0.7

UbeSwap Process Quality Review

Score: 74%

Overview

This is an UbeSwap Process Quality Review completed on 27/09/2021. It was performed using the Process Review process (version 0.7.3) and is documented here. The review was performed by Nick of DeFiSafety. Check out our Telegram.

The final score of the review is **74%**, a **PASS**. The breakdown of the scoring is in Scoring Appendix. For our purposes, a pass is **70%.**

Summary of the Process

Very simply, the review looks for the following declarations from the developer's site. With these declarations, it is reasonable to trust the smart contracts.

- **Here are my smart contracts on the blockchain**
- **Here is the documentation that explains what my smart contracts do**
- **Here are the tests I ran to verify my smart contract**
- **Here are the audit(s) performed on my code by third party experts**
- **Here are the admin controls and strategies**

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views to change. All information is subject to possible correction. Information may quickly become unreliable for various reasons, including changes in market conditions or economic circumstances.

Chain

This section indicates the blockchain used by this protocol.

> ✓ **Chain:** Celo

Guidance:

Ethereum
Binance Smart Chain
Polygon
Avalanche
Terra
Celo
Arbitrum
Solana

Code and Team

This section looks at the code deployed on the Mainnet that gets reviewed and its corresponding software repository. The document explaining these questions is here. This review will answer the following questions:

1) Are the executing code addresses readily available? (%)
2) Is the code actively being used? (%)
3) Is there a public software repository? (Y/N)
4) Is there a development history visible? (%)
5) Is the team public (not anonymous)? (Y/N)

1) Are the executing code addresses readily available? (%)

> ✓ **Answer:** 100%

They are available at website https://docs.ubeswap.org/code-and-contracts/contract-addresses, as indicated in the Appendix.

Guidance:

100% Clearly labelled and on website, docs or repo, quick to find
70% Clearly labelled and on website, docs or repo but takes a bit of looking
40% Addresses in mainnet.json, in discord or sub graph, etc
20% Address found but labeling not clear or easy to find
0% Executing addresses could not be found

2) Is the code actively being used? (%)

> **Answer:** 100

Activity is 500+ transactions a day on contract UbeswapRouter, as indicated in the Appendix.

Guidance:

100% More than 10 transactions a day
70% More than 10 transactions a week
40% More than 10 transactions a month
10% Less than 10 transactions a month
0% No activity

3) Is there a public software repository? (Y/N)

> **Answer:** Yes

GitHub: https://github.com/Ubeswap

Is there a public software repository with the code at a minimum, but also normally test and scripts. Even if the repository was created just to hold the files and has just 1 transaction, it gets a **"Yes"**. For teams with private repositories, this answer is **"No"**.

4) Is there a development history visible? (%)

> **Answer:** 100%

With 133 commits and 4 branches, UbeSwap has a steady development history.

This metric checks if the software repository demonstrates a strong steady history. This is normally demonstrated by commits, branches and releases in a software repository. A healthy history demonstrates a history of more than a month (at a minimum).

Guidance:

100% Any one of 100+ commits, 10+branches
70% Any one of 70+ commits, 7+branches
50% Any one of 50+ commits, 5+branches
30% Any one of 30+ commits, 3+branches
0% Less than 2 branches or less than 30 commits

5) Is the team public (not anonymous)? (Y/N)

> **Answer:** Yes

Location: https://medium.com/ubeswap

For a **"Yes"** in this question, the real names of some team members must be public on the website or other documentation (LinkedIn, etc). If the team is anonymous, then this question is a **"No"**.

Documentation

This section looks at the software documentation. The document explaining these questions is here.

Required questions are;

6) Is there a whitepaper? (Y/N)
7) Are the basic software functions documented? (Y/N)
8) Does the software function documentation fully (100%) cover the deployed contracts? (%)
9) Are there sufficiently detailed comments for all functions within the deployed contract code (%)
10) Is it possible to trace from software documentation to the implementation in code (%)

6) Is there a whitepaper? (Y/N)

> **Answer:** Yes

Location: https://docs.ubeswap.org/

7) Are the basic software functions documented? (Y/N)

> **Answer:** Yes

The UbeSwap documentation mentions and describes their basic software functions such as those of the Farming, Governance, and Core contracts.

8) Does the software function documentation fully (100%) cover the deployed contracts? (%)

> **Answer:** 100%

All contracts are documented in the gitbook.

Guidance:

100% All contracts and functions documented
80% Only the major functions documented
79-1% Estimate of the level of software documentation
0% No software documentation

9) Are there sufficiently detailed comments for all functions within the deployed contract code (%)

> **Answer:** 30%

Code examples are in the Appendix. As per the SLOC, there is 30% commenting to code (CtC).

The Comments to Code (CtC) ratio is the primary metric for this score.

Guidance:

100% CtC > 100 Useful comments consistently on all code
90-70% CtC > 70 Useful comment on most code
60-20% CtC > 20 Some useful commenting
0% CtC < 20 No useful commenting

How to improve this score

This score can improve by adding comments to the deployed code such that it comprehensively covers the code. For guidance, refer to the SecurEth Software Requirements.

10) Is it possible to trace from software documentation to the implementation in code (%)

> **Answer:** 60%

All deployed contracts are identified and there is some explicit traceability for a few of these contracts.

Guidance:

100% Clear explicit traceability between code and documentation at a requirement level for all code
60% Clear association between code and documents via non explicit traceability

40% Documentation lists all the functions and describes their functions
0% No connection between documentation and code

How to improve this score:

This score can improve by adding traceability from documentation to code such that it is clear where each outlined function is coded in the source code. For reference, check the SecurEth guidelines on traceability.

Testing

This section looks at the software testing available. It is explained in this document. This section answers the following questions;

11) Full test suite (Covers all the deployed code) (%)
12) Code coverage (Covers all the deployed lines of code, or explains misses) (%)
13) Scripts and instructions to run the tests (Y/N)
14) Report of the results (%)
15) Formal Verification test done (%)
16) Stress Testing environment (%)

11) Is there a Full test suite? (%)

> **Answer:** 80%

Code examples are in the Appendix. As per the SLOC, there is 94% testing to code (TtC).

No test suite could be found in their master repository, and an audit corroborates this. While this is a UniSwap/SushiSwap fork, UbeSwap operates on an entirely different blockchain to Ethereum, so the code should be comprehensively tested. Although it is not tested by the UbeSwap team, they have indicated what they have changed from the original Uni/Sushi code, and the difference isn't much, so therefore it is still rigorously-tested code.

However, there is a decent testing suite in their Farming and Governance repositories, which proves that Ubeswap does a good amount of testing on repositories that are not almost identical forks of other contracts.

Code examples are in the Appendix. As per the SLOC, there is 0% testing to code (TtC).

This score is guided by the Test to Code ratio (TtC). Generally a good test to code ratio is over 100%. However the reviewers best judgement is the final deciding factor.

Guidance:

100% TtC > 120% Both unit and system test visible
80% TtC > 80% Both unit and system test visible
40% TtC < 80% Some tests visible
0% No tests obvious

How to improve this score:

This score can improved by adding tests to fully cover the code. Document what is covered by traceability or test results in the software repository.

12) Code coverage (Covers all the deployed lines of code, or explains misses) (%)

> ⓘ **Answer:** 50%

No evidence of testing could be found in the UbeSwap GitHub repositories. However, they do have a robust testing suite.

Guidance:

100%	Documented full coverage
99-51%	Value of test coverage from documented results
50%	No indication of code coverage but clearly there is a reasonably complete set of tests
30%	Some tests evident but not complete
0%	No test for coverage seen

How to improve this score:

This score can improved by adding tests that achieve full code coverage. A clear report and scripts in the software repository will guarantee a high score.

13) Scripts and instructions to run the tests (Y/N)

> ✓ **Answer:** Yes

Scripts/Instructions location:
https://github.com/Ubeswap/ubeswap/blob/master/docs/DEVELOPMENT.md

14) Report of the results (%)

> ⚠ **Answer:** 0%

No result report was found.

Guidance:

100%	Detailed test report as described below

70% GitHub code coverage report visible
0% No test report evident

How to improve this score

Add a report with the results. The test scripts should generate the report or elements of it.

15) Formal Verification test done (%)

> ⚠ **Answer:** 0%

No formal verification test was done.

16) Stress Testing environment (%)

> ✓ **Answer:** 100%

UbeSwap is deployed on the Alfajores Testnet.

Security

This section looks at the 3rd party software audits done. It is explained in this document. This section answers the following questions;

17) Did 3rd Party audits take place? (%)
18) Is the bounty value acceptably high?

17) Did 3rd Party audits take place? (%)

> ✓ **Answer:** 100%

UbeSwap has had their Core contracts audited by Bramah Systems two months before the mainnet launch.

In addition, Bramah Systems published an audit report of the Governance contracts before their mainnet launch as well.

Guidance:

100% Multiple Audits performed before deployment and results public and implemented or not required
90% Single audit performed before deployment and results public and implemented

or not required
70% Audit(s) performed after deployment and no changes required. Audit report is public

50% Audit(s) performed after deployment and changes needed but not implemented
20% No audit performed
0% Audit Performed after deployment, existence is public, report is not public and no improvements deployed OR smart contract address' not found, (where question 1 is 0%)

Deduct 25% if code is in a private repo and no note from auditors that audit is applicable to deployed code

18) Is the bounty value acceptably high (%)

> ⚠ **Answer:** 0%

UbeSwap does not offer a bug bounty program.

Guidance:

100% Bounty is 10% TVL or at least $1M AND active program (see below)
90% Bounty is 5% TVL or at least 500k AND active program
80% Bounty is 5% TVL or at least 500k
70% Bounty is 100k or over AND active program
60% Bounty is 100k or over
50% Bounty is 50k or over AND active program
40% Bounty is 50k or over
20% Bug bounty program bounty is less than 50k
0% No bug bounty program offered

An active program means that a third party (such as Immunefi) is actively driving hackers to the site. An inactive program would be static mentions on the docs.

Access Controls

This section covers the documentation of special access controls for a DeFi protocol. The admin access controls are the contracts that allow updating contracts or coefficients in the protocol. Since these contracts can allow the protocol admins to "change the rules", complete disclosure of capabilities is vital for user's transparency. It is explained in this document. The questions this section asks are as follow;

19) Can a user clearly and quickly find the status of the admin controls?
20) Is the information clear and complete?
21) Is the information in non-technical terms that pertain to the investments?
22) Is there Pause Control documentation including records of tests?

19) Can a user clearly and quickly find the status of the access controls (%)

Answer: 100%

Administrator controls are documented under admin privileges.

Guidance:

100% Clearly labelled and on website, docs or repo, quick to find
70% Clearly labelled and on website, docs or repo but takes a bit of looking
40% Access control docs in multiple places and not well labelled
20% Access control docs in multiple places and not labelled
0% Admin Control information could not be found

20) Is the information clear and complete (%)

Answer: 90%

a) All contracts are clearly labelled as upgradeable (or not) -- 30% -- Governance identifies which contracts are upgradeable.

b) The type of ownership is clearly indicated (OnlyOwner / MultiSig / Defined Roles) -- 30% -- for now governance is not live, but this is clearly indicated.

c) The capabilities for change in the contracts are described -- 30% -- capabilities for change are clearly documented in this governance section.

Guidance:

All the contracts are immutable -- 100% OR

a) All contracts are clearly labelled as upgradeable (or not) -- 30% AND
b) The type of ownership is clearly indicated (OnlyOwner / MultiSig / Defined Roles) -- 30% AND
c) The capabilities for change in the contracts are described -- 30%

How to improve this score:

Create a document that covers the items described above. An example is enclosed.

21) Is the information in non-technical terms that pertain to the investments (%)

Answer: 30%

Although the descriptions of the governance contract functions are written in user-friendly language, they do

not touch upon investment safety, or rather why their user funds are safe in relation to the various contracts' functions.

Guidance:

100%	All the contracts are immutable
90%	Description relates to investments safety and updates in clear, complete non-software l language
30%	Description all in software specific language
0%	No admin control information could not be found

How to improve this score:

Create a document that covers the items described above in plain language that investors can understand. An example is enclosed.

22) Is there Pause Control documentation including records of tests (%)

> ⚠ **Answer:** 0%

There is no pause control documentation.

Guidance:

100%	All the contracts are immutable or no pause control needed and this is explained OR
100%	Pause control(s) are clearly documented and there is records of at least one test within 3 months
80%	Pause control(s) explained clearly but no evidence of regular tests
40%	Pause controls mentioned with no detail on capability or tests
0%	Pause control not documented or explained

How to improve this score**:**

Create a document that covers the items described above in plain language that investors can understand. An example is enclosed.

Appendices

Author Details

The author of this review is Rex of DeFi Safety.

Email : rex@defisafety.com Twitter : @defisafety

I started with Ethereum just before the DAO and that was a wonderful education. It showed the importance of code quality. The second Parity hack also showed the importance of good process. Here my aviation background offers some value. Aerospace knows how to make reliable code using quality processes.

I was coaxed to go to EthDenver 2018 and there I started SecuEth.org with Bryant and Roman. We created guidelines on good processes for blockchain code development. We got EthFoundation funding to assist in their development.

Process Quality Reviews are an extension of the SecurEth guidelines that will further increase the quality processes in Solidity and Vyper development.

DeFiSafety is my full time gig and we are working on funding vehicles for a permanent staff.

Scoring Appendix

	Total	Ubeswap	
PQ Audit Scoring Matrix (v0.7)	Points	Answer	Points
Total	260		172
Code and Team			66%
1) Are the executing code addresses readily available? (%)	20	100%	20
2) Is the code actively being used? (%)	5	100%	5
3) Is there a public software repository? (Y/N)	5	Y	5
4) Is there a development history visible? (%)	5	100%	5
5) Is the team public (not anonymous)? (Y/N)	15	Y	15
Code Documentation			
6) Is there a whitepaper? (Y/N)	5	Y	5
7) Are the basic software functions documented? (Y/N)	10	N	0
8) Does the software function documentation fully (100%) co	15	100%	15
9) Are there sufficiently detailed comments for all functions w	5	0%	0
10) Is it possible to trace from software documentation to the	10	60%	6
Testing			
11) Full test suite (Covers all the deployed code) (%)	20	0%	0
12) Code coverage (Covers all the deployed lines of code, or ex	5	0%	0
13) Scripts and instructions to run the tests? (Y/N)	5	Y	5
14) Report of the results (%)	10	0%	0
15) Formal Verification test done (%)	5	0%	0
16) Stress Testing environment (%)	5	100%	5
Security			
17) Did 3rd Party audits take place? (%)	70	90%	63
18) Is the bug bounty acceptable high? (%)	10	0%	0
Access Controls			
19) Can a user clearly and quickly find the status of the admin	5	100%	5
20) Is the information clear and complete	10	90%	9
21) Is the information in non-technical terms	10	90%	9
22) Is there Pause Control documentation including records of	10	0%	0
Section Scoring			
Code and Team	50	100%	
Documentation	45	58%	
Testing	50	20%	
Security	80	79%	
Access Controls	35	66%	

Executing Code Appendix

Utility Contracts

Contract Name	Address
CREATE2 deployer	0x4a27c059FD7E383854Ea7DE6Be9c390a795f6eE3
Multicall	0x75F59534dd892c1f8a7B172D639FA854D529ada3

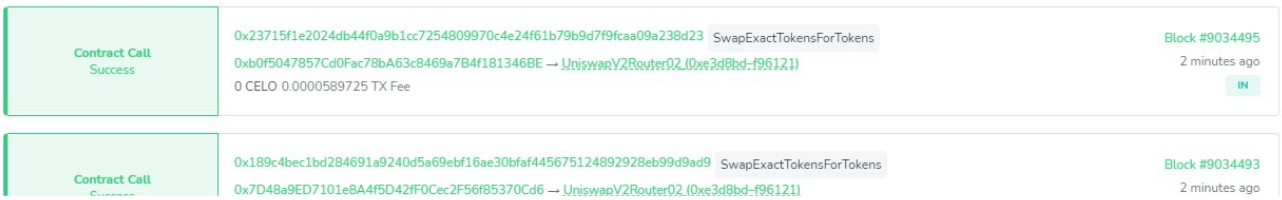
Core/Exchange

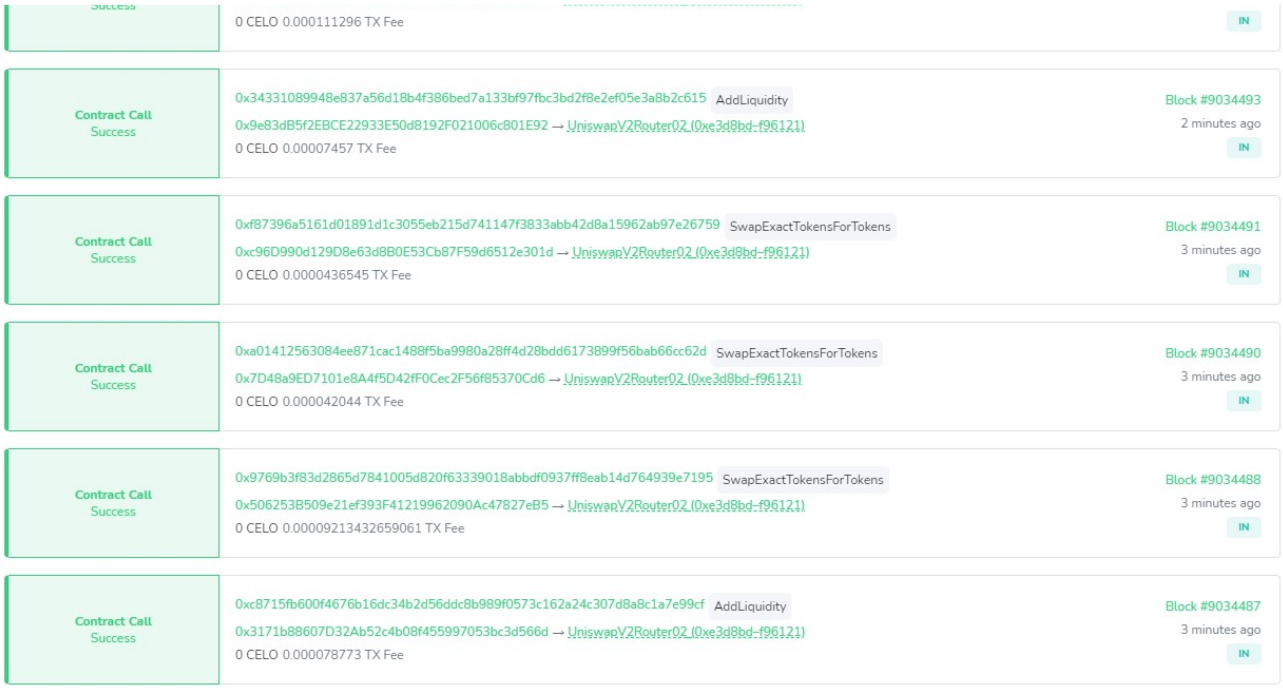
Contract Name	Address
UbeswapFactory	0x62d5b84bE28a183aBB507E125B384122D2C25fAE
UbeswapRouter	0xE3D8bd6Aed4F159bc8000a9cD47CffDb95F96121

Governance

Contract Name	Address
TimelockCeloReserve	0xC45Cc58205132Fe29e0F96BAA3f4FA2BD88cD6D9
TimelockCommunity	0x177B042b284dD9B830d4eb179695bCC14044fD1A
TimelockExecutive	0x1BDB37DAA42E37bFCa4C5536AcF93b1173588981
ReleaseUbe	0x5Ed248077bD07eE9B530f7C40BE0c1dAE4c131C0
UbeToken	0x00Be915B9dCf56a3CBE739D9B9c202ca692409EC

Code Used Appendix





Example Code Appendix

```
import './libraries/UniswapV2Library.sol';
import './libraries/SafeMath.sol';
import './libraries/TransferHelper.sol';
import './interfaces/IUniswapV2Router02.sol';
import './interfaces/IUniswapV2Factory.sol';
import './interfaces/IERC20.sol';

contract UniswapV2Router02 is IUniswapV2Router02 {
    using SafeMathUniswap for uint;

    address public immutable override factory;

    modifier ensure(uint deadline) {
        require(deadline >= block.timestamp, 'UniswapV2Router: EXPIRED');
        _;
    }

    constructor(address _factory) public {
        factory = _factory;
    }

    // **** ADD LIQUIDITY ****
    function _addLiquidity(
        address tokenA,
        address tokenB,
        uint amountADesired,
        uint amountBDesired,
        uint amountAMin,
        uint amountBMin

```

```
    ) internal virtual returns (uint amountA, uint amountB) {
        // create the pair if it doesn't exist yet
        if (IUniswapV2Factory(factory).getPair(tokenA, tokenB) == address(0)) {
            IUniswapV2Factory(factory).createPair(tokenA, tokenB);
        }
        (uint reserveA, uint reserveB) = UniswapV2Library.getReserves(factory, tokenA, tok
        if (reserveA == 0 && reserveB == 0) {
            (amountA, amountB) = (amountADesired, amountBDesired);
        } else {
            uint amountBOptimal = UniswapV2Library.quote(amountADesired, reserveA, reserveB
            if (amountBOptimal <= amountBDesired) {
                require(amountBOptimal >= amountBMin, 'UniswapV2Router: INSUFFICIENT_B_AMOU
                (amountA, amountB) = (amountADesired, amountBOptimal);
            } else {
                uint amountAOptimal = UniswapV2Library.quote(amountBDesired, reserveB, rese
                assert(amountAOptimal <= amountADesired);
                require(amountAOptimal >= amountAMin, 'UniswapV2Router: INSUFFICIENT_A_AMOU
                (amountA, amountB) = (amountAOptimal, amountBDesired);
            }
        }
    }
    function addLiquidity(
        address tokenA,
        address tokenB,
        uint amountADesired,
        uint amountBDesired,
        uint amountAMin,
        uint amountBMin,
        address to,
        uint deadline
    ) external virtual override ensure(deadline) returns (uint amountA, uint amountB, uint
        (amountA, amountB) = _addLiquidity(tokenA, tokenB, amountADesired, amountBDesired,
        address pair = UniswapV2Library.pairFor(factory, tokenA, tokenB);
        TransferHelper.safeTransferFrom(tokenA, msg.sender, pair, amountA);
        TransferHelper.safeTransferFrom(tokenB, msg.sender, pair, amountB);
        liquidity = IUniswapV2Pair(pair).mint(to);
    }

    // **** REMOVE LIQUIDITY ****
    function removeLiquidity(
        address tokenA,
        address tokenB,
        uint liquidity,
        uint amountAMin,
        uint amountBMin,
        address to,
        uint deadline
    ) public virtual override ensure(deadline) returns (uint amountA, uint amountB) {
        address pair = UniswapV2Library.pairFor(factory, tokenA, tokenB);
        IUniswapV2Pair(pair).transferFrom(msg.sender, pair, liquidity); // send liquidity t
        (uint amount0, uint amount1) = IUniswapV2Pair(pair).burn(to);
        (address token0,) = UniswapV2Library.sortTokens(tokenA, tokenB);
        (amountA, amountB) = tokenA == token0 ? (amount0, amount1) : (amount1, amount0);
```

```
        require(amountA >= amountAMin, 'UniswapV2Router: INSUFFICIENT_A_AMOUNT');
        require(amountB >= amountBMin, 'UniswapV2Router: INSUFFICIENT_B_AMOUNT');
    }
    function removeLiquidityWithPermit(
        address tokenA,
        address tokenB,
        uint liquidity,
        uint amountAMin,
        uint amountBMin,
        address to,
        uint deadline,
        bool approveMax, uint8 v, bytes32 r, bytes32 s
    ) external virtual override returns (uint amountA, uint amountB) {
        address pair = UniswapV2Library.pairFor(factory, tokenA, tokenB);
        uint value = approveMax ? uint(-1) : liquidity;
        IUniswapV2Pair(pair).permit(msg.sender, address(this), value, deadline, v, r, s);
        (amountA, amountB) = removeLiquidity(tokenA, tokenB, liquidity, amountAMin, amountB
    }

    // **** SWAP ****
    // requires the initial amount to have already been sent to the first pair
    function _swap(uint[] memory amounts, address[] memory path, address _to) internal vir
        for (uint i; i < path.length - 1; i++) {
            (address input, address output) = (path[i], path[i + 1]);
            (address token0,) = UniswapV2Library.sortTokens(input, output);
            uint amountOut = amounts[i + 1];
            (uint amount0Out, uint amount1Out) = input == token0 ? (uint(0), amountOut) :
            address to = i < path.length - 2 ? UniswapV2Library.pairFor(factory, output, pa
            IUniswapV2Pair(UniswapV2Library.pairFor(factory, input, output)).swap(
                amount0Out, amount1Out, to, new bytes(0)
            );
        }
    }
    function swapExactTokensForTokens(
        uint amountIn,
        uint amountOutMin,
        address[] calldata path,
        address to,
        uint deadline
    ) external virtual override ensure(deadline) returns (uint[] memory amounts) {
        amounts = UniswapV2Library.getAmountsOut(factory, amountIn, path);
        require(amounts[amounts.length - 1] >= amountOutMin, 'UniswapV2Router: INSUFFICIENT
        TransferHelper.safeTransferFrom(
            path[0], msg.sender, UniswapV2Library.pairFor(factory, path[0], path[1]), amoun
        );
        _swap(amounts, path, to);
    }
    function swapTokensForExactTokens(
        uint amountOut,
        uint amountInMax,
        address[] calldata path,
        address to,
```

```
        uint deadline
    ) external virtual override ensure(deadline) returns (uint[] memory amounts) {
        amounts = UniswapV2Library.getAmountsIn(factory, amountOut, path);
        require(amounts[0] <= amountInMax, 'UniswapV2Router: EXCESSIVE_INPUT_AMOUNT');
        TransferHelper.safeTransferFrom(
            path[0], msg.sender, UniswapV2Library.pairFor(factory, path[0], path[1]), amou
        );
        _swap(amounts, path, to);
    }

    // **** SWAP (supporting fee-on-transfer tokens) ****
    // requires the initial amount to have already been sent to the first pair
    function _swapSupportingFeeOnTransferTokens(address[] memory path, address _to) interna
        for (uint i; i < path.length - 1; i++) {
            (address input, address output) = (path[i], path[i + 1]);
            (address token0,) = UniswapV2Library.sortTokens(input, output);
            IUniswapV2Pair pair = IUniswapV2Pair(UniswapV2Library.pairFor(factory, input, o
            uint amountInput;
            uint amountOutput;
            { // scope to avoid stack too deep errors
            (uint reserve0, uint reserve1,) = pair.getReserves();
            (uint reserveInput, uint reserveOutput) = input == token0 ? (reserve0, reserve1
            amountInput = IERC20Uniswap(input).balanceOf(address(pair)).sub(reserveInput);
            amountOutput = UniswapV2Library.getAmountOut(amountInput, reserveInput, reserve
            }
            (uint amount0Out, uint amount1Out) = input == token0 ? (uint(0), amountOutput)
            address to = i < path.length - 2 ? UniswapV2Library.pairFor(factory, output, pa
            pair.swap(amount0Out, amount1Out, to, new bytes(0));
        }
    }
    function swapExactTokensForTokensSupportingFeeOnTransferTokens(
        uint amountIn,
        uint amountOutMin,
        address[] calldata path,
        address to,
        uint deadline
    ) external virtual override ensure(deadline) {
        TransferHelper.safeTransferFrom(
            path[0], msg.sender, UniswapV2Library.pairFor(factory, path[0], path[1]), amou
        );
        uint balanceBefore = IERC20Uniswap(path[path.length - 1]).balanceOf(to);
        _swapSupportingFeeOnTransferTokens(path, to);
        require(
            IERC20Uniswap(path[path.length - 1]).balanceOf(to).sub(balanceBefore) >= amount
            'UniswapV2Router: INSUFFICIENT_OUTPUT_AMOUNT'
        );
    }

    // **** LIBRARY FUNCTIONS ****
    function quote(uint amountA, uint reserveA, uint reserveB) public pure virtual overrid
        return UniswapV2Library.quote(amountA, reserveA, reserveB);
    }
```

```
188     function getAmountOut(uint amountIn, uint reserveIn, uint reserveOut)
189         public
190         pure
191         virtual
192         override
193         returns (uint amountOut)
194     {
195         return UniswapV2Library.getAmountOut(amountIn, reserveIn, reserveOut);
196     }
```

SLOC Appendix

Solidity Contracts

Language	Files	Lines	Blanks	Comments	Code	Complex
Solidity	15	2113	278	420	1415	139

Comments to Code 420/1415 = 30%

Javascript Tests

Language	Files	Lines	Blanks	Comments	Code	Complex
TypeScript	8	1606	241	38	1327	5

Tests to Code 1327/1415 = 94%