HW06 Problem Set

CS-3020

Assignment
Deitel & Deitel Exercises 12.10, 13.9

HW06-1: (Deitel & Deitel Exercise 12.10)

12.10 ***(Shape Hierarchy)*** Implement the `Shape` hierarchy of Fig. 11.3. Omit the `Triangle` and `Tetrahedron` classes. Each `TwoDimensionalShape` should contain read-only `abstract` property `Area` to calculate the area of the two-dimensional shape. Each `ThreeDimensionalShape` should have read-only `abstract` properties `Area` and `Volume` to calculate the surface area and volume, respectively, of the three-dimensional shape. Create an app that uses an array of `Shape` references to objects of each concrete class in the hierarchy. Display a text description of the object to which each array element refers. Also, in the loop that processes all the shapes in the array, determine whether each shape is a `TwoDimensionalShape` or a `ThreeDimensionalShape`. If a shape is a `TwoDimensionalShape`, display its area. If a shape is a `ThreeDimensionalShape`, display its area and volume.

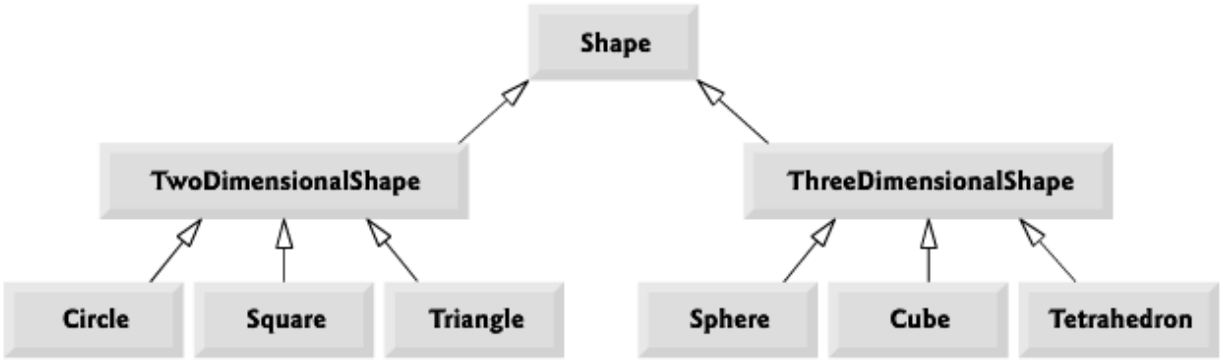

Fig. 11.3 | UML class diagram showing an inheritance hierarchy for Shapes.

HW06-2: (Deitel & Deitel Exercise 13.9)

13.9 ***(Exception from a Deeply Nested Method)*** Write a program that `throws` an exception from a deeply nested method. The `catch` block should follow the `try` block that encloses the call chain. The exception caught should be one you defined yourself. In catching the exception, display the exception's message and stack trace.

Grading Rubric
Each problem is worth 10 pts (score will be recorded as a percentage of that amount)

10% Properly submitted
10% Properly named
20% Adequate comments
10% Runs
20% Produces correct output
30% Effort evidenced by the submitted work