**Task1 - Bean Scopes**

1. Define a new implementation for the Shape interface.
2. Define Draw2d Class and Draw3d class
3. Add new Shapes from Shape like Circle and Square .
4. Use a Draw2d Object and Draw3d Object inside the Circle and Square Classes
5. Reference your new implementation in the Spring config file (**applicationContext.xml**).
6. Apply the Constructor injection into Circle bean
7. Apply the Setter injection into Square bean
8. Make the bean scope for CircleShape bean as singleton
9. Make the bean scope for CircleShape bean as prototype
10. Retrieve a bean for Circle class and draw the Circle
11. Retrieve a bean for Square class and draw the Rectangle

**Task2 - Bean init - destroy methods (Beans Lifecycle)**

Using the above classes , define the following:

1. Add a new class named DatabaseOperations
2. Create a method named connectToDatabase of type void and print a message inside it “connection to database established ……”
3. Create a method named disconnectFromDatabase of type void and print a message inside it “connection to database closed……”
4. Define a init and destroy beans for the above methods.
5. Test your application by initalize the spring container inside the Main class and close it to see the output of init and destroy methods

**Output:**

connection to database established ……

connection to database closed……

**Task3 - inversion of control using annotations**

1. Define a new implementation for the Shape interface.
2. Add getArea() method to the interface
3. Add new Shapes from Shape like Circle and Square.
4. Implement the getArea() method for the two shapes.
5. Enable spring container scanning in the config file (xml)
6. Register your beans using @Component
7. Retrieve a bean for Circle class and calculate the area of Circle
8. Retrieve a bean for Square class and calculate the area of Square

**Input**:

3

**Output**:

the area of the circle = 18.84955592153876

the area of the Square = 9.0