

INLS 560 – Lab 1: Stock Market

Description

In this project, you will write a program to process a stock market transaction. In the stock market, people buy and sell shares of various companies. A person will buy shares of a company's stock hoping that the value of the shares will increase so that they can be sold for more money than what the person paid for them. Naturally, there is a risk that the value of the stock will fall, and the person may have to sell the shares for less than what they paid, thereby losing money.

An individual person usually buys stocks through a brokerage organization that charges a commission (a small amount of money) to handle the stock transaction. We will assume that your broker charges you 2% of the total transaction as the commission. As an example, let's say you want to buy 100 shares of a stock that costs \$1 per share. In this situation, your broker will charge you \$100 to pay for the shares of stock (that's 100 shares multiplied by \$1 per share), plus another \$2 (that's 2% of \$100) for a total price of \$102.

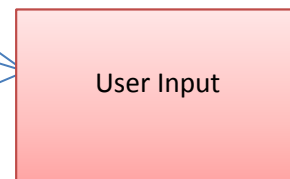
Now let's say that sometime later, the stock has increased in value and is now worth \$1.50 per share. When you ask your broker to sell the stock, you will get back \$150 for the value of the stock itself (that's 100 times \$1.50) minus the 2% commission again. The commission now is 2% of \$150, which is \$3, so you get back \$147, rather than the full \$150.

Assignment Specification

- Create a file named StockMarket.py
- Ask the user for the starting price per share of a stock, and how many shares the user wants to buy.
- Print out the value of the shares, and the total price charged by the broker for buying the shares of the stock. (The value of the shares will be lower than the price charged.)
- Ask the user for the ending price per share of the stock (this might be lower or higher --- the stock could have gone up or down).
- Print out the new value of the shares, and the amount of money the broker will give you back after selling all the shares of the stock at the new price. (The value of the shares will be more than what the broker gives you back.)
- Print out the amount of money the user made (profit) by buying and selling the stock. The amount will be positive if they made money (they sold the stock for more than they paid), but it will be negative if they lost money (they sold the stock for less than they paid).
- Print out the amount of money you made as a percent, relative to how much you paid. For instance, in the example above, you paid \$102 for the stock and got back \$147 when you sold it, for a \$45 profit. Percentage-wise, this is $45/102 * 100 =$ about a 44% increase.

Sample Interactions

```
/System/Library/Frameworks/Python.framework/Versions/2.7/bin/python2.7 /Users  
What is the starting price per share in dollars? 1  
How many shares do you want to buy? 100  
The starting value of this stock is:  
100.0  
You will be charged  
102.0  
dollars after the commission.  
What is the ending price per share in dollars? 1.50  
The ending value of this stock is  
150.0  
and you will receive  
147.0  
dollars after the commission.  
Your profit is  
45.0  
dollars, for a  
44.1176470588  
percent increase in value  
  
Process finished with exit code 0
```



```
/System/Library/Frameworks/Python.framework/Versions/2.7/bin/p
What is the starting price per share in dollars? 12.50
How many shares do you want to buy? 15
The starting value of this stock is:
187.5
You will be charged
191.25
dollars after the commission.
What is the ending price per share in dollars? 13
The ending value of this stock is
195.0
and you will receive
191.1
dollars after the commission.
Your profit is
-0.15
dollars, for a
-0.078431372549
percent increase in value
```



Hints

Work out some examples on paper first to determine how the math works in this problem. Decide on what variables you need, what they represent in the problem, and what their data types should be. Test your program on lots of examples and make sure the math checks out.

Requirements

- You must prompt the user for the starting price per share.
- You must prompt the user for the number of shares they want to buy.
- You must calculate the starting value of the stock and the price the user will be charged after commission and output both of these totals.
- You must prompt the user for the ending price per share.
- You must calculate the ending value of the stock and the amount the user will receive after commission and output both of these totals.
- You must calculate the profit/loss in dollars and the percent increase/decrease in value of the stock and output both of these values.