

## Web3 Security Researcher:



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collectFee & reentrancy: Transfer the owner's balance (not contract balance) and update it first using the CEI pattern.

Safety & simplification: Replace all transfer with call and avoid unnecessary `uint256 < 0` checks.

✗ BUG

Vault.sol

```
function withdraw(uint value) external {
    if (payment[msg.sender] <= value) revert("insufficient balance");
    // ✗ BUG-2
    payable(msg.sender).transfer(value);
}

function collectFee() external onlyOwner {
    if (payment[msg.sender] <= 0) revert("insufficient balance");
    // ✗ BUG-1,2
    payable(msg.sender).transfer(address(this).balance);
}
```

✓ FIX

Vault.sol

```
function withdraw(uint value) external nonReentrant {
    // ✓ FIX-2
    (bool success, ) = payable(msg.sender).call{value: value}("");
    if (!success) revert TransferFailed();
}
```

```
}
```

```
function collectFee() external onlyOwner {  
    uint256 amount = payment[msg.sender];  
    if (amount == 0) revert insufficientBalance();  
    // ✓ FIX-1,2  
    payment[msg.sender] = 0;  
    (bool success, ) = payable(msg.sender).call{value: amount}("");  
    if (!success) revert TransferFailed();  
    emit feeCollected(amount, msg.sender);  
}
```

🛡️ FIX: Selected key fixes from several important suggestions