

CMPE 285 – Software Engineering Processes

Python Stock Profit Calculator

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Description

The goal of this homework is to use Python to implement a stock profile calculator. Perform the following:

- Setup your Python development environment
- Research into how stock profit is being calculated.
- Implement a Python program that it will take the following inputs:
 - A stock symbol
 - Allotment (number of shares)
 - Final share price (in dollars)
 - Sell commission (in dollars)
 - Initial share price (in dollars)
 - Buy commission (in dollars)
 - Capital gain tax rate (in %)
- Output the following items after computation:
 - Proceeds (Allotment x Final share price)
 - Cost (Allotment x Initial Share Price + commissions + Tax on Capital Gain)
 - Net Profit (in dollars)
 - Return on investment (in %)
 - Break-even price (in dollars)

Answer:

Code:

```
# *-----Stock Profit Calculator-----*

# First Name: Harish
# Last Name: Marepalli
# SJSU ID: 016707314
# Professor: Richard Sinn

# This below function is used to calculate the Profile Report
def stockProfitCalculation(symbol, allotment, finalPrice, sellCommission, initialPrice,
buyCommission, cptlGainTaxRate):

    proceeds = allotment * finalPrice # Calculate proceeds

    TaxOnCapitalGain = (proceeds - (allotment * initialPrice + buyCommission +
sellCommission)) * (cptlGainTaxRate / 100) # Calculate tax on capital gain (allotment *
initialPrice = Total Purchase Price)

    costPrice = allotment * initialPrice + buyCommission + sellCommission + TaxOnCapitalGain
# Calculate total cost

    netProfit = proceeds - costPrice # Calculate net profit

    ROI = (netProfit / costPrice) * 100 # Calculate Return On Investment

    breakEvenPrice = (allotment * initialPrice + buyCommission + sellCommission) / allotment #
Calculate break-even price


# Display the profit report
print("\nPROFIT REPORT:")

print("\nProceeds\n${:.2f}".format(proceeds))

print("\nCost\n${:.2f}".format(costPrice))

print("\nCost details:")

print("Total Purchase Price")

print("{} × ${} = {:.2f}".format(allotment, initialPrice, allotment * initialPrice))

print("Buy Commission = {:.2f}".format(buyCommission))
```

```

    print("Sell Commission = ${:.2f}".format(sellCommission))

    print("Tax on Capital Gain = {:.2f}% of ${:.2f} = ${:.2f}".format(cptlGainTaxRate, (proceeds
- (allotment * initialPrice + buyCommission + sellCommission)), TaxOnCapitalGain))

    print("\nNet Profit\n${:.2f}".format(netProfit))

    print("\nReturn on Investment\n{:.2f}%".format(ROI))

    print("\nTo break even, you should have a final share price
of\n${:.2f}".format(breakEvenPrice))


if __name__ == "__main__":

    print("Compute Your Profit:")

    # Input vales from the user

    symbol = input("\nTicket Symbol:\n")
    allotment = int(input("\nAllotment:\n"))
    finalPrice = float(input("\nFinal Share Price:\n"))
    sellCommission = float(input("\nSell Commission:\n"))
    initialPrice = float(input("\nInitial Share Price:\n"))
    buyCommission = float(input("\nBuy Commission:\n"))
    cptlGainTaxRate = float(input("\nCapital Gain Tax Rate (%):\n"))


    stockProfitCalculation(symbol, allotment, finalPrice, sellCommission, initialPrice,
buyCommission, cptlGainTaxRate)

```

Code Screenshot:

```
stockProfitCalculator - G:\HarishMarepalli\285\main.py
File Edit View Navigate Code Refactor Run Tools VCS Window Help
SP stockProfitCalculator Version control
main.py G:\...main.py
1 # -----Stock Profit Calculator-----#
2 # First Name: Harish
3 # Last Name: Marepalli
4 # SSN ID: 016707314
5 # Professor: Richard Sinn
6
7 # This below function is used to calculate the Profile Report
8 def stockProfitCalculation(symbol, allotment, finalPrice, sellCommission, initialPrice, buyCommission, cptlGainTaxRate):
9     proceeds = allotment * finalPrice # Calculate proceeds
10     TaxOnCapitalGain = (proceeds - (allotment * initialPrice + buyCommission + sellCommission)) * (cptlGainTaxRate / 100) # Calculate tax on capital gain
11     costPrice = allotment * initialPrice + buyCommission + sellCommission + TaxOnCapitalGain # Calculate total cost
12     netProfit = proceeds - costPrice # Calculate net profit
13     ROI = (netProfit / costPrice) * 100 # Calculate Return On Investment
14     breakEvenPrice = (allotment * initialPrice + buyCommission + sellCommission) / allotment # Calculate break-even price
15
16 # Display the profit report
17 print("\nPROFIT REPORT:")
18 print("\nProceeds\n${:.2f}".format(proceeds))
19 print("\nCost\n${:.2f}".format(costPrice))
20 print("\nCost details:")
21 print("Total Purchase Price")
22 print("{} x {} = ${:.2f}".format(*args: allotment, initialPrice, allotment * initialPrice))
23 print("Buy Commission = ${:.2f}".format(buyCommission))
24 print("Sell Commission = ${:.2f}".format(sellCommission))
25 print("Tax on Capital Gain = {:.2f}% of ${:.2f} = ${:.2f}".format(*args: cptlGainTaxRate, (proceeds - (allotment * initialPrice + buyCommission + sellCommission)), TaxOnCapitalGain))
stockProfitCalculation()
G: > HarishMarepalli > 285 > main.py 12:61 CRLF UTF-8 4 spaces Python 3.11
```

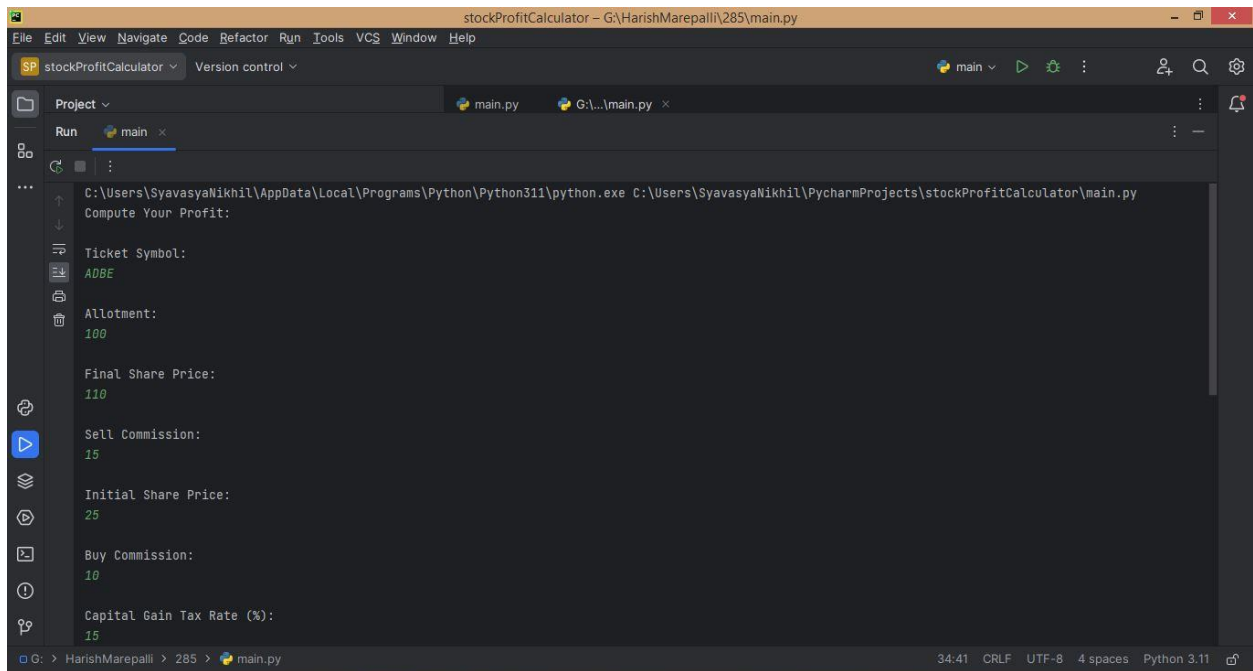
Code Snippet 1

```
stockProfitCalculator - G:\HarishMarepalli\285\main.py
File Edit View Navigate Code Refactor Run Tools VCS Window Help
SP stockProfitCalculator Version control
main.py G:\...main.py
21 print("\nTotal Purchase Price")
22 print("{} x {} = ${:.2f}".format(*args: allotment, initialPrice, allotment * initialPrice))
23 print("Buy Commission = ${:.2f}".format(buyCommission))
24 print("Sell Commission = ${:.2f}".format(sellCommission))
25 print("Tax on Capital Gain = {:.2f}% of ${:.2f} = ${:.2f}".format(*args: cptlGainTaxRate, (proceeds - (allotment * initialPrice + buyCommission + sellCommission)), TaxOnCapitalGain))
26 print("\nNet Profit\n${:.2f}".format(netProfit))
27 print("\nReturn on Investment\n{:.2f}%".format(ROI))
28 print("\nTo break even, you should have a final share price of\n${:.2f}".format(breakEvenPrice))
29
30
31 if __name__ == "__main__":
32     print("Compute Your Profit:")
33     # Input vales from the user
34     symbol = input("\nTicket Symbol:\n")
35     allotment = int(input("\nAllotment:\n"))
36     finalPrice = float(input("\nFinal Share Price:\n"))
37     sellCommission = float(input("\nSell Commission:\n"))
38     initialPrice = float(input("\nInitial Share Price:\n"))
39     buyCommission = float(input("\nBuy Commission:\n"))
40     cptlGainTaxRate = float(input("\nCapital Gain Tax Rate (%):\n"))
41
42     stockProfitCalculation(symbol, allotment, finalPrice, sellCommission, initialPrice, buyCommission, cptlGainTaxRate)
43
stockProfitCalculation()
G: > HarishMarepalli > 285 > main.py 12:61 CRLF UTF-8 4 spaces Python 3.11
```

Code Snippet 2

Run/Console Snippets:

For Test case 1:



The image shows a PyCharm IDE window titled "stockProfitCalculator - G:\HarishMarepalli\285\main.py". The "Run" tab is active, displaying the output of a Python script. The script prompts for several inputs: "Ticket Symbol:", "Allotment:", "Final Share Price:", "Sell Commission:", "Initial Share Price:", "Buy Commission:", and "Capital Gain Tax Rate (%)". The user has entered the following values: "ADBE", "100", "110", "15", "25", "10", and "15" respectively. The output shows the calculated values for each field.

```
C:\Users\SyavasyaNikhil\AppData\Local\Programs\Python\Python311\python.exe C:\Users\SyavasyaNikhil\PycharmProjects\stockProfitCalculator\main.py
Compute Your Profit:

Ticket Symbol:
ADBE

Allotment:
100

Final Share Price:
110

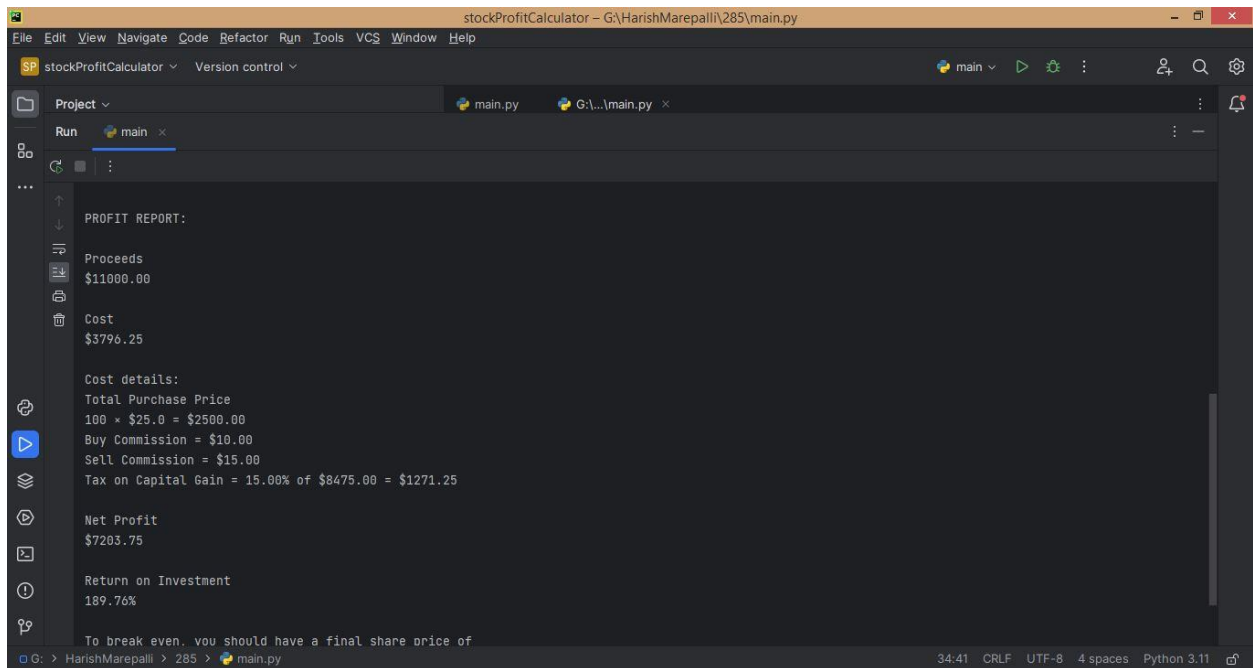
Sell Commission:
15

Initial Share Price:
25

Buy Commission:
10

Capital Gain Tax Rate (%):
15
```

Console Snippet Test Case 1



The image shows a PyCharm IDE window titled "stockProfitCalculator - G:\HarishMarepalli\285\main.py". The "Run" tab is active, displaying the output of a Python script. The script has calculated the profit report based on the inputs from the previous snippet. The output shows the calculated values for each field.

```
PROFIT REPORT:

Proceeds
$11000.00

Cost
$3796.25

Cost details:
Total Purchase Price
100 x $25.0 = $2500.00
Buy Commission = $10.00
Sell Commission = $15.00
Tax on Capital Gain = 15.00% of $8475.00 = $1271.25

Net Profit
$7203.75

Return on Investment
189.76%

To break even, you should have a final share price of
```

Console Snippet Test Case 1

```
stockProfitCalculator - G:\HarishMarepalli\285\main.py
File Edit View Navigate Code Refactor Run Tools VCS Window Help
SP stockProfitCalculator Version control
main main
Run
$11000.00
Cost
$3796.25
Cost details:
Total Purchase Price
100 * $25.0 = $2500.00
Buy Commission = $10.00
Sell Commission = $15.00
Tax on Capital Gain = 15.00% of $8475.00 = $1271.25
Net Profit
$7203.75
Return on Investment
189.76%
To break even, you should have a final share price of
$25.25
Process finished with exit code 0
G:\HarishMarepalli\285> main.py 34:41 CRLF UTF-8 4 spaces Python 3.11
```

Console Snippet Test Case 1

For Test case 2:

```
stockProfitCalculator - G:\HarishMarepalli\285\main.py
File Edit View Navigate Code Refactor Run Tools VCS Window Help
SP stockProfitCalculator Version control
main main
Run
C:\Users\SyavasyaNikhil\AppData\Local\Programs\Python\Python311\python.exe C:\Users\SyavasyaNikhil\PycharmProjects\stockProfitCalculator\main.py
Compute Your Profit:
Ticket Symbol:
TSLA
Allotment:
200
Final Share Price:
774
Sell Commission:
10
Initial Share Price:
17
Buy Commission:
20
Capital Gain Tax Rate (%):
20
G:\HarishMarepalli\285> main.py 34:41 CRLF UTF-8 4 spaces Python 3.11
```

Console Snippet Test Case 2

The screenshot shows an IDE window titled "stockProfitCalculator - G:\HarishMarepalli\285\main.py". The "Run" tab is active, displaying the output of a Python script. The output is a "PROFIT REPORT:" with the following details:

```
PROFIT REPORT:

Proceeds
$154800.00

Cost
$33704.00

Cost details:
Total Purchase Price
200 * $17.0 = $3400.00
Buy Commission = $20.00
Sell Commission = $10.00
Tax on Capital Gain = 20.00% of $151370.00 = $30274.00

Net Profit
$121096.00

Return on Investment
359.29%

To break even, you should have a final share price of
```

The status bar at the bottom indicates the file path "G:\HarishMarepalli\285\main.py", the time "34:41", and settings "CRLF", "UTF-8", "4 spaces", and "Python 3.11".

Console Snippet Test Case 2

The screenshot shows the same IDE window as above, but with an additional line of output at the bottom: "\$17.15". The "Process finished with exit code 0" message is also visible.

```
$154800.00

Cost
$33704.00

Cost details:
Total Purchase Price
200 * $17.0 = $3400.00
Buy Commission = $20.00
Sell Commission = $10.00
Tax on Capital Gain = 20.00% of $151370.00 = $30274.00

Net Profit
$121096.00

Return on Investment
359.29%

To break even, you should have a final share price of
$17.15

Process finished with exit code 0
```

The status bar at the bottom remains the same, showing the file path, time, and settings.

Console Snippet Test Case 2