C++ Lab Assignment 8

Basic C++ Coding
Date of Submission: 25/07/2020

1. Write the definition for a class called **complex** that has floating point data members for storing real and imaginary parts. The class has the following member functions:
   void set(float, float) to set the specified value in object
   void disp() to display complex number object
   complex sum(complex) to sum two complex numbers & return complex number
   1. Write the definitions for each of the above member functions.
   2. Write main function to create three complex number objects. Set the value in two objects and call sum() to calculate sum and assign it in third object. Display all complex numbers.
2. Write the definition for a class called **Distance** that has data member feet as integer and inches as float. The class has the following member functions:
   void set(int, float) to give value to object
   void disp() to display distance in feet and inches
   Distance add(Distance) to sum two distances & return distance
   1. Write the definitions for each of the above member functions.
   2. Write main function to create three Distance objects. Set the value in two objects and call add() to calculate sum and assign it in third object. Display all distances.
3. Write the definition for a class called **time** that has hours and minutes as integer. The class has the following member functions:
   void settime(int, int) to set the specified value in object
   void showtime() to display time object
   time sum(time) to sum two time object & return time
   1. Write the definitions for each of the above member functions.
   2. Write main function to create three time objects. Set the value in two objects and call sum() to calculate sum and assign it in third object. Display all time objects.

   A common place to buy candy is from a machine. The machine sells candies, chips, gum, and cookies. You have been asked to write a program for this candy machine.
   The program should do the following:
   1. Show the customer the different products sold by the candy machine.
   2. Let the customer make the selection.
   3. Show the customer the cost of the item selected.
   4. Accept money from the customer.
   5. Release the item.

   The machine has two main components: a built-in cash register and several dispensers to hold and release the products.

   Define class cashRegister in C++ with the following descriptions :
   Private Members:
   cashOnHand of type integer
   Public Members:
   A default constructor cashRegister() sets the cash in the register to 500.
   A constructor cashRegister(int) sets the cash in the register to a specific amount.
   A function getCurrentBalance() which returns value of cashOnHand
   A function acceptAmount(int) to receive the amount deposited by the customer and update the amount in the register

   Define class dispenserType in C++ with the following descriptions :
   Private Members:

numberOfItems of type integer
cost of type integer
Public Members:
A default constructor dispenserType () sets the cost and number of items in the dispenser to 50 each.
A constructor dispenserType (int,int) sets the cost and number of items in the dispenser to the values specified by the user.
A function getNoOfItems() to return the value of numberOfItems.
A function getCost() to return the value of cost.
A function makeSale() to reduce the number of items by 1.

When the program executes, it must do the following:
1. Show the different products sold by the candy machine.
2. Show how to select a particular product.
Once the user has made the appropriate selection, the candy machine must act accordingly. If the user has opted to buy a product and that product is available, the candy machine should show the cost of the product and ask the user to deposit the money. If the amount deposited is at least the cost of the item, the candy machine should sell the item and display an appropriate message.
Divide this program into three functions: showSelection, sellProduct, and main.
The function sellProduct must have access to the dispenser holding the product (to decrement the number of items in the dispenser by 1 and to show the cost of the item) as well as the cash register (to update the cash). Therefore, this function has two parameters: one corresponding to the dispenser and the other corresponding to the cash register.

4. Write a C++ program to write number 1 to 100 in a data file NOTES.TXT.
5. Write a C++ program, which initializes a string variable to the content "Time is a great teacher but unfortunately it kills all its pupils. Berlioz" and outputs the string to the disk file OUT.TXT. you have to include all the header files if required.
6. Write a user-defined function in C++ to read the content from a text file OUT.TXT, count and display the number of alphabets present in it.
7. Write a function to count the number of blank present in a text file named "OUT.TXT"
8. Write a function to count number of words in a text file named "OUT.TXT".
9. Write a function in C++ to print the count of word the as an independent word in a text file STORY.TXT.
   for example, if the content of the file STORY.TXT is
   There was a monkey in the zoo. The monkey was very naughty.
10. Write a function in C++ to count and display the number of lines not starting with alphabet 'A' present in a text file "STORY.TXT".
    Example:
    If the file "STORY.TXT" contains the following lines,
    The rose is red.
    A girl is playing there.
    There is a playground.
    An aeroplane is in the sky.
    Numbers are not allowed in the password.