

Coding Assignment 3

Part 1 of Building a CokeMachine

Objective

Create a class called `CokeMachine` and a `Code3_XXXXXXXXXX.cpp` program to instantiate your own `CokeMachine` and exercise its functionality.

Submission

You should submit 3 files in a zip file named `Code3_XXXXXXXXXX.zip`

`Code3_XXXXXXXXXX.cpp`

`CokeMachine.h`

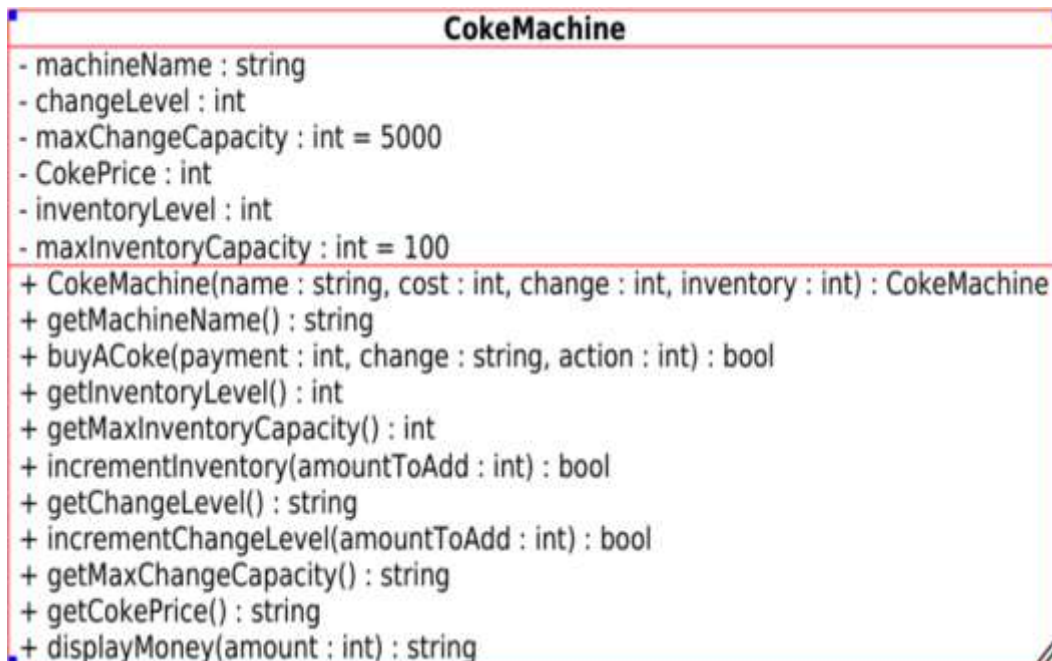
`makefile`

Assumptions

1. For now, the `CokeMachine` only dispenses Coke and no other types of items.
2. Payments are entered in pennies - \$0.50 is entered as 50, \$1.00 is entered as 100.
3. Any displays of change will be in dollars and cents.
4. Any payment entered cannot be used as part of the dispensed change. For example, if the user enter 1234 (\$12.54) for payment, then the machine will only dispense a Coke if it has enough change for 1204.
5. When restocking the machine, the entire restock request has to fit. If the entire quantity does not fit, then the restock request is rejected.

Class Diagram

Use the following Class Diagram to start creating your `CokeMachine` class. Please note that exact names (spellings and case) should be used.



Code3_XXXXXXXXXX.cpp

Create a menu in your .cpp file to use your Coke Machine.

0. Walk away
1. Buy a Coke
2. Restock Machine
3. Add change
4. Display Machine Info

When you instantiate your CokeMachine object, your constructor will assign

Your machine's name

The price of a single Coke

The amount of change in the machine

The number of items (inventory level) in the machine

The constructor I used (that you will see in the example output) is

```
CokeMachine MyCokeMachine{"CSE 1325 Coke Machine", 50, 500, 100};
```

The max capacities of the machine (inventory and change) are set in the initializers of the data members. These values are given in the class diagram.

Any printing to the screen should take place in the .cpp file. Your CokeMachine class should not have any `cins` or `couts` in it. The class diagram is set up such that all functions return the information needed to print messages to the screen.

Additional Information about the using of `action` in `buyACoke()`

`buyACoke()` returns `true/false` to indicate whether or not the function worked.

`buyACoke()` also sets `action` to different values depending on what happened while executing the code in `buyACoke()`.

For example, if a Coke costs \$0.50 and a payment of 30 cents is entered, then `buyACoke()` will fail but your .cpp program needs to know why so it can print a message to inform the user what went wrong – your .cpp program needs to know what `action` to take. `buyACoke()` would assign a specific value to `action` that would relay back to your .cpp program what happened so that it can print a message about it.

For example,

```
buyACoke()  
    if payment is insufficient, then action would be set to 3 (for example)
```

.cpp program

```
get action back from buyACoke() and print a message about insufficient funds because action is 3
```

You will need to define multiple values for `action` to mean the various actions that your .cpp program needs to take based on what happened when `buyACoke()` was called. I used an enumerated type so that I could use words instead of numbers to make my code easier to read.

```
enum ACTION {OK, NOINVENTORY, NOCHANGE, INSUFFICIENTFUNDS, EXACTCHANGE};
```

The rest of this document is the output from my CokeMachine.

CokeMachine Functionality – Menu Option 0

```
student@cse1325:/media/sf_VM$ ./Code3_1000074079.e
```

```
CSE 1325 Coke Machine
```

```
0. Walk away
```

```
1. Buy a Coke
```

```
2. Restock Machine
```

```
3. Add change
```

```
4. Display Machine Info
```

```
0
```

```
Are you sure you aren't really THIRSTY and need a Coke?
```

```
student@cse1325:/media/sf_VM$
```

CokeMachine Functionality – Menu Option 1

student@cse1325:/media/sf_VM\$./Code3_1000074079.e

CSE 1325 Coke Machine

- 0. Walk away
- 1. Buy a Coke
- 2. Restock Machine
- 3. Add change
- 4. Display Machine Info

1
Insert payment 100

Here's your Coke and your change of \$0.50

CSE 1325 Coke Machine

- 0. Walk away
- 1. Buy a Coke
- 2. Restock Machine
- 3. Add change
- 4. Display Machine Info

1
Insert payment 50

Thank you for exact change

Here's your Coke

CSE 1325 Coke Machine

0. Walk away

1. Buy a Coke

2. Restock Machine

3. Add change

4. Display Machine Info

1

Insert payment 33

Insufficient payment...returning your payment

CSE 1325 Coke Machine

0. Walk away

1. Buy a Coke

2. Restock Machine

3. Add change

4. Display Machine Info

1

Insert payment 80000

Unable to give change at this time...returning your payment

CSE 1325 Coke Machine

0. Walk away

1. Buy a Coke

2. Restock Machine

3. Add change

4. Display Machine Info

0

Are you sure you aren't really THIRSTY and need a Coke?

student@cse1325:/media/sf_VM\$

CokeMachine Functionality – Menu Option 2

student@cse1325:/media/sf_VM\$./Code3_1000074079.e

CSE 1325 Coke Machine

- 0. Walk away
- 1. Buy a Coke
- 2. Restock Machine
- 3. Add change
- 4. Display Machine Info

2
How much product are you adding to the machine? 2

You have exceeded your machine's max capacity

Your inventory level is now 100

CSE 1325 Coke Machine

- 0. Walk away
- 1. Buy a Coke
- 2. Restock Machine
- 3. Add change
- 4. Display Machine Info

1
Insert payment 50

Thank you for exact change
Here's your Coke

CSE 1325 Coke Machine

- 0. Walk away
- 1. Buy a Coke
- 2. Restock Machine
- 3. Add change
- 4. Display Machine Info
- 4

Current Inventory Level 99
Max Inventory Capacity 100

Current Change Level \$5.50
Max Change Capacity \$50.00

Current Coke price is \$0.50

CSE 1325 Coke Machine

- 0. Walk away
- 1. Buy a Coke
- 2. Restock Machine
- 3. Add change

4. Display Machine Info

2

How much product are you adding to the machine? 1

Your machine has been restocked

Your inventory level is now 100

CSE 1325 Coke Machine

0. Walk away

1. Buy a Coke

2. Restock Machine

3. Add change

4. Display Machine Info

4

Current Inventory Level 100

Max Inventory Capacity 100

Current Change Level \$5.50

Max Change Capacity \$50.00

Current Coke price is \$0.50

CSE 1325 Coke Machine

0. Walk away

1. Buy a Coke

2. Restock Machine

3. Add change

4. Display Machine Info

0

Are you sure you aren't really THIRSTY and need a Coke?

student@cse1325:/media/sf_VM\$

CokeMachine Functionality – Menu Option 3

student@cse1325:/media/sf_VM\$./Code3_1000074079.e

CSE 1325 Coke Machine

- 0. Walk away
- 1. Buy a Coke
- 2. Restock Machine
- 3. Add change
- 4. Display Machine Info

3
How much change are you adding to the machine? 345

Your change has been updated

Your change level is now \$8.45

CSE 1325 Coke Machine

- 0. Walk away
- 1. Buy a Coke
- 2. Restock Machine
- 3. Add change
- 4. Display Machine Info

3
How much change are you adding to the machine? 12345

You have exceeded your machine's max change capacity

Your change level is now \$8.45

CSE 1325 Coke Machine

0. Walk away

1. Buy a Coke

2. Restock Machine

3. Add change

4. Display Machine Info

0
Are you sure you aren't really THIRSTY and need a Coke?

student@cse1325:/media/sf_VM\$

CokeMachine Functionality – Menu Option 4

student@cse1325:/media/sf_VM\$./Code3_1000074079.e

CSE 1325 Coke Machine

- 0. Walk away
 - 1. Buy a Coke
 - 2. Restock Machine
 - 3. Add change
 - 4. Display Machine Info
- 4

Current Inventory Level 100

Max Inventory Capacity 100

Current Change Level \$5.00

Max Change Capacity \$50.00

Current Coke price is \$0.50

CSE 1325 Coke Machine

- 0. Walk away
- 1. Buy a Coke
- 2. Restock Machine
- 3. Add change
- 4. Display Machine Info

0

Are you sure you aren't really THIRSTY and need a Coke?

student@cse1325:/media/sf_VM\$