

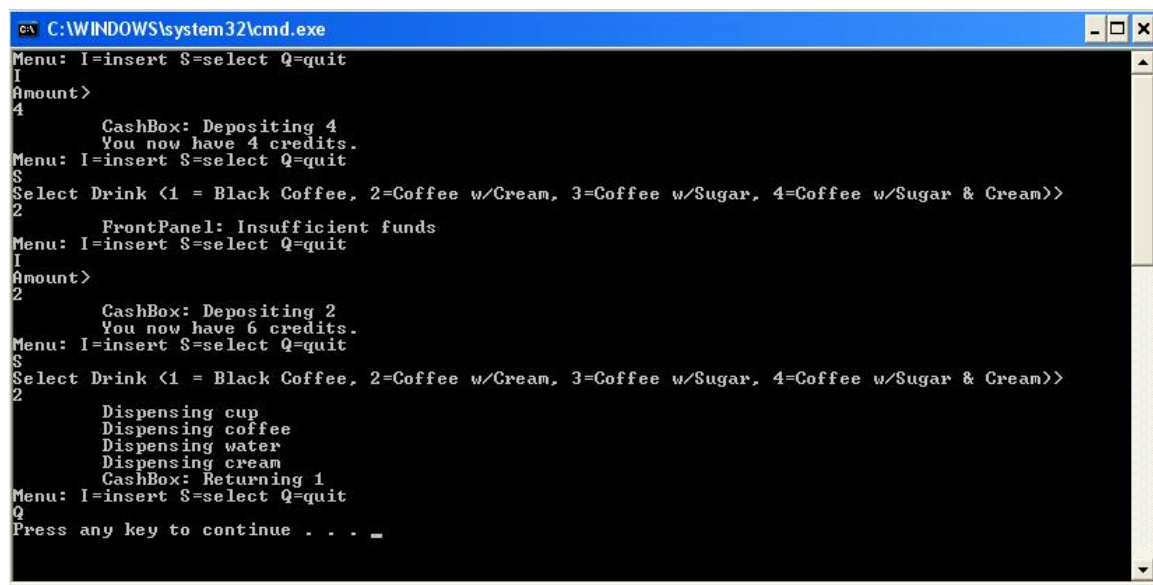
## Lab 11 – Program Understanding

In this lab you will implement **TWO** changes to a vending coffee machine. At present the machine can make four types of coffee as followings:

1. Black coffee,
2. Coffee with sugar,
3. Coffee with cream, and
4. Coffee with sugar and cream

The user gives (text-based) commands to insert money (menu choice “**insert**”) and select coffee (menu choice “**select**”). After performing the selection, the user will receive the “coffee”, given that he has inserted sufficient money and assuming that all the required ingredients are available. At present, a cup of coffee (no matter what type) costs **5 credits**.

The sample execution below shows how the coffee machine operates to create coffee with cream.

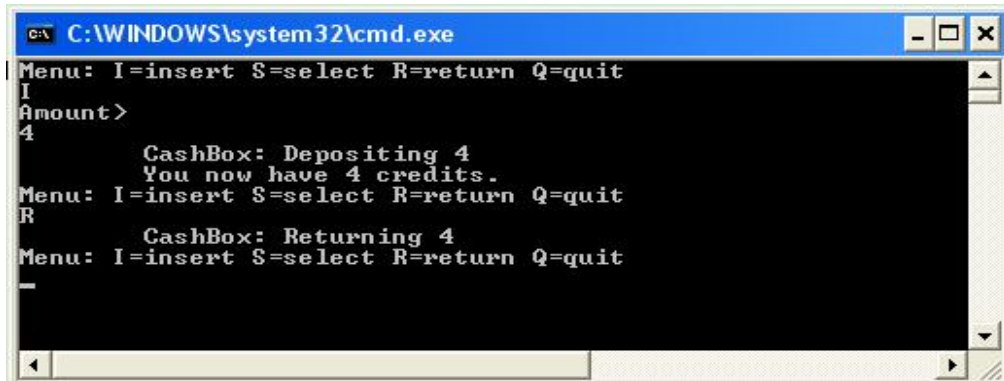


```
C:\WINDOWS\system32\cmd.exe
Menu: I=insert S=select Q=quit
I
Amount>
4
    CashBox: Depositing 4
    You now have 4 credits.
Menu: I=insert S=select Q=quit
S
Select Drink <1 = Black Coffee, 2=Coffee w/Cream, 3=Coffee w/Sugar, 4=Coffee w/Sugar & Cream>>
2
    FrontPanel: Insufficient funds
Menu: I=insert S=select Q=quit
I
Amount>
2
    CashBox: Depositing 2
    You now have 6 credits.
Menu: I=insert S=select Q=quit
S
Select Drink <1 = Black Coffee, 2=Coffee w/Cream, 3=Coffee w/Sugar, 4=Coffee w/Sugar & Cream>>
2
    Dispensing cup
    Dispensing coffee
    Dispensing water
    Dispensing cream
    CashBox: Returning 1
Menu: I=insert S=select Q=quit
Q
Press any key to continue . . . _
```

### Task 1

In this task, you shall extend the coffee machine with a “return button” functionality that returns the deposited funds. The menu choice is called “**Return**”

Test that your solution produces the output given in the sample execution screenshot:

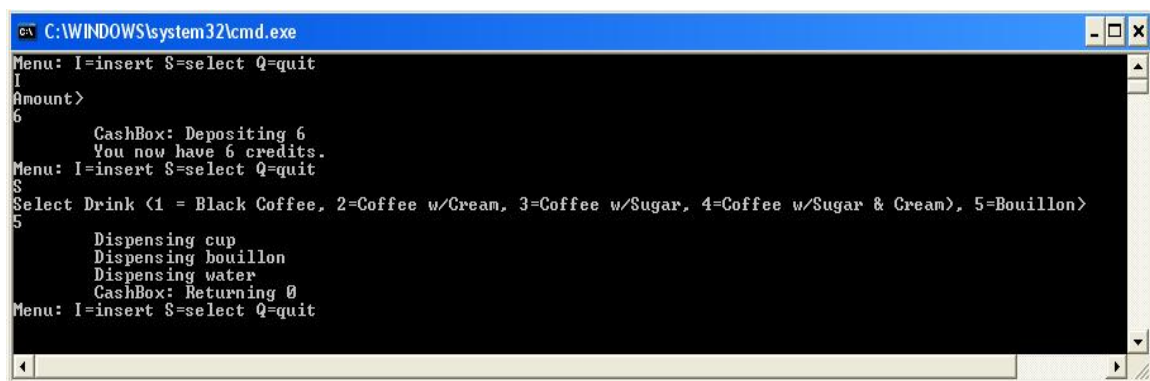


```
C:\WINDOWS\system32\cmd.exe
Menu: I=insert S=select R=return Q=quit
I
Amount>
4
    CashBox: Depositing 4
    You now have 4 credits.
Menu: I=insert S=select R=return Q=quit
R
    CashBox: Returning 4
Menu: I=insert S=select R=return Q=quit
_
```

## Task 2

In this task, you shall extend the coffee machine so that it also can make **bouillon**. Bouillon costs more than coffee. While coffee costs 5 credits, bouillon costs 6 credits.

Test that your solution produces the output given in the sample execution screenshot:



```
C:\WINDOWS\system32\cmd.exe
Menu: I=insert S=select Q=quit
I
Amount>
6
    CashBox: Depositing 6
    You now have 6 credits.
Menu: I=insert S=select Q=quit
S
Select Drink <1 = Black Coffee, 2=Coffee w/Cream, 3=Coffee w/Sugar, 4=Coffee w/Sugar & Cream>, 5=Bouillon>
5
    Dispensing cup
    Dispensing bouillon
    Dispensing water
    CashBox: Returning 0
Menu: I=insert S=select Q=quit
```