

Lab 12. Observer pattern

Problem 1

Big companies participate with their shares on the stock exchange. All shares of a company have the same sale price on the market. The company's shares compose the company stock. The value of the shares of a company represents the company's stock value.

The sale price of a company's shares can move.

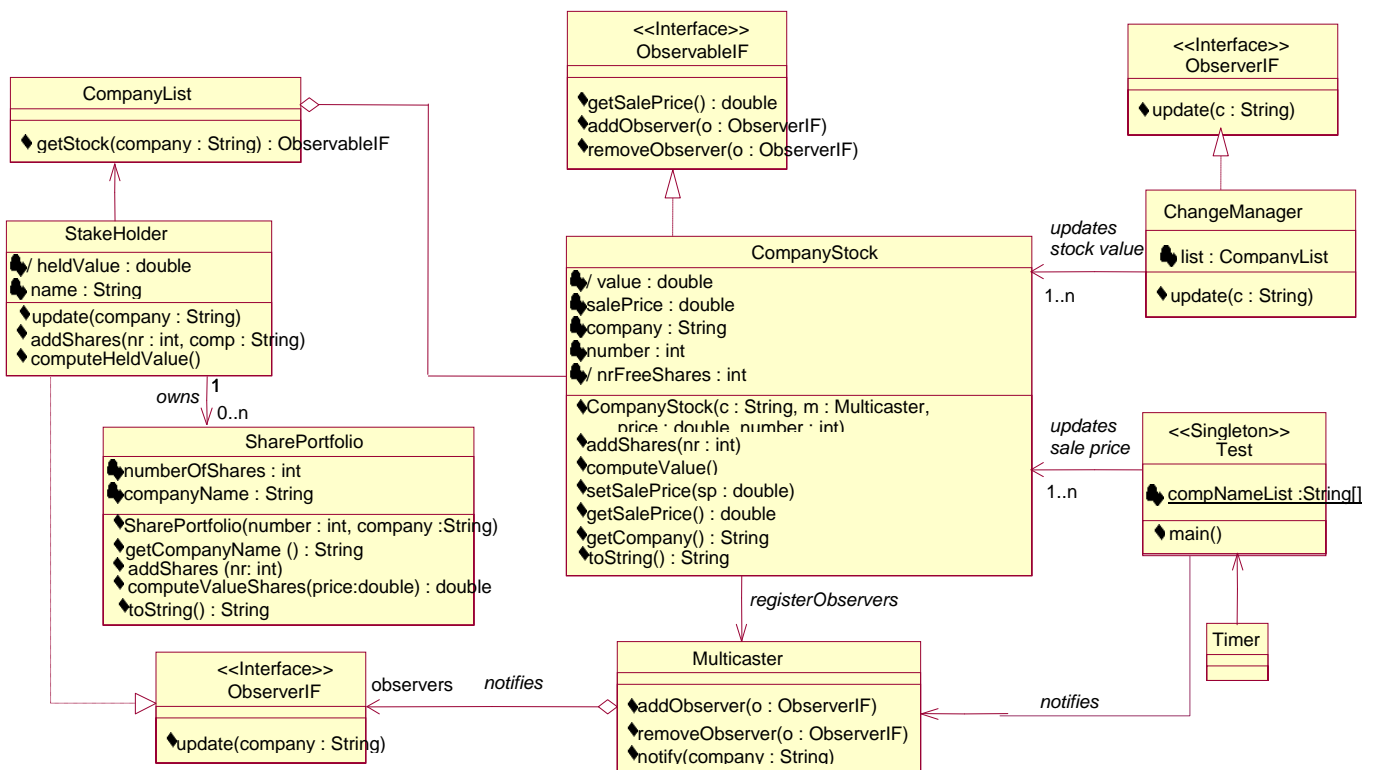
All companies that participate with their shares on the stock exchange are listed in a company list.

A stakeholder is the owner of some shares of one or more companies. His/Her shares belonging to a company is his/her share portfolio for that company. At a company one or more stakeholders have shares.

Stakeholders have to know in real-time the value they hold for his/her share portfolios when their shares (and only **their** shares!) change.

Requirements:

- Write a program that keeps track the values of the company stocks on the stock exchange. The program should implements at least the following class diagram:



- Moves of the share sale prices on the stock exchange will be simulated as events repeatedly launched by a Timer object. When the share sale price of a company moves, the stakeholders who are interested in the shares of that company are notified in order to re-compute their held value. The stock of that company must be re-computed, too. The companies whom the sale price of shares is to be modified will be randomly generated during the execution of the program.

- Write a Test class that creates a CompanyList with three company stocks from a given list of company names. Add 5 stakeholders that own shares from these stocks. Every time the sale price of the shares of a company is modified, the program has to display the values of the company stocks and the stakeholders' modified share portfolios.