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CIT 260 – 04

W12 Exercise: Assignment 12 (program 12.1)

Work:

Design a parent class named Shape. My Shape class should include:

- An integer, *identifier*, that holds the shape's identifier number.
- A no-arg constructor that initializes *identifier* to 0.
- A parameterized constructor that initializes *identifier* using argument passed to the constructor.
- Getter and setter for *identifier*.
- A method named *getArea( )* that returns a zero

Design a class named Circle that inherits from Shape. My Circle class should include:

- A double, *radius*, that holds this circle's radius amount.
- A no-arg constructor that initializes *radius* to 0.
- A parameterized constructor that initializes *radius* using argument passed to the constructor.
- Getter and setter for *radius*.
- Override the *getArea( )* method from the Shape class. The area for a Circle is calculated as: *Pi x radius^2*.

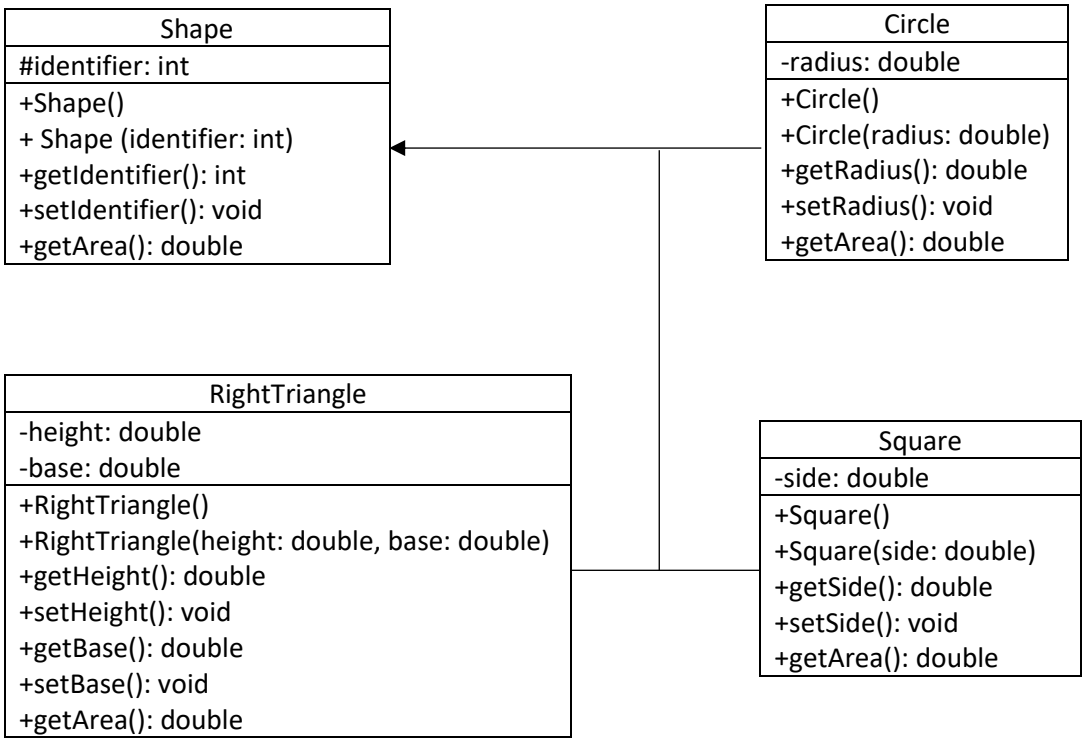
Design a class named Square that inherits from Shape. My Square class should include:

- A double, *side*, that holds this square's radius amount.
- A no-arg constructor that initializes *side* to 0.
- A parameterized constructor that initializes *side* using argument passed to the constructor.
- Getter and setter for *side*.
- Override the *getArea( )* method from the Shape class. The area for a Square is calculated as: *side^2*.

Design a class named RightTriangle that inherits from Shape. My RightTriangle class should include:

- A double, *height*, that holds this c right triangle 's height amount.
- A no-arg constructor that initializes *height* and *base* to 0.
- A parameterized constructor that initializes *height* and *base* using argument passed to the constructor.
- Getters and setters for *height* and *base*.
- Override the *getArea( )* method from the Shape class. The area for a RightTriangle is calculated as: *height x base / 2*.

UML diagram:


Shape
#identifier: int
+Shape()
+ Shape (identifier: int)
+getIdentifier(): int
+setIdentifier(): void
+getArea(): double
Circle
-radius: double
+Circle()
+Circle(radius: double)
+getRadius(): double
+setRadius(): void
+getArea(): double
RightTriangle
-height: double
-base: double
+RightTriangle()
+RightTriangle(height: double, base: double)
+getHeight(): double
+setHeight(): void
+getBase(): double
+setBase(): void
+getArea(): double
Square
-side: double
+Square()
+Square(side: double)
+getSide(): double
+setSide(): void
+getArea(): double