Findings.md 2024-05-06

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[H-1] Title: Stored Password is not private and it can be accessible to anyone.

Description: In contract s_password is defined as private, however it is not the case, anyone can steal the password.

Impact: Core funactionality of the contract is broken.

Proof of Concept: Plesae follow the steps below in sequence.

▶ PoC

- 1. Create a locally running chain make anvil
- 2. Deploy the contract to the chain make deploy copy the contract address
- 3. Run the storage tool We use 1 because that's the storage slot of s_password in the contract.

```
cast storage <ADDRESS_HERE> 1 --rpc-url http://127.0.0.1:8545
```

4. You'll get an output that looks like this:

5. You can then parse that hex to a string with:

6. And get an output of:

myPassword

Recommended Mitigation: To address the privacy vulnerability of s_password and prevent potential theft of the password, consider the following mitigation strategies:

Encryption: Encrypt sensitive data, such as passwords, before storing them in the contract storage. Use robust encryption algorithms and secure key management practices to safeguard the data from unauthorized access.

[H-2] Title: Access Control is missing on setPassword functionality and anyone can set the password.

Description: Access Control is missing on setPassword functionality and anyone can set the password.

Impact: Core funactionality of the contract is broken.

Proof of Concept: PLease copy the below test in PasswordStore.t.sol and run the test.

▶ PoC

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```
function test_Not_owner_can_set_password(address Not_owner) public {
   vm.startPrank(Not_owner);
   string memory expectedPassword = "myNewPassword1";
   passwordStore.setPassword(expectedPassword);
   vm.startPrank(owner);
   string memory actualPassword = passwordStore.getPassword();
   assertEq(actualPassword, expectedPassword);
}
```

Recommended Mitigation: PLease add access control rule as indicated below.

```
function setPassword(string memory newPassword) external {
+   if (msg.sender != s_owner) {
+      revert PasswordStore__NotOwner();
      s_password = newPassword;
      emit SetNetPassword();
}
```