

Computer Programming 2

Sheet #2

Question 1 Define a class BOOK with the following specifications :

Private members of the class BOOK are

BOOK NO integer type

BOOKTITLE 20 characters

PRICE float (price per copy)

TOTAL_COST() A function to calculate the total cost for N number of copies where N is passed to the function as argument.

Public members of the class BOOK are

INPUT() function to read BOOK_NO, BOOKTITLE, PRICE

PURCHASE() function to ask the user to input the number of copies to be purchased. It invokes TOTAL_COST() and prints the total cost to be paid by the user.

Note : You are also required to give detailed function definitions

Question 2 Write the definition for a class called Rectangle that has floating point data member length and width. The class has the following member functions:

void setlength(float) to set the length data member

void setwidth(float) to set the width data member

float perimeter() to calculate and return the perimeter of the rectangle

float area() to calculate and return the area of the rectangle

void show() to display the length and width of the rectangle

int sameArea(Rectangle) that has one parameter of type Rectangle. sameArea returns 1 if the two Rectangles have the same area, and returns 0 if they don't.

1. Write the definitions for each of the above member functions.
2. Write main function to create two rectangle objects. Set the length and width of the first rectangle to 5 and 2.5. Set the length and width of the second rectangle to 5 and 18.9. Display each rectangle and its area and perimeter.
3. Check whether the two Rectangles have the same area and print a message indicating the result. Set the length and width of the first rectangle to 15 and 6.3. Display each Rectangle and its area and perimeter again. Again, check whether the two Rectangles have the same area and print a message indicating the result.

Question 3 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.

n 4 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.