Regular Polygons... Again?!
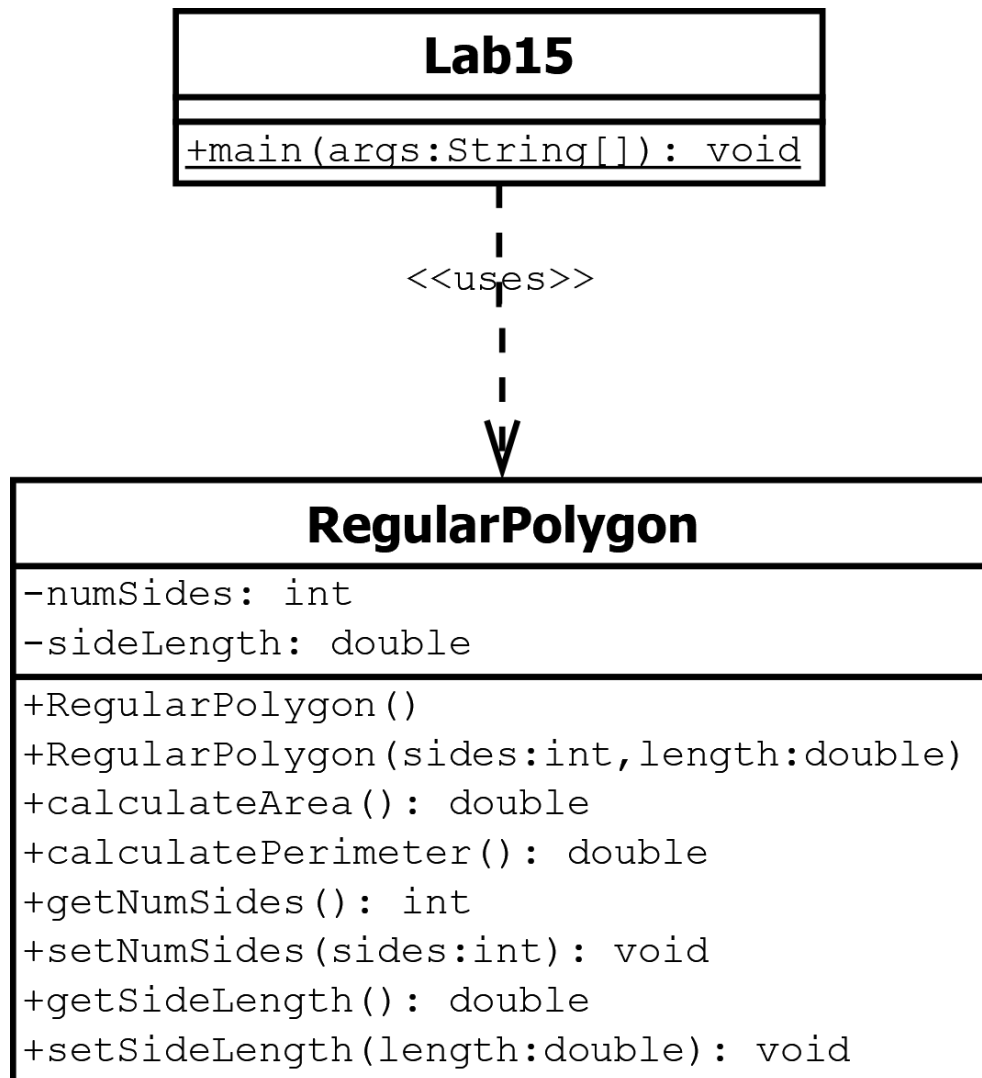
For this lab, you will extend concepts used in the previous regular polygon labs to create a RegularPolygon class.

```
┌─────────────────────────────────────────┐
│                 Lab15                     │
├─────────────────────────────────────────┤
├─────────────────────────────────────────┤
│ +main(args:String[]): void               │
└─────────────────────────────────────────┘
                     │
                  <<uses>>
                     │
                     ▼
┌─────────────────────────────────────────────┐
│               RegularPolygon                  │
├─────────────────────────────────────────────┤
│ -numSides: int                                │
│ -sideLength: double                           │
├─────────────────────────────────────────────┤
│ +RegularPolygon()                             │
│ +RegularPolygon(sides:int,length:double)      │
│ +calculateArea(): double                      │
│ +calculatePerimeter(): double                 │
│ +getNumSides(): int                           │
│ +setNumSides(sides:int): void                 │
│ +getSideLength(): double                      │
│ +setSideLength(length:double): void           │
└─────────────────────────────────────────────┘
```

The RegularPolygon class will contain:

1. A private data field of type integer named numSides
2. A private data field of type double named sideLength
3. A no-argument constructor, RegularPolygon(), that creates a default regular polygon by assigning default values to numSides and sideLength. The default values are numSides = 3 and sideLength = 1.

4. A parameterized constructor, RegularPolygon(int, double), that creates a regular polygon with the specified number of sides and side length.
5. A public method named calculateArea() that returns the area of this regular polygon.
6. A public method named calculatePerimeter() that returns the perimeter of this regular polygon.
7. A public method named getNumSides() that returns the regular polygon's number of sides
8. A public method name setNumSides() that sets the regular polygon's number of sides
9. A public method named getSideLength()that returns the regular polygon's side length
10. A public method named setSideLength() that sets the regular polygon's side length

The Lab 15 class should contain a main method which performs the following:

1. Creates three RegularPolygon objects, each with a separate identifier
   a) regularPolygon1 will be created with the default constructor
   b) regularPolygon2 will be created with the parameterized constructor using values sides = 6 and side length = 4.0
   c) regularPolygon3 will be created with the default constructor. Then use the object's setter methods to change the values of that object to sides = 12 and side length = 1.25
2. Using the methods supplied by the objects, display the number of sides, side length, area, and perimeter, of each regular polygon.

Example Run

```
Polygon 1 number of sides: 3.0
Polygon 1 side length: 1.0
Polygon 1 perimeter: 3.0
Polygon 1 area: 0.43

Polygon 2 number of sides: 6.0
Polygon 2 side length: 4.0
Polygon 2 perimeter: 24.0
Polygon 2 area: 41.57

Polygon 3 number of sides: 12.0
Polygon 3 side length: 1.25
Polygon 3 perimeter: 15.0
Polygon 3 area: 17.49


Process finished with exit code 0
```

Deliverables

Make sure your code has the required file header and correctly formatted identifier names, as outlined in the CS Java Documentation Policy under Course Info on D2L.

To receive credit for this lab you must

1. Demonstrate the code and execution to the instructor during this lab, during office hours, or during the next lab period.
2. Zip the src folder in your project directory and upload the instructor approved .java files to the Lab 15 D2L drop box.

Deliverables