Coding Assignment 2

SnackMachine

Objective

Create a class called `SnackMachine.h` and a `Code2_xxxxxxxxxx.cpp` program to instantiate your own SnackMachine and exercise its functionality.

Submission

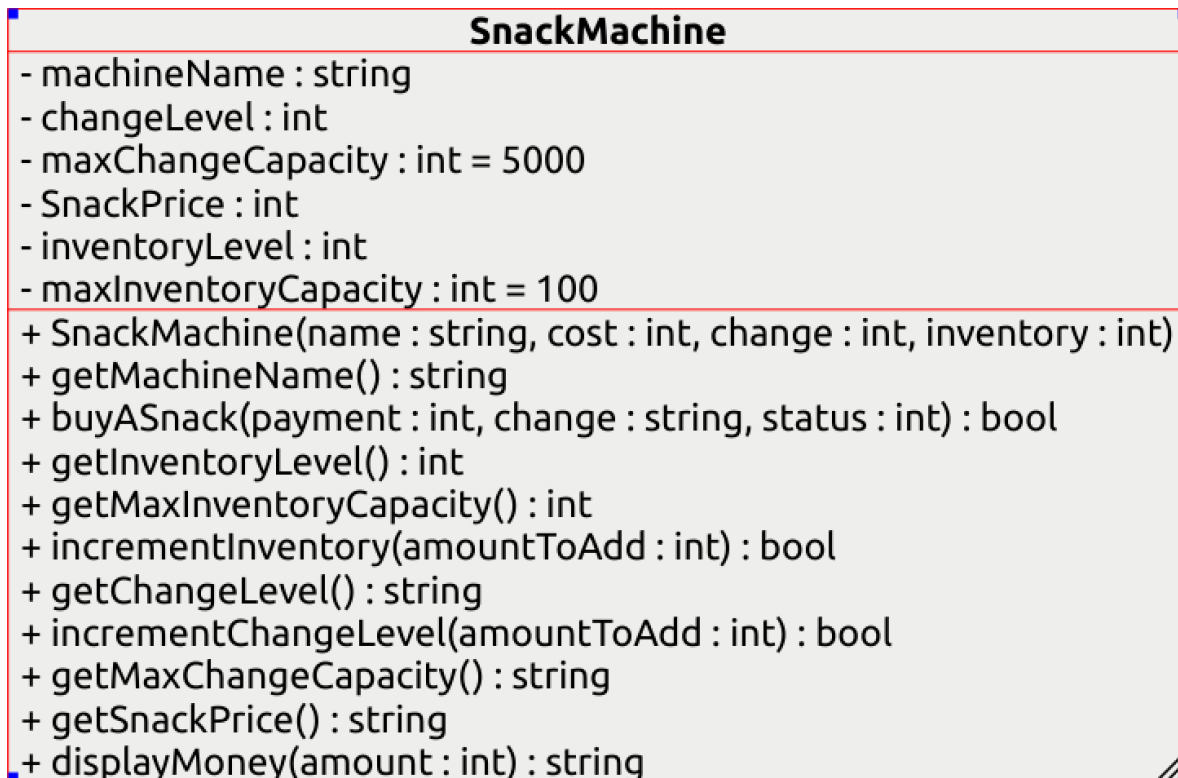You should submit 3 files

```
Code2_xxxxxxxxxx.cpp

SnackMachine.h

makefile
```

Assumptions

1. For now, the SnackMachine only dispenses snacks 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 snack 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 create the outline of your SnackMachine class. Please note that exact names (spellings and case) should be used.

```
                        SnackMachine
─────────────────────────────────────────────────────────
- machineName : string
- changeLevel : int
- maxChangeCapacity : int = 5000
- SnackPrice : int
- inventoryLevel : int
- maxInventoryCapacity : int = 100
─────────────────────────────────────────────────────────
+ SnackMachine(name : string, cost : int, change : int, inventory : int)
+ getMachineName() : string
+ buyASnack(payment : int, change : string, status : int) : bool
+ getInventoryLevel() : int
+ getMaxInventoryCapacity() : int
+ incrementInventory(amountToAdd : int) : bool
+ getChangeLevel() : string
+ incrementChangeLevel(amountToAdd : int) : bool
+ getMaxChangeCapacity() : string
+ getSnackPrice() : string
+ displayMoney(amount : int) : string
```

Code2_xxxxxxxxx.cpp

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

```
0.      Walk away

1.      Buy a snack

2.      Restock Machine

3.      Add change

4.      Display Machine Info
```

When you instantiate your SnackMachine object, your constructor will assign

> Your machine's name
>
> The price of a single snack
>
> 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

```
SnackMachine MySnackMachine{"CSE 1325 Snack Machine", 50, 500, 100};
```

The max capacities of the machine (inventory and change) are set in the initalizers 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 SnackMachine 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 `buyASnack()`

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

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

For example, if a snack costs $0.50 and a payment of 30 cents is entered, then `buyASnack()` 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 the status of the transaction. `buyASnack()` assigns a specific value to `status` that relays back to your .cpp program what happened so that it can print a message about it.

For example,

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

```
.cpp program
```
        get `status` back from `buyASnack()` and print a message about insufficient funds because `status` is 3

You will need to define multiple values for `status` to mean the various statuses that your .cpp program needs to report based on what happened when `buyASnack()` was called. Use an enumerated type so that you can use words instead of numbers to make your code easier to read.

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

```
student@cse1325:/media/sf_VM/CA2$ ./Code2_1000074079.e



CSE 1325 Snack Machine


0. Walk away

1. Buy a Snack

2. Restock Machine

3. Add change

4. Display Machine Info

0
Are you sure you aren't really HUNGRY and need a Snack?
student@cse1325:/media/sf_VM/CA2$ ./Code2_1000074079.e



CSE 1325 Snack Machine


0. Walk away

1. Buy a Snack
```

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 Snack price is $0.50

CSE 1325 Snack Machine

0. Walk away

1. Buy a Snack

2. Restock Machine

3. Add change

4. Display Machine Info

1
A snack costs $0.50

Insert payment 123

Here's your Snack and your change of $0.73

CSE 1325 Snack Machine

0. Walk away

1. Buy a Snack

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 Snack price is $0.50

CSE 1325 Snack Machine

0. Walk away

1. Buy a Snack

2. Restock Machine

3. Add change

4. Display Machine Info

1
A snack costs $0.50

Insert payment 49
Insuffcient payment...returning your payment

CSE 1325 Snack Machine

0. Walk away

1. Buy a Snack

2. Restock Machine

3. Add change

4. Display Machine Info

1
A snack costs $0.50

Insert payment 62

Here's your Snack and your change of $0.12

CSE 1325 Snack Machine

0. Walk away

1. Buy a Snack

2. Restock Machine

3. Add change

4. Display Machine Info

4

Current Inventory Level 98
Max Inventory Capacity 100

Current Change Level $6.00
Max Change Capacity $50.00

Current Snack price is $0.50

CSE 1325 Snack Machine

0. Walk away

1. Buy a Snack

2. Restock Machine

3. Add change

4. Display Machine Info

3
How much change are you adding to the machine? 32

Your change has been updated

Your change level is now $6.32

CSE 1325 Snack Machine

0. Walk away

1. Buy a Snack

2. Restock Machine

3. Add change

4. Display Machine Info

4

Current Inventory Level 98

Max Inventory Capacity 100

Current Change Level $6.32

Max Change Capacity $50.00

Current Snack price is $0.50

CSE 1325 Snack Machine

0. Walk away

1. Buy a Snack

2. Restock Machine

3. Add change

4. Display Machine Info

2

How much product are you adding to the machine? 10

You have exceeded your machine's max capacity

Your inventory level is now 98

CSE 1325 Snack Machine

0. Walk away

1. Buy a Snack

2. Restock Machine

3. Add change

4. Display Machine Info

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

Your machine has been restocked

Your inventory level is now 100

CSE 1325 Snack Machine

0. Walk away

1. Buy a Snack

2. Restock Machine

3. Add change

4. Display Machine Info

4

Current Inventory Level 100

Max Inventory Capacity 100

Current Change Level $6.32

Max Change Capacity $50.00

Current Snack price is $0.50

CSE 1325 Snack Machine

0. Walk away

1. Buy a Snack

2. Restock Machine

3. Add change

4. Display Machine Info

1
A snack costs $0.50

Insert payment 987
Unable to give change at this time...returning your payment

CSE 1325 Snack Machine

0. Walk away

1. Buy a Snack

2. Restock Machine

3. Add change

4. Display Machine Info

0
Are you sure you aren't really HUNGRY and need a Snack?
student@cse1325:/media/sf_VM/CA2$

student@cse1325:/media/sf_VM/CA2$ ./Code2_1000074079.e

CSE 1325 Snack Machine

0. Walk away

1. Buy a Snack

2. Restock Machine

3. Add change

4. Display Machine Info

a
You must enter a number. Reenter your choice b
You must enter a number. Reenter your choice c
You must enter a number. Reenter your choice d
You must enter a number. Reenter your choice -1
You must enter a value between 0 and 4. Reenter your choice 5
You must enter a value between 0 and 4. Reenter your choice 4

```
Current Inventory Level 100

Max Inventory Capacity  100


Current Change Level     $5.00

Max Change Capacity      $50.00


Current Snack price is    $0.50



CSE 1325 Snack Machine



0. Walk away


1. Buy a Snack


2. Restock Machine


3. Add change


4. Display Machine Info


0
Are you sure you aren't really HUNGRY and need a Snack?
student@cse1325:/media/sf_VM/CA2$


student@cse1325:/media/sf_VM/CA2$ ./Code2_1000074079.e



CSE 1325 Snack Machine



0. Walk away
```

1. Buy a Snack

2. Restock Machine

3. Add change

4. Display Machine Info

1
A snack costs $0.50

Insert payment 50

Thank you for exact change
Here's your Snack

CSE 1325 Snack Machine

0. Walk away

1. Buy a Snack

2. Restock Machine

3. Add change

4. Display Machine Info

0
Are you sure you aren't really HUNGRY and need a Snack?

student@cse1325:/media/sf_VM/CA2$