Work on project. Stage 4/6: Buy, fill, take!

Project: Coffee Machine

Easy 46 minutes

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Description

Let's simulate an actual coffee machine. It has a limited supply of water, milk, coffee beans, and disposable cups. Also, it counts how much money it gets for selling coffee. The coffee machine has several options: first, it needs to be able to sell coffee. It can make different varieties of coffee: espresso, latte, and cappuccino. Of course, each variety requires a different amount of supplies, except that all of them require only one disposable cup. Second, the coffee machine should be able to get replenished by a special worker. Third, another special worker should be able to take money from the coffee machine.

Write the program that can do one of these actions at a time. It reads one line from the standard input, which can be "buy", "fill", or "take". If you want to buy some coffee, input "buy". If you are a special worker and you think that it is time to fill up all the supplies for the coffee machine, input "fill". If you are another special worker and it is time to take the money from the coffee machine, input "take".

If the user writes "buy" then they must choose one of three varieties of coffee that the coffee machine can make: espresso, latte, or cappuccino.

- For the espresso, the coffee machine needs 250 ml of water and 16 g of coffee beans. It costs $4.
- For the latte, the coffee machine needs 350 ml of water, 75 ml of milk, and 20 g of coffee beans. It costs $7.
- And for the cappuccino, the coffee machine needs 200 ml of water, 100 ml of milk, and 12 g of coffee beans. It costs $6.

If the user writes "fill", the program should ask them how much water, milk, coffee, and how many disposable cups they want to add to the coffee machine.

If the user writes "take" the program should give them all the money that it earned from selling coffee.

At the start, the coffee machine has $550, 400 ml of water, 540 ml of milk, 120 g of coffee beans, and 9 disposable cups.

Write the program that prints the coffee machine's state, processes one query from the user, and also prints the coffee machine's state after that. Try to use methods to implement every action that the coffee machine can do.

9 / 9 Prerequisites

- ✓ Ternary operator — In project — 13
- ✓ The for-loop — In project — 13
- ✓ The while and do-while loops — In project — 11
- ✓ Branching statements — In project — 11
- ✓ Switch statement — In project — 7

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Instruction

Write a program that offers to buy one cup of coffee, to fill up the ingredients, or to take its money. At the same time, the program should calculate how many ingredients it has left. And also display the number of ingredients before and after purchase.

Examples

An espresso should be as number 1 in the list, a latte as number 2 and a cappuccino as number 3.
Options also should be named as "buy", "fill", "take".
The symbol `>` represents the user input. Note that it's not part of the input.

Example 1

```
The coffee machine has:
400 ml of water
540 ml of milk
120 g of coffee beans
9 disposable cups
$550 of money

Write action (buy, fill, take):
> buy
What do you want to buy? 1 - espresso, 2 - latte, 3 - cappuccino:
> 3

The coffee machine has:
200 ml of water
440 ml of milk
108 g of coffee beans
8 disposable cups
$556 of money
```

Example 2

```
The coffee machine has:
400 ml of water
540 ml of milk
120 g of coffee beans
9 disposable cups
$550 of money

Write action (buy, fill, take):
> fill
Write how many ml of water you want to add:
> 2000
Write how many ml of milk you want to add:
> 500
Write how many grams of coffee beans you want to add:
> 100
Write how many disposable cups of coffee you want to add:
> 10

The coffee machine has:
2400 ml of water
1040 ml of milk
220 g of coffee beans
19 disposable cups
$550 of money
```

Example 3

```
The coffee machine has:
400 ml of water
540 ml of milk
120 g of coffee beans
9 disposable cups
$550 of money

Write action (buy, fill, take):
> take
I gave you $550

The coffee machine has:
400 ml of water
540 ml of milk
120 g of coffee beans
9 disposable cups
$0 of money
```


See hint

Write a program

Code Editor IDE

Java

```java
package machine;
import java.util.Scanner;

public class CoffeeMachine{
    public static int water;
    public static int milk;
    public static int bean;
    public static int dcup;
    public static int money;

    public static void initialize(){
        water = 400;
        milk = 540;
        bean = 120;
        dcup = 9;
        money = 550;
    }

    public static void main(String[] args) {
        initialize();
        machineState();
        action();
        // System.out.println("Write how many ml of water the coffee machine has:");
        // int water = sc.nextInt();
        // System.out.println("Write how many ml of milk the coffee machine has: ");
        // int milk = sc.nextInt();
        // System.out.println("Write how many grams of coffee beans the coffee machine has: ");
        // int coffee = sc.nextInt();
        // int cup = getCups(water, milk, coffee);
        // System.out.println("Write how many cups of coffee you will need: ");
        // int order = sc.nextInt();
        // printOrder(cup, order);
    }

    public static void action(){
        Scanner sc = new Scanner(System.in);
        System.out.println("Write action (buy, fill, take): ");
        String str = sc.next();
        if(str.equals("take")){
            take();
        }
        else if(str.equals("fill")){
            fill();
        }

        else if(str.equals("buy")){
            buy();
        }
        machineState();
        sc.close();
    }

    public static void buy(){
        Scanner sc = new Scanner(System.in);
        System.out.println("What do you want to buy? 1 - espresso, 2 - latte, 3 - cappuccino:");
        int choice = sc.nextInt();
        if(choice == 1){
            water -= 250;
            bean -= 16;
            money += 4;
            dcup--;
        }
        else if(choice == 2){
            water -= 350;
            milk -= 75;
            bean -= 20;
            money += 7;
            dcup--;
        }
        else if(choice == 3){
            water -= 200;
            milk -= 100;
            bean -= 12;
            money += 6;
            dcup--;
        }
    }

    public static void fill(){
        Scanner sc = new Scanner(System.in);
        System.out.println("Write how many ml of water you want to add:");
        water += sc.nextInt();
        System.out.println("Write how many ml of milk you want to add:");
        milk += sc.nextInt();
```

```
        System.out.println("Write how many grams of coffee beans you want to add:");
        bean += sc.nextInt();
        System.out.println("Write how many disposable cups of coffee you want to add:");
        dcup += sc.nextInt();
    }

    public static void take(){
        System.out.println("I gave you $" + (money));
        money = 0;
    }

    public static void machineState(){
        System.out.println("\nThe coffee machine has:");
        System.out.println((water)+ " ml of water");
        System.out.println((milk) + " ml of milk");
        System.out.println((bean) + " g of coffee beans");
        System.out.println((dcup) + " disposable cups");
        System.out.println("$" +(money)+ " of money\n");
    }

    public static void printOrder(int cup, int order){
        if(cup == order){
            System.out.println("Yes, I can make that amount of coffee");
        }
        else if(cup < order){
            System.out.println("No, I can make only " + (cup) + "cup(s) of coffee");
        }
        else{
            System.out.print("Yes, I can make that amount of coffee (and even " + (cup - order) + "more than that)");
        }
    }

    public static int getCups(int water, int milk, int coffee){
        int cup = 0;
        while(!(water < 1 && milk < 1 && coffee < 1)){
            water -= 200;
            milk -= 50;
            coffee -= 15;
            if(water >= 0 && milk >= 0 && coffee >= 0){
                cup++;
            }
        }
        return(cup);
    }
}
```

✓ Correct.

Install an IDE to get access to powerful debugging tools which let you examine your solution step by step.

585 users liked this problem. 24 didn't like it. **What about you?**

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