A Sophisticated Rectangle Class

Problem Statement

Create a sophisticated **Rectangle** class. This class stores only the Cartesian coordinates of the four corners of the rectangle. The constructor calls a **set** function that accepts four sets of coordinates and verifies that each of these is in the first quadrant with no single x or y coordinate larger than 20.0. The **set** function also verifies that the supplied coordinates do, in fact, specify a rectangle. Other member functions are:

- **length**. It returns the larger of the two dimensions as the length.
- **width**. It returns the smaller of the two dimensions as the width.
- **perimeter**. It calculates the perimeter of the rectangle.
- **area**. It calculates the area of the rectangle.
- **square**. It determines if the rectangle is a square.
- **draw**. It displays the rectangle inside a 25-by-25 box enclosing the portion of the first quadrant.
- **setFillCharacter**. It specifies the character out of which the body of the rectangle will be drawn.
- **setPerimeterCharacter**. It specifies the character that will be used to draw the border of the rectangle.

Input

Four pairs of numbers. Each pair represents the Cartesian coordinates of one of the four corners of the rectangle.

Output

Your program displays a menu of operations that the user may choose from. These operations include Length, Width, Perimeter, Area, Square, and Draw as explained in the Problem Statement above. In case the user selects Draw, your program prompts the user for the fill-character and the perimeter-character.

Processing Notes

Divide the project into three files:

- **rectangle.h** which contains **Rectangle** class definition.
- **rectangle.cpp** which contains the class member function definitions.
- **main.cpp** which contains the driver program to test the **Rectangle** class.

Submission Instructions

- Submit the project as a zip file renamed using the following naming convention:
  LastName-FristName-AssignmentNumber.zip
- Submit the zip file in the drop box dedicated for this assignment.