import java.util.HashMap;

import java.util.Map;

import java.util.Scanner;

class StockTradingPlatform {

// Market data: Stock symbol and its price

private static final Map<String, Double> marketData = new HashMap<>();

static {

marketData.put("AAPL", 150.0);

marketData.put("GOOGL", 2800.0);

marketData.put("AMZN", 3400.0);

}

// Portfolio: Stock symbol and the number of shares

private Map<String, Integer> portfolio = new HashMap<>();

private double cashBalance = 10000.0; // Initial cash balance

// Buy stock

public void buyStock(String symbol, int shares) {

if (!marketData.containsKey(symbol)) {

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

return;

}

double cost = marketData.get(symbol) \* shares;

if (cost > cashBalance) {

System.out.println("Insufficient funds.");

return;

}

portfolio.put(symbol, portfolio.getOrDefault(symbol, 0) + shares);

cashBalance -= cost;

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

}

// Sell stock

public void sellStock(String symbol, int shares) {

if (!portfolio.containsKey(symbol) || portfolio.get(symbol) < shares) {

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

return;

}

portfolio.put(symbol, portfolio.get(symbol) - shares);

if (portfolio.get(symbol) == 0) {

portfolio.remove(symbol);

}

cashBalance += marketData.get(symbol) \* shares;

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

}

// Display portfolio

public void displayPortfolio() {

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

for (Map.Entry<String, Integer> entry : portfolio.entrySet()) {

String symbol = entry.getKey();

int shares = entry.getValue();

double marketValue = marketData.get(symbol) \* shares;

System.out.println(symbol + ": " + shares + " shares, Market Value: $" + marketValue);

}

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

}

public static void main(String[] args) {

StockTradingPlatform platform = new StockTradingPlatform();

Scanner scanner = new Scanner(System.in);

while (true) {

System.out.println("\nEnter a command (buy, sell, display, quit): ");

String command = scanner.nextLine();

if (command.equalsIgnoreCase("quit")) {

break;

}

switch (command.toLowerCase()) {

case "buy":

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

String buySymbol = scanner.nextLine();

System.out.println("Enter number of shares: ");

int buyShares = scanner.nextInt();

scanner.nextLine(); // Consume newline

platform.buyStock(buySymbol, buyShares);

break;

case "sell":

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

String sellSymbol = scanner.nextLine();

System.out.println("Enter number of shares: ");

int sellShares = scanner.nextInt();

scanner.nextLine(); // Consume newline

platform.sellStock(sellSymbol, sellShares);

break;

case "display":

platform.displayPortfolio();

break;

default:

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

break;

}

}

scanner.close();

}

}