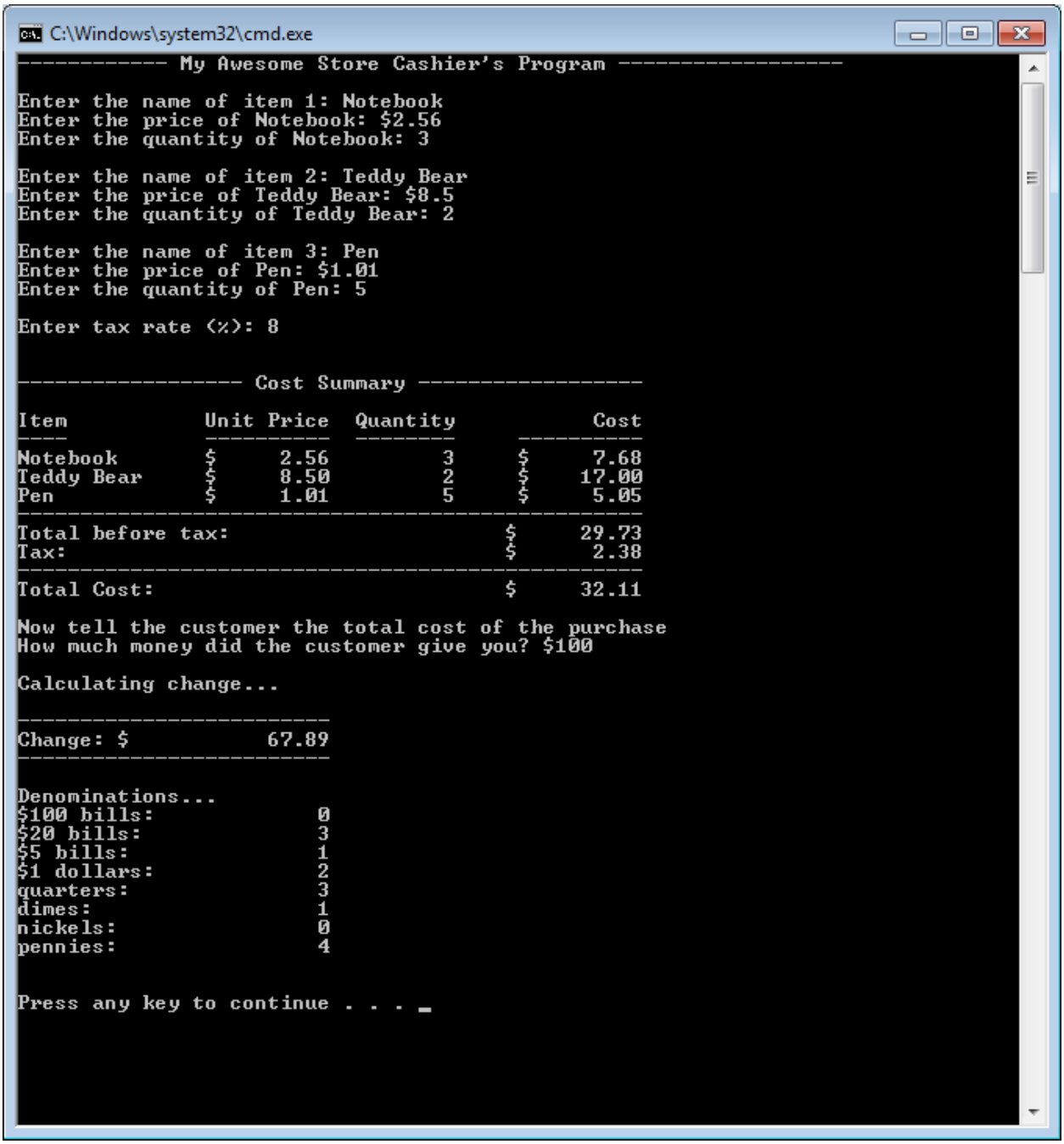
CSCI 110 Intro to CS I

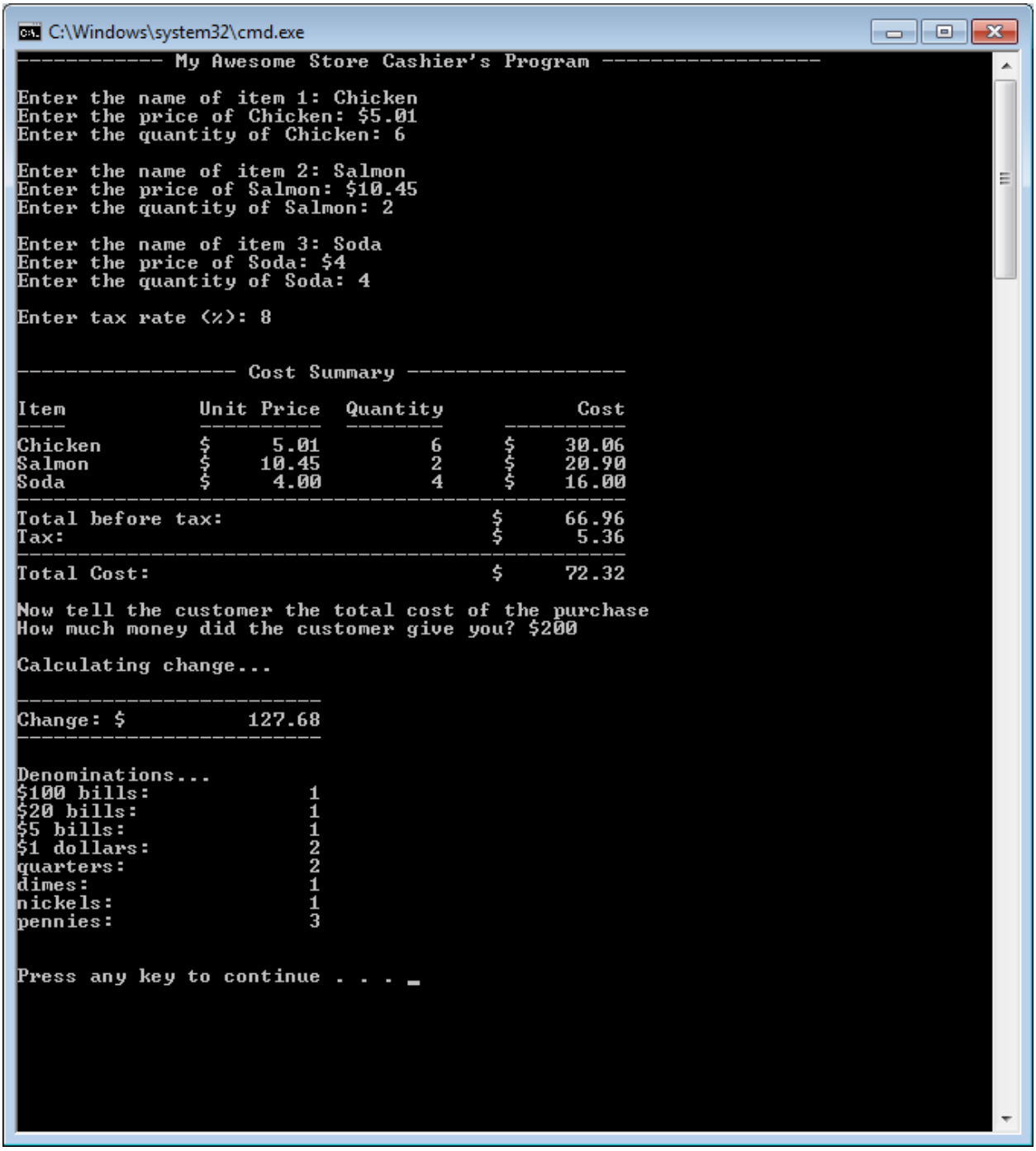
Project 1

Crafton Hills College
Total Points: 50

Overview

In this project, you will develop a cashier's calculator program in C++. The calculator program asks the user for information about three items, including name, unit price, and quantity, as well as sales tax rate. Given the information, the program calculates the cost for each item, the amount of sales tax, and the total price before and after tax. The program displays a summary of the purchase in an organized, tabular format. It then asks the user for the amount of payment given by the customer. The program finally displays the amount of change to be rendered, including the quantity of each available denomination ($100 bills, $20 bills, $5 bills, $1 bills, quarters, dimes, nickels, and pennies). The following are examples of the program output:


C:\Windows\system32\cmd.exe
---------- My Awesome Store Cashier's Program ----------
Enter the name of item 1: Notebook
Enter the price of Notebook: $2.56
Enter the quantity of Notebook: 3
Enter the name of item 2: Teddy Bear
Enter the price of Teddy Bear: $8.5
Enter the quantity of Teddy Bear: 2
Enter the name of item 3: Pen
Enter the price of Pen: $1.01
Enter the quantity of Pen: 5
Enter tax rate (%): 8
---------- Cost Summary ----------
Item Unit Price Quantity Cost
Notebook $ 2.56 3 $ 7.68
Teddy Bear $ 8.50 2 $ 17.00
Pen $ 1.01 5 $ 5.05
Total before tax: $ 29.73
Tax: $ 2.38
Total Cost: $ 32.11
Now tell the customer the total cost of the purchase
How much money did the customer give you? $100
Calculating change...
Change: $ 67.89
Denominations...
$100 bills: 0
$20 bills: 3
$5 bills: 1
$1 dollars: 2
quarters: 3
dimes: 1
nickels: 0
pennies: 4
Press any key to continue . . .



Detailed Project Requirements

1. The program should prompt the user to enter the following information about each of three items:
    - name (which may include space(s))
    - unit price ($)
    - quantity

2. It should also prompt the user to enter the tax rate (assuming the user will enter a number between 0 and 100).
3. After getting the above information from the user, the program should display a summary of the information given by the user (i.e. those listed under item 1 above). In addition, it should calculate and display the following in the cost summary:
    - *cost for each item = unit price * quantity*
    - *total cost before tax = sum of the costs of the three items*
    - *tax =total cost before tax * tax rate*
    - *total cost after tax = total cost before tax + tax*

    The cost summary should be shown in a tabular format, in which items in each column are aligned. It should use a format comparable to the sample outputs displayed on the previous page. Points will be deducted if the outputs are not organized in the format shown in the sample outputs.

    Hint: To display outputs in columns of fixed width, use the setw function from the <iomanip> library. For example, to display a variable named `number` in a field of 10 characters wide (with the text right aligned in the field), do the following:

```
#include <iomanip>
…
int main() {
…
   cout << right << setw(10) << number;
   …
}
```

4. The program should also ask for the amount of payment given by the customer.
5. The program should display the amount of change (difference between payment and cost) to be rendered to the customer. It should also display the quantity of each available denomination ($100 bills, $20 bills, $5 bills, $1 bills, quarters, dimes, nickels, and pennies). It should always use the largest denomination available before considering the smaller ones (e.g. for 8 cents, use one nickel and three pennies instead of using eight pennies).

WHAT YOU NEED TO SUBMIT FOR THE PROJECT:

- A report containing the following items:

- Title page, with your name
- Pseudocode
- Printout of source code
- Sample screenshot (use the [Alt+Prt Scr] buttons on your keyboard to capture a screenshot of your program running with representative inputs, such as the examples shown on the previous pages)
- A brief discussion of your project experience
    - Did you enjoy this project? What problems did you encounter?
    - What did you get out from the project?
    - How did you find the project (too easy, easy, just right, difficult, too difficult)?
    - What type of help/references did you use in your project (e.g. book, web sites, classmates, tutors)?

GRADING CRITERIA

- Satisfaction of project requirements (40 points)
- Report (5 points)
- Coding style (5 points)
    - Provide comments about your program in appropriate places.
    - You must use the program template provided on Blackboard that has a program comment block containing filename, description, author, class, and date.
    - Use descriptive identifiers.
    - Use proper spacing and indentation (refer to the textbook's program style).