**Exercise 7: Implementing the Observer Pattern**

**Scenario:**

You are developing a stock market monitoring application where multiple clients need to be notified whenever stock prices change. Use the Observer Pattern to achieve this.

package observerpattern;

import java.util.ArrayList;

import java.util.List;

interface Subject {

void addObserver(Observer o);

void removeObserver(Observer o);

void notifyObservers();

}

interface Observer {

void update(String stockName, double price);

}

class StockMarket implements Subject {

private List<Observer> observers = new ArrayList<>();

private String stockName;

private double stockPrice;

public void setStock(String stockName, double price) {

this.stockName = stockName;

this.stockPrice = price;

notifyObservers();

}

public void addObserver(Observer o) {

observers.add(o);

}

public void removeObserver(Observer o) {

observers.remove(o);

}

public void notifyObservers() {

for (Observer o : observers) {

o.update(stockName, stockPrice);

}

}

}

class MobileApp implements Observer {

private String stockName;

private double stockPrice;

public void update(String stockName, double stockPrice) {

this.stockName = stockName;

this.stockPrice = stockPrice;

display();

}

private void display() {

System.***out***.println("MobileApp: " + stockName + " updated - ₹" + stockPrice);

}

}

class WebApp implements Observer {

private String stockName;

private double stockPrice;

public void update(String stockName, double stockPrice) {

this.stockName = stockName;

this.stockPrice = stockPrice;

display();

}

private void display() {

System.***out***.println("WebApp: " + stockName + " updated - ₹" + stockPrice);

}

}

public class StockObserverExample {

public static void main(String[] args) {

StockMarket stockMarket = new StockMarket();

Observer mobile = new MobileApp();

Observer web = new WebApp();

stockMarket.addObserver(mobile);

stockMarket.addObserver(web);

System.***out***.println(" Stock A Update");

stockMarket.setStock("A", 3444.80);

System.***out***.println("Stock B Update");

stockMarket.setStock("B", 1502.30);

}

}

A screenshot of a computer

AI-generated content may be incorrect.