Bonus Assignment #1: Chapter 13, 14 Exercises

This bonus assignment is optional. For this homework, you should work individually to complete your work. Each student should individually submit their work on the Blackboard.

Please complete the following exercise problems. Attach the complete source code of the solution program file in this document in the given order.

For each solution, run the program and take screenshot of the output of the program. Attach the screenshot in this document in the given order.

Export the document (containing code + screenshot) as a pdf document. You should submit only one pdf file on the Blackboard course website.

When you are satisfied with your solution, by the due date of 5 pm Sunday, 7 March, submit the pdf document on the Blackboard. Thank you.

Checkpoint Exercise:
13.21

13.22

13.26 (in this program consider using an array of 5 Yard objects)

Algorithm Workbench
47 and 48 (solve them in one program)

Programming Challenges

5. RetailItem Class
In addition, define to_string member function in the RetailItem class and display the content of the three objects.

7. Circle Class

Checkpoint Exercise (screenshots are not needed for the following checkpoint exercises):
14.3
14.6
14.10
14.11

14.15
14.19
14.20

Programming Challenges (screenshots needed for each section of the following questions)

1.(a) Create a Circle class that has a double radius instance variable. Create a constructor of the class that will initialize the instance variable. Now, write the header and definition of a function that overloads cout's << operator for the Circle class (use friend function approach).

Circle my_circle(10);
cout << my_circle << endl; //this will output 10

(b) Overload the double operator, so that when an object of the Circle class is assigned to a double variable, it will return the area of the Circle object.

Circle my_circle(10);
double area = my_circle;
cout << area << endl; // this will display 314.16, assuming, PI = 3.1416

2. (a) Create a Date class that has three instance integer variables named, month, day, year respectively. Create a default constructor that will initialize month =1, day =1, and year = 1990.

(b) Overload the constructor so that it accepts three values for respective instance variables of the class. For example,

Date my_date (4, 20, 2021); // will assign month = 4, day = 20, and year = 2021

(c) Overload the string operator, so that an object of the Date class can be assigned to a string variable. In this case, the string variable will get the string representation of the date values as the following:

Date my_date (4, 20, 2021);
string date = my_date;
cout << date << endl; // this will output: 20 April 2021