

# Software Engineering

## Lab 8

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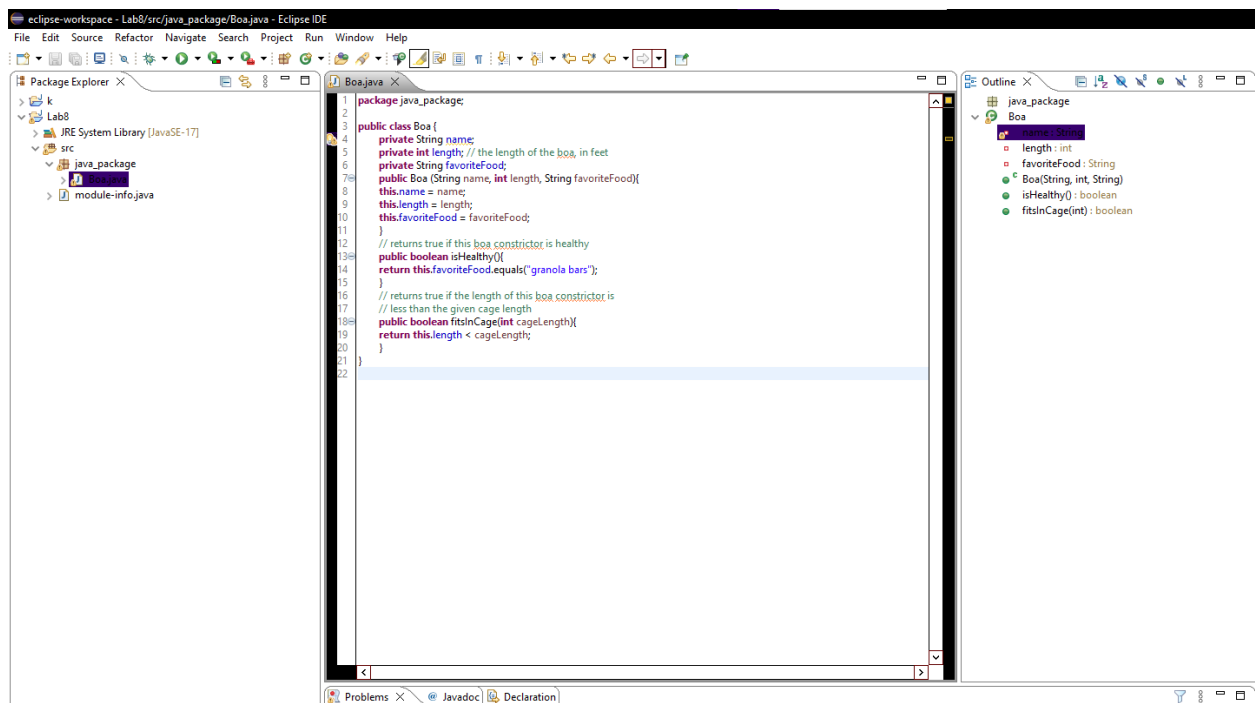
Date: 20/04/2023

### Lab Exercises

#### 1. Creating the java project :

Creating a new Eclipse project, and within the project create a package. And then creating a class for a Boa. Here's the code you can use (you may copy/paste):

As shown in the screenshot below

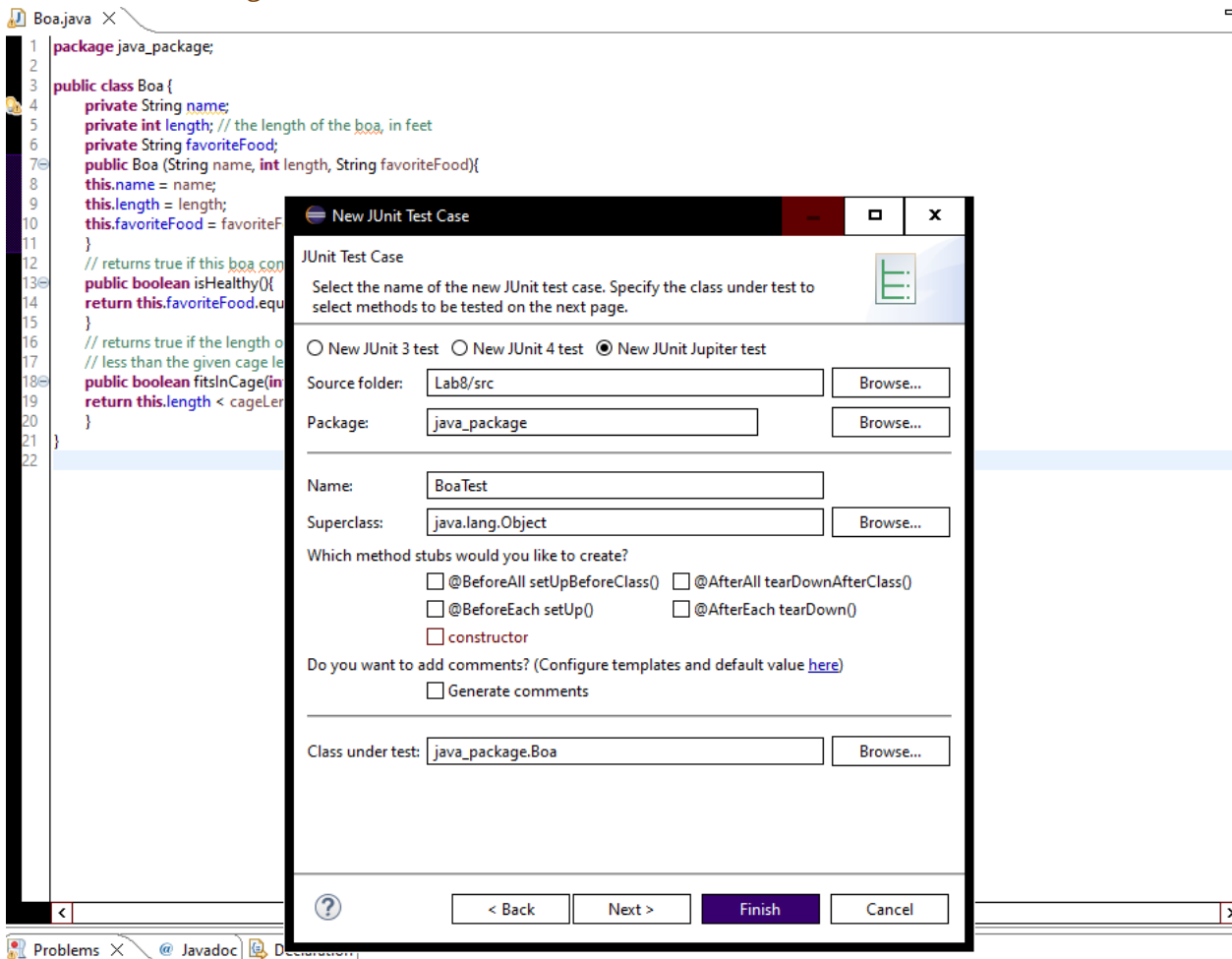


The screenshot displays the Eclipse IDE interface. The Package Explorer on the left shows a project named 'Lab8' with a package 'java\_package' and a class 'Boa'. The main editor window shows the source code for 'Boa.java'. The code defines a class 'Boa' with private attributes 'name', 'length', and 'favoriteFood'. It includes a constructor, an 'isHealthy()' method, and a 'fitsInCage()' method. The Outline view on the right shows the class structure.

```
1 package java_package;
2
3 public class Boa {
4     private String name;
5     private int length; // the length of the boa, in feet
6     private String favoriteFood;
7     public Boa(String name, int length, String favoriteFood){
8         this.name = name;
9         this.length = length;
10        this.favoriteFood = favoriteFood;
11    }
12    // returns true if this boa constructor is healthy
13    public boolean isHealthy(){
14        return this.favoriteFood.equals("granola bars");
15    }
16    // returns true if the length of this boa constructor is
17    // less than the given cage length
18    public boolean fitsInCage(int cageLength){
19        return this.length < cageLength;
20    }
21 }
22
```

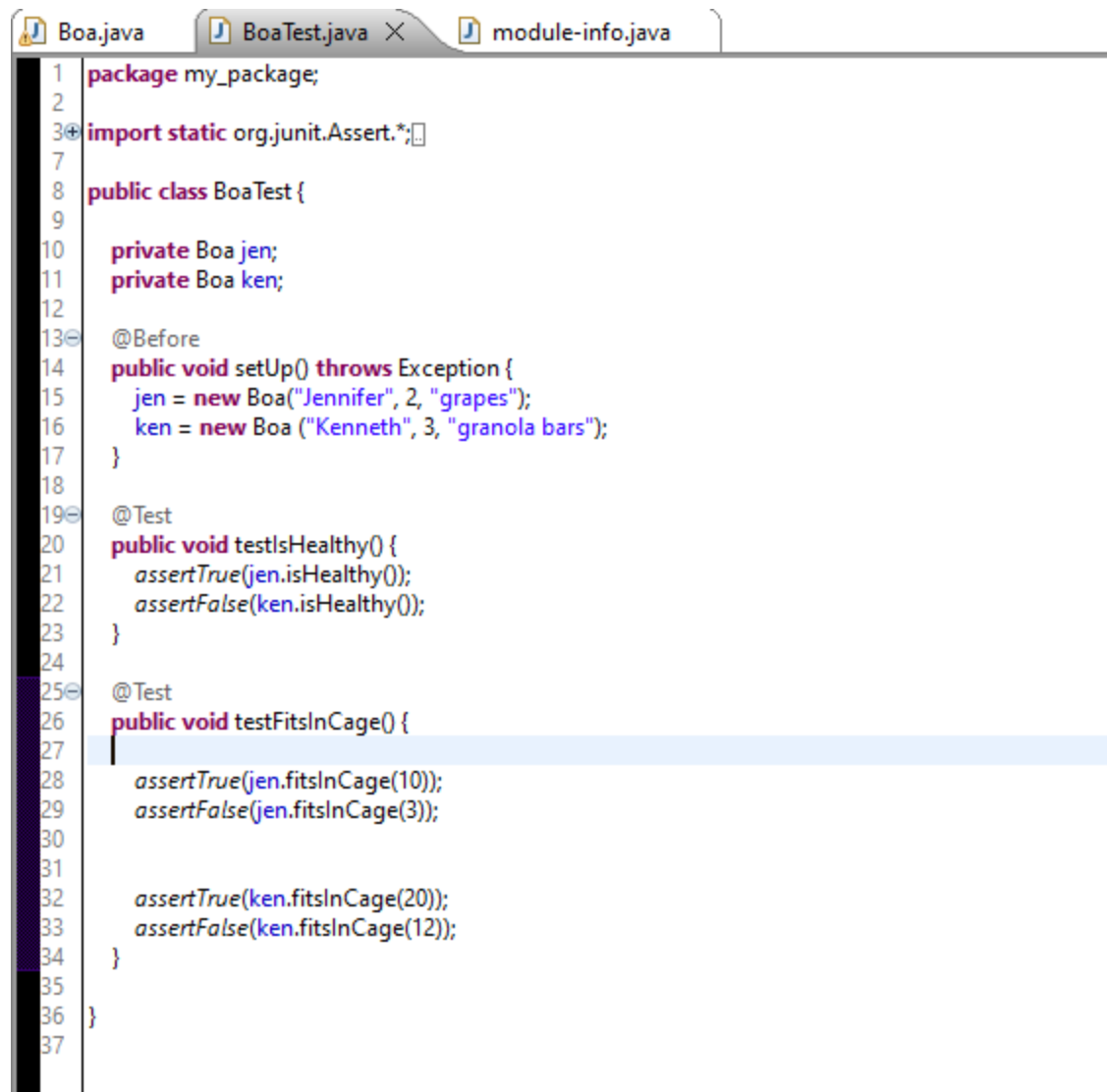
## 2. Creating the new java test case :

Now I am creating test cases for the class boa



## 3. Defining some unit test for some methods of boa class:

After creating the test file successfully, I've created test case for the class Boa and have selected test method stubs isHealthy() and fitsInCage(int) as shown below  
Now i've written some test unit as shown above and get output as shown below

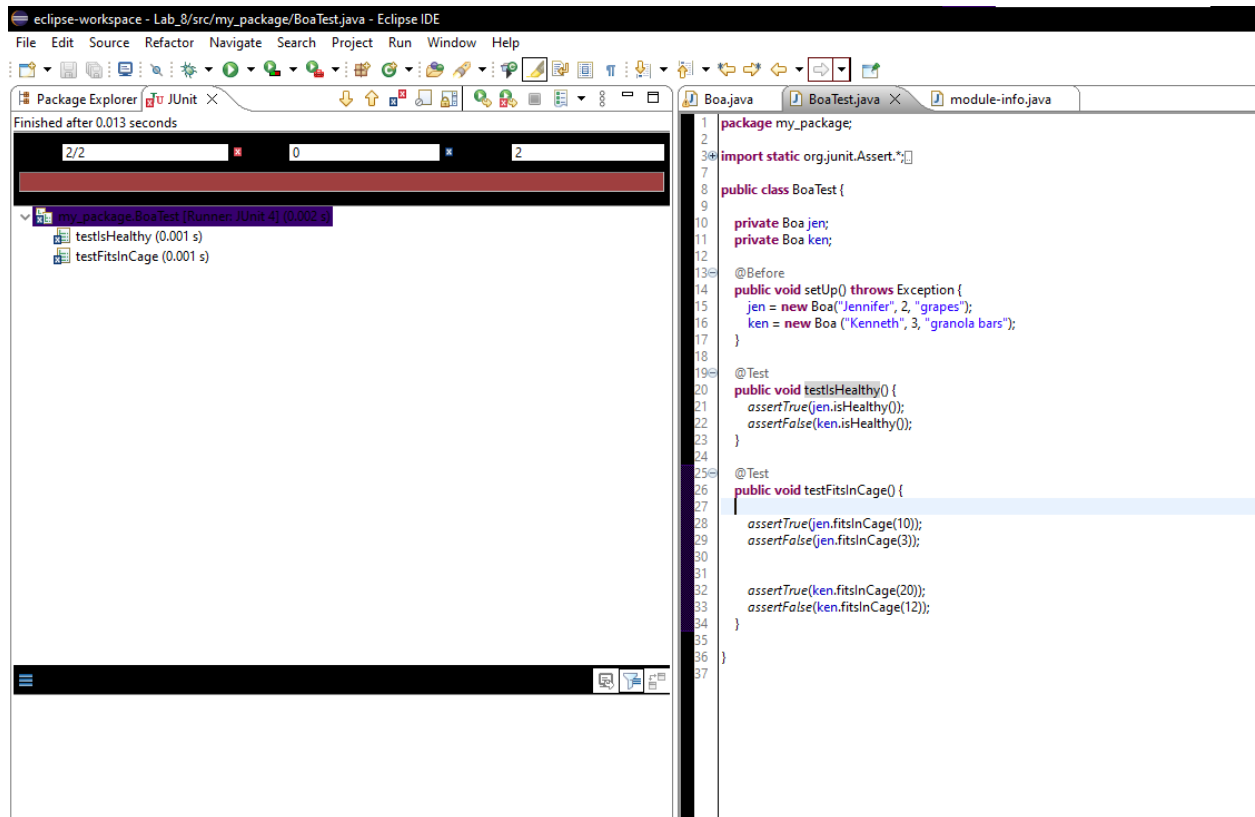


```
1 package my_package;
2
3 import static org.junit.Assert.*;
4
5
6
7
8 public class BoaTest {
9
10     private Boa jen;
11     private Boa ken;
12
13     @Before
14     public void setUp() throws Exception {
15         jen = new Boa("Jennifer", 2, "grapes");
16         ken = new Boa("Kenneth", 3, "granola bars");
17     }
18
19     @Test
20     public void testIsHealthy() {
21         assertTrue(jen.isHealthy());
22         assertFalse(ken.isHealthy());
23     }
24
25     @Test
26     public void testFitsInCage() {
27
28         assertTrue(jen.fitsInCage(10));
29         assertFalse(jen.fitsInCage(3));
30
31
32         assertTrue(ken.fitsInCage(20));
33         assertFalse(ken.fitsInCage(12));
34     }
35
36 }
37
```

#### 4. Adding one more function to the class

Here new function `lengthInInches` is added

**Output:**



## Output:

The screenshot displays an IDE with two main panels. The left panel shows the Package Explorer with a tree view of the test results. The right panel shows the source code of the `BoaTest.java` file.

**Package Explorer (Left Panel):**

- Package Explorer JUnit
- Finished after 0.013 seconds
- 3/3
- 0
- 3
- my\_package.BoaTest (Runner: JUnit 4) (0.003 s)
- testLengthInches (0.002 s)
- testIsHealthy (0.000 s)
- testFitsInCage (0.001 s)

**Source Code (Right Panel):**

```
1 package my_package;
2
3 import static org.junit.Assert.*;
4
5 public class BoaTest {
6
7     private Boa jen;
8     private Boa ken;
9
10    @Before
11    public void setUp() throws Exception {
12        jen = new Boa("Jennifer", 2, "grapes");
13        ken = new Boa("Kenneth", 3, "granola bars");
14    }
15
16    @Test
17    public void testIsHealthy() {
18        assertTrue(jen.isHealthy());
19        assertFalse(ken.isHealthy());
20    }
21
22    @Test
23    public void testFitsInCage() {
24
25        assertTrue(jen.fitsInCage(10));
26        assertFalse(jen.fitsInCage(3));
27
28        assertTrue(ken.fitsInCage(20));
29        assertFalse(ken.fitsInCage(12));
30    }
31
32    @Test
33    public void testLengthInches() {
34        assertEquals(48, jen.lengthInches());
35        assertEquals(144, ken.lengthInches());
36    }
37
38 }
```