

Stock Analyzer

Problem Statement

This program is designed to allow users to input stock information, set a threshold stock price, and define an alert triggered if a predefined change of price is within a certain percentage .

Requirements

1. Define a class `Stock` which contains `Price` and `Symbol` properties. It also contains an event `PriceChanged` which implements the **standard** in event handling and reports price change.
2. Create a `StockAnalyzer` class which adds subscriptions to stocks with `Price` above a `PriceThreshold` so that when price changes around a `ChangePercentThreshold` an alert is triggered. This alert states if the price has increased or decreased and by how much from original price.
3. To test these classes an open collection of stocks are inserted via standard input until the user inserts "!".
4. Afterwards, both `PriceThreshold` and `ChangePercentThreshold` are received from the user.
5. The `StockAnalyzer` is then ready to setup alerts.
6. Finally, all stocks are updated with new prices and alerts are triggered accordingly.

Important Notes

- Make sure to use LINQ to filter the stocks
- **Only class names must be the same as stated in the requirements, all other members are suggested named and you can choose another suitable name.**
- Any number inserted is checked and if it cannot be parsed the prompt will be shown again until a proper number is inserted.
- All numbers shown has only two decimal places after the decimal point.
- If you build a generic method that can receive a prompt to show to the user and can parse the input number from standard input and assign it to whichever - repeating the prompt if the input is incorrect - you will get 5 bonus degrees in this assignment. (Hint: you must use a generic constraint so that only numbers are acceptable)

Sample Run 1

Enter stock data (symbol, price) or type '!' to finish:

Enter stock symbol: MSFT

Enter stock initial price:

100

Enter stock symbol: APPL

Enter stock initial price:

200

Enter stock symbol: !

Enter a threshold price to monitor for change:

150

Enter a threshold price change percent:

4

For stock with symbol MSFT, Please enter the new price:
900
For stock with symbol APPL, Please enter the new price:
800
Alert !. Price increased by 300 %

Sample Run 2

Enter stock data (symbol, price) or type '!' to finish:
Enter stock symbol: TSLA
Enter stock TSLA initial price:
256.11
Enter stock symbol: AMD
Enter stock AMD initial price:
139.60
Enter stock symbol: INTC
Enter stock INTC initial price:
48.13
Enter stock symbol: AMZN
Enter stock AMZN initial price:
153.67
Enter stock symbol: !
Enter a threshold price to monitor for change:
150
Enter a threshold price change percent:
!#\$#
Enter a threshold price change percent:
3
For stock with symbol TSLA, Please enter the new price:
210.87
Alert !. Price decreased by -17.66 %
For stock with symbol AMD, Please enter the new price:
????
For stock with symbol AMD, Please enter the new price:
170
For stock with symbol INTC, Please enter the new price:
80
For stock with symbol AMZN, Please enter the new price:
190
Alert !. Price increased by 23.64 %