

Experiment 10

Aim: Deployment of smart contracts in public blockchain fields.

**1. Write Smart contract for Ether Transaction and deploy it Meta Mask environment.
Code: Sum of all even numbers**

```
// SPDX-License-Identifier: MIT
pragma solidity ^0.8.20;
```

```
contract NumberAdder {
    function sumNumbers(uint256 limit) public pure returns (uint256) {
        uint256 result = 0;
        for (uint256 i = 1; i <= limit; i++) {
            // Add only even numbers
            if (i % 2 == 0) {
                result += i;
            }
        }

        return result;
    }
}
```

The image shows a screenshot of the Remix IDE interface and a MetaMask transaction confirmation dialog. The Remix IDE window displays the smart contract code for 'NumberAdder' in the center editor. The left sidebar shows the 'DEPLOY & RUN TRANSACTIONS' panel with the 'NumberAdder' contract selected. The 'ENVIRONMENT' section shows 'Injected Provider - MetaMask' and 'Sepolia (11155111) network'. The 'GAS LIMIT' is set to 'Estimated Gas' and '3000000'. The 'VALUE' is set to '0'. The 'CONTRACT' section shows 'NumberAdder - contracts/cns.sol' and 'even version: london'. The 'Deploy' button is highlighted. The 'Transactions recorded' section shows a list of transactions, including 'creation of NumberAdder pending...' and 'view on etherscan'. The 'Deployed Contracts' section shows the 'NumberAdder' contract at address '0x77C...7E23C' with a balance of '0 ETH' and a 'sumNumbers' function returning '251'. The MetaMask dialog on the right is titled 'Deploy a contract' and shows 'Estimated changes' as 'No changes predicted for your wallet'. It also displays the 'Request from' as 'remix.ethereum.org', the 'Network fee' as '0.0024 SepoliaETH ₹584.21', and the 'Speed' as 'Market -15 sec'. The 'Confirm' button is highlighted.

Detailed Receipt

The screenshot shows the Etherscan interface for a transaction. At the top, the Etherscan logo and navigation links (Home, Blockchain, Tokens, NFTs, More) are visible. The page title is 'Transaction Details'. Below this, there are tabs for 'Overview' and 'State'. A red warning message states: '[This is a Sepolia Testnet transaction only]'. The transaction details are as follows:

- Transaction Hash: 0xc25dc7d7ba50ccaedb319daff60d3ecb2c3448f028665ea9a38a0e8c401edb5d
- Status: Success
- Block: 7035530 (1 Block Confirmation)
- Timestamp: 9 secs ago (Nov-08-2024 09:08:36 AM UTC)
- Transaction Action: Call 0x60806040 Method by 0x0a717d11...319D23461
- From: 0x0a717d11707755DE5fc1442596C08fC319D23461
- To: [0xf7cbe3ff0a5841daae92f12cd1dbaf4d0a87e23c Created]
- Value: 0 ETH
- Transaction Fee: 0.002441726367041193 ETH
- Gas Price: 12.694778373 Gwei (0.000000012694778373 ETH)

At the bottom, there is a link to 'More Details' with the text '+ Click to show more'.

Code: PrimeNumber Checker

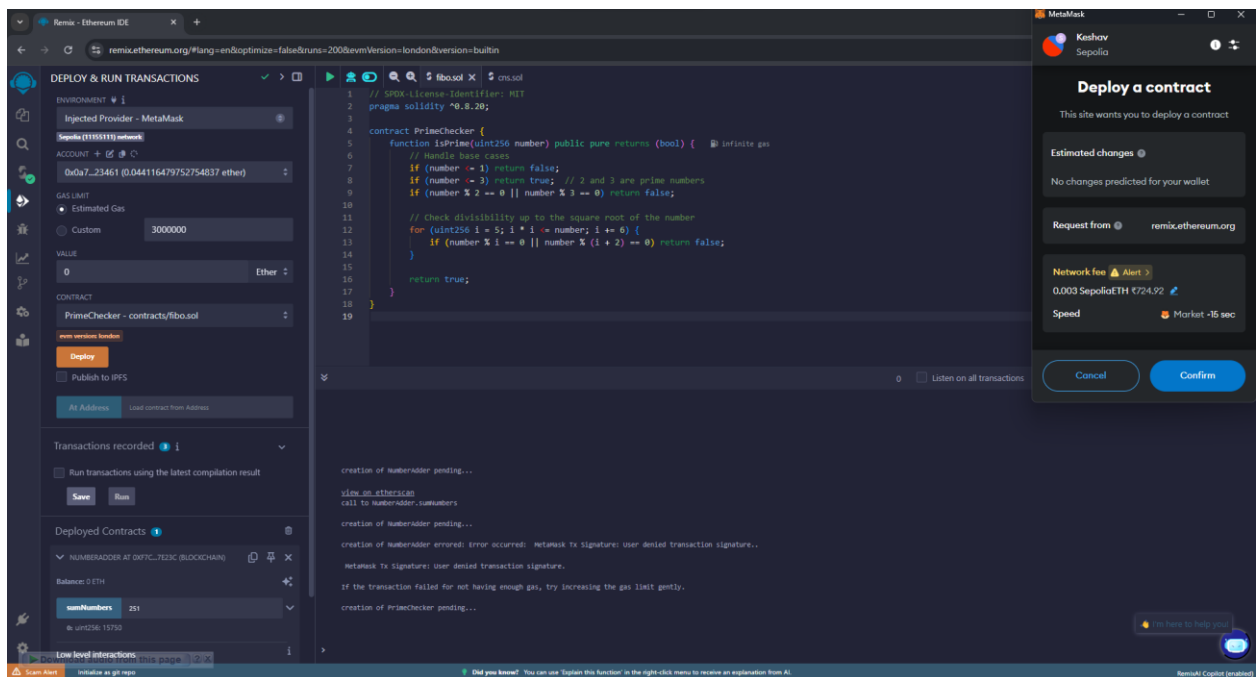
// SPDX-License-Identifier: MIT

pragma solidity ^0.8.20;

```
contract PrimeChecker {
    function isPrime(uint256 number) public pure returns (bool) {
        // Handle base cases
        if (number <= 1) return false;
        if (number <= 3) return true; // 2 and 3 are prime numbers
        if (number % 2 == 0 || number % 3 == 0) return false;

        // Check divisibility up to the square root of the number
        for (uint256 i = 5; i * i <= number; i += 6) {
            if (number % i == 0 || number % (i + 2) == 0) return false;
        }

        return true;
    }
}
```



Detailed Receipt

Home
Blockchain
Tokens
NFTs
More

Transaction Details

Overview
State

[This is a Sepolia Testnet transaction only]

Transaction Hash:	0xa271b82b09661c1f80c5bb5de20017aef1d555e4f8f515920deb0bb23ec99267
Status:	Success
Block:	7035537 1 Block Confirmation
Timestamp:	9 secs ago (Nov-08-2024 09:10:36 AM UTC)
Transaction Action:	Call 0x60806040 Method by 0x0a717d11...319D23461
From:	0x0a717d11707755DE5fc1442596C08fC319D23461
To:	0x41d8e635a31abbc8e8d7407da2bdea003948a90c Created
Value:	0 ETH
Transaction Fee:	0.003172666226589524 ETH
Gas Price:	14.387595466 Gwei (0.000000014387595466 ETH)

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