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Experiment No: 4

Aim: Write a program in Solidity to implement transactions by embedding of wallet.

Theory:

- Blockchain is a decentralized digital ledger that records transactions across many computers so that the record cannot be altered actively.
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- It operates in a peer-to-peer network where each participant maintains a copy of the ledger
- This ledger is immutable and transparent ensures that once recorded.
- In this decentralized ecosystem, smart contracts are self executing agreements coded directly into the blockchain, automating and enforcing terms without intermediations.
- Smart contracts are self-executing contracts with the terms written directly into code
- They run on blockchain platforms like Ethereum.
- These contracts automatically enforces and executes terms of an agreement based on predefined rules and conditions

- Ethereum is a blockchain platform that enables developers to deploy and run smart contracts and decentralized applications.
- It has its own cryptocurrency ether (ETH) which is used to pay for transaction fees and computational services on the network.
- Events are used to log activities such as deposits, withdrawals and transfers enabling realtime updates for off chain applications.
- Mapping stores users balances, accounting allowing efficient data retrieval, functions define the contract's logic, including methods for depositing funds and transfering ether between addresses with built-in checks to ensure correctness & security.
- In context with blockchain, a wallet refers to an Ethereum address that can hold and manage ether (ETH) or other tokens.
- Transactions in Ethereum involve sending ether or tokens from one address to another.
- Each transaction is signed by the sender's private key and is validated by the network.