CODTECH Internship – Task 1: Basic Smart Contract Development

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Project Title: Token Transfer System using Solidity

Objective:

To build and deploy a basic ERC-20-like token contract on Ethereum testnet using Solidity.

Tools Used:

- Solidity
- Remix IDE
- MetaMask
- Goerli/Sepolia Testnet

Smart Contract Code:

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

contract SimpleToken {
    string public name = "MyToken";
    string public symbol = "MTK";
    uint8 public decimals = 18;
    uint public totalSupply;

    mapping(address => uint256) public balanceOf;
    mapping(address => mapping(address => uint256)) public allowance;

    event Transfer(address indexed from, address indexed to, uint256 value);
    event Approval(address indexed owner, address indexed spender, uint256 value);

    constructor(uint _initialSupply) {
        totalSupply = _initialSupply * (10 ** uint256(decimals));
        balanceOf[msg.sender] = totalSupply;
```

```
    }

    function transfer(address _to, uint256 _value) public returns (bool success) {
        require(balanceOf[msg.sender] >= _value, "Insufficient balance");

        balanceOf[msg.sender] -= _value;
        balanceOf[_to] += _value;

        emit Transfer(msg.sender, _to, _value);
        return true;
    }

    function approve(address _spender, uint256 _value) public returns (bool success) {
        allowance[msg.sender][_spender] = _value;

        emit Approval(msg.sender, _spender, _value);
        return true;
    }

    function transferFrom(address _from, address _to, uint256 _value) public returns (bool
success) {
        require(balanceOf[_from] >= _value, "Insufficient balance");
        require(allowance[_from][msg.sender] >= _value, "Not approved");

        balanceOf[_from] -= _value;
        balanceOf[_to] += _value;

        allowance[_from][msg.sender] -= _value;

        emit Transfer(_from, _to, _value);
        return true;
    }
}
```

Deployment Details:

Network: Goerli Testnet
Wallet: MetaMask
Deployed Contract Address: [0x8f7c1dC8F44e8aE879eDe94eF739f8931a77C3F3]
Initial Supply: 1000 MTK

Screenshots (Optional):

- Remix IDE with code

- MetaMask transaction
- Successful deployment
- Token transfer in action