

# CS23021 Computer Science I

## Project #3

Due by 11:59pm on Wednesday, October 11, 2006

In this project you practice using functions and multiple files. Write a program for a vending machine that collects money from a user, dispenses the product, and returns change.

A vending machine dispenses 1. M&Ms (\$.65), 2. chips (\$1.16), 3. peppermint gum (\$.28). Your program should prompt the user to deposit money (specify the amount deposited), select the product, and provide change. Change should be provided in quarters, dimes, and pennies (you do not have to use nickel and half-dollar coins.) Include a loop to allow the user repeat a purchase multiple times. If the amount of money entered is insufficient for the purchase the program should state that. The machine provides “optimum” change – the number of quarters and dimes is maximum: if \$0.31 is due, the machine should return 1 quarter, 1 dime and one penny, not zero quarters, 2 dimes and 21 pennies (or any other combination.)

Here is an example dialogue. User input is provided in bold font.

```
Welcome to online vending machine. It serves:
  1. M&M ($.65)
  2. Chips ($1.16)
  3. Peppermint gum ($.28)

Please enter the amount of money deposited (in dollars): 1.50
Please enter your selection: 2
Please pick up your product.
Your change is: 1 quarter, 0 dimes, 9 pennies

Would you like to make another purchase? (y/n) n
```

All operations should be done with integers. Do NOT use floating point variables in your program.

Use at least the following functions (besides `main()`):

1. To output the prompt and taking user input;
2. A function `find_change` that computes the number of coins of each of the specified denomination. The function should accept the money amount and coin denomination and return the number of coins for that denomination. For example, `get_change` accepts \$0.31 as money amount and \$0.25 as coin denomination (quarters) it should return 1 (one quarter to be returned.) *Hint:* use integer division and remainder operator to implement this function.

You should place your program in several files as follows:

- `main.cpp` – contains `main()`.
- `vendlib.h` – contains the global constants and function prototypes.
- `vendlib.cpp` – contains the function definitions for the functions listed above.

Submit all files listed above. Ensure that your code is properly commented and has good programming style.