

Design

20 points

Designs a Java class Inheritance hierarchy that would satisfy the following is-a and has-a relationships:

- A Shape is an object
- A TwoDimensionalShape is a Shape
- A ThreeDimensionalShape is a Shape
- A Circle is a TwoDimensionalShape
- A Square is a TwoDimensionalShape
- A Triangle is a TwoDimensionalShape
- A Rectangle is a TwoDimensionalShape
- A Sphere is a ThreeDimensionalShape
- A Cube is a ThreeDimensionalShape
- A Cone is a ThreeDimensionalShape
- A Cylinder is a ThreeDimensionalShape
- A Torus is a ThreeDimensionalShape
- A Shape has a NumberOfDimensions
- A TwoDimensionalShape has an area
- A ThreeDimensionalShape has a volume

Functionality

40 points

Contains no coding errors.

Contains no compile warnings.

Creates a command line driven menu that allows a user to construct each of the TwoDimensional and ThreeDimensional Shape subclasses.

The menu should continue to loop prompting for a specific class and then prompt for appropriate input parameters. The values returned should be the volume or area as appropriate to the shape.

Error checks should be in developed to make sure appropriate menu items and types of data were input and prompt the user to enter to correct data.

An option to exit the program should be available as well that will provide an appropriate Thank you message along with the current date and time

Score of Functionality,40 / 40Criterion score has been overridden