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**Concluding Exercise - Object Oriented Programming**

**Write a Console Application program that allows you to perform calculations on the perimeters and areas of geometric shapes in different sizes.**

**The program should present the user with a menu that lists the various actions he can perform and asks him to enter his choice:**

**1. Add new shape**

**2. List all shapes**

**3. Sum all circumferences**

**4. Sum all areas**

**5. Find biggest circumference**

**6. Find biggest area**

**7. Exit**

**After selecting the user, the appropriate operation will be performed and at the end, the menu will be displayed again, until the user selects the Exit option.**

**Description of actions:**

**Add new shape**

**If the user selects this option, a menu will be displayed that allows him to select the type of shape he wants to add:**

**1. Square**

**2. Rectangle**

**3. Circle**

**4. Right triangle**

**Depending on the type of shape chosen by the user, the system should ask him for the color of the shape as well as the dimensions of the desired shape as follows:**

**● For a square, the system should only request width. The circumference is calculated by width \* 4 and the area by width \* width**

**● For a rectangle, the system should ask for width and height. The circumference is calculated by 2 \* width + 2 \* height.**

**The area is calculated by width \* height**

**● For a circle, the system should request a radius (r). The scope is calculated by 2 \* r \* PI (where PI = 3.141).**

**The area is calculated by PI \* r \* r.**

**● For a right triangle, the system should ask for width and height. The scope is calculated by**

**width + height + sqrt (width \* width + height \* height)**

**+ Area calculation**

**List all shapes**

**If the user selects this option, he will be shown a list of all the shapes he has added (from the beginning of the program run. No need to save information between runs), one line for each shape. For each shape its type and the relevant dimensions will be displayed by the shape type. For example:**

**Square: width = 10, color = Red**

**Rectangle: width = 20, height = 30, Color = White**

**Circle: r = 12**

**Sum all circumferences and Sum all areas**

**If the user selects one of these options, the system will calculate the amount of scopes or the amount of areas respectively and display the result to the user.**

**Find biggest circumference and Find biggest area**

**If the user selects one of these options, he will be shown the details of the shape with the largest circumference or area, and another row will show the extent or area of ​​the same shape. The shape details will be displayed in the same way as in List all shapes**

**Highlights:**

**● Make sure the code is legible and clear**

**● Be sure to divide the code into classes that are small, simple, and easy to understand**

**● Avoid duplication and repetition in the code as much as possible**

**● Write the code so that support can be added in other forms (eg, trapezoid, oval, etc.), in a simple way and with as few changes as possible to existing code**

**● Write the code so that it is possible to add support for further calculations on the shapes, in a simple way and with as few changes as possible in the existing code. For example, the average of the areas, the minimum scope, etc..**