

LAB2 Advance Smart Contract

1. Write a function to check whether a contract has code or not.

```
// SPDX-License-Identifier: UNLICENSED
pragma solidity ^0.8.0;

contract CodeChecker {
    function hasCode(address _addr) public view returns (bool) {
        uint256 codeSize;
        assembly {
            codeSize := extcodesize(_addr)
        }
        return codeSize > 0;
    }
}
```

2. Explain the advantages and disadvantages of using atomic swaps and cross-chain bridges.

- Atomic swap
 - Advantages
 - Trustless: No need for intermediaries.
 - Privacy: Transactions are directly between two parties.
 - Security: Funds are not held by a third party.
 - Disadvantages
 - Complexity: Implementation can be complicated.
 - Liquidity: Both parties need to agree on terms, which can result in reduced liquidity.
 - Speed: Can be slower as it requires multiple steps and waiting for confirmations.
- Cross-chain bridge
 - Advantages
 - Liquidity: Bridges often have liquidity pools, easing asset swaps.
 - Usability: Typically user-friendly and require fewer steps than atomic swaps.
 - Ecosystem Growth: Allows for assets to be utilized across different blockchains.
 - Disadvantages
 - Centralization: Some bridges have centralized components or governance.
 - Security: An issue in the bridge can result in loss of funds.
 - Cost: Depending on the bridge, fees can be high.

