

Lab Assignment Week 12

CSC/DSCI 1301 – Principles of CS/DS I

Week of April 7th, 2025

Introduction

Welcome to the 12th programming lab of CSC/DSCI 1301! Today we will be covering the following topics:

- Defining User-Created Classes
- Writing Class Methods

Lab policy reminders:

- Attendance is mandatory.
- Labs must be completed **individually**.
- TAs are here to help you. Ask them for help!
- Lab assignments are due at the end of each lab.

Comments

The lab assignment requires the inclusion of comments to enhance code readability and understanding. Specifically, a block comment at the beginning of the Python file is required. Your block comment should include the following:

- The program name
- The author's name (your name)
- A description of the program's overall purpose

Additionally, inline comments should be used throughout the code to explain specific lines or sections that might be less obvious to someone reading the code. These inline comments can clarify complex calculations, explain the purpose of certain variables, or provide additional context for specific code blocks.

Deliverables:

1. Python files for the vending machine program.
2. Screenshots of the terminal output for the vending machine program.

If you have any questions, please do not hesitate to ask your TA!

Program 1: vending_machine.py

Write the class definition for a drink vending machine. The vending machine will sell 3 different types of drinks: Soda, Water, and Coffee. Your vending machine class must keep track of the number of bottles remaining for each type of drink. The constructor of the **VendingMachine** class must accept 3 integers as parameters: the number of bottles of Soda, Water, and Coffee, respectively.

Your class must contain methods to perform the following operations:

1. Purchase a bottle of the user-specified drink.
2. Restocks the input number of bottles for a specified drink type.
3. Report on the current inventory of each drink type.

Write a program that implements an object of the **VendingMachine** class. Your program should allow the user to enter multiple commands as input until a stop word is detected. There should be a command for each of the built-in methods. There should be at least two valid stop words, one of which should be a single-letter shortcut. Ex. 'quit' and 'q'.

Example Output

```
> buy
```

```
Please select an option:
```

```
1 - Soda
2 - Coffee
3 - Water
```

```
> 1
```

```
> inventory
```

```
Inventory
Soda: 9 bottles
Coffee: 10 bottles
Water: 10 bottles
```

```
> restock
```

```
Please select an option:
```

```
1 - Soda
2 - Coffee
3 - Water
```

```
> 1
```

```
Please enter an amount:
```

```
> 3
```

```
> inventory
```

```
Inventory
Soda: 12 bottles
Coffee: 10 bottles
Water: 10 bottles
```

```
> quit
```

```
Process finished with exit code 0
```

Skills Covered

- Defining User-Created Classes
- Writing Class Methods

Deliverables

For this program, you will need to provide the Python file containing your code, as well as a screenshot of the program's output. Please name your files as follows:

- Python Files
 - lastname_firstname_filename.py
 - For example: **hawamdeh_faris_vending_machine.py**
- Screenshots
 - lastname_firstname_filename.png
 - For example: **hawamdeh_faris_vending_machine.png**