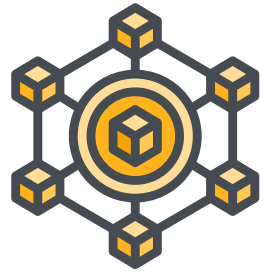
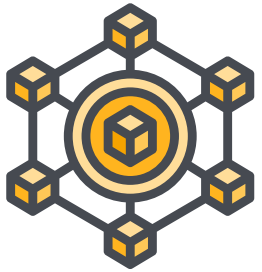
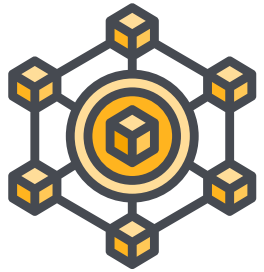
What are Libraries in Solidity?



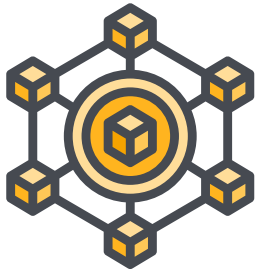
- A library is a reusable collection of functions.
- Libraries help avoid code duplication.
- They cannot hold state (no storage variables).
- Libraries cannot be deployed like contracts.
- Library functions are called directly using the library name.
- Commonly used for utility and helper logic.



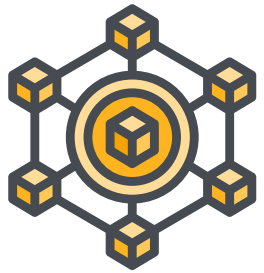
Why Do We Use Libraries?



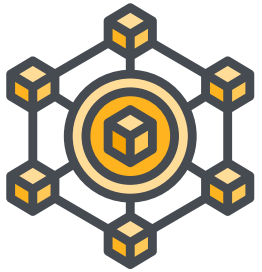
- To write clean and reusable code.
- To reduce contract size and gas cost.
- To improve security using audited code.
- To maintain consistency across projects.
- To separate logic from core contract code.



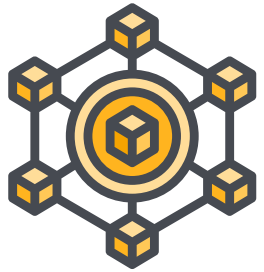
Where Do We Use Libraries?



- Common mathematical calculations
- String and address utilities
- Token logic (ERC20, ERC721)
- Security helpers (SafeMath, ReentrancyGuard)
- Large-scale DeFi and NFT projects

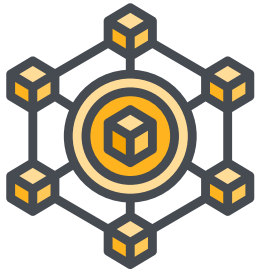


Library vs Contract



Library

- Reusable logic only, No storage variables, Not deployed directly, Gas efficient

Contract

- Holds logic + state, Can store data, Deployed normally, More gas usage