Lesson 12 - Code Quality

Code Review

- Code review
- Git flow
- Pull requests
- Issue templates
- Open source contributions
- Peer code review

References

https://github.com/stevemao/github-issue-templates

https://www.atlassian.com/git/tutorials/comparing-workflows/gitflow-workflow

https://smartbear.com/learn/code-review/best-practices-for-peer-code-review/

Gas optimization

- (Review) Gas costs
- (Review) Read and write operations
- (Review) Storage, memory and stack
- Compiler optimizer
- Converting state reads to local reads
- Converting multiple state writes to multiple local writes and single state write
- Packing Structs

References

https://hardhat.org/guides/compile-contracts.html#configuring-the-compiler

https://eip2535diamonds.substack.com/p/smart-contract-gas-optimization-with

https://github.com/iskdrews/awesome-solidity-gas-optimization

Smart contract security

- (Review) Payable and Fallbacks
- (Review) Attack vectors
- Self destruct
- (Review) External calls
- (Review) Inspecting transactions to reveal data
- (Review) Overflow and Underflow
- Exploiting architecture flaws
- Live examples
  - Ethernaut challenge 5

  - Ethernaut challenge 8
  - Ethernaut challenge 15

References

https://ethereum-contract-security-techniques-and-tips.readthedocs.io/en/latest/known_attacks/

https://ethernaut.openzeppelin.com/

Homework

- Read the references
- (Optional) Complete the security challenges from Ethernaut
- (Optional) Play and finish Capture the Ether

Weekend project

- Form groups of 3 to 5 students
- Peer review each others code from last classes
- Propose changes
- Open issues and discussions on github repositories
- Create pull requests to address issues discussed in your github repositories