DASC 1204 – Introduction to OOP for Data Science
Programming Project Report

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Academic Integrity Statement: I pledge that this programming project is my work and that I have neither given nor received unauthorized help on this assignment.

Problem Statement:

- This section should describe the goals of the assignment.
- What are the program inputs?
- What are the program outputs?
- What error handling was required?

The first input is choosing which crop the user wants to buy. The second input is how many of that crop the user wants to buy.

First the program outputs buy price and sell price menus of each crop. Then prints how much money the user spent purchasing how many of which ever plant they chose. Then prints the weather and how many crops were destroyed. Lastly it prints how many plants you sold after the weather and how much profit or loss you made.

If the user tried to pick a number outside of 1 to 4 for choosing a crop to buy, the program prints an error message and exits using System.exit(0). An if else statement was also used to make sure the user bought at least one crop.

Design:

- This section should describe the design decisions you made.
- What data structures did you use?
- What algorithms did you use?
- What were pros/cons of the choices above?

A switch function was used to track the crop the user chose. It tracks the chosen crop's name, buy price, and sell price. I also used three if else statements. The first one was for checking if the user purchased at least crop or not. The second one is for printing different statements depending on the weather. The last one is for printing different statements based on how much profit or loss their was after the weather.

Using the switch statement felt easier to read than the if else statements. Even though the if else statements were less clear, it seemed easier to code my last three conditional situations with if else statements because there was only two or three conditions.

Implementation:

- This section should describe your implementation process.

- What sample code did you start with?
- How did you extend or adapt this code?
- What was your development timeline?
- If you used concepts outside of the scope current topics in this class, where did you gain this knowledge?

I only started with the code OnlineGDB gives you to create the main class.

It spent me about two hours to do the whole project without the report.

I had to go back to the slides on Blackboard a few times especially for formatting my print statements and I had to search how to exit a program. I also looked up how ot find the absolute value of a variable to print a negative profit correctly.

Testing:

- This section should describe your testing process.
- Show your program output with simple test cases
- Show your program output with special test cases
- Did everything work as expected?

Output 1: mediocre weather, no profit and no loss (broke even)

```
Current Selling Prices
  Corn       $4.00
  Tomato     $2.00
  Spinach    $2.50
  Broccoli   $6.00
Please choose a vegetable and note cost to buy:
  1. Corn       $2.00
  2. Tomato     $0.50
  3. Spinach    $1.50
  4. Broccoli   $2.50
1
How many plants of Corn are you going to purchase?
2
You spent $4.00 purchasing 2 plant(s) of Corn.
Mediocre weather conditions have destroyed 1 Corn plant(s).
After selling your remaining 1 plant(s) for $4.00, you barely broke even for the year.
```

Output 2: negative number of plants, no losses due to weather

```
Current Selling Prices
  Corn       $4.00
  Tomato     $2.00
  Spinach    $2.50
  Broccoli   $6.00
Please choose a vegetable and note cost to buy:
```

1. Corn $2.00
2. Tomato $0.50
3. Spinach $1.50
4. Broccoli $2.50

2
How many plants of Tomato are you going to purchase?
-10
You can't buy fewer than 1 plant. Setting you number of plants to 1.
You spent $0.50 purchasing 1 plant of Tomato.
The weather was fantastic this year and all of your plants survived the season.
After selling your remaining 1 plant(s) for $2.00, you made a profit of $1.50!

Output 3: extreme weather, no profit

Current Selling Prices
Corn $4.00
Tomato $2.00
Spinach $2.50
Broccoli $6.00
Please choose a vegetable and note cost to buy:
1. Corn $2.00
2. Tomato $0.50
3. Spinach $1.50
4. Broccoli $2.50

3
How many plants of Spinach are you going to purchase?
15
You spent $22.50 purchasing 15 plant(s) of Spinach.
Oh No! Extreme weather conditions have destroyed 9 Spinach plant(s).
After selling your remaining 6 plant(s) for $15.00, you incurred a loss of $7.50.

Output 4: invalid menu choice

Current Selling Prices
Corn $4.00
Tomato $2.00
Spinach $2.50
Broccoli $6.00
Please choose a vegetable and note cost to buy:
1. Corn $2.00
2. Tomato $0.50
3. Spinach $1.50
4. Broccoli $2.50

10
That is not a valid choice. Exiting now.

Output 5: profit, and compound operator activated

Current Selling Prices
Corn $4.00
Tomato $2.00
Spinach $2.50
Broccoli $6.00
Please choose a vegetable and note cost to buy:
1. Corn $2.00
2. Tomato $0.50
3. Spinach $1.50
4. Broccoli $2.50
4
How many plants of Broccoli are you going to purchase?
12
You spent $30.00 purchasing 12 plant(s) of Broccoli.
Oh No! Extreme weather conditions have destroyed 6 Broccoli plant(s).
After selling your remaining 6 plant(s) for $36.00, you made a profit of $6.00!
You made a profit, but you lost a good percentage of the plants you worked hard to plant.

Conclusions:

- This section should describe the overall result of the assignment.
- Was the programming project a success?
- What would you do same or differently next time?
- How long did the project take to complete?
- Choose the most challenging section of code, and explain what is happening and how it works. (this will likely be 2-10 lines of code total)

It was a success, and I had a lot of fun doing it. I ran this program many more times than I did with the last assignment. It made me catch a lot of tiny mistakes that I wouldn't have seen otherwise. So next time I'm going to run it many more times like I did this time. The project took about two hours. The most challenging code was the profits if else statement because of all of the formatting, the absolute value, and having to make the weather == "bad" implemented into the previous weather if else statement for it to work.