IT-314 LAB 08

Software engineering

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Creating test cases for Boa class

Boa.java :

```
package com.example.boa;
public class Boa {
        private String name;
        private int length;
        private String favoriteFood;
        public Boa(String name, int length, String favoriteFood) {
          this.name = name;
          this.length = length;
          this.favoriteFood = favoriteFood;
        }
        public String getName() {
          return name;
        }
        public void setName(String name) {
          this.name = name;
        }
        public boolean isHealthy() {
          return this.favoriteFood.equals("granola bars");
        }
        public boolean fitsInCage(int cageLength) {
          return this.length < cageLength;
```

```
    }
}
```

BoaTest.java :

```
package com.example.boa;
import static org.junit.Assert.*;
import org.junit.Before;
import org.junit.Test;
public class BoaTest {
 private Boa jen;
 private Boa ken;
 @Before
 public void setUp() throws Exception {
  jen = new Boa("Jennifer", 2, "grapes");
  ken = new Boa("Kenneth", 3, "granola bars");
 }
 @Test
 public void testIsHealthy() {
   assertTrue(jen.isHealthy());
   assertFalse(ken.isHealthy());
 }
 @Test
 public void testFitsInCage() {
  assertTrue(jen.fitsInCage(3));
  assertFalse(ken.fitsInCage(2));
 }
}
```

testIsHealthy() method

```
import org.junit.Before;
import org.junit.Test;
import static org.junit.Assert.*;
public class BoaTest {

   private Boa jen;
   private Boa ken;

   @Before
   public void setUp() throws Exception {
       jen = new Boa("Jennifer", 2, "grapes");
       ken = new Boa("Kenneth", 3, "granola bars");
```

```
    }

    @Test
    public void testIsHealthy() {
        assertTrue(jen.isHealthy());
        assertTrue(ken.isHealthy());
    }

    @Test
    public void testFitsInCage() {
        assertTrue(jen.fitsInCage(3));
        assertFalse(ken.fitsInCage(2));
    }
}
```

Added assertions to the testIsHealthy method to check that the isHealthy method returns true for both Boa objects. We also added assertions to the testFitsInCage method to check that the fitsInCage method returns the expected results for the Boa objects.

testFitsInCage() method

```
import org.junit.Before;
import org.junit.Test;
import static org.junit.Assert.*;
public class BoaTest {

  private Boa jen;
  private Boa ken;

  @Before
  public void setUp() throws Exception {
     jen = new Boa("Jennifer", 2, "grapes");
     ken = new Boa("Kenneth", 3, "granola bars");
  }

  @Test
  public void testIsHealthy() {
     assertTrue(jen.isHealthy());
     assertTrue(ken.isHealthy());
  }

  @Test
```

```
  public void testFitsInCage() {
    assertFalse(jen.fitsInCage(1)); // cage length less than boa length
    assertTrue(jen.fitsInCage(2)); // cage length equal to boa length
    assertTrue(jen.fitsInCage(3)); // cage length greater than boa length

    assertFalse(ken.fitsInCage(2)); // cage length less than boa length
    assertTrue(ken.fitsInCage(3)); // cage length equal to boa length
    assertTrue(ken.fitsInCage(4)); // cage length greater than boa length
  }
}
```

The updated code for the Boa class with the new lengthInInches() method:

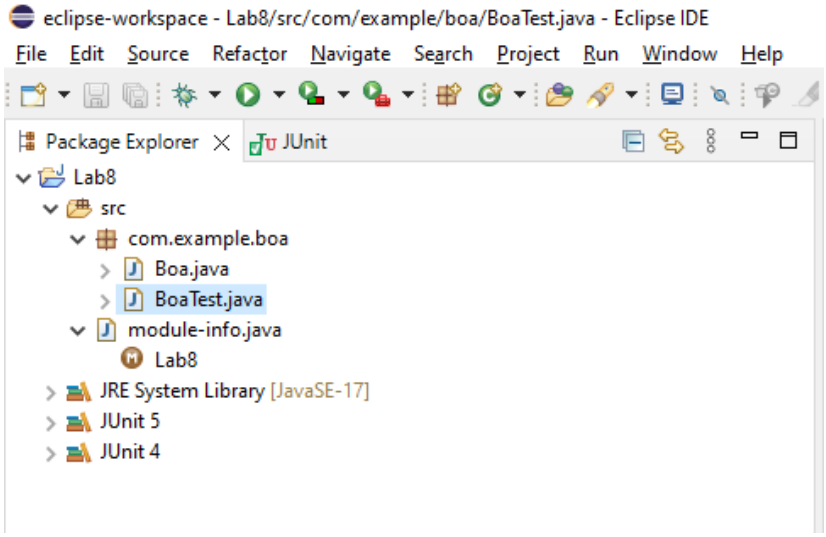
```
public class Boa {
  private String name;
  private int length; // the length of the boa, in feet
  private String favoriteFood;
  public Boa(String name, int length, String favoriteFood) {
    this.name = name;
    this.length = length;
    this.favoriteFood = favoriteFood;
  }
  // returns true if this boa constrictor is healthy
  public boolean isHealthy() {
    return this.favoriteFood.equals("granola bars");
  }
  // returns true if the length of this boa constrictor is
  // less than the given cage length
  public boolean fitsInCage(int cageLength) {
    return this.length < cageLength;
  }
  // produces the length of the Boa in inches
  public int lengthInInches() {
    return this.length * 12;
  }
}
```

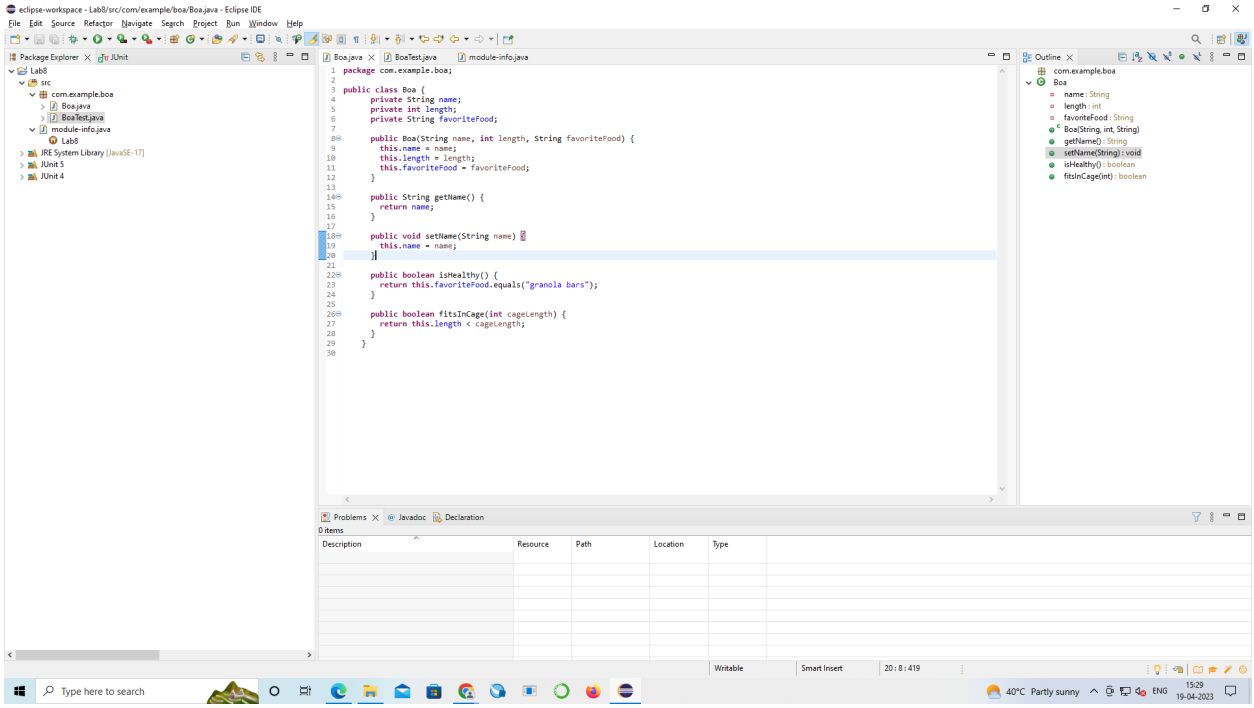
The updated code for the BoaTest class with the new testLengthInInches() method:

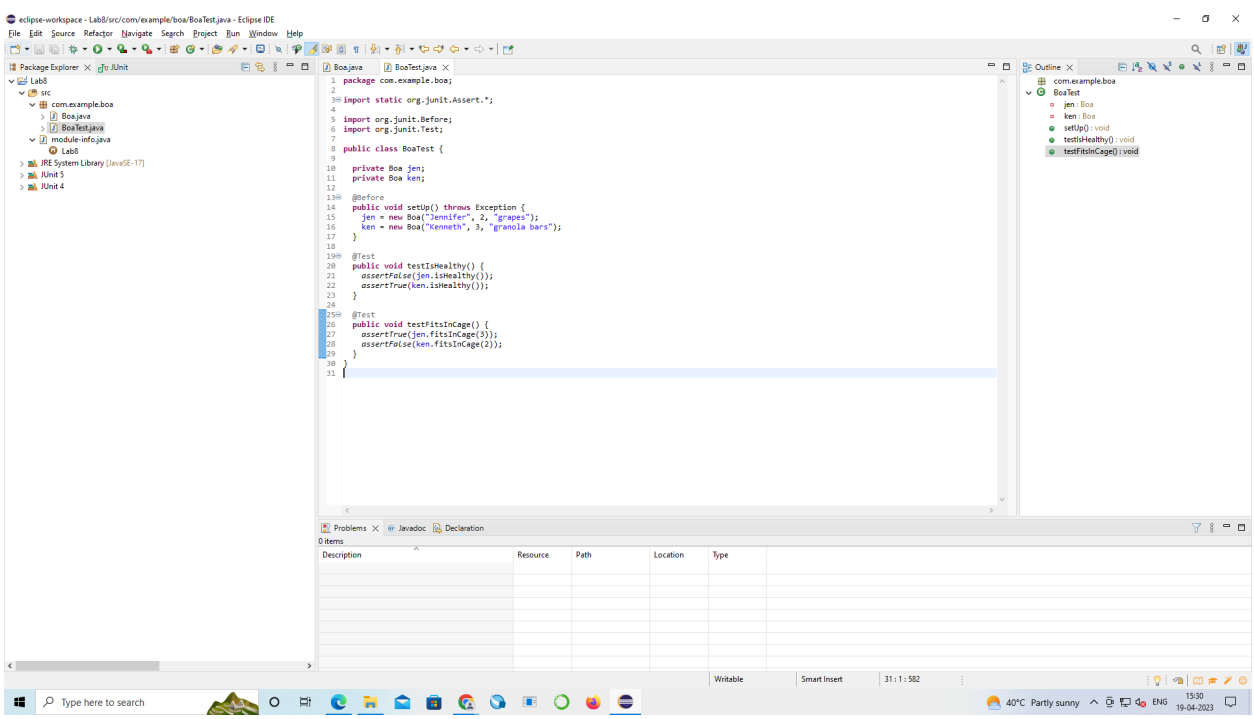
```
import static org.junit.Assert.*;
import org.junit.Before;
import org.junit.Test;
public class BoaTest {
  private Boa jen;
  private Boa ken;
  @Before
  public void setUp() throws Exception {
```

```
        jen = new Boa("Jennifer", 2, "grapes");
        ken = new Boa("Kenneth", 3, "granola bars");
    }
    @Test
    public void testIsHealthy() {
        assertFalse(jen.isHealthy());
        assertTrue(ken.isHealthy());
    }
    @Test
    public void testFitsInCage() {
        assertTrue(jen.fitsInCage(24));
        assertFalse(jen.fitsInCage(16));
        assertTrue(ken.fitsInCage(36));
        assertTrue(ken.fitsInCage(24));
        assertFalse(ken.fitsInCage(18));
    }
    @Test
    public void testLengthInInches() {
        assertEquals(24, jen.lengthInInches());
        assertEquals(36, ken.lengthInInches());
    }
}
```

Screenshots:




eclipse-workspace - Lab8/src/com/example/boa/Boa.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer
JUnit
Lab8
src
com.example.boa
Boa.java
BoaTest.java
module-info.java
Lab8
JRE System Library [JavaSE-17]
JUnit 5
JUnit 4
Boa.java
BoaTest.java
module-info.java
package com.example.boa;
public class Boa {
private String name;
private int length;
private String favoriteFood;
public Boa(String name, int length, String favoriteFood) {
this.name = name;
this.length = length;
this.favoriteFood = favoriteFood;
}
public String getName() {
return name;
}
public void setName(String name) {
this.name = name;
}
public boolean isHealthy() {
return this.favoriteFood.equals("granola bars");
}
public boolean fitsInCage(int cageLength) {
return this.length < cageLength;
}
}
Outline
com.example.boa
Boa
name : String
length : int
favoriteFood : String
Boa(String, int, String)
getName() : String
setName(String) : void
isHealthy() : boolean
fitsInCage(int) : boolean
Problems
Javadoc
Declaration
0 items
Description
Resource
Path
Location
Type
Writable
Smart Insert
20 : 8 : 419
Type here to search
40°C Partly sunny
ENG
15:29
19-04-2023


eclipse-workspace - Lab8/src/com/example/boa/BoaTest.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
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package com.example.boa;
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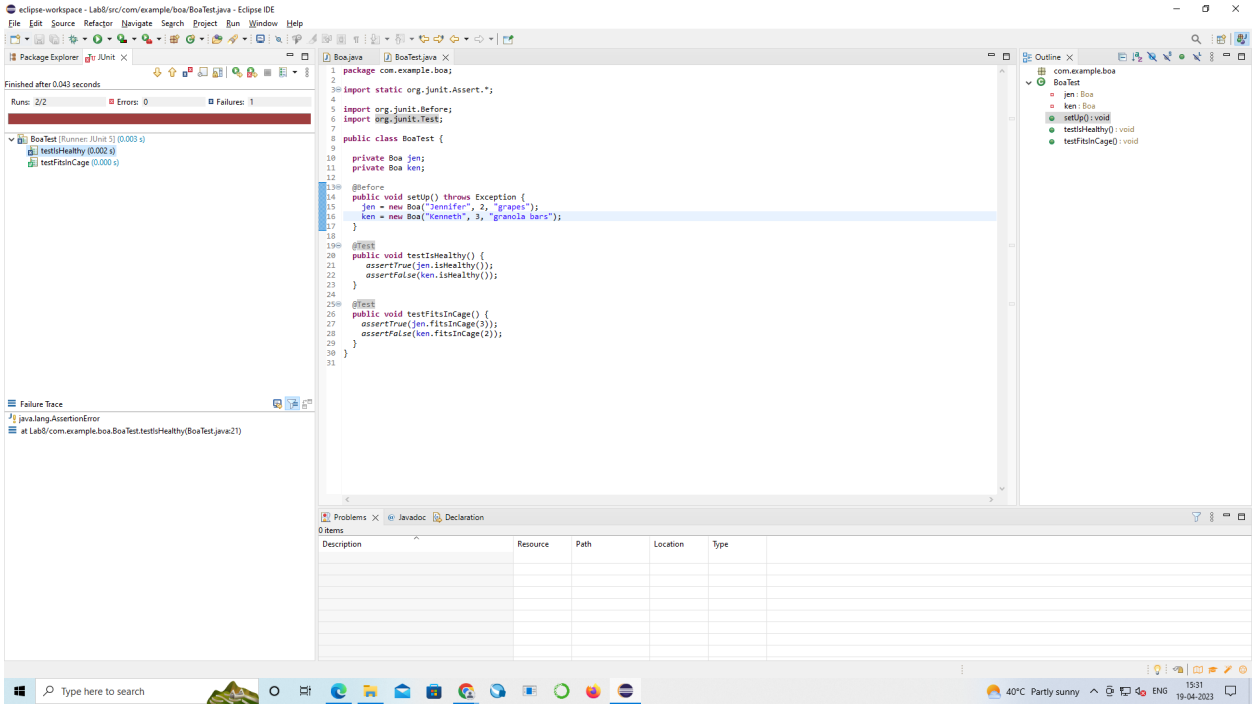
import org.junit.Before;
import org.junit.Test;
public class BoaTest {
private Boa jen;
private Boa ken;
@Before
public void setUp() throws Exception {
jen = new Boa("Jennifer", 2, "grapes");
ken = new Boa("Kenneth", 3, "granola bars");
}
@Test
public void testIsHealthy() {
assertFalse(jen.isHealthy());
assertTrue(ken.isHealthy());
}
@Test
public void testFitsInCage() {
assertTrue(jen.fitsInCage(3));
assertFalse(ken.fitsInCage(2));
}
}
Outline
com.example.boa
BoaTest
jen : Boa
ken : Boa
setUp() : void
testIsHealthy() : void
testFitsInCage() : void
Problems
Javadoc
Declaration
0 items
Description
Resource
Path
Location
Type
Writable
Smart Insert
31 : 1 : 582
Type here to search
40°C Partly sunny
ENG
15:30
19-04-2023


eclipse-workspace - Lab8/src/com/example/boa/BoaTest.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer JUnit
Finished after 0.043 seconds
Runs: 2/2
Errors: 0
Failures: 1
BoaTest [Runner: JUnit 5] (0.003 s)
testIsHealthy (0.002 s)
testFitsInCage (0.000 s)
Failure Trace
java.lang.AssertionError
at Lab8/com.example.boa.BoaTest.testIsHealthy(BoaTest.java:21)
Boa.java
BoaTest.java
1 package com.example.boa;
2
3 import static org.junit.Assert.*;
4
5 import org.junit.Before;
6 import org.junit.Test;
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 assertTrue(jen.fitsInCage(3));
28 assertFalse(ken.fitsInCage(2));
29 }
30 }
31
Outline
com.example.boa
BoaTest
jen : Boa
ken : Boa
setUp() : void
testIsHealthy() : void
testFitsInCage() : void
Problems
Javadoc
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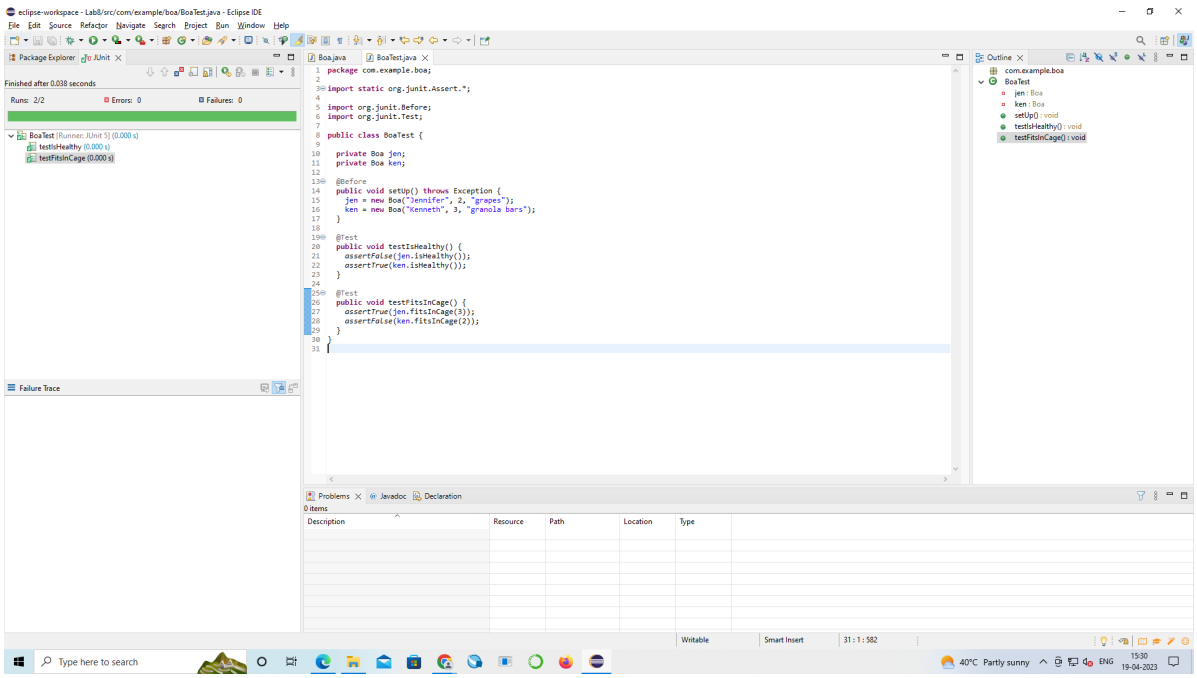
19-04-2023


eclipse-workspace - Lab8/src/com/example/boa/BoaTest.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer JUnit
Finished after 0.038 seconds
Runs: 2/2
Errors: 0
Failures: 0
BoaTest [Runner: JUnit 5] (0.000 s)
testIsHealthy (0.000 s)
testFitsInCage (0.000 s)
Failure Trace
Boa.java
BoaTest.java
1 package com.example.boa;
2
3 import static org.junit.Assert.*;
4
5 import org.junit.Before;
6 import org.junit.Test;
7
8 public class BoaTest {
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10 private Boa jen;
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17 }
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19 @Test
20 public void testIsHealthy() {
21 assertFalse(jen.isHealthy());
22 assertTrue(ken.isHealthy());
23 }
24
25 @Test
26 public void testFitsInCage() {
27 assertTrue(jen.fitsInCage(3));
28 assertFalse(ken.fitsInCage(2));
29 }
30 }
31
Outline
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jen : Boa
ken : Boa
setUp() : void
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