maxTxAmount = _tTotal.mul(maxTxPercent).div(  
969     10**2  
970     );  
971 }  
972  
973
```

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

LINE 1020

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1019     uint256 tSupply = _tTotal;
1020     for (uint256 i = 0; i < _excluded.length; i++) {
1021         if (_rOwned[_excluded[i]] > rSupply || _tOwned[_excluded[i]] > tSupply) return
            (_rTotal, _tTotal);
1022         rSupply = rSupply.sub(_rOwned[_excluded[i]]);
1023         tSupply = tSupply.sub(_tOwned[_excluded[i]]);
1024     }
```

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

LINE 1056

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1055     return _amount.mul(_taxFee).div(  
1056         10**2  
1057     );  
1058 }  
1059  
1060
```

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

LINE 1062

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1061     return _amount.mul(_developmentFee).div(  
1062         10**2  
1063     );  
1064 }  
1065  
1066
```

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

LINE 1068

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1067     return _amount.mul(_moonFee).div(  
1068         10**2  
1069     );  
1070 }  
1071  
1072
```

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

LINE 1074

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1073     return _amount.mul(_liquidityFee).div(  
1074         10**2  
1075     );  
1076 }  
1077  
1078
```

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

LINE 1292

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1291 delete allNumbers;
1292 drawNo ++ ;
1293 uint256 moonSpecialNumber;
1294 uint256 randNonce = _rTotal.div(10**12);
1295
1296
```

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

LINE 1294

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1293     uint256 moonSpecialNumber;  
1294     uint256 randNonce = _rTotal.div(10**12);  
1295  
1296     for ( uint i = 1 ; i < 6 ; i++) {  
1297         uint j;  
1298     }
```

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

LINE 1296

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1295
1296   for ( uint i = 1 ; i < 6 ; i++) {
1297       uint j;
1298       uint countUnmatched;
1299
1300
```

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

LINE 1300

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1299
1300     randNonce++;
1301     j = uint(keccak256(abi.encodePacked(block.timestamp,msg.sender, randNonce*(i-
1))) % _modulus+1;
1302     if (i>1) {
1303         for (uint k = 0; k< allNumbers.length; k++) {
1304
```

# SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 1301

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1300     randNonce++;
1301     j = uint(keccak256(abi.encodePacked(block.timestamp,msg.sender, randNonce*(i-
1)))) % _modulus+1;
1302     if (i>1) {
1303         for (uint k = 0; k< allNumbers.length; k++) {
1304             if (allNumbers[k] != j) {
1305
```

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

LINE 1303

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1302     if (i>1) {  
1303         for (uint k = 0; k< allNumbers.length; k++) {  
1304             if (allNumbers[k] != j) {  
1305                 countUnmatched++ ;  
1306             }  
1307         }
```

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

LINE 1305

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
1304   if (allNumbers[k] != j) {  
1305       countUnmatched++ ;  
1306   }  
1307   while ( countUnmatched < allNumbers.length ) {  
1308       countUnmatched = 0;  
1309   }
```

# SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 1309

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1308     countUnmatched = 0;
1309     j =uint(keccak256(abi.encodePacked(randNonce++))) % _modulus + 1;
1310     for (uint r = 0; r< allNumbers.length; r++) {
1311         if (allNumbers[r] != j) {
1312             countUnmatched++ ;
1313         }
```

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

LINE 1310

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1309     j =uint(keccak256(abi.encodePacked(randNonce++))) % _modulus + 1;
1310     for (uint r = 0; r< allNumbers.length; r++) {
1311         if (allNumbers[r] != j) {
1312             countUnmatched++ ;
1313         }
1314     }
```

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

LINE 1312

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
1311     if (allNumbers[r] != j) {  
1312         countUnmatched++ ;  
1313     }  
1314 }  
1315 }  
1316
```

# SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 1321

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1320
1321     uint m = allNumbers.length - 1;
1322     while (m > 0) {
1323         if (allNumbers[m] > allNumbers[m-1]) {
1324             break;
1325     }
```

# SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 1323

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1322 while (m > 0) {  
1323   if (allNumbers[m] > allNumbers[m-1]) {  
1324     break;  
1325   }  
1326   uint n = allNumbers[m-1];  
1327 }
```

# SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 1326

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1325     }  
1326     uint n = allNumbers[m-1];  
1327     allNumbers[m-1] = allNumbers[m];  
1328     allNumbers[m] = n;  
1329     m--;  
1330
```

# SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 1327

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1326     uint n = allNumbers[m-1];
1327     allNumbers[m-1] = allNumbers[m];
1328     allNumbers[m] = n;
1329     m--;
1330 }
1331
```

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

LINE 1329

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
1328     allNumbers[m] = n;
1329     m--;
1330 }
1331
1332 }
1333
```

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

LINE 1334

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1333
1334     randNonce++;
1335     moonSpecialNumber = uint(keccak256(abi.encodePacked(block.timestamp,msg.sender,
randNonce*777))) % 8 + 1;
1336     allNumbers.push(moonSpecialNumber);
1337
1338
```

# SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 1335

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1334     randNonce++;
1335     moonSpecialNumber = uint(keccak256(abi.encodePacked(block.timestamp,msg.sender,
randNonce*777))) % 8 + 1;
1336     allNumbers.push(moonSpecialNumber);
1337
1338     allPastDraws[drawNo] = allNumbers;
1339
```

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

LINE 901

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
900     if (_excluded[i] == account) {  
901         _excluded[i] = _excluded[_excluded.length - 1];  
902         _tOwned[account] = 0;  
903         _isExcluded[account] = false;  
904         _excluded.pop();  
905     }
```

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

LINE 1301

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1300     randNonce++;
1301     j = uint(keccak256(abi.encodePacked(block.timestamp,msg.sender, randNonce*(i-
1)))) % _modulus+1;
1302     if (i>1) {
1303         for (uint k = 0; k< allNumbers.length; k++) {
1304             if (allNumbers[k] != j) {
1305
```

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

LINE 1321

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1320
1321     uint m = allNumbers.length - 1;
1322     while (m > 0) {
1323         if (allNumbers[m] > allNumbers[m-1]) {
1324             break;
1325
```

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

LINE 1323

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1322 while (m > 0) {  
1323   if (allNumbers[m] > allNumbers[m-1]) {  
1324     break;  
1325   }  
1326   uint n = allNumbers[m-1];  
1327 }
```

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

LINE 1326

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1325     }
1326     uint n = allNumbers[m-1];
1327     allNumbers[m-1] = allNumbers[m];
1328     allNumbers[m] = n;
1329     m--;
1330
```

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

LINE 1327

## low SEVERITY

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

## Source File

- SuperMoonLotto.sol

## Locations

```
1326     uint n = allNumbers[m-1];
1327     allNumbers[m-1] = allNumbers[m];
1328     allNumbers[m] = n;
1329     m--;
1330 }
1331
```

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

LINE 5

### low SEVERITY

The current pragma Solidity directive is `""^0.8.4""`. 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

- SuperMoonLotto.sol

### Locations

```
4
5  pragma solidity ^0.8.4;
6  // SPDX-License-Identifier: Unlicensed
7  interface IERC20 {
8
9
```

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

LINE 729

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
728  uint256 public _numberOfSecondPrizeWinner;  
729  uint256[] allNumbers ;  
730  
731  IUniswapV2Router02 public uniswapV2Router;  
732  address public uniswapV2Pair;  
733
```

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

LINE 734

### 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

- SuperMoonLotto.sol

### Locations

```
733
734  bool inSwapAndLiquify;
735  bool public swapAndLiquifyEnabled = true;    //CHANGE_OPTIONAL: enable / disable
locking `liquidityFee` to Pancakeswap
736  bool ownerInTransact = false;
737  bool devInTransact = false;
738
```

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

LINE 736

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
735  bool public swapAndLiquifyEnabled = true;    //CHANGE_OPTIONAL: enable / disable  
locking `liquidityFee` to Pancakeswap  
736  bool ownerInTransact = false;  
737  bool devInTransact = false;  
738  bool moonJpInTransact = false;  
739  bool moonFeeInTransact = false;  
740
```

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

LINE 737

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
736  bool ownerInTransact = false;
737  bool devInTransact = false;
738  bool moonJpInTransact = false;
739  bool moonFeeInTransact = false;
740
741
```

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

LINE 738

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
737  bool devInTransact = false;
738  bool moonJpInTransact = false;
739  bool moonFeeInTransact = false;
740
741  uint256 public _maxTxAmount = 20000 * 10**6 * 10**9;
//CHANGE_OPTIONAL: max amount of tokens that can be transferred per transaction
742
```

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

LINE 739

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
738  bool moonJpInTransact = false;
739  bool moonFeeInTransact = false;
740
741  uint256 public _maxTxAmount = 20000 * 10**6 * 10**9;
//CHANGE_OPTIONAL: max amount of tokens that can be transferred per transaction
742  uint256 private numTokensSellToAddToLiquidity = 20000 * 10**6 * 10**9;
//CHANGE_OPTIONAL: minimum number of tokens in contract to be sent to Pancakeswap pool
743
```

## SWC-110 | PUBLIC STATE VARIABLE WITH ARRAY TYPE CAUSING REACHABLE EXCEPTION BY DEFAULT.

LINE 727

### low SEVERITY

The public state variable "allPastDraws" in "SuperMoonLotto" contract has type "mapping(uint256 => uint256[])" and can cause an exception in case of use of invalid array index value.

### Source File

- SuperMoonLotto.sol

### Locations

```
726  uint256 public drawNo;  
727  mapping (uint256 => uint256 []) public allPastDraws;  
728  uint256 public _numberOfSecondPrizeWinner;  
729  uint256[] allNumbers ;
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 900

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
899   for (uint256 i = 0; i < _excluded.length; i++) {  
900     if (_excluded[i] == account) {  
901       _excluded[i] = _excluded[_excluded.length - 1];  
902       _tOwned[account] = 0;  
903       _isExcluded[account] = false;  
904     }
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 901

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
900   if (_excluded[i] == account) {  
901     _excluded[i] = _excluded[_excluded.length - 1];  
902     _tOwned[account] = 0;  
903     _isExcluded[account] = false;  
904     _excluded.pop();  
905
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 950

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
949   for (uint256 i = 0; i < winningAddresses.length; i++) {
950     _rOwned[winningAddresses[i]] = _rOwned[winningAddresses[i]].add(eachPortion);
951   }
952   _rOwned[_moonWalletAddress] =
_rOwned[_moonWalletAddress].sub(_rOwned[_moonWalletAddress].div(10));
953   }
954
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 959

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
958   for (uint256 i = 0; i < winningAddresses.length; i++) {  
959     _rOwned[winningAddresses[i]] = _rOwned[winningAddresses[i]].add(eachPortion);  
960     _rOwned[winningAddresses[i]] = _rOwned[winningAddresses[i]].add(_jpPortion);  
961     _rOwned[_moonJPAddress] = _rOwned[_moonJPAddress].sub(_jpPortion);  
962   }  
963
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 960

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
959  _rOwned[winningAddresses[i]] = _rOwned[winningAddresses[i]].add(eachPortion);
960  _rOwned[winningAddresses[i]] = _rOwned[winningAddresses[i]].add(_jpPortion);
961  _rOwned[_moonJPAddress] = _rOwned[_moonJPAddress].sub(_jpPortion);
962  }
963  _rOwned[_moonWalletAddress] =
_rOwned[_moonWalletAddress].sub(_rOwned[_moonWalletAddress]);
964
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1021

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
1020   for (uint256 i = 0; i < _excluded.length; i++) {  
1021     if (_rOwned[_excluded[i]] > rSupply || _tOwned[_excluded[i]] > tSupply) return  
      (_rTotal, _tTotal);  
1022     rSupply = rSupply.sub(_rOwned[_excluded[i]]);  
1023     tSupply = tSupply.sub(_tOwned[_excluded[i]]);  
1024   }  
1025
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1022

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
1021  if (_rOwned[_excluded[i]] > rSupply || _tOwned[_excluded[i]] > tSupply) return
      (_rTotal, _tTotal);
1022  rSupply = rSupply.sub(_rOwned[_excluded[i]]);
1023  tSupply = tSupply.sub(_tOwned[_excluded[i]]);
1024  }
1025  if (rSupply < _rTotal.div(_tTotal)) return (_rTotal, _tTotal);
1026
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1023

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
1022   rSupply = rSupply.sub(_rOwned[_excluded[i]]);
1023   tSupply = tSupply.sub(_tOwned[_excluded[i]]);
1024   }
1025   if (rSupply < _rTotal.div(_tTotal)) return (_rTotal, _tTotal);
1026   return (rSupply, tSupply);
1027
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1204

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
1203     address[] memory path = new address[](2);
1204     path[0] = address(this);
1205     path[1] = uniswapV2Router.WETH();
1206
1207     _approve(address(this), address(uniswapV2Router), tokenAmount);
1208
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1205

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
1204 path[0] = address(this);  
1205 path[1] = uniswapV2Router.WETH();  
1206  
1207 _approve(address(this), address(uniswapV2Router), tokenAmount);  
1208  
1209
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1304

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
1303   for (uint k = 0; k< allNumbers.length; k++) {  
1304     if (allNumbers[k] != j) {  
1305       countUnmatched++ ;  
1306     }  
1307     while ( countUnmatched < allNumbers.length ) {  
1308
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1311

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
1310   for (uint r = 0; r< allNumbers.length; r++) {  
1311     if (allNumbers[r] != j) {  
1312       countUnmatched++ ;  
1313     }  
1314   }  
1315
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1323

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
1322 while (m > 0) {  
1323   if (allNumbers[m] > allNumbers[m-1]) {  
1324     break;  
1325   }  
1326   uint n = allNumbers[m-1];  
1327 }
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1326

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
1325     }  
1326     uint n = allNumbers[m-1];  
1327     allNumbers[m-1] = allNumbers[m];  
1328     allNumbers[m] = n;  
1329     m--;  
1330
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1327

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
1326  uint n = allNumbers[m-1];
1327  allNumbers[m-1] = allNumbers[m];
1328  allNumbers[m] = n;
1329  m--;
1330  }
1331
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1328

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
1327   allNumbers[m-1] = allNumbers[m];  
1328   allNumbers[m] = n;  
1329   m--;  
1330   }  
1331  
1332
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1341

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
1340     emit NewDraw(  
1341         allNumbers[0],  
1342         allNumbers[1],  
1343         allNumbers[2],  
1344         allNumbers[3],  
1345     )
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1342

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
1341  allNumbers[0],  
1342  allNumbers[1],  
1343  allNumbers[2],  
1344  allNumbers[3],  
1345  allNumbers[4],  
1346
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1343

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
1342  allNumbers[1],  
1343  allNumbers[2],  
1344  allNumbers[3],  
1345  allNumbers[4],  
1346  moonSpecialNumber,  
1347
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1344

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
1343     allNumbers[2],  
1344     allNumbers[3],  
1345     allNumbers[4],  
1346     moonSpecialNumber,  
1347     drawNo  
1348
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1345

### low SEVERITY

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

### Source File

- SuperMoonLotto.sol

### Locations

```
1344     allNumbers[3],  
1345     allNumbers[4],  
1346     moonSpecialNumber,  
1347     drawNo  
1348     );  
1349
```

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