

Blockchain: Assignment No. 2

Q. An Ethereum blockchain technology supports different kind of wallets, Simulate the concept of wallet and currency transfer using an object oriented program.

Code:

```
#include <bits/stdc++.h>
using namespace std;

class EthereumWallet {
public:
    EthereumWallet(const string& ownerName) : ownerName(ownerName), balance(0) {}

    void deposit(double amount) {
        if (amount > 0) {
            balance += amount;
            cout << ownerName << " deposited " << amount << " ETH. New balance: " << balance
<< " ETH." << endl;
        }
    }

    bool withdraw(double amount) {
        if (amount > 0 && amount <= balance) {
            balance -= amount;
            cout << ownerName << " withdrew " << amount << " ETH. New balance: " << balance
<< " ETH." << endl;
            return true;
        }
        return false;
    }

    double getBalance() const {
        return balance;
    }

private:
    string ownerName;
    double balance;
};

// Simulate currency transfer
bool transferFunds(EthereumWallet& sender, EthereumWallet& receiver, double amount) {
    if (sender.withdraw(amount)) {
```

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        receiver.deposit(amount);
        cout << "Transfer successful." << endl;
        return true;
    }
    else {
        cout << "Transfer failed. Insufficient funds." << endl;
        return false;
    }
}

int main() {
    EthereumWallet alice("Alice");
    EthereumWallet bob("Bob");

    alice.deposit(10.0);
    bob.deposit(5.0);

    cout << "Alice's balance: " << alice.getBalance() << " ETH." << endl;
    cout << "Bob's balance: " << bob.getBalance() << " ETH." << endl;

    double transferAmount = 3.0;
    transferFunds(alice, bob, transferAmount);

    cout << "Alice's balance: " << alice.getBalance() << " ETH." << endl;
    cout << "Bob's balance: " << bob.getBalance() << " ETH." << endl;

    return 0;
}

```

Output:

Alice deposited 10 ETH. New balance: 10 ETH.

Bob deposited 5 ETH. New balance: 5 ETH.

Alice's balance: 10 ETH.

Bob's balance: 5 ETH.

Alice withdrew 3 ETH. New balance: 7 ETH.

Bob deposited 3 ETH. New balance: 8 ETH.

Transfer successful.

Alice's balance: 7 ETH.

Bob's balance: 8 ETH.