IMC Sydney

The purpose of this test is for you to show us your idea of the ideal solutions to these problems. Write code you would be proud to submit in the workplace; we will assess it with the same critical eye we apply to our own code. Clear, simple and elegant object-oriented code is important. However we don't want to see the minimum possible solution, you should consider maintainability and extensibility and demonstrate that you can make appropriate abstractions. A solution using the fewest possible lines of code is unlikely to pass the assessment.

Test 1. Visitor

Create an interface or abstract base class 'Shape'.

- implement three concrete Shapes: 'Circle', 'Rectangle', 'Triangle'
- apply the visitor pattern to your data model
- write an AreaVisitor that computes the area of the shapes
- write a program that makes arbitrary instances of the data model and applies the AreaVisitor

Test 2. Paper Scissors Rock

Paper Scissors Rock is a game for two players. Each player simultaneously opens his/her hand to display a symbol:

- fist equals rock
- open hand equals paper
- showing the index and middle finger equals scissors

The winner is determined by the following schema:

- paper beats (wraps) rock
- rock beats (blunts) scissors
- scissors beats (cuts) paper

Write a program that plays Paper Scissors Rock between the computer and a real player.

- you should be able to play the game n times before the program exits
- generalise from these requirements as you wish
- demonstrate that you can write clear, maintainable and extensible code