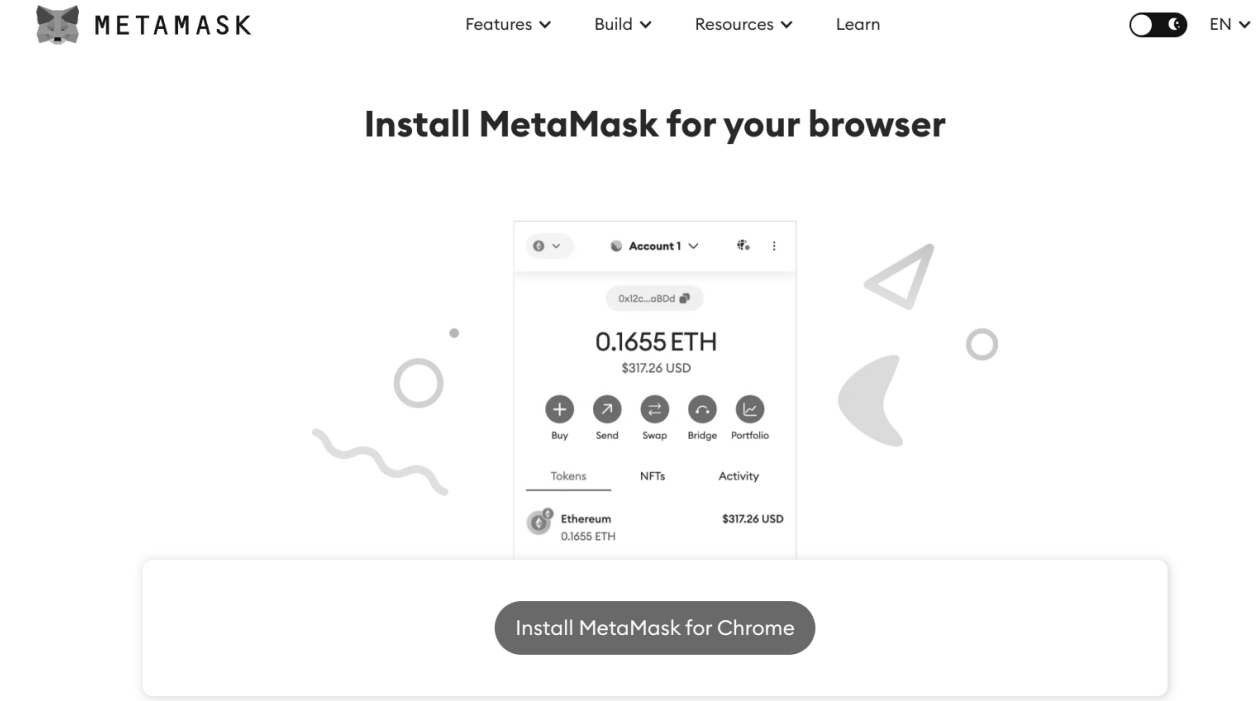
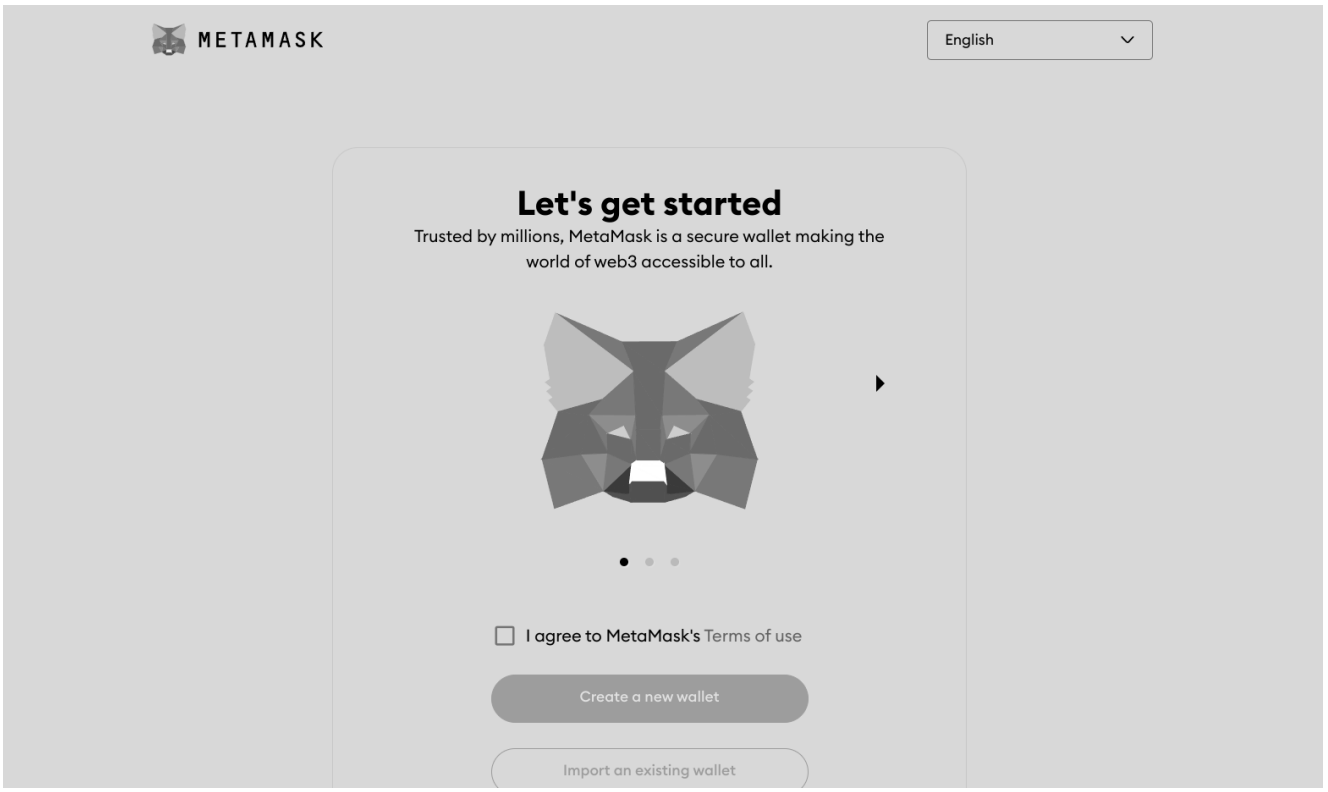
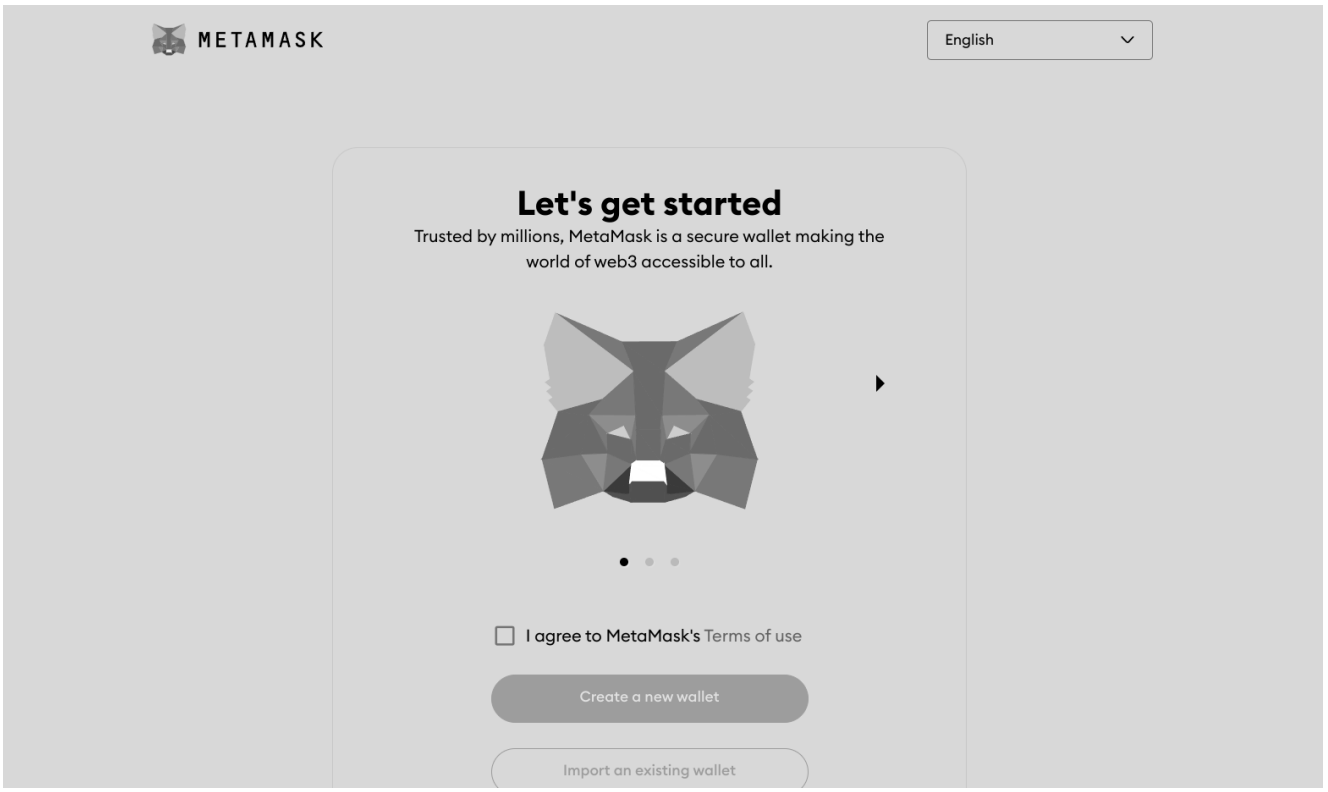
BCT Practical 1:
Metamask Homepage

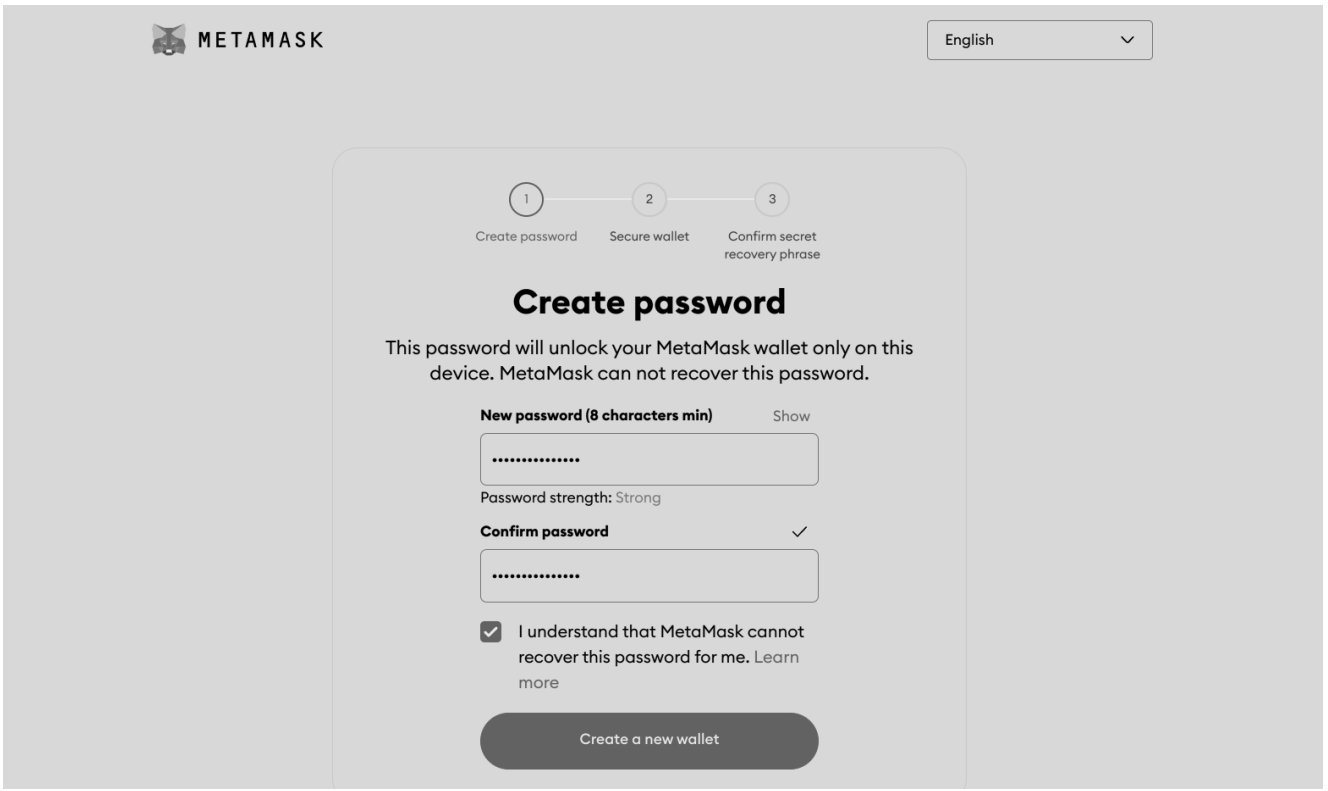


Metamask Installation and Create Wallet Screen



BCT Practical 2:





METAMASK

English

1 Create password — 2 Secure wallet — 3 Confirm secret recovery phrase

Write down your Secret Recovery Phrase

Write down this 12-word Secret Recovery Phrase and save it in a place that you trust and only you can access.

Tips:

- Write down and store in multiple secret places
- Store in a safe deposit box

METAMASK

English

Wallet creation successful

You've successfully protected your wallet. Keep your Secret Recovery Phrase safe and secret -- it's your responsibility!

Remember:

- MetaMask can't recover your Secret Recovery Phrase.
- MetaMask will never ask you for your Secret Recovery Phrase.
- **Never share your Secret Recovery Phrase** with anyone or risk your funds being stolen
- Learn more

Advanced configuration

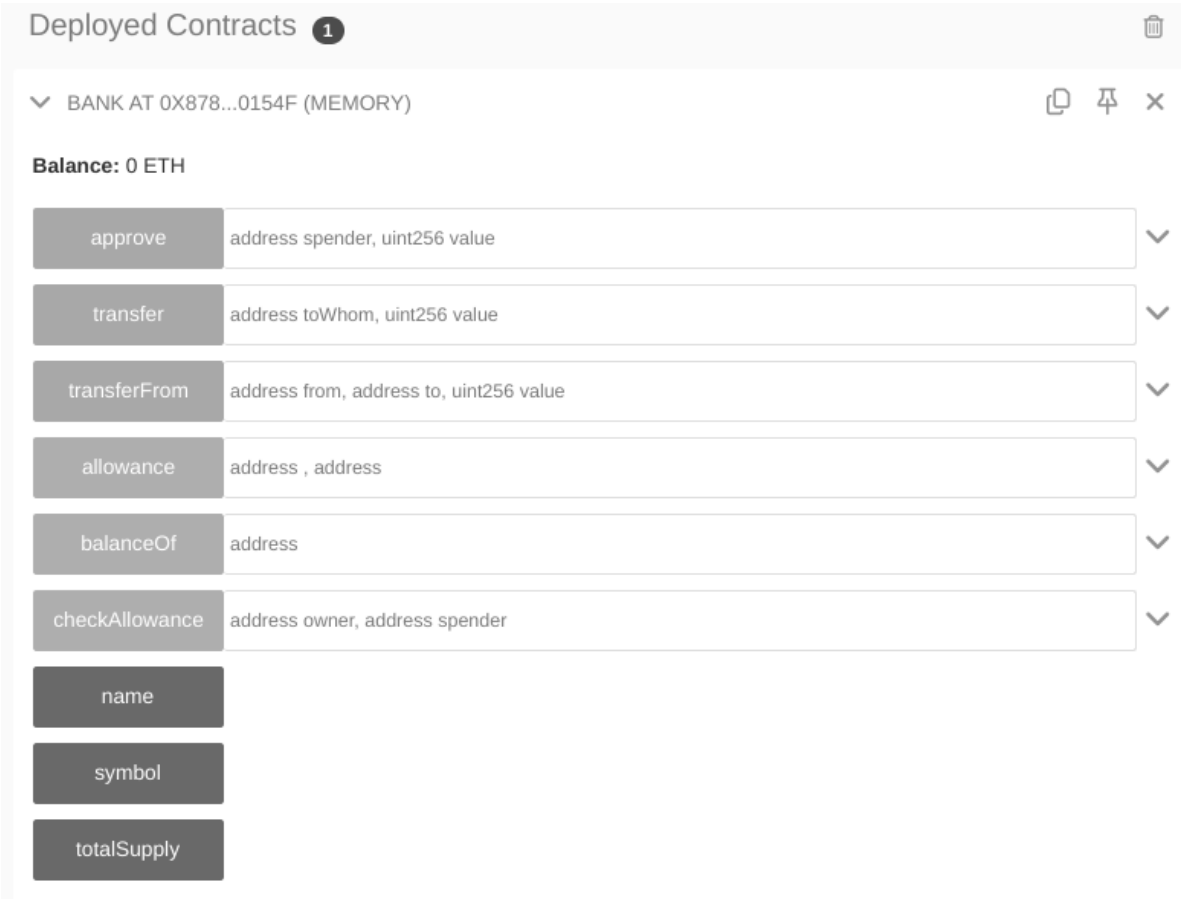
Got it

BCT Practical 3: bank.sol

```
// SPDX-License-Identifier: MIT
pragma solidity ^0.8.26;

contract Bank {
    string public name = "Deno Bank";
    string public symbol = "DB";
    uint256 public totalSupply;

    // Mapping to store the balances of each address
    mapping(address => uint256) public balanceOf;

    // Mapping to keep track of allowances
    mapping(address => mapping(address => uint256)) public allowance;

    // Constructor to initialize the total supply and assign it to the contract
deployer
    constructor(uint256 initialSupply) {
        totalSupply = initialSupply;
        balanceOf[msg.sender] = initialSupply;
    }

    // Function to transfer tokens from the sender to another address
    function transfer(address toWhom, uint256 value) public returns (bool
success) {
        require(balanceOf[msg.sender] >= value, "Insufficient Balance");
        balanceOf[msg.sender] = balanceOf[msg.sender] - value;
        balanceOf[toWhom] = balanceOf[toWhom] + value;
        return true;
    }

    // Function to approve an address to spend a certain amount on behalf of
the owner
    function approve(address spender, uint256 value) public returns (bool
success) {
        allowance[msg.sender][spender] = value;
        return true;
    }
```

```
// Function to transfer tokens from one account to another using an allowance
    function transferFrom(address from, address to, uint256 value) public
returns (bool success) {
        require(balanceOf[from] >= value, "Insufficient Balance");
        require(allowance[from][msg.sender] >= value, "Allowance exceeded");

        // Adjust balances
        balanceOf[from] -= value;
        balanceOf[to] += value;

        // Adjust the allowance
        allowance[from][msg.sender] -= value;

        return true;
    }

    // Rename this function to avoid conflict with the `allowance` mapping
    function checkAllowance(address owner, address spender) public view returns
(uint256 remaining) {
        return allowance[owner][spender];
    }
}
```

Output :



BCT Practical 4 : bankcontract.sol

```
// SPDX-License-Identifier: MIT
pragma solidity ^0.8.26;

contract BankContract {
    struct ClientAccount {
        int256 clientId; // Use int256 for better compatibility
        address clientAddress;
        uint256 clientBalanceInEther;
    }

    ClientAccount[] public clients; // Public visibility for client list
    int256 public clientCounter; // Make this public to allow external access
    address payable public manager; // Declare manager as payable
    mapping(address => uint256) public interestDate; // Keep track of interest
dates

    modifier onlyManager() {
        require(msg.sender == manager, "Only manager can call this!");
        _;
    }

    modifier onlyClients() {
        bool isClient = false;
        for (uint256 i = 0; i < clients.length; i++) {
            if (clients[i].clientAddress == msg.sender) {
                isClient = true;
                break;
            }
        }
        require(isClient, "Only clients can call this!");
        _;
    }

    constructor() {
        clientCounter = 0; // Initialize the counter
        manager = payable(msg.sender); // Set the creator as manager
    }

    receive() external payable {} // Allow contract to receive Ether

    function setManager(address payable managerAddress) public onlyManager
returns (string memory) {
        manager = managerAddress;
        return "Manager updated successfully!";
    }
```

```
    function joinAsClient() public payable returns (string memory) {
        require(msg.value > 0, "You must send some Ether to join."); // Ensure
a deposit
        interestDate[msg.sender] = block.timestamp; // Store the current time
        clients.push(ClientAccount(clientCounter++, msg.sender, msg.value));
        return "You have successfully joined as a client.";
    }

    function deposit() public payable onlyClients {
        require(msg.value > 0, "You must send some Ether to deposit.");
        // Update the client's balance in the client array
        for (uint256 i = 0; i < clients.length; i++) {
            if (clients[i].clientAddress == msg.sender) {
                clients[i].clientBalanceInEther += msg.value;
                break;
            }
        }
    }

    function withdraw(uint256 amount) public onlyClients {
        require(amount <= address(this).balance, "Insufficient contract
balance.");
        require(amount <= getClientBalance(msg.sender), "Withdraw amount
exceeds client balance.");
        payable(msg.sender).transfer(amount); // Transfer the requested amount
to the client
    }

    function sendInterest() public onlyManager {
        for (uint256 i = 0; i < clients.length; i++) {
            address initialAddress = clients[i].clientAddress;
            uint256 lastInterestDate = interestDate[initialAddress];

            require(block.timestamp >= lastInterestDate + 10 seconds, "It's
just been less than 10 seconds since the last interest was sent!");

            payable(initialAddress).transfer(1 ether); // Send 1 Ether as
interest
            interestDate[initialAddress] = block.timestamp; // Update the last
interest date
        }
    }
```

```
function getClientBalance(address client) public view returns (uint256) {
        for (uint256 i = 0; i < clients.length; i++) {
            if (clients[i].clientAddress == client) {
                return clients[i].clientBalanceInEther;
            }
        }
        return 0; // Return 0 if client not found
    }

    function getContractBalance() public view returns (uint256) {
        return address(this).balance; // Return the contract's balance
    }
}
```