import java.util.HashMap;

import java.util.Scanner;

class Stock {

String symbol;

double price;

public Stock(String symbol, double price) {

this.symbol = symbol;

this.price = price;

}

}

class Portfolio {

HashMap<String, Integer> stocks = new HashMap<>();

double balance;

public Portfolio(double balance) {

this.balance = balance;

}

public void buyStock(Stock stock, int quantity) {

double totalCost = stock.price \* quantity;

if (balance >= totalCost) {

balance -= totalCost;

stocks.put(stock.symbol, stocks.getOrDefault(stock.symbol, 0) + quantity);

System.out.println("Bought " + quantity + " shares of " + stock.symbol);

} else {

System.out.println("Not enough balance to buy.");

}

}

public void sellStock(Stock stock, int quantity) {

if (stocks.getOrDefault(stock.symbol, 0) >= quantity) {

balance += stock.price \* quantity;

stocks.put(stock.symbol, stocks.get(stock.symbol) - quantity);

System.out.println("Sold " + quantity + " shares of " + stock.symbol);

} else {

System.out.println("Not enough shares to sell.");

}

}

public void viewPortfolio() {

System.out.println("Portfolio:");

for (String symbol : stocks.keySet()) {

System.out.println(symbol + ": " + stocks.get(symbol) + " shares");

}

System.out.println("Balance: $" + balance);

}

}

public class StockTradingSimulator {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

Portfolio portfolio = new Portfolio(10000); // Initial balance of $10,000

// Simulated market data

HashMap<String, Stock> marketData = new HashMap<>();

marketData.put("AAPL", new Stock("AAPL", 150.0));

marketData.put("GOOGL", new Stock("GOOGL", 2800.0));

marketData.put("AMZN", new Stock("AMZN", 3400.0));

while (true) {

System.out.println("\n1. View Market Data\n2. Buy Stock\n3. Sell Stock\n4. View Portfolio\n5. Exit");

System.out.print("Choose an option: ");

int choice = scanner.nextInt();

switch (choice) {

case 1: // View market data

System.out.println("Market Data:");

for (String symbol : marketData.keySet()) {

Stock stock = marketData.get(symbol);

System.out.println(stock.symbol + ": $" + stock.price);

}

break;

case 2: // Buy stock

System.out.print("Enter stock symbol: ");

String buySymbol = scanner.next().toUpperCase();

Stock buyStock = marketData.get(buySymbol);

if (buyStock != null) {

System.out.print("Enter quantity: ");

int quantity = scanner.nextInt();

portfolio.buyStock(buyStock, quantity);

} else {

System.out.println("Invalid stock symbol.");

}

break;

case 3: // Sell stock

System.out.print("Enter stock symbol: ");

String sellSymbol = scanner.next().toUpperCase();

Stock sellStock = marketData.get(sellSymbol);

if (sellStock != null) {

System.out.print("Enter quantity: ");

int quantity = scanner.nextInt();

portfolio.sellStock(sellStock, quantity);

} else {

System.out.println("Invalid stock symbol.");

}

break;

case 4: // View portfolio

portfolio.viewPortfolio();

break;

case 5: // Exit

System.out.println("Exiting...");

scanner.close();

return;

default:

System.out.println("Invalid option.");

}

}

}

}