

# Lesson 9 - Gas limit in loops

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## Weekend project review

- Q&A
- Projects review

## Gas limit and loops

- (Review) Block, block size and gas
- Gas limit network variable
- Transaction stack
- Optimization patterns
- $O(n)$  versus  $N \cdot O(1)$

## References

<https://dl.acm.org/doi/10.1145/3324884.3416626>

<https://blog.b9lab.com/getting-loopy-with-solidity-1d51794622ad>

## Gas limit and loops

- Converting strings to bytes
- Comparing strings
- Dealing with bytes arrays
- Loop syntaxes
- Hitting gas limit

## References

<https://docs.soliditylang.org/en/latest/types.html#bytes-and-string-as-arrays>

## Fixing the contract

- Loop best practices
- Refactoring for  $N \cdot O(1)$
- Keeping track of operation progress
- Iteration until operation is completed
- Backups and safeguards
- Avoiding loops

## References

<https://github.com/wissalHaji/solidity-coding-advice/blob/master/best-practices/be-careful-with-loops.md>

# Homework

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- Create Github Issues with your questions about this lesson
- Read the references
- Finish the weekend project if you couldn't so far