**Relationships:**

Text "1" --\* "1" Shape : has-a

Shape has exactly one Text-class attribute.

Point "1..\*" --\* "1" Shape : has-a

Shape has at least one point (i.e. at least one Point-class attribute)

Point "1" \*-- "1" Colour : has-a

Point has exactly one Colour attribute

Shape <|-- Rectangle : is-a

Rectangle extends Shape

Shape <|-- Circle : is-a

Circle extends Shape

Rectangle <|-- Prism : is-a

Prism extends Rectangle

Shape "0..\*" <-- "1" Geometry : uses

Geometry uses the Shape class

A Geometry object:

* uses Shapes in a TreeSet `shapes`
* can have as 0 Shapes or as many Shapes as desired

**Class descriptions:**

Geometry.java

The main function instantiates the following objects: 2 Rectangles, 2 Circles, and 2 Prisms. These objects are then printed for the user to view.

Geometry has a TreeSet that holds any object of class Shape or object that is of the Shape superclass. This means that this TreeSet can hold Rectangle, Circle, Prism objects.

Prism.java

Prism class inherits all aspects of the Shape class. Prism has its own definition for 3 of Shape's abstract classes.

In addition, Prism has an attribute called height, used to calculate volume.

Rectangle.java

Rectangle class inherits all aspects of the Shape class. Rectangle has its own definition for 3 of Shape's abstract classes.

In addition, Rectangle has attributes called length and width, used to calculate area and perimeter (volume will be 0).

Circle.java

Circle class inherits all aspects of the Shape class. Circle has its own definition for 3 of Shape's abstract classes.

In addition, Circle has an attribute called radius, used to calculate area and perimeter (volume will be 0).

Shape.java

Shape is an abstract class (cannot be instantiated, but can be extended).

Each Shape object is described by its origin and name (Point object, and Text object, respectively).

Each Shape class has the following abstract methods (they need to be defined in Circle and Rectangle (and Prism via extension)):

area(), perimeter(), volume()

Each Shape class has the following concrete methods:

distance():

distance() can be used to calculated the distance between 2 Shapes. This method can be called via a Shape object (i.e. s1.distance(s2)) or statically called (i.e. distance(s1, s2)).

move():

move() moves the Shape object's origin by a specified values.

Text.java

Text class contains text stored as a String. Each Shape has exactly one Text object.

Point.java

Point class represents a point in a Shape. Each Shape has at least 1 Point.

Each Point only has one Colour and has x and y coordinates stored as type Double.

distance() can be used to calculated the distance between 2 Points. This method can be called via a Point object (i.e. p1.distance(p2)) or statically called (i.e. distance(p1, p2)).

Colour.java

Colour class describes a Point's colour.