CS110, Computer Programming Lab, Department of CSE, IIT Guwahati Spring' 18

Moduel 2, Stage 3: Looping Constructs

Have you complete the practice drill for this stage?

Your code for this stage will be evaluated on the following criteria

- Have you drawn the flowchart on paper for your code?
- Have you given meaningful names to variables?
- Have you added comments at appropriate places in your code?
- Have you indented your code properly?
- Have you prepared multiple test cases on paper to check correctness of your code?
- Is your code working correctly for all those test cases?

Assignment 4:

This assignment is based on regular polygons.

https://en.wikipedia.org/wiki/Regular_polygon

Area of a regular polygon is computed using following expression where n is the number of sides and s is the length of each side. Note that in C programming, you can include header file math.h to use trigonometric functions.

$$A = \frac{1}{4} n s^2 \cot \frac{\pi}{n}$$

Consider two regular polygons P1 and P2. The number sides of each polygon are n1 and n2. Length of sides of each polygon is s1 and s2. We are aware of values of s1 and s2. Accept these values at run time from user. We want to compute values of n1 and n2 with following constraints

- Values of n1 and n2 can range between 3 to 15
- Difference in the area of P1 and P2 should be minimized
- If multiple solutions exist, then choose the solution with the maximum value of n1

Example:

Input: s1=5 s2=5

Goal: Choose n1 and n2 such that difference in the area is minimized.

Answer: n1=15 n2=15

Input: s1=9 s2=2

Goal: Choose n1 and n2 such that difference in the area is minimized.

Answer: Use this link to find out correct answer

https://www.calculatorsoup.com/calculators/geometry-plane/polygon.php