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The Crawford Technologies Programming Challenge C/C++ #1

# Purpose

The purpose of this challenge is to gather further evidence of the true abilities and qualifications of potential candidates for employment in Crawford Technologies software engineering division than would normally be possible v ia a simple interview.

The prospective employee is#1 asked to take the enclosed project requirements and return to Crawford a functionally complete, working piece of software, for review by Crawford Technologies Management and Technical staff. Crawford’s staff will use this to evaluate the design decisions made by the prospective employee, as well as the craftsmanship and quality of the code and the project returned. This project will have a significant impact on the applicant selection process. Please take this opportunity to demonstrate for Crawford Technologies your skills in software engineering.

# The Challenge

Write a program to calculate the perimeter and area of the following geometrical shapes.

Triangle

Circle

Square

Ellipse

Rectangle

The program will take a text file of inputs that it will read and perform the calculations for the data. The file will terminate with the text END. # will denote comments (which can be skipped). Sample file contents provided below, the first character on the line should denote the geometrical shape followed by space separated values for the elements required to calculate the perimeter and area accordingly. These values should be treated as doubles, but may appear with or without a decimal place.

Sample input file:

#C == Circle radius

#S == Square side

#E == Ellipse radius1 radius2

#R == Rectangle length width

#T == Triangle side1 side2 side3

C 3

S 4.0

E 3 4

R 2 5

T 2.25 3 1

R 4 2

C 1.5

E 1.25 3.10

END

The program should calculate the perimeter and area for all objects.

Note: for usability we should be able to retrieve the perimeter and area through separate calls.

Output from processing the file would be as follows (doubles should be formatted to 2 decimal places). Numbers are to be formatted aligning the decimal points with two decimal places. Leading 0's should be omitted.

All input doubles will be 0 < value <= 100.00.

Shape Perimeter Area

Circle #######.## #######.##

Square #######.## #######.##

Ellipse #######.## #######.##

Rectangle #######.## #######.##

Triangle #######.## #######.##

Rectangle #######.## #######.##

Circle #######.## #######.##

Ellipse #######.## #######.##