



September 21st 2021 — Quantstamp Verified

Saffron Staking V2

This audit report was prepared by Quantstamp, the leader in blockchain security.

Executive Summary

Type	Staking Algorithm						
Auditors	Fayçal Lalidji, Security Auditor Christoph Michel, Research Engineer Souhail Mssassi, Research Engineer						
Timeline	2021-08-23 through 2021-09-21						
EVM Languages	Solidity						
Methods	Architecture Review, Unit Testing, Functional Testing, Computer-Aided Verification, Manual Review						
Specification	External Documentation						
Documentation Quality	<div><div></div>High</div>						
Test Quality	<div><div></div>High</div>						
Source Code	<table><tr><th>Repository</th><th>Commit</th></tr><tr><td>saffron-staking-v2</td><td>a1c08f0</td></tr><tr><td>None</td><td>a673974</td></tr></table>	Repository	Commit	saffron-staking-v2	a1c08f0	None	a673974
Repository	Commit						
saffron-staking-v2	a1c08f0						
None	a673974						

Total Issues	9 (5 Resolved)
High Risk Issues	0 (0 Resolved)
Medium Risk Issues	2 (2 Resolved)
Low Risk Issues	6 (3 Resolved)
Informational Risk Issues	1 (0 Resolved)
Undetermined Risk Issues	0 (0 Resolved)



High Risk	The issue puts a large number of users' sensitive information at risk, or is reasonably likely to lead to catastrophic impact for client's reputation or serious financial implications for client and users.
Medium Risk	The issue puts a subset of users' sensitive information at risk, would be detrimental for the client's reputation if exploited, or is reasonably likely to lead to moderate financial impact.
Low Risk	The risk is relatively small and could not be exploited on a recurring basis, or is a risk that the client has indicated is low-impact in view of the client's business circumstances.
Informational	The issue does not post an immediate risk, but is relevant to security best practices or Defence in Depth.
Undetermined	The impact of the issue is uncertain.
Unresolved	Acknowledged the existence of the risk, and decided to accept it without engaging in special efforts to control it.
Acknowledged	The issue remains in the code but is a result of an intentional business or design decision. As such, it is supposed to be addressed outside the programmatic means, such as: 1) comments, documentation, README, FAQ; 2) business processes; 3) analyses showing that the issue shall have no negative consequences in practice (e.g., gas analysis, deployment settings).
Resolved	Adjusted program implementation, requirements or constraints to eliminate the risk.
Mitigated	Implemented actions to minimize the impact or likelihood of the risk.

Summary of Findings

Initial Audit: Through reviewing the code, we found **9 potential issues** of various levels of severity. We recommend addressing the findings prior to deploying the smart contracts to the main network.

Re-audit Update: All highlighted issues were either fixed or acknowledged. QSP-8 was also marked as acknowledged. However, the maximum number of pools should be set carefully and not randomly. A gas analysis must be run to get an estimation of the possible gas consumption.

ID	Description	Severity	Status
QSP-1	Possible Un-updated Pool State After Reward Allocation Update	^ Medium	Fixed
QSP-2	Duplicate LP Token Pools Allowed	^ Medium	Fixed
QSP-3	Missing Pool Existance Checks	✓ Low	Fixed
QSP-4	Incorrect Token Deposit Logic in <i>SFIRewarder</i>	✓ Low	Acknowledged
QSP-5	Loss of Precision in <i>accSFIPerShare</i>	✓ Low	Fixed
QSP-6	Lack of Validation in <i>_allocPoint/totalAllocPoint</i>	✓ Low	Fixed
QSP-7	Possible Inconsistencies in balance of Deflationary Tokens	✓ Low	Acknowledged
QSP-8	For Loop Over Dynamic Array	✓ Low	Acknowledged
QSP-9	Rewards Can Get Stuck	○ Informational	Acknowledged

Quantstamp Audit Breakdown

Quantstamp's objective was to evaluate the repository for security-related issues, code quality, and adherence to specification and best practices.

Possible issues we looked for included (but are not limited to):

- Transaction-ordering dependence
- Timestamp dependence
- Mishandled exceptions and call stack limits
- Unsafe external calls
- Integer overflow / underflow
- Number rounding errors
- Reentrancy and cross-function vulnerabilities
- Denial of service / logical oversights
- Access control
- Centralization of power
- Business logic contradicting the specification
- Code clones, functionality duplication
- Gas usage
- Arbitrary token minting

Methodology

The Quantstamp auditing process follows a routine series of steps:

- Code review that includes the following
 - Review of the specifications, sources, and instructions provided to Quantstamp to make sure we understand the size, scope, and functionality of the smart contract.
 - Manual review of code, which is the process of reading source code line-by-line in an attempt to identify potential vulnerabilities.
 - Comparison to specification, which is the process of checking whether the code does what the specifications, sources, and instructions provided to Quantstamp describe.
- Testing and automated analysis that includes the following:
 - Test coverage analysis, which is the process of determining whether the test cases are actually covering the code and how much code is exercised when we run those test cases.
 - Symbolic execution, which is analyzing a program to determine what inputs cause each part of a program to execute.
- Best practices review, which is a review of the smart contracts to improve efficiency, effectiveness, clarify, maintainability, security, and control based on the established industry and academic practices, recommendations, and research.
- Specific, itemized, and actionable recommendations to help you take steps to secure your smart contracts.

Toolset

The notes below outline the setup and steps performed in the process of this audit.

Setup

Tool Setup:

- [Slither](#) v0.8.0

Steps taken to run the tools:

Installed the Slither tool: `pip install slither-analyzer` Run Slither from the project directory: `slither .`

Findings

QSP-1 Possible Un-updated Pool State After Reward Allocation Update

Severity: *Medium Risk*

Status: Fixed

File(s) affected: `SaffronStakingV2.sol`

Description: `set()` and `add()` functions members should always be executed with `massUpdatePools()` to avoid errors when computing the user's rewards since the total allocation points will change. However, both functions have a boolean (`_withUpdate`) input that will allow the owner or governance to modify the allocation point of a pool or to add a new pool with new allocation points without updating the accumulated reward per block for each pool. This can lead to distributing more or less reward than the amount expected.

Recommendation: We recommend to always update the pools when modifying the allocation points of any of the listed pools.

Update: Fixed in: "https://github.com/saffron-finance/saffron-staking-v2/pull/3".

QSP-2 Duplicate LP Token Pools Allowed

Severity: *Medium Risk*

Status: Fixed

File(s) affected: `SaffronStakingV2.sol`

Description: `SaffronStakingV2.add()` allows adding more than once the same `LPToken`. This issue will dilute the user's rewards since `updatePool()` relies on `pool.lpToken.balanceOf(address(this))` to get the pool supposed balance, that will return the total value held by both pools (or more), which will dilute the user's rewards.

Recommendation: We highly recommend enforcing this specification by adding and checking a mapping to verify if a `lpToken` was previously added or not.

Update: Fixed in: "https://github.com/saffron-finance/saffron-staking-v2/pull/4".

QSP-3 Missing Pool Existence Checks

Severity: *Low Risk*

Status: Fixed

File(s) affected: `SaffronStakingV2.sol`

Description: The `set` function works on pools that have not been created yet. The owner can allocate points to non-existent pools.

Recommendation: Verify that the pool exists, for instance, by checking `poolInfo[_pid].lpToken != 0`.

Update: Fixed in: "https://github.com/saffron-finance/saffron-staking-v2/pull/5".

QSP-4 Incorrect Token Deposit Logic in `SFIRewarder`

Severity: *Low Risk*

Status: Acknowledged

File(s) affected: `SFIRewarder.sol`

Description: It is unclear how tokens are deposited to `SFIRewarder`. However, we recommend adding a dedicated function that calls `ERC20.transferFrom()` to avoid any address input error when handling the transfer.

Update: Acknowledged in: "https://github.com/saffron-finance/saffron-staking-v2/pull/6".

QSP-5 Loss of Precision in `accSFIPerShare`

Severity: *Low Risk*

Status: Fixed

File(s) affected: `SaffronStakingV2.sol`

Description: The `accSFIPerShare` variable (see `pendingSFI()` and `updatePool()`) is updated by `sfiReward * 1e18 / lpSupply` and `sfiReward` uses integer division when dividing by `totalAllocPoint`. This leads to `sfiReward` being truncated and `accSFIPerShare` potentially losing precision.

Recommendation: Generally, it's recommended to perform all multiplications before divisions if possible. In the case of `accSFIPerShare`, it can be computed by rearranging the `sfiReward` computation as presented in the example below:

```
uint256 newSFIRewardPerLp = multiplier * sfiPerBlock * pool.allocPoint * 1e18 / totalAllocPoint / lpSupply;
accSFIPerShare += newSFIRewardPerLp;
```

Update: Fixed in: "https://github.com/saffron-finance/saffron-staking-v2/pull/7".

QSP-6 Lack of Validation in `_allocPoint/totalAllocPoint`

Severity: *Low Risk*

Status: Fixed

File(s) affected: `SaffronStakingV2.sol`

Description: The value of allocation point value is not validated in both `set()` and `add()` functions. The input validation, in this case, is important since it can impact `totalAllocPoint`. For example, if `totalAllocPoint` is equal to zero then both `updatePool` and `pendingSFI` will most likely throw.

Recommendation: Either check that `_allocPoint` is greater than 0 or that the final value of `totalAllocPoint` is greater than zero.

Update: Fixed in: "https://github.com/saffron-finance/saffron-staking-v2/pull/8".

QSP-7 Possible Inconsistencies in balance of Deflationary Tokens

Severity: *Low Risk*

Status: Acknowledged

File(s) affected: `SaffronStakingV2.sol`

Description: The smart contract will use the `deposit()` function to send deposit assets from the user's account to the pool. When transferring ordinary ERC20 tokens, asset transfers work as expected, and the internal account balances are always consistent with the ERC20 token contract's real token balances. However, in the case of deflationary tokens, the input amount may differ from the returned amount due to the charges transaction fee, which can result in unexpected balance inconsistencies when comparing internal asset records to external ERC20 tokens contracts.

Recommendation: Instead of automatically using that the amount parameter in `transfer()` , Query the asset amount before and after the asset transfer, and use as an amount the difference between them. A more obvious solution will be to not list tokens with a deflationary feature.

Update: Acknowledged in: "https://github.com/saffron-finance/saffron-staking-v2/pull/9".

QSP-8 For Loop Over Dynamic Array

Severity: *Low Risk*

Status: Acknowledged

File(s) affected: `SaffronStakingV2.sol`

Description: When smart contracts are deployed or their associated functions are invoked, the execution of these operations always consumes a certain quantity of gas, according to the amount of computation required to accomplish them. Modifying an unknown-size array that grows in size over time can result in a Denial of Service attack. Simply by having an excessively huge array, users can exceed the gas limit, therefore preventing the transaction from ever succeeding.

Recommendation: If actions involve looping across a dynamic data structure are necessary, the array size should be carefully analyzed before any modification.

Update: Acknowledged in: "https://github.com/saffron-finance/saffron-staking-v2/pull/10". However, the maximum number of pools should be tested and the gas consumption analyzed.

QSP-9 Rewards Can Get Stuck

Severity: *Informational*

Status: Acknowledged

File(s) affected: `SaffronStakingV2.sol`, `SFIRewarder.sol`

Description: Enough `SFI` reward tokens need to be present in the `SFIRewarder` contract, otherwise, the reward payouts fail due to `safeSFITransfer` failing. As it is called on each claim (`deposit`, `withdraw`), users might not be able to claim their already allocated and pending rewards. Note that partial rewards are not paid out and the contract always tries to pay out the full rewards.

Recommendation: Ensure there is always enough SFI in the `SFIRewarder` contract to cover the entire reward period.

Update: Acknowledged in: "https://github.com/saffron-finance/saffron-staking-v2/pull/11".

Automated Analyses

Slither

Slither did not report any significant issues.

Test Results

Test Suite Results

```
npx hardhat coverage

Version
=====
> solidity-coverage: v0.7.17

Instrumenting for coverage...
=====

> SaffronStakingV2.sol
> SFIRewarder.sol

Coverage skipped for:
=====

> interface/ISFIRewarder.sol
> MockERC20.sol

Compilation:
=====

Compiling 11 files with 0.8.4
Compilation finished successfully

Network Info
=====
> HardhatEVM: v2.5.0
> network:    hardhat
```



```
    ✓ SaffronStakingV2 SaffronStakingV2 contract test
Took snapshot with evm_snapshot ✓ new snapshotId: 0x1
rewardCutoff : 8064
Latest Block Before Start: 0
Latest Block: 5
    ✓ should transfer to rewarder correctly
    ✓ should set the staking address (70ms)
    ✓ should set rewardCutoff correctly (96ms)
    ✓ should set rewardCutoff and sfiPerBlock correctly (84ms)
    ✓ should add pools correctly (148ms)
    ✓ should deposit correctly (181ms)
    ✓ should revert when attempting to withdraw more than user owns (48ms)
    ✓ should withdraw 0 to claim the rewards before reward period ends (1615ms)
    ✓ should withdraw 50% of principal to claim the rewards before reward period ends (1458ms)
    ✓ should withdraw remaining principal to claim the rewards after the reward period ends (3718ms)
    ✓ shouldn't have any rewards after reward end block (4171ms)

    ✓ SaffronStakingV2 with low allocation points and 0 SFI per block
Reverting with evm_revert ✓ back to snapshotId: 0x1
Took snapshot with evm_snapshot ✓ new snapshotId: 0xc
Latest Block: 20
    ✓ should add pools with 0 ap (52ms)
    ✓ should allow update() on staking contract when sfiPerBlock is 0
    ✓ should allow user deposits when sfiPerBlock is 0 (88ms)
    ✓ should mine blocks and report 0 earnings for all users (2421ms)
Advancing 1 block with evm_mine ✓ ✓ latest block: 232
Advancing 1000 blocks with evm_mine ✓ ✓ latest block: 1233
Expecting total earnings near: 1240079365079365000
Total earnings for all users : 1240079365079340000
    ✓ should set rewards and distribute correctly after not having rewards for a long time (565ms)

    ✓ SaffronStakingV2 function coverage
Reverting with evm_revert ✓ back to snapshotId: 0xc
Took snapshot with evm_snapshot ✓ new snapshotId: 0x17
    ✓ should deploy SFIRewarder contract correctly (51ms)
    ✓ should deploy SaffronStakingV2 contract correctly (123ms)
    ✓ should set SFIRewarder staking address correctly
    ✓ should have SFIRewarder rewardUser work correctly (47ms)
    ✓ should have SFIRewarder emergencyWithdraw work correctly (43ms)
    ✓ should have SaffronStakingV2 setRewarder work correctly
    ✓ should have SaffronStakingV2 setRewardPerBlock work correctly
    ✓ should have SaffronStakingV2 setRewardCutoff work correctly
Advancing 10 blocks with evm_mine ✓ ✓ latest block: 60
    ✓ should have SaffronStakingV2 add pool work correctly (69ms)
Took snapshot with evm_snapshot ✓ new snapshotId: 0x2d
Advancing 10 blocks with evm_mine ✓ ✓ latest block: 76
    ✓ should have SaffronStakingV2 add pool withUpdate work correctly (57ms)
Reverting with evm_revert ✓ back to snapshotId: 0x2d
    ✓ should have SaffronStakingV2 poolLength work correctly (40ms)
    ✓ should have SaffronStakingV2 set pool work correctly (56ms)
Advancing 10 blocks with evm_mine ✓ ✓ latest block: 82
    ✓ should have SaffronStakingV2 pendingSFI correctly (87ms)
Took snapshot with evm_snapshot ✓ new snapshotId: 0x2e
Advancing 10 blocks with evm_mine ✓ ✓ latest block: 99
    ✓ should have SaffronStakingV2 massUpdatePools work correctly (127ms)
Reverting with evm_revert ✓ back to snapshotId: 0x2e
Took snapshot with evm_snapshot ✓ new snapshotId: 0x2f
Advancing 10 blocks with evm_mine ✓ ✓ latest block: 95
    ✓ should have SaffronStakingV2 updatePool work correctly (57ms)
Reverting with evm_revert ✓ back to snapshotId: 0x2f
Took snapshot with evm_snapshot ✓ new snapshotId: 0x30
erin_SFI_before: 10000.0
fred_SFI_before: 10000.0
pool_SFI_after: 20000.0
erin_SFI_after: 10000.0
    ✓ should have SaffronStakingV2 emergencyWithdraw work correctly (93ms)

    ✓ SaffronStakingV2 deposits/withdrawals
Reverting with evm_revert ✓ back to snapshotId: 0x17
Took snapshot with evm_snapshot ✓ new snapshotId: 0x31
rewardCutoff : 8064
Signers alex, beth, carl: 0x70997970C51812dc3A010C7d01b50e0d17dc79C8 0x3C44CdD86a900fa2b585dd299e03d12FA4293BC 0x90F79bf6EB2c4f870365E785982E1f101E93b906
Signers dave, erin, fred: 0x15d34AAf54267DB7D7c367839AAf71A00a2C6A65 0x9965507D1a55bcC2695C58ba16FB37d819B0AA4dc 0x976EA74026E726554d8B657fA54763abd0C3a0aa9
SFI token is deployed at 0x5FbDB2315678afecb367f032d93F642f64180aa3
SFI Rewarder is deployed at 0xa513E6E4b8f2a923D98304ec87F64353C4D5C853
SaffronStakingV2 is deployed at 0x2279B7A0a67DB372996a5Fa850D91eAA73d2eBe6
Latest Block: 9
Took snapshot with evm_snapshot ✓ new snapshotId: 0x38
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 8564 blocks with evm_mine ✓ ✓ latest block: 8589
alex_rewards: 1.66433118386238
beth_rewards: 1.66309110449731
carl_rewards: 1.66247106481478
dave_rewards: 1.66205770502643
erin_rewards: 1.66174768518517
fred_rewards: 1.66149966931216
rewarder_rewards: 0.02480158730177
totalRewards: 10.0
    ✓ users that deposit first should have more rewards and total rewards match rewarder total (4837ms)
Reverting with evm_revert ✓ back to snapshotId: 0x38
Took snapshot with evm_snapshot ✓ new snapshotId: 0x39
Latest Block: 13 rewardCutoff: 8064
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 125
alex_balance: 10000.02370618386238
beth_balance: 10000.02271412037032
carl_balance: 10000.02240410052905
dave_balance: 10000.02240410052905
erin_balance: 10000.02271412037032
fred_balance: 10000.02370618386238
rewarder_balance: 9.8623511904765
totalRewards: 10.0
Latest Block: 131
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 243
alex_balance: 10000.04741236772476
beth_balance: 10000.04542824074064
carl_balance: 10000.0448082010581
dave_balance: 10000.0448082010581
erin_balance: 10000.04542824074064
fred_balance: 10000.04741236772476
rewarder_balance: 9.724702380953
totalRewards: 10.0
Latest Block: 249
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 361
alex_balance: 10000.07111855158714
beth_balance: 10000.06814236111096
carl_balance: 10000.06721230158715
dave_balance: 10000.06721230158715
erin_balance: 10000.06814236111096
fred_balance: 10000.07111855158714
rewarder_balance: 9.5870535714295
totalRewards: 10.0
Latest Block: 367
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 479
alex_balance: 10000.09482473544952
beth_balance: 10000.09085648148128
carl_balance: 10000.0896164021162
dave_balance: 10000.0896164021162
erin_balance: 10000.09085648148128
fred_balance: 10000.09482473544952
rewarder_balance: 9.449404761906
totalRewards: 10.0
Latest Block: 485
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 597
alex_balance: 10000.1185309193119
beth_balance: 10000.1135706018516
carl_balance: 10000.11202050264525
```

dave_balance: 10000.11202050264525
erin_balance: 10000.1135706018516
fred_balance: 10000.1185309193119
rewarder_balance: 9.3117559523825
totalRewards: 10.0
Latest Block: 603
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 715
alex_balance: 10000.14223710317428
beth_balance: 10000.13628472222192
carl_balance: 10000.1344246031743
dave_balance: 10000.1344246031743
erin_balance: 10000.13628472222192
fred_balance: 10000.14223710317428
rewarder_balance: 9.174107142859
totalRewards: 10.0
Latest Block: 721
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 833
alex_balance: 10000.16594328703666
beth_balance: 10000.15899884259224
carl_balance: 10000.15682870370335
dave_balance: 10000.15682870370335
erin_balance: 10000.15899884259224
fred_balance: 10000.16594328703666
rewarder_balance: 9.0364583333355
totalRewards: 10.0
Latest Block: 839
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 951
alex_balance: 10000.18964947089904
beth_balance: 10000.18171296296256
carl_balance: 10000.1792328042324
dave_balance: 10000.1792328042324
erin_balance: 10000.18171296296256
fred_balance: 10000.18964947089904
rewarder_balance: 8.898809523812
totalRewards: 10.0
Latest Block: 957
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 1069
alex_balance: 10000.21335565476142
beth_balance: 10000.20442708333288
carl_balance: 10000.20163690476145
dave_balance: 10000.20163690476145
erin_balance: 10000.20442708333288
fred_balance: 10000.21335565476142
rewarder_balance: 8.7611607142885
totalRewards: 10.0
Latest Block: 1075
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 1187
alex_balance: 10000.2370618386238
beth_balance: 10000.2271412037032
carl_balance: 10000.2240410052905
dave_balance: 10000.2240410052905
erin_balance: 10000.2271412037032
fred_balance: 10000.2370618386238
rewarder_balance: 8.623511904765
totalRewards: 10.0
Latest Block: 1193
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 1305
alex_balance: 10000.26076802248618
beth_balance: 10000.24985532407352
carl_balance: 10000.24644510581955
dave_balance: 10000.24644510581955
erin_balance: 10000.24985532407352
fred_balance: 10000.26076802248618
rewarder_balance: 8.4858630952415
totalRewards: 10.0
Latest Block: 1311
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 1423
alex_balance: 10000.28447420634856
beth_balance: 10000.2725694444384
carl_balance: 10000.2688492063486
dave_balance: 10000.2688492063486
erin_balance: 10000.2725694444384
fred_balance: 10000.28447420634856
rewarder_balance: 8.348214285718
totalRewards: 10.0
Latest Block: 1429
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 1541
alex_balance: 10000.30818039021094
beth_balance: 10000.29528356481416
carl_balance: 10000.29125330687765
dave_balance: 10000.29125330687765
erin_balance: 10000.29528356481416
fred_balance: 10000.30818039021094
rewarder_balance: 8.2105654761945
totalRewards: 10.0
Latest Block: 1547
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 1659
alex_balance: 10000.33188657407332
beth_balance: 10000.31799768518448
carl_balance: 10000.3136574074067
dave_balance: 10000.3136574074067
erin_balance: 10000.31799768518448
fred_balance: 10000.33188657407332
rewarder_balance: 8.072916666671
totalRewards: 10.0
Latest Block: 1665
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 1777
alex_balance: 10000.3555927579357
beth_balance: 10000.3407118055548
carl_balance: 10000.33606150793575
dave_balance: 10000.33606150793575
erin_balance: 10000.3407118055548
fred_balance: 10000.3555927579357
rewarder_balance: 7.9352678571475
totalRewards: 10.0
Latest Block: 1783
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 1895
alex_balance: 10000.37929894179808
beth_balance: 10000.36342592592512
carl_balance: 10000.3584656084648
dave_balance: 10000.3584656084648
erin_balance: 10000.36342592592512
fred_balance: 10000.37929894179808
rewarder_balance: 7.797619047624
totalRewards: 10.0
Latest Block: 1901
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 2013
alex_balance: 10000.40300512566046
beth_balance: 10000.38614004629544
carl_balance: 10000.38086970899385
dave_balance: 10000.38086970899385
erin_balance: 10000.38614004629544
fred_balance: 10000.40300512566046
rewarder_balance: 7.6599702381005
totalRewards: 10.0
Latest Block: 2019
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 2131
alex_balance: 10000.42671130952284

beth_balance: 10000.40885416666576
carl_balance: 10000.4032738095229
dave_balance: 10000.4032738095229
erin_balance: 10000.40885416666576
fred_balance: 10000.42671130952284
rewarder_balance: 7.522321428577
totalRewards: 10.0
Latest Block: 2137
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 2249
alex_balance: 10000.45041749338522
beth_balance: 10000.43156828703608
carl_balance: 10000.42567791005195
dave_balance: 10000.42567791005195
erin_balance: 10000.43156828703608
fred_balance: 10000.45041749338522
rewarder_balance: 7.3846726190535
totalRewards: 10.0
Latest Block: 2255
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 2367
alex_balance: 10000.4741236772476
beth_balance: 10000.4542824074064
carl_balance: 10000.448082010581
dave_balance: 10000.448082010581
erin_balance: 10000.4542824074064
fred_balance: 10000.4741236772476
rewarder_balance: 7.24702380953
totalRewards: 10.0
Latest Block: 2373
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 2485
alex_balance: 10000.49782986110998
beth_balance: 10000.47699652777672
carl_balance: 10000.47048611111005
dave_balance: 10000.47048611111005
erin_balance: 10000.47699652777672
fred_balance: 10000.49782986110998
rewarder_balance: 7.1093750000065
totalRewards: 10.0
Latest Block: 2491
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 2603
alex_balance: 10000.52153604497236
beth_balance: 10000.49971064814704
carl_balance: 10000.4928902116391
dave_balance: 10000.4928902116391
erin_balance: 10000.49971064814704
fred_balance: 10000.52153604497236
rewarder_balance: 6.971726190483
totalRewards: 10.0
Latest Block: 2609
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 2721
alex_balance: 10000.54524222883474
beth_balance: 10000.52242476851736
carl_balance: 10000.51529431216815
dave_balance: 10000.51529431216815
erin_balance: 10000.52242476851736
fred_balance: 10000.54524222883474
rewarder_balance: 6.8340773809595
totalRewards: 10.0
Latest Block: 2727
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 2839
alex_balance: 10000.56894841269712
beth_balance: 10000.5451388888768
carl_balance: 10000.5376984126972
dave_balance: 10000.5376984126972
erin_balance: 10000.5451388888768
fred_balance: 10000.56894841269712
rewarder_balance: 6.696428571436
totalRewards: 10.0
Latest Block: 2845
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 2957
alex_balance: 10000.5926545965595
beth_balance: 10000.567853009258
carl_balance: 10000.56010251322625
dave_balance: 10000.56010251322625
erin_balance: 10000.567853009258
fred_balance: 10000.5926545965595
rewarder_balance: 6.5587797619125
totalRewards: 10.0
Latest Block: 2963
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 3075
alex_balance: 10000.61636078042188
beth_balance: 10000.59056712962832
carl_balance: 10000.5825066137553
dave_balance: 10000.5825066137553
erin_balance: 10000.59056712962832
fred_balance: 10000.61636078042188
rewarder_balance: 6.421130952389
totalRewards: 10.0
Latest Block: 3081
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 3193
alex_balance: 10000.64006696428426
beth_balance: 10000.61328124999864
carl_balance: 10000.60491071428435
dave_balance: 10000.60491071428435
erin_balance: 10000.61328124999864
fred_balance: 10000.64006696428426
rewarder_balance: 6.2834821428655
totalRewards: 10.0
Latest Block: 3199
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 3311
alex_balance: 10000.66377314814664
beth_balance: 10000.63599537036896
carl_balance: 10000.6273148148134
dave_balance: 10000.6273148148134
erin_balance: 10000.63599537036896
fred_balance: 10000.66377314814664
rewarder_balance: 6.145833333342
totalRewards: 10.0
Latest Block: 3317
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 3429
alex_balance: 10000.68747933200902
beth_balance: 10000.65870949073928
carl_balance: 10000.64971891534245
dave_balance: 10000.64971891534245
erin_balance: 10000.65870949073928
fred_balance: 10000.68747933200902
rewarder_balance: 6.0081845238185
totalRewards: 10.0
Latest Block: 3435
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 3547
alex_balance: 10000.7111855158714
beth_balance: 10000.6814236111096
carl_balance: 10000.6721230158715
dave_balance: 10000.6721230158715
erin_balance: 10000.6814236111096
fred_balance: 10000.7111855158714
rewarder_balance: 5.870535714295
totalRewards: 10.0
Latest Block: 3553
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool

Advancing 100 blocks with evm_mine ✓ ✓ latest block: 3665
alex_balance: 10000.73489169973378
beth_balance: 10000.70413773147992
carl_balance: 10000.69452711640055
dave_balance: 10000.69452711640055
erin_balance: 10000.70413773147992
fred_balance: 10000.73489169973378
rewarder_balance: 5.7328869047715
totalRewards: 10.0
Latest Block: 3671
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 3783
alex_balance: 10000.75859788359616
beth_balance: 10000.72685185185024
carl_balance: 10000.7169312169296
dave_balance: 10000.7169312169296
erin_balance: 10000.72685185185024
fred_balance: 10000.75859788359616
rewarder_balance: 5.595238095248
totalRewards: 10.0
Latest Block: 3789
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 3901
alex_balance: 10000.78230406745854
beth_balance: 10000.74956597222056
carl_balance: 10000.73933531745865
dave_balance: 10000.73933531745865
erin_balance: 10000.74956597222056
fred_balance: 10000.78230406745854
rewarder_balance: 5.4575892857245
totalRewards: 10.0
Latest Block: 3907
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 4019
alex_balance: 10000.80601025132092
beth_balance: 10000.77228009259088
carl_balance: 10000.7617394179877
dave_balance: 10000.7617394179877
erin_balance: 10000.77228009259088
fred_balance: 10000.80601025132092
rewarder_balance: 5.319940476201
totalRewards: 10.0
Latest Block: 4025
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 4137
alex_balance: 10000.8297164351833
beth_balance: 10000.7949942129612
carl_balance: 10000.78414351851675
dave_balance: 10000.78414351851675
erin_balance: 10000.7949942129612
fred_balance: 10000.8297164351833
rewarder_balance: 5.1822916666775
totalRewards: 10.0
Latest Block: 4143
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 4255
alex_balance: 10000.85342261904568
beth_balance: 10000.81770833333152
carl_balance: 10000.8065476190458
dave_balance: 10000.8065476190458
erin_balance: 10000.81770833333152
fred_balance: 10000.85342261904568
rewarder_balance: 5.044642857154
totalRewards: 10.0
Latest Block: 4261
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 4373
alex_balance: 10000.87712880290806
beth_balance: 10000.84042245370184
carl_balance: 10000.82895171957485
dave_balance: 10000.82895171957485
erin_balance: 10000.84042245370184
fred_balance: 10000.87712880290806
rewarder_balance: 4.9069940476305
totalRewards: 10.0
Latest Block: 4379
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 4491
alex_balance: 10000.90083498677044
beth_balance: 10000.86313657407216
carl_balance: 10000.8513558201039
dave_balance: 10000.8513558201039
erin_balance: 10000.86313657407216
fred_balance: 10000.90083498677044
rewarder_balance: 4.769345238107
totalRewards: 10.0
Latest Block: 4497
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 4609
alex_balance: 10000.92454117063282
beth_balance: 10000.88585069444248
carl_balance: 10000.87375992063295
dave_balance: 10000.87375992063295
erin_balance: 10000.88585069444248
fred_balance: 10000.92454117063282
rewarder_balance: 4.6316964285835
totalRewards: 10.0
Latest Block: 4615
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 4727
alex_balance: 10000.9482473544952
beth_balance: 10000.9085648148128
carl_balance: 10000.896164021162
dave_balance: 10000.896164021162
erin_balance: 10000.9085648148128
fred_balance: 10000.9482473544952
rewarder_balance: 4.49404761906
totalRewards: 10.0
Latest Block: 4733
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 4845
alex_balance: 10000.97195353835758
beth_balance: 10000.93127893518312
carl_balance: 10000.91856812169105
dave_balance: 10000.91856812169105
erin_balance: 10000.93127893518312
fred_balance: 10000.97195353835758
rewarder_balance: 4.3563988095365
totalRewards: 10.0
Latest Block: 4851
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 4963
alex_balance: 10000.99565972221996
beth_balance: 10000.95399305555344
carl_balance: 10000.9409722222201
dave_balance: 10000.9409722222201
erin_balance: 10000.95399305555344
fred_balance: 10000.99565972221996
rewarder_balance: 4.218750000013
totalRewards: 10.0
Latest Block: 4969
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 5081
alex_balance: 10001.01936590608234
beth_balance: 10000.97670717592376
carl_balance: 10000.96337632274915
dave_balance: 10000.96337632274915
erin_balance: 10000.97670717592376
fred_balance: 10001.01936590608234
rewarder_balance: 4.0811011904895
totalRewards: 10.0

Latest Block: 5087
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 5199
alex_balance: 10001.04307208994472
beth_balance: 10000.99942129629408
carl_balance: 10000.9857804232782
dave_balance: 10000.9857804232782
erin_balance: 10000.99942129629408
fred_balance: 10001.04307208994472
rewarder_balance: 3.943452380966
totalRewards: 10.0
Latest Block: 5205
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 5317
alex_balance: 10001.0667782738071
beth_balance: 10001.0221354166644
carl_balance: 10001.00818452380725
dave_balance: 10001.00818452380725
erin_balance: 10001.0221354166644
fred_balance: 10001.0667782738071
rewarder_balance: 3.8058035714425
totalRewards: 10.0
Latest Block: 5323
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 5435
alex_balance: 10001.09048445766948
beth_balance: 10001.04484953703472
carl_balance: 10001.0305886243363
dave_balance: 10001.0305886243363
erin_balance: 10001.04484953703472
fred_balance: 10001.09048445766948
rewarder_balance: 3.668154761919
totalRewards: 10.0
Latest Block: 5441
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 5553
alex_balance: 10001.11419064153186
beth_balance: 10001.06756365740504
carl_balance: 10001.05299272486535
dave_balance: 10001.05299272486535
erin_balance: 10001.06756365740504
fred_balance: 10001.11419064153186
rewarder_balance: 3.5305059523955
totalRewards: 10.0
Latest Block: 5559
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 5671
alex_balance: 10001.13789682539424
beth_balance: 10001.09027777777536
carl_balance: 10001.0753968253944
dave_balance: 10001.0753968253944
erin_balance: 10001.09027777777536
fred_balance: 10001.13789682539424
rewarder_balance: 3.392857142872
totalRewards: 10.0
Latest Block: 5677
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 5789
alex_balance: 10001.16160300925662
beth_balance: 10001.11299189814568
carl_balance: 10001.09780092592345
dave_balance: 10001.09780092592345
erin_balance: 10001.11299189814568
fred_balance: 10001.16160300925662
rewarder_balance: 3.2552083333485
totalRewards: 10.0
Latest Block: 5795
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 5907
alex_balance: 10001.185309193119
beth_balance: 10001.135706018516
carl_balance: 10001.1202050264525
dave_balance: 10001.1202050264525
erin_balance: 10001.135706018516
fred_balance: 10001.185309193119
rewarder_balance: 3.117559523825
totalRewards: 10.0
Latest Block: 5913
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 6025
alex_balance: 10001.20901537698138
beth_balance: 10001.15842013888632
carl_balance: 10001.14260912698155
dave_balance: 10001.14260912698155
erin_balance: 10001.15842013888632
fred_balance: 10001.20901537698138
rewarder_balance: 2.9799107143015
totalRewards: 10.0
Latest Block: 6031
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 6143
alex_balance: 10001.23272156084376
beth_balance: 10001.18113425925664
carl_balance: 10001.1650132275106
dave_balance: 10001.1650132275106
erin_balance: 10001.18113425925664
fred_balance: 10001.23272156084376
rewarder_balance: 2.842261904778
totalRewards: 10.0
Latest Block: 6149
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 6261
alex_balance: 10001.25642774470614
beth_balance: 10001.20384837962696
carl_balance: 10001.18741732803965
dave_balance: 10001.18741732803965
erin_balance: 10001.20384837962696
fred_balance: 10001.25642774470614
rewarder_balance: 2.7046130952545
totalRewards: 10.0
Latest Block: 6267
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 6379
alex_balance: 10001.28013392856852
beth_balance: 10001.22656249999728
carl_balance: 10001.2098214285687
dave_balance: 10001.2098214285687
erin_balance: 10001.22656249999728
fred_balance: 10001.28013392856852
rewarder_balance: 2.566964285731
totalRewards: 10.0
Latest Block: 6385
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 6497
alex_balance: 10001.3038401124309
beth_balance: 10001.2492766203676
carl_balance: 10001.23222552909775
dave_balance: 10001.23222552909775
erin_balance: 10001.2492766203676
fred_balance: 10001.3038401124309
rewarder_balance: 2.4293154762075
totalRewards: 10.0
Latest Block: 6503
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 6615
alex_balance: 10001.32754629629328
beth_balance: 10001.27199074073792
carl_balance: 10001.2546296296268
dave_balance: 10001.2546296296268
erin_balance: 10001.27199074073792
fred_balance: 10001.32754629629328

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rewarder_balance: 2.291666666684
totalRewards: 10.0
Latest Block: 6621
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 6733
alex_balance: 10001.35125248015566
beth_balance: 10001.29470486110824
carl_balance: 10001.27703373015585
dave_balance: 10001.27703373015585
erin_balance: 10001.29470486110824
fred_balance: 10001.35125248015566
rewarder_balance: 2.1540178571605
totalRewards: 10.0
Latest Block: 6739
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 6851
alex_balance: 10001.37495866401804
beth_balance: 10001.31741898147856
carl_balance: 10001.2994378306849
dave_balance: 10001.2994378306849
erin_balance: 10001.31741898147856
fred_balance: 10001.37495866401804
rewarder_balance: 2.016369047637
totalRewards: 10.0
Latest Block: 6857
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 6969
alex_balance: 10001.39866484788042
beth_balance: 10001.34013310184888
carl_balance: 10001.32184193121395
dave_balance: 10001.32184193121395
erin_balance: 10001.34013310184888
fred_balance: 10001.39866484788042
rewarder_balance: 1.8787202381135
totalRewards: 10.0
Latest Block: 6975
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 7087
alex_balance: 10001.4223710317428
beth_balance: 10001.3628472222192
carl_balance: 10001.344246031743
dave_balance: 10001.344246031743
erin_balance: 10001.3628472222192
fred_balance: 10001.4223710317428
rewarder_balance: 1.74107142859
totalRewards: 10.0
Latest Block: 7093
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 7205
alex_balance: 10001.44607721560518
beth_balance: 10001.38556134258952
carl_balance: 10001.36665013227205
dave_balance: 10001.36665013227205
erin_balance: 10001.38556134258952
fred_balance: 10001.44607721560518
rewarder_balance: 1.6034226190665
totalRewards: 10.0
Latest Block: 7211
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 7323
alex_balance: 10001.46978339946756
beth_balance: 10001.40827546295984
carl_balance: 10001.3890542328011
dave_balance: 10001.3890542328011
erin_balance: 10001.40827546295984
fred_balance: 10001.46978339946756
rewarder_balance: 1.465773809543
totalRewards: 10.0
Latest Block: 7329
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 7441
alex_balance: 10001.49348958332994
beth_balance: 10001.43098958333016
carl_balance: 10001.41145833333015
dave_balance: 10001.41145833333015
erin_balance: 10001.43098958333016
fred_balance: 10001.49348958332994
rewarder_balance: 1.3281250000195
totalRewards: 10.0
Latest Block: 7447
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 7559
alex_balance: 10001.51719576719232
beth_balance: 10001.45370370370048
carl_balance: 10001.4338624338592
dave_balance: 10001.4338624338592
erin_balance: 10001.45370370370048
fred_balance: 10001.51719576719232
rewarder_balance: 1.190476190496
totalRewards: 10.0
Latest Block: 7565
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 7677
alex_balance: 10001.5409019510547
beth_balance: 10001.4764178240708
carl_balance: 10001.45626653438825
dave_balance: 10001.45626653438825
erin_balance: 10001.4764178240708
fred_balance: 10001.5409019510547
rewarder_balance: 1.0528273809725
totalRewards: 10.0
Latest Block: 7683
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 7795
alex_balance: 10001.56460813491708
beth_balance: 10001.49913194444112
carl_balance: 10001.4786706349173
dave_balance: 10001.4786706349173
erin_balance: 10001.49913194444112
fred_balance: 10001.56460813491708
rewarder_balance: 0.915178571449
totalRewards: 10.0
Latest Block: 7801
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 7913
alex_balance: 10001.58831431877946
beth_balance: 10001.52184606481144
carl_balance: 10001.50107473544635
dave_balance: 10001.50107473544635
erin_balance: 10001.52184606481144
fred_balance: 10001.58831431877946
rewarder_balance: 0.7775297619255
totalRewards: 10.0
Latest Block: 7919
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 8031
alex_balance: 10001.61202050264184
beth_balance: 10001.54456018518176
carl_balance: 10001.5234788359754
dave_balance: 10001.5234788359754
erin_balance: 10001.54456018518176
fred_balance: 10001.61202050264184
rewarder_balance: 0.639880952402
totalRewards: 10.0
Latest Block: 8037
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 8149
alex_balance: 10001.61795221560475
beth_balance: 10001.5492518187796
carl_balance: 10001.52755042989071
dave_balance: 10001.52713707010236
```



```
erin_balance: 10001.54790839946746
fred_balance: 10001.61512070105453
rewarder_balance: 0.61507936510059
totalRewards: 10.0
Latest Block: 8155
    ✓ should have users multiple deposits and withdrawals not cause math errors (26593ms)
Reverting with evm_revert ✓ back to snapshotId: 0x39
Took snapshot with evm_snapshot ✓ new snapshotId: 0x3a
Latest Block: 13 rewardCutoff: 8064
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 119
alex_balance: 10000.04515955687827
beth_balance: 10000.04464285714281
carl_balance: 10000.04474619708989
dave_balance: 0.0
erin_balance: 0.0
fred_balance: 0.0
rewarder_balance: 9.86545138888903
totalRewards: 10.0
Latest Block: 128
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 237
alex_balance: 10000.09031911375654
beth_balance: 10000.08928571428562
carl_balance: 10000.08949239417978
dave_balance: 0.00217013888883
erin_balance: 0.00206679894175
fred_balance: 0.00258349867721
rewarder_balance: 9.72408234127027
totalRewards: 10.0
Latest Block: 246
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 355
alex_balance: 10000.13547867063481
beth_balance: 10000.13392857142843
carl_balance: 10000.13423859126967
dave_balance: 0.00434027777766
erin_balance: 0.0041335978835
fred_balance: 0.00516699735442
rewarder_balance: 9.58271329365151
totalRewards: 10.0
Latest Block: 364
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 473
alex_balance: 10000.18063822751308
beth_balance: 10000.17857142857124
carl_balance: 10000.17898478835956
dave_balance: 0.00651041666649
erin_balance: 0.00620039682525
fred_balance: 0.00775049603163
rewarder_balance: 9.44134424603275
totalRewards: 10.0
Latest Block: 482
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 591
alex_balance: 10000.22579778439135
beth_balance: 10000.22321428571405
carl_balance: 10000.22373098544945
dave_balance: 0.00868055555532
erin_balance: 0.008267195767
fred_balance: 0.01033399470884
rewarder_balance: 9.29997519841399
totalRewards: 10.0
Latest Block: 600
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 709
alex_balance: 10000.27095734126962
beth_balance: 10000.26785714285686
carl_balance: 10000.26847718253934
dave_balance: 0.01085069444415
erin_balance: 0.01033399470875
fred_balance: 0.01291749338605
rewarder_balance: 9.15860615079523
totalRewards: 10.0
Latest Block: 718
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 827
alex_balance: 10000.31611689814789
beth_balance: 10000.31249999999967
carl_balance: 10000.31322337962923
dave_balance: 0.01302083333298
erin_balance: 0.0124007936505
fred_balance: 0.01550099206326
rewarder_balance: 9.01723710317647
totalRewards: 10.0
Latest Block: 836
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 945
alex_balance: 10000.36127645502616
beth_balance: 10000.35714285714248
carl_balance: 10000.35796957671912
dave_balance: 0.01519097222181
erin_balance: 0.01446759259225
fred_balance: 0.01808449074047
rewarder_balance: 8.87586805555771
totalRewards: 10.0
Latest Block: 954
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 1063
alex_balance: 10000.40643601190443
beth_balance: 10000.40178571428529
carl_balance: 10000.40271577380901
dave_balance: 0.01736111111064
erin_balance: 0.016534391534
fred_balance: 0.02066798941768
rewarder_balance: 8.73449900793895
totalRewards: 10.0
Latest Block: 1072
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 1181
alex_balance: 10000.4515955687827
beth_balance: 10000.4464285714281
carl_balance: 10000.4474619708989
dave_balance: 0.01953124999947
erin_balance: 0.01860119047575
fred_balance: 0.02325148809489
rewarder_balance: 8.59312996032019
totalRewards: 10.0
Latest Block: 1190
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 1299
alex_balance: 10000.49675512566097
beth_balance: 10000.49107142857091
carl_balance: 10000.49220816798879
dave_balance: 0.0217013888883
erin_balance: 0.0206679894175
fred_balance: 0.0258349867721
rewarder_balance: 8.45176091270143
totalRewards: 10.0
Latest Block: 1308
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 1417
alex_balance: 10000.54191468253924
beth_balance: 10000.53571428571372
carl_balance: 10000.53695436507868
dave_balance: 0.02387152777713
erin_balance: 0.02273478835925
fred_balance: 0.02841848544931
rewarder_balance: 8.31039186508267
totalRewards: 10.0
Latest Block: 1426
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alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 1535
alex_balance: 10000.58707423941751
beth_balance: 10000.58035714285653
carl_balance: 10000.58170056216857
dave_balance: 0.02604166666596
erin_balance: 0.024801587301
fred_balance: 0.03100198412652
rewarder_balance: 8.16902281746391
totalRewards: 10.0
Latest Block: 1544

alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 1653
alex_balance: 10000.63223379629578
beth_balance: 10000.62499999999934
carl_balance: 10000.62644675925846
dave_balance: 0.02821180555479
erin_balance: 0.02686838624275
fred_balance: 0.03358548280373
rewarder_balance: 8.02765376984515
totalRewards: 10.0
Latest Block: 1662

alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 1771
alex_balance: 10000.67739335317405
beth_balance: 10000.66964285714215
carl_balance: 10000.67119295634835
dave_balance: 0.03038194444362
erin_balance: 0.0289351851845
fred_balance: 0.03616898148094
rewarder_balance: 7.88628472222639
totalRewards: 10.0
Latest Block: 1780

alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 1889
alex_balance: 10000.72255291005232
beth_balance: 10000.71428571428496
carl_balance: 10000.71593915343824
dave_balance: 0.03255208333245
erin_balance: 0.03100198412625
fred_balance: 0.03875248015815
rewarder_balance: 7.74491567460763
totalRewards: 10.0
Latest Block: 1898

alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 2007
alex_balance: 10000.76771246693059
beth_balance: 10000.75892857142777
carl_balance: 10000.76068535052813
dave_balance: 0.03472222222128
erin_balance: 0.033068783068
fred_balance: 0.04133597883536
rewarder_balance: 7.60354662698887
totalRewards: 10.0
Latest Block: 2016

alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 2125
alex_balance: 10000.81287202380886
beth_balance: 10000.80357142857058
carl_balance: 10000.80543154761802
dave_balance: 0.03689236111011
erin_balance: 0.03513558200975
fred_balance: 0.04391947751257
rewarder_balance: 7.46217757937011
totalRewards: 10.0
Latest Block: 2134

alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 2243
alex_balance: 10000.85803158068713
beth_balance: 10000.84821428571339
carl_balance: 10000.85017774470791
dave_balance: 0.03906249999894
erin_balance: 0.0372023809515
fred_balance: 0.04650297618978
rewarder_balance: 7.32080853175135
totalRewards: 10.0
Latest Block: 2252

alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 2361
alex_balance: 10000.9031911375654
beth_balance: 10000.8928571428562
carl_balance: 10000.8949239417978
dave_balance: 0.04123263888777
erin_balance: 0.03926917989325
fred_balance: 0.04908647486699
rewarder_balance: 7.17943948413259
totalRewards: 10.0
Latest Block: 2370

alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 2479
alex_balance: 10000.94835069444367
beth_balance: 10000.93749999999901
carl_balance: 10000.93967013888769
dave_balance: 0.0434027777766
erin_balance: 0.041335978835
fred_balance: 0.0516699735442
rewarder_balance: 7.03807043651383
totalRewards: 10.0
Latest Block: 2488

alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 2597
alex_balance: 10000.99351025132194
beth_balance: 10000.98214285714182
carl_balance: 10000.98441633597758
dave_balance: 0.04557291666543
erin_balance: 0.04340277777675
fred_balance: 0.05425347222141
rewarder_balance: 6.89670138889507
totalRewards: 10.0
Latest Block: 2606

alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 2715
alex_balance: 10001.03866980820021
beth_balance: 10001.02678571428463
carl_balance: 10001.02916253306747
dave_balance: 0.04774305555426
erin_balance: 0.0454695767185
fred_balance: 0.05683697089862
rewarder_balance: 6.75533234127631
totalRewards: 10.0
Latest Block: 2724

alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 2833
alex_balance: 10001.08382936507848
beth_balance: 10001.07142857142744
carl_balance: 10001.07390873015736
dave_balance: 0.04991319444309
erin_balance: 0.04753637566025
fred_balance: 0.05942046957583
rewarder_balance: 6.61396329365755
totalRewards: 10.0
Latest Block: 2842

alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 2951
alex_balance: 10001.12898892195675
beth_balance: 10001.11607142857025
carl_balance: 10001.11865492724725
dave_balance: 0.05208333333192
erin_balance: 0.049603174602
fred_balance: 0.06200396825304
rewarder_balance: 6.47259424603879


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totalRewards: 10.0
Latest Block: 2960
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 3069
alex_balance: 10001.17414847883502
beth_balance: 10001.16071428571306
carl_balance: 10001.16340112433714
dave_balance: 0.05425347222075
erin_balance: 0.05166997354375
fred_balance: 0.06458746693025
rewarder_balance: 6.33122519842003
totalRewards: 10.0
Latest Block: 3078
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 3187
alex_balance: 10001.21930803571329
beth_balance: 10001.20535714285587
carl_balance: 10001.20814732142703
dave_balance: 0.05642361110958
erin_balance: 0.0537367724855
fred_balance: 0.06717096560746
rewarder_balance: 6.18985615080127
totalRewards: 10.0
Latest Block: 3196
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 3305
alex_balance: 10001.26446759259156
beth_balance: 10001.24999999999868
carl_balance: 10001.25289351851692
dave_balance: 0.05859374999841
erin_balance: 0.05580357142725
fred_balance: 0.06975446428467
rewarder_balance: 6.04848710318251
totalRewards: 10.0
Latest Block: 3314
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 3423
alex_balance: 10001.30962714946983
beth_balance: 10001.29464285714149
carl_balance: 10001.29763971560681
dave_balance: 0.06076388888724
erin_balance: 0.057870370369
fred_balance: 0.07233796296188
rewarder_balance: 5.90711805556375
totalRewards: 10.0
Latest Block: 3432
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 3541
alex_balance: 10001.3547867063481
beth_balance: 10001.3392857142843
carl_balance: 10001.3423859126967
dave_balance: 0.06293402777607
erin_balance: 0.05993716931075
fred_balance: 0.07492146163909
rewarder_balance: 5.76574900794499
totalRewards: 10.0
Latest Block: 3550
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 3659
alex_balance: 10001.39994626322637
beth_balance: 10001.38392857142711
carl_balance: 10001.38713210978659
dave_balance: 0.0651041666649
erin_balance: 0.0620039682525
fred_balance: 0.0775049603163
rewarder_balance: 5.62437996032623
totalRewards: 10.0
Latest Block: 3668
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 3777
alex_balance: 10001.44510582010464
beth_balance: 10001.42857142856992
carl_balance: 10001.43187830687648
dave_balance: 0.06727430555373
erin_balance: 0.06407076719425
fred_balance: 0.08008845899351
rewarder_balance: 5.48301091270747
totalRewards: 10.0
Latest Block: 3786
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 3895
alex_balance: 10001.49026537698291
beth_balance: 10001.47321428571273
carl_balance: 10001.47662450396637
dave_balance: 0.069444444444256
erin_balance: 0.066137566136
fred_balance: 0.08267195767072
rewarder_balance: 5.34164186508871
totalRewards: 10.0
Latest Block: 3904
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 4013
alex_balance: 10001.53542493386118
beth_balance: 10001.51785714285554
carl_balance: 10001.52137070105626
dave_balance: 0.07161458333139
erin_balance: 0.06820436507775
fred_balance: 0.08525545634793
rewarder_balance: 5.20027281746995
totalRewards: 10.0
Latest Block: 4022
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 4131
alex_balance: 10001.58058449073945
beth_balance: 10001.56249999999835
carl_balance: 10001.56611689814615
dave_balance: 0.07378472222022
erin_balance: 0.0702711640195
fred_balance: 0.08783895502514
rewarder_balance: 5.05890376985119
totalRewards: 10.0
Latest Block: 4140
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 4249
alex_balance: 10001.62574404761772
beth_balance: 10001.60714285714116
carl_balance: 10001.61086309523604
dave_balance: 0.07595486110905
erin_balance: 0.07233796296125
fred_balance: 0.09042245370235
rewarder_balance: 4.91753472223243
totalRewards: 10.0
Latest Block: 4258
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 4367
alex_balance: 10001.67090360449599
beth_balance: 10001.65178571428397
carl_balance: 10001.65560929232593
dave_balance: 0.07812499999788
erin_balance: 0.074404761903
fred_balance: 0.09300595237956
rewarder_balance: 4.77616567461367
totalRewards: 10.0
Latest Block: 4376
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 4485
alex_balance: 10001.71606316137426
beth_balance: 10001.69642857142678
carl_balance: 10001.70035548941582
dave_balance: 0.08029513888671
erin_balance: 0.07647156084475
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fred_balance: 0.09558945105677
rewarder_balance: 4.63479662699491
totalRewards: 10.0
Latest Block: 4494
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 4603
alex_balance: 10001.76122271825253
beth_balance: 10001.74107142856959
carl_balance: 10001.74510168650571
dave_balance: 0.08246527777554
erin_balance: 0.0785383597865
fred_balance: 0.09817294973398
rewarder_balance: 4.49342757937615
totalRewards: 10.0
Latest Block: 4612
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 4721
alex_balance: 10001.8063822751308
beth_balance: 10001.7857142857124
carl_balance: 10001.7898478835956
dave_balance: 0.08463541666437
erin_balance: 0.08060515872825
fred_balance: 0.10075644841119
rewarder_balance: 4.35205853175739
totalRewards: 10.0
Latest Block: 4730
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 4839
alex_balance: 10001.85154183200907
beth_balance: 10001.83035714285521
carl_balance: 10001.83459408068549
dave_balance: 0.0868055555532
erin_balance: 0.08267195767
fred_balance: 0.1033399470884
rewarder_balance: 4.21068948413863
totalRewards: 10.0
Latest Block: 4848
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 4957
alex_balance: 10001.89670138888734
beth_balance: 10001.87499999999802
carl_balance: 10001.87934027777538
dave_balance: 0.08897569444203
erin_balance: 0.08473875661175
fred_balance: 0.10592344576561
rewarder_balance: 4.06932043651987
totalRewards: 10.0
Latest Block: 4966
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 5075
alex_balance: 10001.94186094576561
beth_balance: 10001.91964285714083
carl_balance: 10001.92408647486527
dave_balance: 0.09114583333086
erin_balance: 0.0868055555535
fred_balance: 0.10850694444282
rewarder_balance: 3.92795138890111
totalRewards: 10.0
Latest Block: 5084
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 5193
alex_balance: 10001.98702050264388
beth_balance: 10001.96428571428364
carl_balance: 10001.96883267195516
dave_balance: 0.09331597221969
erin_balance: 0.08887235449525
fred_balance: 0.11109044312003
rewarder_balance: 3.78658234128235
totalRewards: 10.0
Latest Block: 5202
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 5311
alex_balance: 10002.05218005952215
beth_balance: 10002.00892857142645
carl_balance: 10002.01357886904505
dave_balance: 0.095486111110852
erin_balance: 0.090939153437
fred_balance: 0.11367394179724
rewarder_balance: 3.64521329366359
totalRewards: 10.0
Latest Block: 5320
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 5429
alex_balance: 10002.07733961640042
beth_balance: 10002.05357142856926
carl_balance: 10002.05832506613494
dave_balance: 0.09765624999735
erin_balance: 0.09300595237875
fred_balance: 0.11625744047445
rewarder_balance: 3.50384424604483
totalRewards: 10.0
Latest Block: 5438
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 5547
alex_balance: 10002.12249917327869
beth_balance: 10002.09821428571207
carl_balance: 10002.10307126322483
dave_balance: 0.09982638888618
erin_balance: 0.0950727513205
fred_balance: 0.11884093915166
rewarder_balance: 3.36247519842607
totalRewards: 10.0
Latest Block: 5556
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 5665
alex_balance: 10002.16765873015696
beth_balance: 10002.14285714285488
carl_balance: 10002.14781746031472
dave_balance: 0.10199652777501
erin_balance: 0.09713955026225
fred_balance: 0.12142443782887
rewarder_balance: 3.22110615080731
totalRewards: 10.0
Latest Block: 5674
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 5783
alex_balance: 10002.21281828703523
beth_balance: 10002.18749999999769
carl_balance: 10002.19256365740461
dave_balance: 0.10416666666384
erin_balance: 0.099206349204
fred_balance: 0.12400793650608
rewarder_balance: 3.07973710318855
totalRewards: 10.0
Latest Block: 5792
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 5901
alex_balance: 10002.2579778439135
beth_balance: 10002.2321428571405
carl_balance: 10002.2373098544945
dave_balance: 0.10633680555267
erin_balance: 0.10127314814575
fred_balance: 0.12659143518329
rewarder_balance: 2.93836805556979
totalRewards: 10.0
Latest Block: 5910
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 6019
alex_balance: 10002.30313740079177
beth_balance: 10002.27678571428331
carl_balance: 10002.28205605158439

dave_balance: 0.1085069444415
erin_balance: 0.1033399470875
fred_balance: 0.1291749338605
rewarder_balance: 2.79699900795103
totalRewards: 10.0
Latest Block: 6028
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 6137
alex_balance: 10002.34829695767004
beth_balance: 10002.32142857142612
carl_balance: 10002.32680224867428
dave_balance: 0.11067708333033
erin_balance: 0.10540674602925
fred_balance: 0.13175843253771
rewarder_balance: 2.65562996033227
totalRewards: 10.0
Latest Block: 6146
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 6255
alex_balance: 10002.39345651454831
beth_balance: 10002.36607142856893
carl_balance: 10002.37154844576417
dave_balance: 0.11284722221916
erin_balance: 0.107473544971
fred_balance: 0.13434193121492
rewarder_balance: 2.51426091271351
totalRewards: 10.0
Latest Block: 6264
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 6373
alex_balance: 10002.43861607142658
beth_balance: 10002.41071428571174
carl_balance: 10002.41629464285406
dave_balance: 0.11501736110799
erin_balance: 0.10954034391275
fred_balance: 0.13692542989213
rewarder_balance: 2.37289186509475
totalRewards: 10.0
Latest Block: 6382
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 6491
alex_balance: 10002.48377562830485
beth_balance: 10002.45535714285455
carl_balance: 10002.46104083994395
dave_balance: 0.11718749999682
erin_balance: 0.1116071428545
fred_balance: 0.13950892856934
rewarder_balance: 2.23152281747599
totalRewards: 10.0
Latest Block: 6500
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 6609
alex_balance: 10002.52893518518312
beth_balance: 10002.49999999999736
carl_balance: 10002.50578703703384
dave_balance: 0.11935763888565
erin_balance: 0.11367394179625
fred_balance: 0.14209242724655
rewarder_balance: 2.09015376985723
totalRewards: 10.0
Latest Block: 6618
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 6727
alex_balance: 10002.57409474206139
beth_balance: 10002.54464285714017
carl_balance: 10002.55053323412373
dave_balance: 0.12152777777448
erin_balance: 0.115740740738
fred_balance: 0.14467592592376
rewarder_balance: 1.94878472223847
totalRewards: 10.0
Latest Block: 6736
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 6845
alex_balance: 10002.61925429893966
beth_balance: 10002.58928571428298
carl_balance: 10002.59527943121362
dave_balance: 0.12369791666331
erin_balance: 0.11780753967975
fred_balance: 0.14725942460097
rewarder_balance: 1.80741567461971
totalRewards: 10.0
Latest Block: 6854
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 6963
alex_balance: 10002.6644138581793
beth_balance: 10002.63392857142579
carl_balance: 10002.64002562830351
dave_balance: 0.12586805555214
erin_balance: 0.1198743386215
fred_balance: 0.14984292327818
rewarder_balance: 1.66604662700095
totalRewards: 10.0
Latest Block: 6972
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 7081
alex_balance: 10002.7095734126962
beth_balance: 10002.6785714285686
carl_balance: 10002.6847718253934
dave_balance: 0.12803819444097
erin_balance: 0.12194113756325
fred_balance: 0.15242642195539
rewarder_balance: 1.52467757938219
totalRewards: 10.0
Latest Block: 7090
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 7199
alex_balance: 10002.75473296957447
beth_balance: 10002.72321428571141
carl_balance: 10002.72951802248329
dave_balance: 0.1302083333298
erin_balance: 0.124007936505
fred_balance: 0.1550099206326
rewarder_balance: 1.38330853176343
totalRewards: 10.0
Latest Block: 7208
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 7317
alex_balance: 10002.79989252645274
beth_balance: 10002.76785714285422
carl_balance: 10002.77426421957318
dave_balance: 0.13237847221863
erin_balance: 0.12607473544675
fred_balance: 0.15759341930981
rewarder_balance: 1.24193948414467
totalRewards: 10.0
Latest Block: 7326
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 7435
alex_balance: 10002.84505208333101
beth_balance: 10002.81249999999703
carl_balance: 10002.81901041666307
dave_balance: 0.13454861110746
erin_balance: 0.1281415343885
fred_balance: 0.16017691798702
rewarder_balance: 1.10057043652591
totalRewards: 10.0
Latest Block: 7444
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 7553
alex_balance: 10002.89021164020928

beth_balance: 10002.85714285713984
carl_balance: 10002.86375661375296
dave_balance: 0.13671874999629
erin_balance: 0.13020833333025
fred_balance: 0.16276041666423
rewarder_balance: 0.95920138890715
totalRewards: 10.0
Latest Block: 7562
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 7671
alex_balance: 10002.93537119708755
beth_balance: 10002.90178571428265
carl_balance: 10002.90850281084285
dave_balance: 0.13888888888512
erin_balance: 0.132275132272
fred_balance: 0.16534391534144
rewarder_balance: 0.81783234128839
totalRewards: 10.0
Latest Block: 7680
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 7789
alex_balance: 10002.98053075396582
beth_balance: 10002.94642857142546
carl_balance: 10002.95324900793274
dave_balance: 0.14105902777395
erin_balance: 0.13434193121375
fred_balance: 0.16792741401865
rewarder_balance: 0.67646329366963
totalRewards: 10.0
Latest Block: 7798
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 7907
alex_balance: 10003.02569031084409
beth_balance: 10002.99107142856827
carl_balance: 10002.99799520502263
dave_balance: 0.14322916666278
erin_balance: 0.1364087301555
fred_balance: 0.17051091269586
rewarder_balance: 0.53509424605087
totalRewards: 10.0
Latest Block: 7916
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 8025
alex_balance: 10003.07084986772236
beth_balance: 10003.03571428571108
carl_balance: 10003.04274140211252
dave_balance: 0.14539930555161
erin_balance: 0.13847552909725
fred_balance: 0.17309441137307
rewarder_balance: 0.39372519843211
totalRewards: 10.0
Latest Block: 8034
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 8143
alex_balance: 10003.08139054232551
beth_balance: 10003.04501488094916
carl_balance: 10003.05142195766807
dave_balance: 0.14756944444044
erin_balance: 0.140542328039
fred_balance: 0.17567791005028
rewarder_balance: 0.35838293652754
totalRewards: 10.0
Latest Block: 8152
✓ should have users alternate multiple deposits and withdrawals not cause math errors (26211ms)
Reverting with evm_revert ✓ back to snapshotId: 0x3a
Took snapshot with evm_snapshot ✓ new snapshotId: 0x3b
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI pool spanning reward cutoff block
Latest Block: 19 rewardCutoff: 8064
Advancing 8041 blocks with evm_mine ✓ ✓ latest block: 8060
Alex Deposit Block: 8061 Reward Cutoff Block: 8064 Should Have Rewards
Beth Deposit Block: 8062 Reward Cutoff Block: 8064 Should Have Rewards
Carl Deposit Block: 8063 Reward Cutoff Block: 8064 Should Have Rewards
Dave Deposit Block: 8064 Reward Cutoff Block: 8064 No Rewards
Erin Deposit Block: 8065 Reward Cutoff Block: 8064 No Rewards
Fred Deposit Block: 8066 Reward Cutoff Block: 8064 No Rewards
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 8166
alex_balance: 10000.00227347883595
beth_balance: 10000.00103339947088
carl_balance: 10000.00041335978835
dave_balance: 10000.0
erin_balance: 10000.0
fred_balance: 10000.0
rewarder_balance: 9.99627976190482
totalRewards: 10.0
✓ should have users deposits spanning reward cutoff block not lose funds (4800ms)
Reverting with evm_revert ✓ back to snapshotId: 0x3b
Took snapshot with evm_snapshot ✓ new snapshotId: 0x3c
alex, beth, carl, dave, erin, and fred each deposit 10000.0 Mock SFI into Mock SFI sequentially non-overlapping other depositors
Latest Block: 19 rewardCutoff: 8064
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 120
Alex Total Reward Blocks: 101
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 222
Beth Total Reward Blocks: 101
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 324
Carl Total Reward Blocks: 101
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 426
Dave Total Reward Blocks: 101
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 528
Erin Total Reward Blocks: 101
Advancing 100 blocks with evm_mine ✓ ✓ latest block: 630
Fred Total Reward Blocks: 101
alex_balance: 10000.12524801587301
beth_balance: 10000.12524801587301
carl_balance: 10000.12524801587301
dave_balance: 10000.12524801587301
erin_balance: 10000.12524801587301
fred_balance: 10000.12524801587301
rewarder_balance: 9.24851190476194
totalRewards: 10.0
✓ should have users deposits for same amount of blocks get same reward if deposits don't overlap' (670ms)
Reverting with evm_revert ✓ back to snapshotId: 0x3c

✓ SaffronStakingV2 multiple transactions per block
Reverting with evm_revert ✓ back to snapshotId: 0x31
Took snapshot with evm_snapshot ✓ new snapshotId: 0x3d
rewardCutoff : 8064
Signers alex, beth, carl: 0x70997970C51812dc3A010C7d01b50e0d17dc79C8 0x3C44CdDd86a900fa2b585dd299e03d12FA4293BC 0x90F79bf6EB2c4f870365E785982E1f101E93b906
Signers dave, erin, fred: 0x15d34AAf54267DB7D7c367839AAE71A00a2C6A65 0x9965507D1a55b5cC2695C58ba16FB37d819B0A4dc 0x976EA74026E726554dB657fA54763abd0C3a0aa9
SFI token is deployed at 0x5FbDB2315678afecb367f032d93F642f64180aa3
SFI Rewarder is deployed at 0xa513E6E4b8f2a923D98304ec87F64353C4D5C853
SaffronStakingV2 is deployed at 0x2279B7A0a67DB372996a5FaB50D91eAA73d2eBe6
Latest Block: 9
Took snapshot with evm_snapshot ✓ new snapshotId: 0x44
alex_balance_before: 10000.0
[
 '0xc857b107a05e640cd833e2e11416f7284ce9110d990ac2352d3146a53577ef93',
 '0x9d1811a411ad6856d7d40eb65f33ef5a58c4fc7b09350f31b951172c128bc547',
 '0xb93b6b63ef162755dbabb4d10cf30f5b3704198bec2b6d15c199afaca02873',
 '0xe2fe1cb5b158047decdef2c3f65b2f27e199e70b8d2d8d8253b7f0d42070b7e6',
 '0xeca7de152cd4e1e63c396f31e957b35febe6564833dd67473626c95690e8b5b3',
 '0x12b13b748ffa465472598317f0f2b31714c2d0d6e243d100c1d3051c5e68f0ff',
 '0x4f05e011372a96ec01591f7bc8b362a79a0efe8e67b036c2c22171882a2700c10',
 '0x65488b28628757259be400a691f07eed795148e7afeeabb7210d43957f547f57',
 '0xf66323e2634dbcc3f3fbca8f065bbbbb5ec9fc1f95be0f9cbbc80d7fe6ab7d30'
]
evm_mine sent
Block #: 0xe
Block #: 0xe
Block #: 0xe
Block #: 0xe
Block #: 0xe
Block #: 0xe

Block #: 0xe
Block #: 0xe
Block #: 0xe
Block #: 0xe
alex_balance_after: 10000.0
✓ should have user deposit and withdrawing in same block not get rewards (197ms)
Reverting with evm_revert ✓ back to snapshotId: 0x44

✓ multiple consecutive deposit/withdraw tests
Reverting with evm_revert ✓ back to snapshotId: 0x3d
Took snapshot with evm_snapshot ✓ new snapshotId: 0x46
Mock SFI token is deployed at 0x5FbDB2315678afecb367f032d93F642f64180aa3
Mock UniV2 token is deployed at 0xe7f1725E7734CE288F8367e1Bb143E90bb3F0512
Mock SushiLP token is deployed at 0x9fE46736679d2D9a65F0992F2272dE9f3c7fa6e0
latest block: 33
totalRewardBlocks: 80640
rewardCutoff : 80673
Took snapshot with evm_snapshot ✓ new snapshotId: 0x51

RANDOM DEPOSIT/WITHDRAW TEST #0

DEPOSITS and WITHDRAWALS enabled

sfiBegin : 0
rewardCutoff : 80681

SET CURRENT SFI PER BLOCK TO: 1240079365079365

* Block #0, Transactions: 4

- erin is withdrawing	0.0	SushiLP	tokens from SushiLP pool, pending SFI:	0.0
- hans is withdrawing	0.0	SushiLP	tokens from SushiLP pool, pending SFI:	0.0
- carl is depositing	666.7	SFI	tokens into SFI pool, pending SFI:	0.0
- igor is withdrawing	0.0	SFI	tokens from SFI pool, pending SFI:	0.0

Advancing 1542 blocks with evm_mine ✓ ✓ latest block: 1585
reward blocks remaining: 79096

* Block #1, Transactions: 3

- erin is withdrawing	0.0	SushiLP	tokens from SushiLP pool, pending SFI:	0.0
- jake is withdrawing	0.0	SushiLP	tokens from SushiLP pool, pending SFI:	0.0
- jake is depositing	8647.62	UniV2	tokens into UniV2 pool, pending SFI:	0.0

Advancing 546 blocks with evm_mine ✓ ✓ latest block: 2132
reward blocks remaining: 78549

* Block #2, Transactions: 6

- fred is withdrawing	0.0	SFI	tokens from SFI pool, pending SFI:	0.0
- gary is withdrawing	0.0	UniV2	tokens from UniV2 pool, pending SFI:	0.0
- beth is depositing	3764.23	UniV2	tokens into UniV2 pool, pending SFI:	0.0
- igor is withdrawing	0.0	SFI	tokens from SFI pool, pending SFI:	0.0
- fred is withdrawing	0.0	SushiLP	tokens from SushiLP pool, pending SFI:	0.0
- gary is withdrawing	0.0	SFI	tokens from SFI pool, pending SFI:	0.0

Advancing 134 blocks with evm_mine ✓ ✓ latest block: 2267
reward blocks remaining: 78414

* Block #3, Transactions: 10

- erin is depositing	8299.97	SushiLP	tokens into SushiLP pool, pending SFI:	0.0
- gary is withdrawing	0.0	UniV2	tokens from UniV2 pool, pending SFI:	0.0
- jake is depositing	5875.28	SFI	tokens into SFI pool, pending SFI:	0.0
- alex is withdrawing	0.0	UniV2	tokens from UniV2 pool, pending SFI:	0.0
- dave is withdrawing	0.0	SushiLP	tokens from SushiLP pool, pending SFI:	0.0
- igor is depositing	2093.76	UniV2	tokens into UniV2 pool, pending SFI:	0.0
- gary is depositing	7060.08	SFI	tokens into SFI pool, pending SFI:	0.0
- fred is withdrawing	0.0	SushiLP	tokens from SushiLP pool, pending SFI:	0.0
- jake is depositing	685.90820268	UniV2	tokens into UniV2 pool, pending SFI:	0.414827468928619907
- fred is withdrawing	0.0	UniV2	tokens from UniV2 pool, pending SFI:	0.0

Advancing 1709 blocks with evm_mine ✓ ✓ latest block: 3977
reward blocks remaining: 76704

* Block #4, Transactions: 1

- hans is withdrawing	0.0	SFI	tokens from SFI pool, pending SFI:	0.0
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Advancing 896 blocks with evm_mine ✓ ✓ latest block: 4874
reward blocks remaining: 75807

* Block #5, Transactions: 4

- igor is depositing	3000.31	SFI	tokens into SFI pool, pending SFI:	0.0
- carl is depositing	3464.707626	SFI	tokens into SFI pool, pending SFI:	0.435458891856211343
- erin is withdrawing	7779.23818217	SushiLP	tokens from SushiLP pool, pending SFI:	1.061137763563130396
- erin is depositing	5834.68	SFI	tokens into SFI pool, pending SFI:	0.0

Advancing 1586 blocks with evm_mine ✓ ✓ latest block: 6461
reward blocks remaining: 74220

* Block #6, Transactions: 3

- dave is withdrawing	0.0	UniV2	tokens from UniV2 pool, pending SFI:	0.0
- carl is depositing	7568.32	SushiLP	tokens into SushiLP pool, pending SFI:	0.0
- dave is withdrawing	0.0	SushiLP	tokens from SushiLP pool, pending SFI:	0.0

Advancing 2119 blocks with evm_mine ✓ ✓ latest block: 8581
reward blocks remaining: 72100

* Block #7, Transactions: 6

- jake is withdrawing	2313.8749767263988	UniV2	tokens from UniV2 pool, pending SFI:	2.512598971304145044
- alex is withdrawing	0.0	SushiLP	tokens from SushiLP pool, pending SFI:	0.0
- dave is depositing	2647.93	UniV2	tokens into UniV2 pool, pending SFI:	0.0
- erin is depositing	9488.55	UniV2	tokens into UniV2 pool, pending SFI:	0.0
- jake is withdrawing	0.0	SushiLP	tokens from SushiLP pool, pending SFI:	0.0
- igor is withdrawing	0.0	SushiLP	tokens from SushiLP pool, pending SFI:	0.0

Advancing 573 blocks with evm_mine ✓ ✓ latest block: 9155
reward blocks remaining: 71526

* Block #8, Transactions: 4

- carl is withdrawing	5425.54696832	SushiLP	tokens from SushiLP pool, pending SFI:	1.025972172065822291
- igor is withdrawing	576.75969216	UniV2	tokens from UniV2 pool, pending SFI:	0.594802267173220122
- fred is withdrawing	0.0	UniV2	tokens from UniV2 pool, pending SFI:	0.0
- beth is withdrawing	3157.91041698	UniV2	tokens from UniV2 pool, pending SFI:	1.095877512612858378

Advancing 1991 blocks with evm_mine ✓ ✓ latest block: 11147
reward blocks remaining: 69534

* Block #9, Transactions: 6

- carl is depositing	4197.640534600336141106	SFI	tokens into SFI pool, pending SFI:	0.18516100934107049
- hans is depositing	5421.25	UniV2	tokens into UniV2 pool, pending SFI:	0.0
- dave is withdrawing	0.0	SushiLP	tokens from SushiLP pool, pending SFI:	0.0
- beth is withdrawing	507.46402556525316	UniV2	tokens from UniV2 pool, pending SFI:	0.036749811481150104
- hans is depositing	1902.47	UniV2	tokens into UniV2 pool, pending SFI:	0.0
- fred is depositing	4659.02	SFI	tokens into SFI pool, pending SFI:	0.0

Advancing 820 blocks with evm_mine ✓ ✓ latest block: 11968
reward blocks remaining: 68713

* Block #10, Transactions: 5

- hans is withdrawing	0.0	SFI	tokens from SFI pool, pending SFI:	0.0
- alex is withdrawing	0.0	SFI	tokens from SFI pool, pending SFI:	0.0
- gary is depositing	5678.39	UniV2	tokens into UniV2 pool, pending SFI:	0.0
- fred is withdrawing	0.0	SushiLP	tokens from SushiLP pool, pending SFI:	0.0
- erin is depositing	5917.63222735144807	SushiLP	tokens into SushiLP pool, pending SFI:	0.940686614856444832

Advancing 1170 blocks with evm_mine ✓ ✓ latest block: 13139
reward blocks remaining: 67542

* Block #11, Transactions: 8

- fred is depositing	3781.77702664	SFI	tokens into SFI pool, pending SFI:	0.049394717882686139
- carl is depositing	42.298352344055002034	SFI	tokens into SFI pool, pending SFI:	0.088304189319676566
- hans is withdrawing	0.0	SFI	tokens from SFI pool, pending SFI:	0.0
- carl is depositing	6002.61497194471552	SushiLP	tokens into SushiLP pool, pending SFI:	1.040451909520612154
- fred is withdrawing	0.0	SushiLP	tokens from SushiLP pool, pending SFI:	0.0
- hans is depositing	8140.14	SushiLP	tokens into SushiLP pool, pending SFI:	0.0
- jake is depositing	3213.605331000606674033	SFI	tokens into SFI pool, pending SFI:	0.534069235315699006
- erin is withdrawing	2620.63485264	SFI	tokens from SFI pool, pending SFI:	0.323398803019820799

Advancing 647 blocks with evm_mine ✓ ✓ latest block: 13787
reward blocks remaining: 66894

* Block #12, Transactions: 3

- fred is depositing	1585.03	UniV2	tokens into UniV2 pool, pending SFI:	0.0
- beth is withdrawing	0.0	SFI	tokens from SFI pool, pending SFI:	0.0

- carl is depositing 1298.030488475577251208 SFI tokens into SFI pool, pending SFI: 0.025589401506805067
Advancing 808 blocks with evm_mine ✓ / latest block: 14596
reward blocks remaining: 66085

* Block #13, Transactions: 9
- gary is depositing 1019.6671532 SFI tokens into SFI pool, pending SFI: 0.689507964317657928
- erin is depositing 5070.350059002514752892 SFI tokens into SFI pool, pending SFI: 0.021715749255715648
- hans is withdrawing 622.15904034 SushiLP tokens from SushiLP pool, pending SFI: 0.212377200032408666
- erin is depositing 152.2821917 UniV2 tokens into UniV2 pool, pending SFI: 1.367575437966283573
- gary is withdrawing 2768.81135595 UniV2 tokens from UniV2 pool, pending SFI: 0.282172521119389571
- alex is withdrawing 0.0 UniV2 tokens from UniV2 pool, pending SFI: 0.0
- fred is withdrawing 4077.61399081735776 SFI tokens from SFI pool, pending SFI: 0.057030384871682543
- dave is withdrawing 893.77170048 UniV2 tokens from UniV2 pool, pending SFI: 0.381643562973695797
- carl is depositing 34.401077049222976565 SFI tokens into SFI pool, pending SFI: 0.035728421483454585
Advancing 1735 blocks with evm_mine ✓ / latest block: 16332
reward blocks remaining: 64349

* Block #14, Transactions: 6
- gary is withdrawing 5588.5671919367632 SFI tokens from SFI pool, pending SFI: 0.061020480024173923
- carl is withdrawing 2259.823866173626575006 SushiLP tokens from SushiLP pool, pending SFI: 0.473024888790003344
- igor is withdrawing 0.0 SushiLP tokens from SushiLP pool, pending SFI: 0.0
- erin is withdrawing 167.7794026321551 UniV2 tokens from UniV2 pool, pending SFI: 0.340222684289950385
- erin is depositing 1178.564641436696933175 SFI tokens into SFI pool, pending SFI: 0.062566038592184746
- fred is depositing 3878.0 SushiLP tokens into SushiLP pool, pending SFI: 0.0
Advancing 1907 blocks with evm_mine ✓ / latest block: 18240
reward blocks remaining: 62441

* Earning interest by increasing blocks by 2,500
Advancing 2500 blocks with evm_mine ✓ / latest block: 20740
reward blocks remaining: 59941

* Withdrawing all deposits
- beth is withdrawing 98.85555745474684 UniV2 tokens from UniV2 pool, pending SFI: 0.019184236608524184, reward blocks remaining: 59941, rewarder SFI balance: 85.647715866827787403
- carl is withdrawing 9703.778078469191370913 SFI tokens from SFI pool, pending SFI: 0.281065298652248986, reward blocks remaining: 59940, rewarder SFI balance: 85.628529608856499081
- carl is withdrawing 5885.564137451088944994 SushiLP tokens from SushiLP pool, pending SFI: 0.445463918959796985, reward blocks remaining: 59939, rewarder SFI balance: 85.347417182833693446
- dave is withdrawing 1754.15829952 UniV2 tokens from UniV2 pool, pending SFI: 0.220119360647188045, reward blocks remaining: 59938, rewarder SFI balance: 84.901852228736915191
- erin is withdrawing 9462.959847799211686067 SFI tokens from SFI pool, pending SFI: 0.202751310499204423, reward blocks remaining: 59937, rewarder SFI balance: 84.681696887422035795
- erin is withdrawing 9473.0527890678449 UniV2 tokens from UniV2 pool, pending SFI: 0.854625156302548467, reward blocks remaining: 59936, rewarder SFI balance: 84.478883919740994657
- erin is withdrawing 6438.36404518144807 SushiLP tokens from SushiLP pool, pending SFI: 1.219621849371241872, reward blocks remaining: 59935, rewarder SFI balance: 83.62405302850688428
- fred is withdrawing 4363.18303582264224 SFI tokens from SFI pool, pending SFI: 0.126569250470628417, reward blocks remaining: 59934, rewarder SFI balance: 82.404284179680633835
- fred is withdrawing 1585.03 UniV2 tokens from UniV2 pool, pending SFI: 0.222591046034205943, reward blocks remaining: 59933, rewarder SFI balance: 82.277672299090439389
- fred is withdrawing 3878.0 SushiLP tokens from SushiLP pool, pending SFI: 0.294214180608372178, reward blocks remaining: 59932, rewarder SFI balance: 82.055030809060226037
- gary is withdrawing 2491.1799612632368 SFI tokens from SFI pool, pending SFI: 0.053527976034791382, reward blocks remaining: 59931, rewarder SFI balance: 81.760678063482894953
- gary is withdrawing 2909.57864405 UniV2 tokens from UniV2 pool, pending SFI: 0.365771186022203084, reward blocks remaining: 59930, rewarder SFI balance: 81.707118463864904062
- hans is withdrawing 7323.72 UniV2 tokens from UniV2 pool, pending SFI: 1.423641390814708736, reward blocks remaining: 59929, rewarder SFI balance: 81.341246860284465896
- hans is withdrawing 7517.98095966 SushiLP tokens from SushiLP pool, pending SFI: 0.812309091841936014, reward blocks remaining: 59928, rewarder SFI balance: 79.917306338731217423
- igor is withdrawing 3000.31 SFI tokens from SFI pool, pending SFI: 0.273915292934490468, reward blocks remaining: 59927, rewarder SFI balance: 79.104590056650007121
- igor is withdrawing 1517.00030784 UniV2 tokens from UniV2 pool, pending SFI: 0.387171984593042083, reward blocks remaining: 59926, rewarder SFI balance: 78.830628828748068783
- jake is withdrawing 9088.885331000606674033 SFI tokens from SFI pool, pending SFI: 0.326282020418789131, reward blocks remaining: 59925, rewarder SFI balance: 78.44334172681768417
- jake is withdrawing 7019.6532259536012 UniV2 tokens from UniV2 pool, pending SFI: 1.89709924086892003, reward blocks remaining: 59924, rewarder SFI balance: 78.116874619926497081

* TEST #0 FINAL RESULTS
alex startBalance: 10000.0 SFI currentBalance: 10000.0 SFI
alex startBalance: 10000.0 UniV2 currentBalance: 10000.0 UniV2
alex startBalance: 10000.0 SushiLP currentBalance: 10000.0 SushiLP
beth startBalance: 10000.0 SFI currentBalance: 10001.151929524087593748 SFI earnings: 1.151929524087593748 SFI
beth startBalance: 10000.0 UniV2 currentBalance: 10000.0 UniV2
beth startBalance: 10000.0 SushiLP currentBalance: 10000.0 SushiLP
carl startBalance: 10000.0 SFI currentBalance: 10004.037167700649421115 SFI earnings: 4.037167700649421115 SFI
carl startBalance: 10000.0 UniV2 currentBalance: 10000.0 UniV2
carl startBalance: 10000.0 SushiLP currentBalance: 10000.0 SushiLP
dave startBalance: 10000.0 SFI currentBalance: 10000.601847416119157812 SFI earnings: 0.601847416119157812 SFI
dave startBalance: 10000.0 UniV2 currentBalance: 10000.0 UniV2
dave startBalance: 10000.0 SushiLP currentBalance: 10000.0 SushiLP
erin startBalance: 10000.0 SFI currentBalance: 10006.395654356397984093 SFI earnings: 6.395654356397984093 SFI
erin startBalance: 10000.0 UniV2 currentBalance: 10000.0 UniV2
erin startBalance: 10000.0 SushiLP currentBalance: 10000.0 SushiLP
fred startBalance: 10000.0 SFI currentBalance: 10000.750094627962862136 SFI earnings: 0.750094627962862136 SFI
fred startBalance: 10000.0 UniV2 currentBalance: 10000.0 UniV2
fred startBalance: 10000.0 SushiLP currentBalance: 10000.0 SushiLP
gary startBalance: 10000.0 SFI currentBalance: 10001.452303656781175438 SFI earnings: 1.452303656781175438 SFI
gary startBalance: 10000.0 UniV2 currentBalance: 10000.0 UniV2
gary startBalance: 10000.0 SushiLP currentBalance: 10000.0 SushiLP
hans startBalance: 10000.0 SFI currentBalance: 10002.449179867128425959 SFI earnings: 2.449179867128425959 SFI
hans startBalance: 10000.0 UniV2 currentBalance: 10000.0 UniV2
hans startBalance: 10000.0 SushiLP currentBalance: 10000.0 SushiLP
igor startBalance: 10000.0 SFI currentBalance: 10001.256104820104683457 SFI earnings: 1.256104820104683457 SFI
igor startBalance: 10000.0 UniV2 currentBalance: 10000.0 UniV2
igor startBalance: 10000.0 SushiLP currentBalance: 10000.0 SushiLP
jake startBalance: 10000.0 SFI currentBalance: 10005.686590454364516103 SFI earnings: 5.686590454364516103 SFI
jake startBalance: 10000.0 UniV2 currentBalance: 10000.0 UniV2
jake startBalance: 10000.0 SushiLP currentBalance: 10000.0 SushiLP

total earnings SFI: 23.780872423595819861 SFI
remainder SFI SFI: 76.219127576404180139 SFI
total SFI SFI: 100.0 SFI
✓ should have random users depositing and withdrawing randomly return correct amounts (18527ms)
Reverting with evm_revert ✓ back to snapshotId: 0x51
Took snapshot with evm_snapshot ✓ new snapshotId: 0x52

RANDOM DEPOSIT/WITHDRAW TEST #1

DEPOSITS and WITHDRAWALS enabled

sfiBegin : 1

* Block #0, Transactions: 6
- fred is depositing 9117.063814766446807711 SFI tokens into SFI pool, pending SFI: 0.0
- igor is withdrawing 0.0 UniV2 tokens from UniV2 pool, pending SFI: 0.0
- carl is depositing 7814.34 UniV2 tokens into UniV2 pool, pending SFI: 0.0
- beth is withdrawing 0.0 SFI tokens from SFI pool, pending SFI: 0.0
- jake is depositing 5401.629939976331410205 SFI tokens into SFI pool, pending SFI: 0.0
- erin is depositing 4159.02 SushiLP tokens into SushiLP pool, pending SFI: 0.0
Advancing 1536 blocks with evm_mine ✓ / latest block: 1577
reward blocks remaining: 79104
rewardCutoff : 82218

SET CURRENT SFI PER BLOCK TO: 1240079365079365

* Block #1, Transactions: 1
- gary is withdrawing 0.0 UniV2 tokens from UniV2 pool, pending SFI: 0.0
Advancing 1245 blocks with evm_mine ✓ / latest block: 2825
reward blocks remaining: 79393

* Block #2, Transactions: 8
- carl is depositing 8429.3 SushiLP tokens into SushiLP pool, pending SFI: 0.0
- jake is withdrawing 0.0 SushiLP tokens from SushiLP pool, pending SFI: 0.0
- jake is depositing 9607.07 SushiLP tokens into SushiLP pool, pending SFI: 0.0
- beth is depositing 1216.83 UniV2 tokens into UniV2 pool, pending SFI: 0.0
- jake is depositing 2.47 UniV2 tokens into UniV2 pool, pending SFI: 0.0
- fred is depositing 5529.2 UniV2 tokens into UniV2 pool, pending SFI: 0.0
- igor is depositing 1226.15 UniV2 tokens into UniV2 pool, pending SFI: 0.0
- hans is withdrawing 0.0 SushiLP tokens from SushiLP pool, pending SFI: 0.0
Advancing 458 blocks with evm_mine ✓ / latest block: 3284
reward blocks remaining: 78934

* Block #3, Transactions: 4
- igor is depositing 8060.89 SushiLP tokens into SushiLP pool, pending SFI: 0.0
- hans is withdrawing 0.0 SushiLP tokens from SushiLP pool, pending SFI: 0.0
- gary is withdrawing 0.0 UniV2 tokens from UniV2 pool, pending SFI: 0.0
- hans is depositing 8022.63 SushiLP tokens into SushiLP pool, pending SFI: 0.0
Advancing 486 blocks with evm_mine ✓ / latest block: 3771
reward blocks remaining: 78447

* Block #4, Transactions: 3
- alex is withdrawing 0.0 SushiLP tokens from SushiLP pool, pending SFI: 0.0
- jake is depositing 307.9156652 SushiLP tokens into SushiLP pool, pending SFI: 0.130564748363592459
- igor is depositing 853.03 SFI tokens into SFI pool, pending SFI: 0.0

Advancing 2107 blocks with evm_mine ✓ ✓ latest block: 5879
reward blocks remaining: 76339

* Block #5, Transactions: 4

- erin is depositing

5215.06 SFI

tokens into SFI

pool, pending SFI:

0.0

- gary is withdrawing

0.0 UniV2

tokens from UniV2

pool, pending SFI:

0.0

- alex is withdrawing

0.0 SFI

tokens from SFI

pool, pending SFI:

0.0

- dave is withdrawing

0.0 SushiLP

tokens from SushiLP

pool, pending SFI:

0.0

Advancing 979 blocks with evm_mine ✓ ✓ latest block: 6859
reward blocks remaining: 75359

* Block #6, Transactions: 5

- fred is withdrawing

5389.698147120221293527 SFI

tokens from SFI

pool, pending SFI:

0.566652895486280363

- dave is withdrawing

0.0 UniV2

tokens from UniV2

pool, pending SFI:

0.0

- alex is withdrawing

0.0 UniV2

tokens from UniV2

pool, pending SFI:

0.0

- jake is withdrawing

3246.44441348505489351 SFI

tokens from SFI

pool, pending SFI:

0.335727522371343764

- fred is depositing

81.555932493838074818 SFI

tokens into SFI

pool, pending SFI:

0.566652895486280363

Advancing 1269 blocks with evm_mine ✓ ✓ latest block: 8129
reward blocks remaining: 74089

* Block #7, Transactions: 7

- fred is depositing

793.835248 UniV2

tokens into UniV2

pool, pending SFI:

1.203018481646629191

- carl is depositing

507.54 SFI

tokens into SFI

pool, pending SFI:

0.0

- fred is withdrawing

2650.07891796552 UniV2

tokens from UniV2

pool, pending SFI:

1.203018481646629191

- fred is withdrawing

2667.19804409379841056 UniV2

tokens from UniV2

pool, pending SFI:

1.203018481646629191

- fred is depositing

622.8986808 UniV2

tokens into UniV2

pool, pending SFI:

1.203018481646629191

- jake is withdrawing

8039.3479969427856 SushiLP

tokens from SushiLP

pool, pending SFI:

0.4558667918711414

- hans is withdrawing

0.0 SFI

tokens from SFI

pool, pending SFI:

0.0

Advancing 218 blocks with evm_mine ✓ ✓ latest block: 8348
reward blocks remaining: 73870

* Block #8, Transactions: 5

- fred is withdrawing

0.0 SushiLP

tokens from SushiLP

pool, pending SFI:

0.0

- jake is depositing

5333.31234639 UniV2

tokens into UniV2

pool, pending SFI:

0.000566853576878131

- erin is withdrawing

638.99599182 SushiLP

tokens from SushiLP

pool, pending SFI:

0.768091854391313872

- fred is depositing

3391.46 SushiLP

tokens into SushiLP

pool, pending SFI:

0.0

- erin is depositing

2128.20254874 SFI

tokens into SFI

pool, pending SFI:

0.164609812833943519

Advancing 594 blocks with evm_mine ✓ ✓ latest block: 8943
reward blocks remaining: 73275

* Block #9, Transactions: 8

- dave is withdrawing

0.0 SFI

tokens from SFI

pool, pending SFI:

0.0

- beth is withdrawing

0.0 SushiLP

tokens from SushiLP

pool, pending SFI:

0.0

- erin is depositing

1904.56891425362408976 SFI

tokens into SFI

pool, pending SFI:

0.05504033443911457

- igor is withdrawing

1912.50257873 SushiLP

tokens from SushiLP

pool, pending SFI:

0.494545029559021846

- hans is depositing

7620.99 SFI

tokens into SFI

pool, pending SFI:

0.0

- erin is withdrawing

2942.4584689178256 SushiLP

tokens from SushiLP

pool, pending SFI:

0.025567364131158478

- igor is depositing

6641.3657575 UniV2

tokens into UniV2

pool, pending SFI:

0.308859078186915039

- hans is withdrawing

0.0 UniV2

tokens from UniV2

pool, pending SFI:

0.0

Advancing 2121 blocks with evm_mine ✓ ✓ latest block: 11065
reward blocks remaining: 71153

* Block #10, Transactions: 5

- erin is withdrawing

16.155961565849861284 SFI

tokens from SFI

pool, pending SFI:

0.150057109808350371

- hans is withdrawing

0.0 UniV2

tokens from UniV2

pool, pending SFI:

0.0

- igor is withdrawing

251.95008777 SFI

tokens from SFI

pool, pending SFI:

0.068835306748571008

- gary is withdrawing

0.0 SushiLP

tokens from SushiLP

pool, pending SFI:

0.0

- fred is withdrawing

3536.846521320458706775 SFI

tokens from SFI

pool, pending SFI:

0.177124396145444358

Advancing 1507 blocks with evm_mine ✓ ✓ latest block: 12573
reward blocks remaining: 69645

* Block #11, Transactions: 6

- fred is depositing

3981.697161801155161395 SFI

tokens into SFI

pool, pending SFI:

0.003722120581591815

- dave is withdrawing

0.0 SushiLP

tokens from SushiLP

pool, pending SFI:

0.0

- alex is depositing

6520.47 UniV2

tokens into UniV2

pool, pending SFI:

0.0

- igor is withdrawing

1390.6935535873 UniV2

tokens from UniV2

pool, pending SFI:

0.775068335572732027

- carl is depositing

876.38627586 UniV2

tokens into UniV2

pool, pending SFI:

3.546961957038443072

- hans is depositing

1765.68463202 SushiLP

tokens into SushiLP

pool, pending SFI:

0.909064872719877359

Advancing 829 blocks with evm_mine ✓ ✓ latest block: 13403
reward blocks remaining: 68815

* Block #12, Transactions: 4

- fred is withdrawing

370.910337605522825179 UniV2

tokens from UniV2

pool, pending SFI:

0.245659944351896962

- carl is withdrawing

8427.1758164 SushiLP

tokens from SushiLP

pool, pending SFI:

1.120432114868161056

- jake is withdrawing

803.89430408946379 UniV2

tokens from UniV2

pool, pending SFI:

0.741153888107201019

- fred is depositing

7269.67429008239210773 UniV2

tokens into UniV2

pool, pending SFI:

0.245659944351896962

Advancing 1240 blocks with evm_mine ✓ ✓ latest block: 14644
reward blocks remaining: 67574

* Block #13, Transactions: 5

- fred is withdrawing

1132.799649750697892937 UniV2

tokens from UniV2

pool, pending SFI:

0.190463700566158143

- gary is withdrawing

0.0 UniV2

tokens from UniV2

pool, pending SFI:

0.0

- fred is withdrawing

1393.042348447448982125 SFI

tokens from SFI

pool, pending SFI:

0.066874322246929206

- beth is depositing

4746.72369578 UniV2

tokens into UniV2

pool, pending SFI:

0.475548802848545979

- hans is depositing

37.402809828428673571 SFI

tokens into SFI

pool, pending SFI:

0.347856993758738932

Advancing 1204 blocks with evm_mine ✓ ✓ latest block: 15849
reward blocks remaining: 66369

* Block #14, Transactions: 8

- fred is withdrawing

4651.120648418147454736 UniV2

tokens from UniV2

pool, pending SFI:

0.145723772849325743

- dave is depositing

6350.41 SFI

tokens into SFI

pool, pending SFI:

0.0

- carl is withdrawing

419.82291420796902 UniV2

tokens from UniV2

pool, pending SFI:

0.521975014742810452

- dave is depositing

3216.0 SushiLP

tokens into SushiLP

pool, pending SFI:

0.0

- alex is withdrawing

0.0 SFI

tokens from SFI

pool, pending SFI:

0.0

- hans is depositing

18.7690831519467 SushiLP

tokens into SushiLP

pool, pending SFI:

0.556861790324032723

- carl is depositing

4991.3295247037196 SushiLP

tokens into SushiLP

pool, pending SFI:

0.000097082471600001

- gary is depositing

396.02 SFI

tokens into SFI

pool, pending SFI:

0.0

Advancing 1736 blocks with evm_mine ✓ ✓ latest block: 17586
reward blocks remaining: 64632

* Block #15, Transactions: 7

- beth is depositing

453.21 SushiLP

tokens into SushiLP

pool, pending SFI:

0.0

- fred is withdrawing

1835.318426703140751369 SFI

tokens from SFI

pool, pending SFI:

0.058608072377054

- alex is depositing

3084.08837456 UniV2

tokens into UniV2

pool, pending SFI:

0.604235350199644922

- erin is withdrawing

0.0 UniV2

tokens from UniV2

pool, pending SFI:

0.0

- alex is withdrawing

2971.58312918024208 UniV2

tokens from UniV2

pool, pending SFI:

0.604235350199644922

- dave is depositing

745.95429846 SFI

tokens into SFI

pool, pending SFI:

0.068561159495658577

- igor is depositing

1693.79591174296731734 UniV2

tokens into UniV2

pool, pending SFI:

0.600190619923359158

Advancing 2019 blocks with evm_mine ✓ ✓ latest block: 19606
reward blocks remaining: 62612

* Block #16, Transactions: 7

- erin is depositing

2380.42 UniV2

tokens into UniV2

pool, pending SFI:

0.0

- alex is depositing

1188.331813415072347944 SFI

tokens into SFI

pool, pending SFI:

0.0

- alex is withdrawing

2449.345502910892447602 UniV2

tokens from UniV2

pool, pending SFI:

0.238902138378397814

- erin is depositing

324.491636613397335707 SFI

tokens into SFI

pool, pending SFI:

0.581088520957077757

- beth is depositing

8586.118311229448437611 SFI

tokens into SFI

pool, pending SFI:

0.0

- erin is depositing

3811.76 UniV2

tokens into UniV2

pool, pending SFI:

0.0

- hans is depositing

7986.8 UniV2

tokens into UniV2

pool, pending SFI:

0.0

Advancing 405 blocks with evm_mine ✓ ✓ latest block: 20012
reward blocks remaining: 62206

* Block #17, Transactions: 8

- alex is withdrawing

832.792441495790022017 SFI

tokens from SFI

pool, pending SFI:

0.002297548971794869

- alex is depositing

2586.630769479690536268 SFI

tokens into SFI

pool, pending SFI:

0.002297548971794869

- erin is withdrawing

311.689596483764298878 SushiLP

tokens from SushiLP

pool, pending SFI:

0.095215106527487959

- dave is depositing

5017.97 UniV2

tokens into UniV2

pool, pending SFI:

0.0

- jake is withdrawing

237.684635789090430643 SFI

tokens from SFI

pool, pending SFI:

0.240077131028889242

- hans is depositing

192.6064612746194464 SushiLP

tokens into SushiLP

pool, pending SFI:

0.549032723504209451

- dave is depositing

712.644532070080851463 SFI

tokens into SFI

pool, pending SFI:

0.106255905519778405

- dave is depositing

2386.757825273786630095 SFI

tokens into SFI

pool, pending SFI:

0.106255905519778405

Advancing 1522 blocks with evm_mine ✓ ✓ latest block: 21535
reward blocks remaining: 60683

* Block #18, Transactions: 7

- alex is depositing

4750.456427765721282939 UniV2

tokens into UniV2

pool, pending SFI:

0.100641201378434594

- erin is depositing

984.23389014 UniV2

tokens into UniV2

pool, pending SFI:

0.148958792415448291

- erin is depositing

365.909515464801018544 SFI

tokens into SFI

pool, pending SFI:

0.084180922417189027

- erin is withdrawing

6666.405173650978834992 SFI

tokens from SFI

pool, pending SFI:

0.084180922417189027

- gary is withdrawing

0.0 UniV2

tokens from UniV2

pool, pending SFI:

0.0

- gary is depositing

4493.93273752 SFI

tokens into SFI

pool, pending SFI:

0.012930641767915139

```
- gary is withdrawing                                0.0 SushiLP tokens from SushiLP pool, pending SFI:      0.0
Advancing 1650 blocks with evm_mine  ✓ ✓ latest block: 23186
reward blocks remaining:  59032

* Block #19, Transactions: 1
- hans is withdrawing  4190.473427325060631032 SFI      tokens from SFI      pool, pending SFI:      0.383982788034870826
Advancing 1158 blocks with evm_mine  ✓ ✓ latest block: 24345
reward blocks remaining:  57873

* Earning interest by increasing blocks by 2,500
Advancing 2500 blocks with evm_mine  ✓ ✓ latest block: 26845
reward blocks remaining:  55373

* Withdrawing all deposits
- alex is withdrawing  2942.170141398972862195 SFI      tokens from SFI      pool, pending SFI:      0.1000779974524567, reward blocks remaining:  55373, rewarder SFI balance:  81.568770224900829809
- alex is withdrawing  8934.086170234586755337 UniV2    tokens from UniV2    pool, pending SFI:      0.522686839049558748, reward blocks remaining:  55372, rewarder SFI balance:  81.468676669763461434
- beth is withdrawing  8586.118311229448437611 SFI      tokens from SFI      pool, pending SFI:      0.308793612799472523, reward blocks remaining:  55371, rewarder SFI balance:  80.945891396280932984
- beth is withdrawing  5963.55369578 UniV2              tokens from UniV2    pool, pending SFI:      1.01955266906142556, reward blocks remaining:  55370, rewarder SFI balance:  80.637048215038323044
- beth is withdrawing  453.21 SushiLP                  tokens from SushiLP  pool, pending SFI:      0.056271430936504548, reward blocks remaining:  55369, rewarder SFI balance:  79.61741806747219412
- carl is withdrawing  507.54 SFI                      tokens from SFI      pool, pending SFI:      0.063905180525670986, reward blocks remaining:  55368, rewarder SFI balance:  79.561140554792275799
- carl is withdrawing  8270.90336165203098 UniV2          tokens from UniV2    pool, pending SFI:      1.251250034641268931, reward blocks remaining:  55367, rewarder SFI balance:  79.497231372458252712
- carl is withdrawing  4993.4537083037196 SushiLP        tokens from SushiLP  pool, pending SFI:      0.737889559308554609, reward blocks remaining:  55366, rewarder SFI balance:  78.245859284382497265
- dave is withdrawing  7809.008830530080851463 SFI      tokens from SFI      pool, pending SFI:      0.266065685288027084, reward blocks remaining:  55365, rewarder SFI balance:  77.507901700608783445
- dave is withdrawing  5017.97 UniV2                  tokens from UniV2    pool, pending SFI:      0.387468436839009363, reward blocks remaining:  55364, rewarder SFI balance:  77.241773082828460399
- dave is withdrawing  3216.0 SushiLP                  tokens from SushiLP  pool, pending SFI:      0.475381772799136272, reward blocks remaining:  55363, rewarder SFI balance:  76.854213405164122066
- erin is withdrawing  3255.671479854993747735 SFI      tokens from SFI      pool, pending SFI:      0.088647798524925071, reward blocks remaining:  55362, rewarder SFI balance:  76.37877903481845301
- erin is withdrawing  7176.41389014 UniV2              tokens from UniV2    pool, pending SFI:      0.42113305795228978, reward blocks remaining:  55361, rewarder SFI balance:  76.290091481761211885
- erin is withdrawing  265.875942778410101122 SushiLP    tokens from SushiLP  pool, pending SFI:      0.024427348101092704, reward blocks remaining:  55360, rewarder SFI balance:  75.868806544739200064
- fred is withdrawing  1025.411465470170310128 SFI      tokens from SFI      pool, pending SFI:      0.050373839341811372, reward blocks remaining:  55359, rewarder SFI balance:  75.844374203241444289
- fred is withdrawing  2743.500621048705524318 UniV2      tokens from UniV2    pool, pending SFI:      0.415562002400254607, reward blocks remaining:  55358, rewarder SFI balance:  75.793984417676023538
- fred is withdrawing  3391.46 SushiLP                  tokens from SushiLP  pool, pending SFI:      0.895605662209511419, reward blocks remaining:  55357, rewarder SFI balance:  75.378346570883811449
- gary is withdrawing  4889.95273752 SFI                tokens from SFI      pool, pending SFI:      0.133601469565741534, reward blocks remaining:  55356, rewarder SFI balance:  74.482676423121802181
- hans is withdrawing  3467.919382503368042539 SFI      tokens from SFI      pool, pending SFI:      0.067769633872827713, reward blocks remaining:  55355, rewarder SFI balance:  74.348991740388237288
- hans is withdrawing  7986.8 UniV2                    tokens from UniV2    pool, pending SFI:      0.662498133268603997, reward blocks remaining:  55354, rewarder SFI balance:  74.281114807782395996
- hans is withdrawing  9999.6901764465661464 SushiLP    tokens from SushiLP  pool, pending SFI:      0.920157324351152916, reward blocks remaining:  55353, rewarder SFI balance:  73.618366679900696963
- igor is withdrawing  601.07991223 SFI                 tokens from SFI      pool, pending SFI:      0.059676207365287996, reward blocks remaining:  55352, rewarder SFI balance:  72.697983443401271363
- igor is withdrawing  8170.61811388423731734 UniV2      tokens from UniV2    pool, pending SFI:      0.973264592054640451, reward blocks remaining:  55351, rewarder SFI balance:  72.638263063635218706
- igor is withdrawing  6148.38742127 SushiLP            tokens from SushiLP  pool, pending SFI:      1.580209157641797734, reward blocks remaining:  55350, rewarder SFI balance:  71.664581786240771011
- jake is withdrawing  1917.500890702186086052 SFI      tokens from SFI      pool, pending SFI:      0.066457631138191445, reward blocks remaining:  55349, rewarder SFI balance:  70.084060620184576644
- jake is withdrawing  4531.88804230053621 UniV2         tokens from UniV2    pool, pending SFI:      0.879819658233418966, reward blocks remaining:  55348, rewarder SFI balance:  70.017417902573984655
- jake is withdrawing  1875.6376682572144 SushiLP       tokens from SushiLP  pool, pending SFI:      0.502092736166307527, reward blocks remaining:  55347, rewarder SFI balance:  69.13695044168716717

* TEST #1 FINAL RESULTS
alex startBalance: 10000.0 SFI      currentBalance: 10001.569252552671860092 SFI      earnings:  1.569252552671860092 SFI
alex startBalance: 10000.0 UniV2    currentBalance: 10000.0 UniV2
alex startBalance: 10000.0 SushiLP  currentBalance: 10000.0 SushiLP
beth startBalance: 10000.0 SFI      currentBalance: 10001.860321562428961029 SFI      earnings:  1.860321562428961029 SFI
beth startBalance: 10000.0 UniV2    currentBalance: 10000.0 UniV2
beth startBalance: 10000.0 SushiLP  currentBalance: 10000.0 SushiLP
carl startBalance: 10000.0 SFI      currentBalance: 10007.243173056206971355 SFI      earnings:  7.243173056206971355 SFI
carl startBalance: 10000.0 UniV2    currentBalance: 10000.0 UniV2
carl startBalance: 10000.0 SushiLP  currentBalance: 10000.0 SushiLP
dave startBalance: 10000.0 SFI      currentBalance: 10001.304013101794319821 SFI      earnings:  1.304013101794319821 SFI
dave startBalance: 10000.0 UniV2    currentBalance: 10000.0 UniV2
dave startBalance: 10000.0 SushiLP  currentBalance: 10000.0 SushiLP
erin startBalance: 10000.0 SFI      currentBalance: 10002.607739566205077769 SFI      earnings:  2.607739566205077769 SFI
erin startBalance: 10000.0 UniV2    currentBalance: 10000.0 UniV2
erin startBalance: 10000.0 SushiLP  currentBalance: 10000.0 SushiLP
fred startBalance: 10000.0 SFI      currentBalance: 10004.020245971634171789 SFI      earnings:  4.020245971634171789 SFI
fred startBalance: 10000.0 UniV2    currentBalance: 10000.0 UniV2
fred startBalance: 10000.0 SushiLP  currentBalance: 10000.0 SushiLP
gary startBalance: 10000.0 SFI      currentBalance: 10000.146617112281979725 SFI      earnings:  0.146617112281979725 SFI
gary startBalance: 10000.0 UniV2    currentBalance: 10000.0 UniV2
gary startBalance: 10000.0 SushiLP  currentBalance: 10000.0 SushiLP
hans startBalance: 10000.0 SFI      currentBalance: 10004.398330413978969767 SFI      earnings:  4.398330413978969767 SFI
hans startBalance: 10000.0 UniV2    currentBalance: 10000.0 UniV2
hans startBalance: 10000.0 SushiLP  currentBalance: 10000.0 SushiLP
igor startBalance: 10000.0 SFI      currentBalance: 10004.861907575086432659 SFI      earnings:  4.861907575086432659 SFI
igor startBalance: 10000.0 UniV2    currentBalance: 10000.0 UniV2
igor startBalance: 10000.0 SushiLP  currentBalance: 10000.0 SushiLP
jake startBalance: 10000.0 SFI      currentBalance: 10003.353948572429676529 SFI      earnings:  3.353948572429676529 SFI
jake startBalance: 10000.0 UniV2    currentBalance: 10000.0 UniV2
jake startBalance: 10000.0 SushiLP  currentBalance: 10000.0 SushiLP

total earnings SFI: 31.365549484718420535 SFI
remainder SFI SFI: 68.634450515281579465 SFI
total SFI SFI: 100.0 SFI
✓ should have random users depositing and withdrawing randomly return correct amounts (25958ms)
Reverting with evm_revert  ✓ back to snapshotId: 0x52

40 passing (2m)
```

Code Coverage

Quantstamp usually recommends developers to increase the branch coverage to **90%**and above before a project goes live, in order to avoid hidden functional bugs that might not be easy to spot during the development phase. For code coverage, the current test code achieves a high score that satisfies the security standards.

File	% Stmts	% Branch	% Funcs	% Lines	Uncovered Lines
contracts/	100	100	100	100	
SFIRewarder.sol	100	100	100	100	
SaffronStakingV2.sol	100	100	100	100	
All files	100	100	100	100	

Appendix

File Signatures

The following are the SHA-256 hashes of the reviewed files. A file with a different SHA-256 hash has been modified, intentionally or otherwise, after the security review. You are cautioned that a different SHA-256 hash could be (but is not necessarily) an indication of a changed condition or potential vulnerability that was not within the scope of the review.

Contracts

793108266223436a8fa1f73b364559b0f76e90dc657a8e467455317434a7a512 ./contracts/SFIRewarders.sol
2c8b48a3d9d23c7b6dfa7ea186725d01291e1a929c7740a00fa61f7e7f81d34a ./contracts/SaffronStakingV2.sol
800965c0fc4ea7ed9a05b377f3c407e2b8e3eb256f7ee127c31e793ee97b04a9 ./contracts/interface/ISFIRewarders.sol

Tests

a396f1453676dcfdcf484d52851489d9b352f0709f53c5c5c68c32cc9df7b997 ./test/testHelper.js
9c446388c3123af5e97dc854f9e23bef285580c9f5abf0ac823b1e33263ecfda ./test/SaffronStaking.test.js

Changelog

- 2021-09-01 - Initial report
- 2021-09-21 - Reaudit update (a673974)

About Quantstamp

Quantstamp is a Y Combinator-backed company that helps to secure blockchain platforms at scale using computer-aided reasoning tools, with a mission to help boost the adoption of this exponentially growing technology.

With over 1000 Google scholar citations and numerous published papers, Quantstamp’s team has decades of combined experience in formal verification, static analysis, and software verification. Quantstamp has also developed a protocol to help smart contract developers and projects worldwide to perform cost-effective smart contract security scans.

To date, Quantstamp has protected \$5B in digital asset risk from hackers and assisted dozens of blockchain projects globally through its white glove security assessment services. As an evangelist of the blockchain ecosystem, Quantstamp assists core infrastructure projects and leading community initiatives such as the Ethereum Community Fund to expedite the adoption of blockchain technology.

Quantstamp's collaborations with leading academic institutions such as the National University of Singapore and MIT (Massachusetts Institute of Technology) reflect our commitment to research, development, and enabling world-class blockchain security.

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