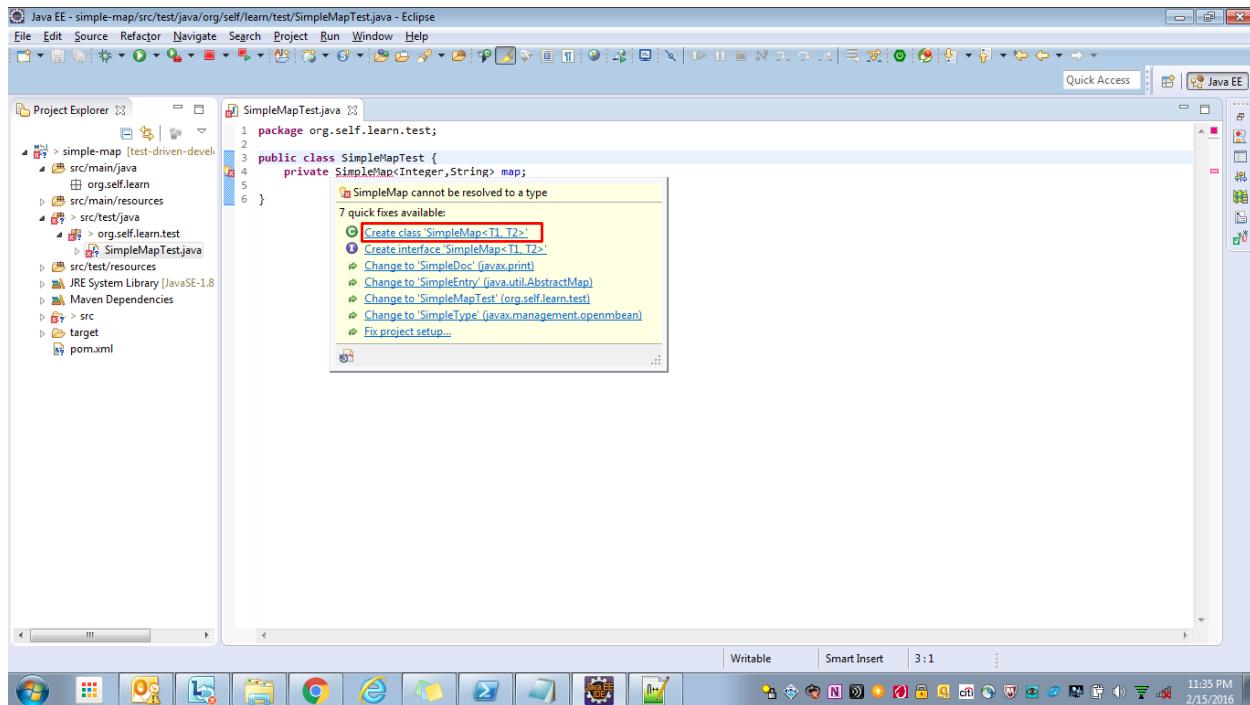


## Simple Map without using Java Collections Framework (JCF)

1. Can have Null 'Key'
2. Can have null 'values'
3. Cannot contain duplicate 'keys'
4. May not retain order in which "keys/values" were saved →**No Test Required**
5. Performance is NOT a concern i.e. we will not implement Hash Table like features e.g. bucket, hash values etc. Also redundant iterations are allowed →**No Test Required**
6. Manages size dynamically
7. Throws exception if no such key found
8. Throws exception if duplicate key found
9. Should be able to perform the following operations:
  - a. Create Simple Parametrized Map (Generics)
  - b. Save 'key' and 'value' pair
  - c. Retrieve value given a 'key'
  - d. Remove a "key-value" pair given a 'key'
  - e. Retrieve size of the map i.e. number of "key-value" pairs
  - f. Check if a given 'key' is present
  - g. Check if a given 'value' is present



Java EE - simple-map/src/main/java/org/self/learn/SimpleMap.java - Eclipse

File Edit Source Refactor Navigate Project Run Window Help

Project Explorer

SimpleMapTest.java

```
1 package org.self.learn.test;
2
3 import org.self.learn.SimpleMap;
4
5 Public class SimpleMapTest {
6     private SimpleMap<Integer, String> map;
7 }
8
```

SimpleMap.java

```
1 package org.self.learn;
2
3 public class SimpleMap<K, V> {
4
5 }
6
```

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

File Edit Source Refactor Navigate Project Run Window Help

Project Explorer

SimpleMapTest.java

```
1 package org.self.learn.test;
2
3 import static org.hamcrest.CoreMatchers.*;
4 import static org.junit.Assert.assertThat;
5
6 import org.junit.Test;
7 import org.self.learn.SimpleMap;
8
9 public class SimpleMapTest {
10     private SimpleMap<Integer, String> map;
11
12     @Test
13     public void testEmptyMapCreation() {
14         map = new SimpleMap<>();
15         assertThat(0, is(equalTo(map.size())));
16     }
17 }
```

SimpleMap.java

```
1 package org.self.learn;
2
3 public class SimpleMap<K, V> {
4
5 }
6
```

The method size() is undefined for the type SimpleMap<Integer, String>

2 quick fixes available:

- Create method size() in type SimpleMap
- Add cast to 'map'

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Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

File Edit Source Refactor Navigate Project Run Window Help

Project Explorer

SimpleMapTest.java

```
1 package org.self.learn.test;
2
3 import static org.hamcrest.CoreMatchers.equalTo;
4
5 public class SimpleMapTest {
6     private SimpleMap<Integer, String> map;
7
8     @Test
9     public void testEmptyMapCreation() {
10         map = new SimpleMap<>();
11         assertThat(0, equalTo(map.size()));
12     }
13 }
```

SimpleMap.java

```
1 package org.self.learn;
2
3 public class SimpleMap<K, V> {
4     public int size() {
5         return -1;
6     }
7 }
8
9
10 }
```

Markers Properties Servers Data Source Explorer Snippets JUnit

Finished after 0.026 seconds

Runs: 1/1 Errors: 0 Failures: 1

Failure Trace

```
java.lang.AssertionError:  
Expected: is <1>  
but: was <0>  
at org.hamcrest.MatcherAssert.assertThat(MatcherAssert.java:20)  
at org.self.learn.test.SimpleMapTest.testEmptyMapCreation(SimpleMapTest.java:16)
```

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

File Edit Source Refactor Navigate Project Run Window Help

Project Explorer

SimpleMapTest.java

```
1 package org.self.learn.test;
2
3 import static org.hamcrest.CoreMatchers.*;
4
5 public class SimpleMapTest {
6     private SimpleMap<Integer, String> map;
7
8     @Test
9     public void testEmptyMapCreation() {
10         map = new SimpleMap<>();
11         assertThat(0, equalTo(map.size()));
12     }
13 }
```

SimpleMap.java

```
1 package org.self.learn;
2
3 public class SimpleMap<K, V> {
4     public int size() {
5         return 0;
6     }
7 }
8
9 }
```

Markers Properties Servers Data Source Explorer Snippets JUnit

Finished after 0.022 seconds

Runs: 1/1 Errors: 0 Failures: 0

Failure Trace

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```
1 package org.self.learn.test;
2
3 import static org.hamcrest.CoreMatchers.*;
4
5 @RunWith(BlockJUnit4ClassRunner.class)
6 public class SimpleMapTest {
7     private SimpleMap<Integer, String> map;
8
9     @Before
10    public void init() {
11         map = new SimpleMap<>();
12     }
13
14     @Test
15    public void testEmptyMapCreation() {
16         assertThat(0, is(equalTo(map.size()))); //Hamcrest Assertion
17         assertEquals(0, map.size()); //JUnit Assertion
18     }
19
20 }
```

Java EE - simple-map/src/main/java/org/self/learn/SimpleMap.java - Eclipse

```
1 package org.self.learn;
2
3 public class SimpleMap<K, V> {
4     public int size() {
5         return 0;
6     }
7
8     ...
9 }
10
```

Markers Properties Servers Data Source Explorer Snippets JUnit

Finished after 0.022 seconds

Runs: 1/1 Errors: 0 Failures: 0

org.self.learn.test.SimpleMapTest [Runner: JUnit 4] (0.001 s)

Failure Trace

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```
1 package org.self.learn.test;
2
3 import static org.hamcrest.CoreMatchers.equalTo;
4
5 public class SimpleMapTest {
6     private SimpleMap<Integer, String> map;
7
8     @Before
9     public void init() {
10         map = new SimpleMap<>();
11     }
12
13     @Test
14     public void testEmptyMapCreation() {
15         assertThat(0, equalTo(map.size()));
16     }
17
18 }
```

Java EE - simple-map/src/main/java/org/self/learn/SimpleMap.java - Eclipse

```
1 package org.self.learn;
2
3 public class SimpleMap<K, V> {
4     public int size() {
5         return 0;
6     }
7
8     ...
9 }
10
```

Markers Properties Servers Data Source Explorer Snippets JUnit

Finished after 0.027 seconds

Runs: 1/1 Errors: 0 Failures: 0

org.self.learn.test.SimpleMapTest [Runner: JUnit 4] (0.002 s)

Failure Trace

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```
File Edit Source Refactor Navigate Project Run Window Help
```

Project Explorer

```
SimpleMapTest.java
```

```
1 package org.self.learn.test;
2
3 import static org.hamcrest.CoreMatchers.*;
4
5 @RunWith(BlockJUnit4ClassRunner.class)
6 public class SimpleMapTest {
7     private SimpleMap<Integer, String> map;
8
9 }
```

```
SimpleMap.java
```

```
1 package org.self.learn;
2
3 public class SimpleMap<K, V> {
4     public int size() {
5         return 0;
6     }
7
8 }
9
```

The method save(int, String) is undefined for the type SimpleMap<Integer, String>  
2 quick fixes available:  
Create method 'save(int, String)' in type SimpleMap  
Add cast to map

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12:42 AM 2/16/2016

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```
File Edit Source Refactor Navigate Project Run Window Help
```

Project Explorer

```
SimpleMapTest.java
```

```
1 package org.self.learn.test;
2
3 private SimpleMap<Integer, String> map;
4
5 @Before
6 public void init() {
7     map = new SimpleMap<>();
8 }
9
10
11 @Test
12 public void testEmptyMapCreation() {
13     assertEquals(0, map.size());
14     assertEquals(0, map.size());
15 }
16
17 @Test
18 public void testNonEmptyMap() {
19     map.save(1, "Priyan");
20     assertEquals(1, map.size());
21     assertEquals("Priyan", map.get(1));
22 }
23
24
25 }
```

```
SimpleMap.java
```

```
1 package org.self.learn;
2
3 public class SimpleMap<K, V> {
4     public int size() {
5         return 0;
6     }
7
8
9     public void save(int i, String string) {
10         // TODO Auto-generated method stub
11     }
12
13 }
14
```

Markers Properties Servers Data Source Explorer Snippets JUnit

Finished after 0.029 seconds

Runs: 2/2 Errors: 0 Failures: 1

Failure Trace

- java.lang.AssertionError:  
Expected: is not <0>  
but: was <0>
- at org.hamcrest.MatcherAssert.assertThat(MatcherAssert.java:20)
- at org.self.learn.test.SimpleMapTest.testNonEmptyMap(SimpleMapTest.java:30)

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```
File Edit Source Refactor Navigate Project Run Window Help
Project Explorer JUnit Java EE
SimpleMapTest.java
1 package org.self.learn;
2 import org.junit.Before;
3 import org.junit.Test;
4 import org.junit.Assert;
5 import org.junit.runner.RunWith;
6 import org.junit.runners.JUnit4;
7 import org.junit.runners.Parameterized;
8 import org.junit.runners.Parameterized.Parameters;
9 import org.junit.runners.Parameterized.Parameters;
10 import java.util.List;
11 import java.util.ArrayList;
12 import java.util.Arrays;
13
14 public class SimpleMapTest {
15     private SimpleMap<Integer, String> map;
16
17     @Before
18     public void init() {
19         map = new SimpleMap<>();
20     }
21
22     @Test
23     public void testEmptyMapCreation() {
24         assertEquals(0, map.size());
25     }
26
27     @Test
28     public void testNonEmptyMap() {
29         map.save(1, "Priyan");
30         assertEquals(1, map.size());
31     }
32
33 }
```

```
SimpleMap.java
1 package org.self.learn;
2
3 public class SimpleMap<K, V> {
4     private int size = 0;
5
6     public int size() {
7         return this.size;
8     }
9
10    public void save(int i, String string) {
11        this.size+=1;
12    }
13
14 }
```

Markers Properties Servers Data Source Explorer Snippets JUnit

Finished after 0.022 seconds

Runs: 2/2 Errors: 0 Failures: 0

Failure Trace

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```
File Edit Source Refactor Navigate Project Run Window Help
Project Explorer JUnit Java EE
SimpleMapTest.java
1 package org.self.learn;
2 import org.junit.Before;
3 import org.junit.Test;
4 import org.junit.Assert;
5 import org.junit.runner.RunWith;
6 import org.junit.runners.JUnit4;
7 import org.junit.runners.Parameterized;
8 import org.junit.runners.Parameterized.Parameters;
9 import org.junit.runners.Parameterized.Parameters;
10 import java.util.List;
11 import java.util.ArrayList;
12 import java.util.Arrays;
13
14 public class SimpleMapTest {
15     private SimpleMap<Integer, String> map;
16
17     @Before
18     public void init() {
19         map = new SimpleMap<>();
20     }
21
22     @Test
23     public void testEmptyMapCreation() {
24         assertEquals(0, map.size());
25     }
26
27     @Test
28     public void testNonEmptyMap() {
29         map.save(1, "Priyan");
30         assertEquals(1, map.size());
31     }
32
33 }
```

```
SimpleMap.java
1 package org.self.learn;
2
3 public class SimpleMap<K, V> {
4     private int size;
5
6     public SimpleMap() {
7         this.size = 0;
8     }
9
10    public int size() {
11        return this.size;
12    }
13
14    public void save(int i, String string) {
15        this.size+=1;
16    }
17
18 }
```

Markers Properties Servers Data Source Explorer Snippets JUnit

Finished after 0.024 seconds

Runs: 2/2 Errors: 0 Failures: 0

Failure Trace

The screenshot shows the Eclipse IDE interface with the following details:

- Title Bar:** Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse
- Menu Bar:** File, Edit, Source, Refactor, Navigate, Search, Project, Run, Window, Help.
- Toolbar:** Standard Eclipse toolbar with icons for file operations, search, and navigation.
- Project Explorer:** Shows the project structure with packages like simple-map [test-driven-devel], org.self.learn, and org.self.learn.test.
- Code Editors:** Two editors are open:
  - SimpleMapTest.java:** Contains JUnit test cases for SimpleMap. The code includes annotations @Test and assertions for map size and contents.
  - SimpleMap.java:** Contains the implementation of the SimpleMap class, which has a private int size field and a public save method.
- Bottom Status Bar:** Shows "Finished after 0.024 seconds".
- Run Status:** Shows "Runs: 3/3", "Errors: 0", and "Failures: 0".
- Failure Trace:** Displays the execution results for the tests:
  - org.self.learn.test.SimpleMapTest [Runner: JUnit 4] (0.002 s)
    - testSize (0.002 s)
    - testNonEmptyMap (0.000 s)
    - testEmptyMapCreation (0.001 s)

The screenshot shows the Eclipse Java EE IDE interface. The title bar reads "Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse". The menu bar includes File, Edit, Source, Refactor, Navigate, Search, Project, Run, Window, Help. The toolbar has various icons for file operations like Open, Save, Cut, Copy, Paste, Find, etc. The Project Explorer view on the left shows a project named "simple-map [test-driven-develop]" with packages like src/main/java, src/test/java, and JRE System Library [JavaSE-1.8]. The src/main/java folder contains "SimpleMap.java" and "SimpleMapTest.java". The src/test/java folder contains "SimpleMapTest.java". The src/test/resources folder contains "resources". The Maven Dependencies view shows dependencies. The target and pom.xml files are also listed. The central workspace shows two code editors: one for "SimpleMapTest.java" and another for "SimpleMap.java". The "SimpleMapTest.java" editor contains test methods for "SimpleMap". The "SimpleMap.java" editor shows the implementation of the SimpleMap class. The bottom status bar shows "Runs: 3/3 Errors: 0 Failures: 1". The Failure Trace view on the right shows an assertion error: "java.lang.AssertionError: Expected: is <1> but: was <2>" with stack traces from MatcherAssert.assertThat and SimpleMapTest.java.

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

File Edit Source Refactor Navigate Project Run Window Help

Project Explorer

SimpleMapTest.java

```
1 package org.self.learn;
2 import static org.junit.Assert.*;
3 import org.junit.Test;
4 import org.self.learn.SimpleMap;
5
6 @Test
7 public void testEmptyMapCreation() {
8     SimpleMap map = new SimpleMap();
9     assertEquals(0, map.size());
10 }
11
12 @Test
13 public void testNonEmptyMap() {
14     SimpleMap map = new SimpleMap();
15     map.save(1, "Priyan");
16     assertEquals(1, map.size());
17 }
18
19 @Test
20 public void testSize() {
21     SimpleMap map = new SimpleMap();
22     map.save(1, "Priyan");
23     assertEquals(1, map.size());
24     map.save(2, "Priyadarshan");
25     assertEquals(2, map.size());
26 }
27
28 @Test
29 public void testNonEmptyMap() {
30     SimpleMap map = new SimpleMap();
31     map.save(1, "Priyan");
32     assertEquals(1, map.size());
33     map.save(2, "Priyadarshan");
34     assertEquals(2, map.size());
35 }
36
37 @Test
38 public void testSize() {
39     SimpleMap map = new SimpleMap();
40     map.save(1, "Priyan");
41     assertEquals(1, map.size());
42 }
43 }
```

SimpleMap.java

```
1 package org.self.learn;
2
3 public class SimpleMap<K, V> {
4     private int size;
5
6     public SimpleMap() {
7         this.size = 0;
8     }
9
10    public int size() {
11        return this.size;
12    }
13
14    public void save(int i, String string) {
15        this.size++;
16    }
17
18 }
```

Markers Properties Servers Data Source Explorer Snippets JUnit

Finished after 0.021 seconds

Runs: 3/3 Errors: 0 Failures: 0

Failure Trace

org.self.learn.test.SimpleMapTest [Runner:JUnit4] (0.003 s)

- testSize (0.001 s)
- testNonEmptyMap (0.001 s)
- testEmptyMapCreation (0.001 s)

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

File Edit Source Refactor Navigate Project Run Window Help

Project Explorer

SimpleMapTest.java

```
1 package org.self.learn;
2 import static org.junit.Assert.*;
3 import org.junit.Test;
4 import org.self.learn.SimpleMap;
5
6 @Test
7 public void testEmptyMapCreation() {
8     SimpleMap map = new SimpleMap();
9     assertEquals(0, map.size());
10 }
11
12 @Test
13 public void testNonEmptyMap() {
14     SimpleMap map = new SimpleMap();
15     map.save(1, "Priyan");
16     assertEquals(1, map.size());
17 }
18
19 @Test
20 public void testSize() {
21     SimpleMap map = new SimpleMap();
22     map.save(1, "Priyan");
23     assertEquals(1, map.size());
24     map.save(2, "Priyadarshan");
25     assertEquals(2, map.size());
26     map.save(10, "Priyan Parida");
27     assertEquals(3, map.size());
28 }
29
30 @Test
31 public void testNonEmptyMap() {
32     SimpleMap map = new SimpleMap();
33     map.save(1, "Priyan");
34     assertEquals(1, map.size());
35     map.save(2, "Priyadarshan");
36     assertEquals(2, map.size());
37     map.save(10, "Priyan Parida");
38     assertEquals(3, map.size());
39 }
40
41 @Test
42 public void testSize() {
43     SimpleMap map = new SimpleMap();
44     map.save(1, "Priyan");
45     assertEquals(1, map.size());
46 }
```

SimpleMap.java

```
1 package org.self.learn;
2
3 public class SimpleMap<K, V> {
4     private int size;
5
6     public SimpleMap() {
7         this.size = 0;
8     }
9
10    public int size() {
11        return this.size;
12    }
13
14    public void save(int i, String string) {
15        this.size++;
16    }
17
18 }
```

Markers Properties Servers Data Source Explorer Snippets JUnit

Finished after 0.023 seconds

Runs: 3/3 Errors: 0 Failures: 0

Failure Trace

org.self.learn.test.SimpleMapTest [Runner:JUnit4] (0.002 s)

- testSize (0.001 s)
- testNonEmptyMap (0.000 s)
- testEmptyMapCreation (0.001 s)

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```

File Edit Source Refactor Navigate Project Run Window Help
Project Explorer SimpleMapTest.java SimpleMap.java
14     private SimpleMap<Integer, String> map;
15
16     @Before
17     public void init() {
18         map = new SimpleMap<>();
19     }
20
21     @Test
22     public void testEmptyMapCreation() {
23         assertThat(0, is(equalTo(map.size())));
24         assertEquals(0, map.size());
25     }
26
27     @Test
28     public void testNonEmptyMap() {
29         map.save(1, "Priyan");
30         assertThat(0, is(not(equalTo(map.size()))));
31     }
32
33     @Test
34     public void testSize() {
35         map.save(1, "Priyan");
36         assertThat(1, is(equalTo(map.size())));
37         map.save(2, "Priyadarshan");
38         assertThat(2, is(equalTo(map.size())));
39         map.save(10, "Priyan Parida");
40         assertThat(3, is(equalTo(map.size())));
41     }
42
43     @Test
44     public void testSaveKeyValuePair() {
45         map.save(1, "Priyan");
46     }

```

The method get(int) is undefined for the type SimpleMap<Integer, String>. get(1));  
2 quick fixes available:  
Create method 'get(int)' in type 'SimpleMap'  
Add cast to 'map'.

SimpleMap.java

```

1 package org.self.learn;
2
3 public class SimpleMap<K, V> {
4     private int size;
5
6     public SimpleMap() {
7         this.size = 0;
8     }
9
10    public int size() {
11        return this.size;
12    }
13
14    public void save(int i, String string) {
15        this.size++;
16    }
17
18 }

```

Press 'F2' for focus Writable Smart Insert 49:5 1:19 AM 2/16/2016

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```

File Edit Source Refactor Navigate Project Run Window Help
Project Explorer SimpleMapTest.java SimpleMap.java
28     public void testNonEmptyMap() {
29         map.save(1, "Priyan");
30         assertThat(0, is(not(equalTo(map.size()))));
31     }
32
33     @Test
34     public void testSize() {
35         map.save(1, "Priyan");
36         assertThat(1, is(equalTo(map.size())));
37         map.save(2, "Priyadarshan");
38         assertThat(2, is(equalTo(map.size())));
39         map.save(10, "Priyan Parida");
40         assertThat(3, is(equalTo(map.size())));
41     }
42
43     @Test
44     public void testSaveKeyValuePair() {
45         map.save(1, "Priyan");
46         assertThat("Priyan", is(equalTo(map.get(1))));
47     }
48 }

```

SimpleMap.java

```

3 public class SimpleMap<K, V> {
4     private int size;
5
6     public SimpleMap() {
7         this.size = 0;
8     }
9
10    public int size() {
11        return this.size;
12    }
13
14    public void save(int i, String string) {
15        this.size++;
16    }
17
18    public V get(K i) {
19        // TODO Auto-generated method stub
20        return null;
21    }
22
23 }

```

Markers Properties Servers Data Source Explorer Snippets JUnit  
Finished after 0.033 seconds  
Runs: 4/4 Errors: 0 Failures: 1

Failure Trace

- java.lang.AssertionError:  
Expected: is null  
but: was "Priyan"
- at org.hamcrest.MatcherAssert.assertThat(MatcherAssert.java:20)
- at org.self.learn.test.SimpleMapTest.testSaveKeyValuePair(SimpleMapTest.java:46)

Java EE - simple-map/src/main/java/org/self/learn/SimpleMap.java - Eclipse

File Edit Source Refactor Navigate Project Run Window Help

Project Explorer

SimpleMapTest.java

```
26
27  @Test
28  public void testNonEmptyMap() {
29      map.save(1, "Priyan");
30      assertThat(0, is(not(equalTo(map.size()))));
31  }
32
33  @Test
34  public void testSize() {
35      map.save(1, "Priyan");
36      assertThat(1, is(equalTo(map.size())));
37      map.save(2, "Priyadarshan");
38      assertThat(2, is(equalTo(map.size())));
39      map.save(10, "Priyan Parida");
40      assertThat(3, is(equalTo(map.size())));
41  }
42
43  @Test
44  public void testSaveKeyValuePair() {
45      map.save(1, "Priyan");
46      assertThat("Priyan", is(equalTo(map.get(1))));
47  }
48
49
50
51
52
53
54
```

SimpleMap.java

```
2
3  public class SimpleMap<K, V> {
4      private int size;
5      private K key;
6      private V value;
7
8      public SimpleMap() {
9          this.size = 0;
10     }
11
12     public int size() {
13         return this.size;
14     }
15
16     public void save(K key, V value) {
17         this.key = key;
18         this.value = value;
19         this.size++;
20     }
21
22     public V get(K key) {
23         return value;
24     }
25
```

Markers Properties Servers Data Source Explorer Snippets JUnit

Finished after 0.027 seconds

Runs: 4/4 Errors: 0 Failures: 0

org.self.learn.test.SimpleMapTest [Runner:JUnit 4] (0.000 s)

- testSize (0.000 s)
- testNonEmptyMap (0.000 s)
- testSaveKeyValuePair (0.000 s)
- testEmptyMapCreation (0.000 s)

Failure Trace

Writable Smart Insert 24:6

The screenshot shows the Eclipse IDE interface with two open files: SimpleMapTest.java and SimpleMap.java. The SimpleMap.java file contains a class definition with a constructor, a size() method, a save() method, and a get() method. The SimpleMapTest.java file contains four test methods: testSize(), testNonEmptyMap(), testSaveKeyValuePair(), and testEmptyMapCreation(). The code is annotated with red boxes around the class definition and the test methods. The JUnit results at the bottom indicate that all tests have run successfully.

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

File Edit Source Refactor Navigate Project Run Window Help

Project Explorer

SimpleMapTest.java

```
32
33
34  @Test
35  public void testSize() {
36      map.save(1, "Priyan");
37      assertThat(1, is(equalTo(map.size())));
38      map.save(2, "Priyadarshan");
39      assertThat(2, is(equalTo(map.size())));
40      map.save(10, "Priyan Parida");
41      assertThat(3, is(equalTo(map.size())));
42
43  @Test
44  public void testSingleSaveKeyValuePair() {
45      map.save(1, "Priyan");
46      assertThat("Priyan", is(equalTo(map.get(1))));
47  }
48
49  @Test
50  public void testMultipleSaveKeyValuePair() {
51
52
53
54 }
```

SimpleMap.java

```
2
3  public class SimpleMap<K, V> {
4      private int size;
5      private K key;
6      private V value;
7
8      public SimpleMap() {
9          this.size = 0;
10     }
11
12     public int size() {
13         return this.size;
14     }
15
16     public void save(K key, V value) {
17         this.key = key;
18         this.value = value;
19         this.size++;
20     }
21
22     public V get(K key) {
23         return value;
24     }
25
```

Markers Properties Servers Data Source Explorer Snippets JUnit

Finished after 0.027 seconds

Runs: 4/4 Errors: 0 Failures: 0

org.self.learn.test.SimpleMapTest [Runner:JUnit 4] (0.000 s)

- testSize (0.000 s)
- testNonEmptyMap (0.000 s)
- testSaveKeyValuePair (0.000 s)
- testEmptyMapCreation (0.000 s)

Failure Trace

Writable Smart Insert 42:5

The screenshot shows the Eclipse IDE interface with two open files: SimpleMapTest.java and SimpleMap.java. The SimpleMap.java file contains a class definition with a constructor, a size() method, a save() method, and a get() method. The SimpleMapTest.java file contains three test methods: testSize(), testSingleSaveKeyValuePair(), and testMultipleSaveKeyValuePair(). The code is annotated with red boxes around the class definition and the test methods. The JUnit results at the bottom indicate that all tests have run successfully.

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```
File Edit Source Refactor Navigate Project Run Window Help
Project Explorer JUnit Java EE
SimpleMapTest.java
36     assertThat(1, is(equalTo(map.size())));
37     map.save(2, "Priyadarshan");
38     assertThat(2, is(equalTo(map.size())));
39     map.save(10, "Priyan Parida");
40     assertThat(3, is(equalTo(map.size())));
41 }
42
43 @Test
44 public void testSingleSaveKeyValuePair() {
45     map.save(1, "Priyan");
46     assertThat("Priyan", is(equalTo(map.get(1))));
47 }
48
49 @Test
50 public void testMultipleSaveKeyValuePair() {
51     map.save(1, "Priyan");
52     map.save(2, "Priyadarshan");
53     assertThat("Priyadarshan", is(equalTo(map.get(2))));
54 }
55
56 }
```

SimpleMap.java

```
private int size;
private K key;
private V value;
public SimpleMap() {
    this.size = 0;
}
public int size() {
    return this.size;
}
public void save(K key, V value) {
    this.key = key;
    this.value = value;
    this.size++;
}
public V get(K key) {
    return value;
}
```

Markers Properties Servers Data Source Explorer Snippets JUnit

Finished after 0.022 seconds

Runs: 5/5 Errors: 0 Failures: 0

Failure Trace

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```
File Edit Source Refactor Navigate Project Run Window Help
Project Explorer JUnit Java EE
SimpleMapTest.java
37     map.save(2, "Priyadarshan");
38     assertThat(2, is(equalTo(map.size())));
39     map.save(10, "Priyan Parida");
40     assertThat(3, is(equalTo(map.size())));
41 }
42
43 @Test
44 public void testSingleSaveKeyValuePair() {
45     map.save(1, "Priyan");
46     assertThat("Priyan", is(equalTo(map.get(1))));
47 }
48
49 @Test
50 public void testMultipleSaveKeyValuePair() {
51     map.save(1, "Priyan");
52     map.save(2, "Priyadarshan");
53     assertThat("Priyadarshan", is(equalTo(map.get(2))));
54     assertThat("Priyan", is(equalTo(map.get(1))));
55 }
56 }
```

SimpleMap.java

```
private int size;
private K key;
private V value;
public SimpleMap() {
    this.size = 0;
}
public int size() {
    return this.size;
}
public void save(K key, V value) {
    this.key = key;
    this.value = value;
    this.size++;
}
public V get(K key) {
    return value;
}
```

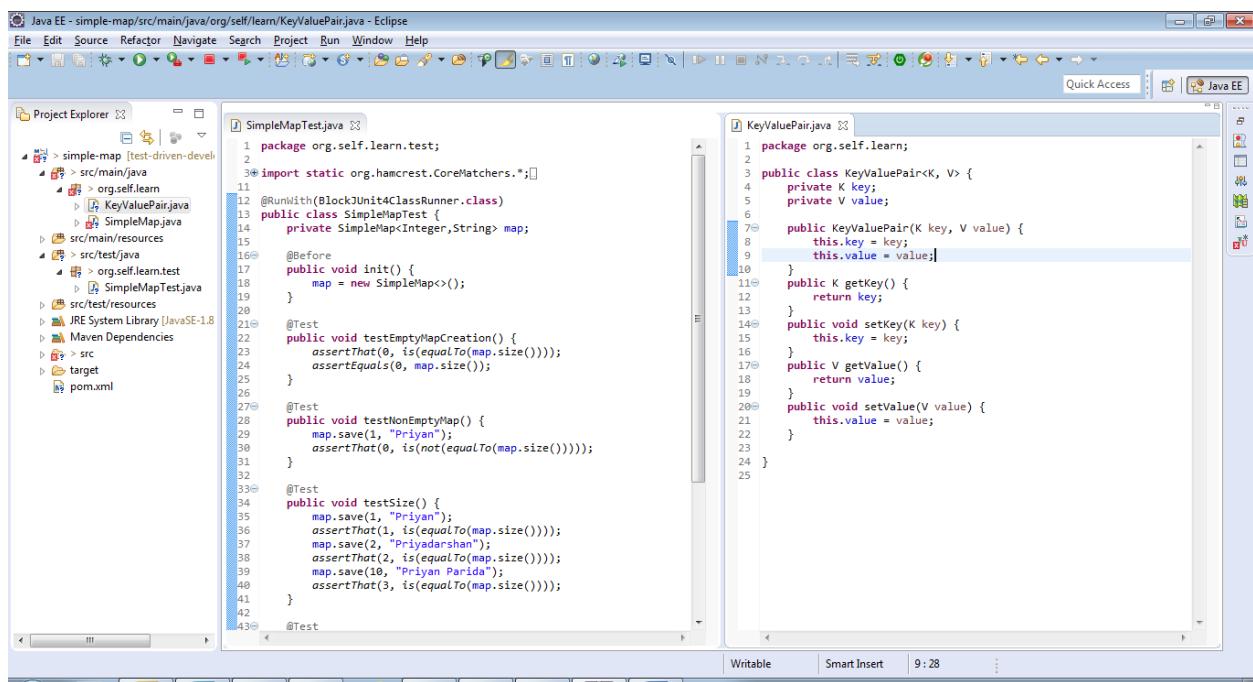
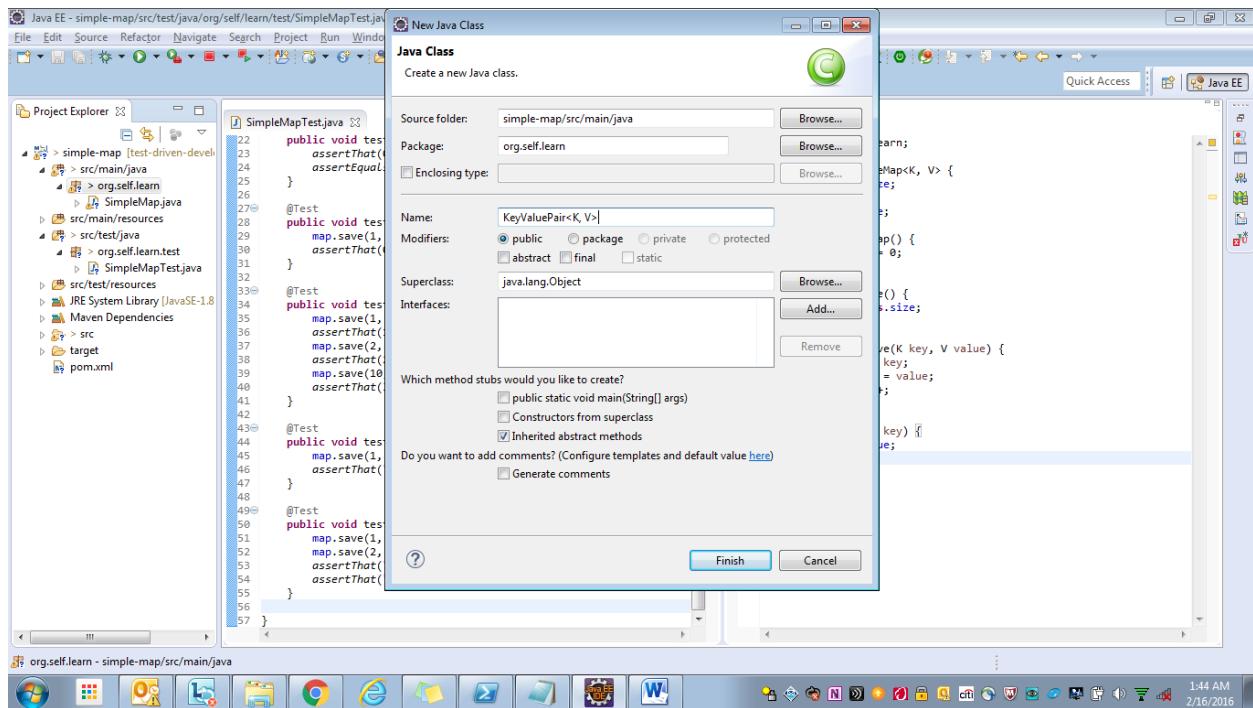
Markers Properties Servers Data Source Explorer Snippets JUnit

Finished after 0.031 seconds

Runs: 5/5 Errors: 0 Failures: 1

Failure Trace

java.lang.AssertionError:  
Expected: is "Priyadarshan"  
but: was "Priyan"  
at org.hamcrest.MatcherAssert.assertThat(MatcherAssert.java:20)  
at org.self.learn.test.SimpleMapTest.testMultipleSaveKeyValuePair(SimpleMapTest.java:54)



Java EE - simple-map/src/main/java/org/self/learn/SimpleMap.java - Eclipse

```

File Edit Source Refactor Navigate Project Run Window Help
Project Explorer Java EE
SimpleMapTest.java
22     public void testEmptyMapCreation() {
23         assertEquals(0, map.size());
24     }
25 }
26
27 @Test
28     public void testNonEmptyMap() {
29         map.save(1, "Priyan");
30         assertEquals(1, map.size());
31     }
32
33 @Test
34     public void testSize() {
35         map.save(1, "Priyan");
36         assertEquals(1, map.size());
37         map.save(2, "Priyadarshan");
38         assertEquals(2, map.size());
39         map.save(10, "Priyan Parida");
40         assertEquals(3, map.size());
41     }
42
43 @Test
44     public void testSingleSaveKeyValuePair() {
45         map.save(1, "Priyan");
46         assertEquals("Priyan", map.get(1));
47     }
48
49 @Test
50     public void testMultipleSaveKeyValuePair() {
51         map.save(1, "Priyan");
52         map.save(2, "Priyadarshan");
53         assertEquals("Priyadarshan", map.get(2));
54         assertEquals("Priyan", map.get(1));
55     }
56 }
57 
```

KeyValuePair.java SimpleMap.java

```

1 package org.self.learn;
2
3 public class SimpleMap<K, V> {
4     private KeyValuePair<K, V>[] keyValuePair;
5     private int size;
6
7     @SuppressWarnings("unchecked")
8     public SimpleMap() {
9         this.size = 0;
10        this.keyValuePair = (KeyValuePair<K, V>[] ) new KeyValuePair[5];
11    }
12
13    public int size() {
14        return this.size;
15    }
16
17    public void save(K key, V value) {
18        KeyValuePair<K, V> keyValuePair;
19        for(int i=0;i<size;i++) {
20            keyValuePair = this.keyValuePair[i];
21            if(key.equals(keyValuePair.getKey())) {
22                keyValuePair.setValue(value);
23            }
24        }
25        if(size==5)
26            return null;
27    }
28
29    public V get(K key) {
30        KeyValuePair<K, V> keyValuePair;
31        for(int i=0;i<size;i++) {
32            keyValuePair = this.keyValuePair[i];
33            if(key.equals(keyValuePair.getKey())) {
34                return keyValuePair.getValue();
35            }
36        }
37        return null;
38    }
39
40 } 
```

Writable Smart Insert 7:19

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```

File Edit Source Refactor Navigate Project Run Window Help
Project Explorer Java EE
SimpleMapTest.java
22     public void testEmptyMapCreation() {
23         assertEquals(0, map.size());
24     }
25 }
26
27 @Test
28     public void testNonEmptyMap() {
29         map.save(1, "Priyan");
30         assertEquals(1, map.size());
31     }
32
33 @Test
34     public void testSize() {
35         map.save(1, "Priyan");
36         assertEquals(1, map.size());
37         map.save(2, "Priyadarshan");
38         assertEquals(2, map.size());
39         map.save(10, "Priyan Parida");
40         assertEquals(3, map.size());
41     }
42
43 @Test
44     public void testSingleSaveKeyValuePair() {
45         map.save(1, "Priyan");
46         assertEquals("Priyan", map.get(1));
47     }
48
49 @Test
50     public void testMultipleSaveKeyValuePair() {
51         map.save(1, "Priyan");
52         map.save(2, "Priyadarshan");
53         assertEquals("Priyadarshan", map.get(2));
54         assertEquals("Priyan", map.get(1));
55     }
56 }
57 
```

KeyValuePair.java SimpleMap.java

```

1 package org.self.learn;
2
3 public class SimpleMap<K, V> {
4     private KeyValuePair<K, V>[] keyValuePair;
5     private int size;
6
7     @SuppressWarnings("unchecked")
8     public SimpleMap() {
9         this.size = 0;
10        this.keyValuePair = (KeyValuePair<K, V>[] ) new KeyValuePair[5];
11    }
12
13    public int size() {
14        return this.size;
15    }
16
17    public void save(K key, V value) {
18        KeyValuePair<K, V> keyValuePair;
19        for(int i=0;i<size;i++) {
20            keyValuePair = this.keyValuePair[i];
21            if(key.equals(keyValuePair.getKey())) {
22                keyValuePair.setValue(value);
23            }
24        }
25        if(size==5)
26            return null;
27    }
28
29    public V get(K key) {
30        KeyValuePair<K, V> keyValuePair;
31        for(int i=0;i<size;i++) {
32            keyValuePair = this.keyValuePair[i];
33            if(key.equals(keyValuePair.getKey())) {
34                return keyValuePair.getValue();
35            }
36        }
37        return null;
38    }
39
40 } 
```

Markers Properties Servers Data Source Explorer Snippets JUnit Debug

Finished after 0.024 seconds

Runs: 5/5 Errors: 0 Failures: 0

Failure Trace

- org.self.learn.test.SimpleMapTest [Runner: JUnit 4] (0.000 s)
  - testMultipleSaveKeyValuePair (0.000 s)
  - testSize (0.000 s)
  - testNonEmptyMap (0.000 s)
  - testSingleSaveKeyValuePair (0.000 s)
  - testEmptyMapCreation (0.000 s)

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```

File Edit Source Refactor Navigate Project Run Window Help
Project Explorer
  simple-map [test-driven-devel]
    src/main/java
      org.self.learn
        KeyValuePair.java
        SimpleMap.java
    src/main/resources
    src/test/java
      org.self.learn.test
        SimpleMapTest.java
    src/test/resources
    JRE System Library [JavaSE-1.8]
    Maven Dependencies
    target
    pom.xml

SimpleMapTest.java
  28  public void testNonEmptyMap() {
  29    map.save(1, "Priyan");
  30    assertThat(0, is(not(equalTo(map.size()))));
  31  }
  32
  33  @Test
  34  public void testSize() {
  35    map.save(1, "Priyan");
  36    assertThat(1, is(equalTo(map.size())));
  37    map.save(2, "Priyadarshan");
  38    assertThat(2, is(equalTo(map.size())));
  39    map.save(10, "Priyan Parida");
  40    assertThat(3, is(equalTo(map.size())));
  41  }
  42
  43  @Test
  44  public void testSingleSaveKeyValuePair() {
  45    map.save(1, "Priyan");
  46    assertThat("Priyan", is(equalTo(map.get(1))));
  47  }
  48
  49  @Test
  50  public void testMultipleSaveKeyValuePair() {
  51    map.save(1, "Priyan");
  52    map.save(2, "Priyadarshan");
  53    assertThat("Priyadarshan", is(equalTo(map.get(2))));
  54    assertThat("Priyan", is(equalTo(map.get(1))));
  55  }
  56
  57  public void testContainsKey() {
  58    map.save(1, "Priyan");
  59    assertThat(true, is(equalTo(map.containsKey(1))));
  60  }
  61
  62
  63
  
```

KeyValuePair.java

```

  1 package org.self.learn;
  2
  3 public class SimpleMap<K, V> {
  4   private KeyValuePair<K, V>[] keyValuePair;
  5   private int size;
  6
  7   @SuppressWarnings("unchecked")
  8   public SimpleMap() {
  9     this.size = 0;
 10     this.keyValuePair = (KeyValuePair<K, V>[] ) new KeyValuePair[5];
 11   }
 12
 13   public int size() {
 14     return this.size;
 15   }
 16
 17   public void save(K key, V value) {
 18     KeyValuePair<K, V> keyValuePair;
 19     keyValuePair[this.size++] = new KeyValuePair<K, V>(key, value);
 20   }
 21
 22   public V get(K key) {
 23     KeyValuePair<K, V> keyValuePair;
 24     for(int i=0;i<size;i++) {
 25       keyValuePair = this.keyValuePair[i];
 26       if(key.equals(keyValuePair.getKey())) {
 27         return keyValuePair.getValue();
 28       }
 29     }
 30
 31     return null;
 32   }
  
```

The method `containsKey(int)` is undefined for the type `SimpleMap<Integer, String>`

2 quick fixes available:

- Create method 'containsKey(int)' in type `SimpleMap`.
- Add cast to `map`.

Press F2 for focus

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```

File Edit Source Refactor Navigate Project Run Window Help
Project Explorer
  simple-map [test-driven-devel]
    src/main/java
      org.self.learn
        KeyValuePair.java
        SimpleMap.java
    src/main/resources
    src/test/java
      org.self.learn.test
        SimpleMapTest.java
    src/test/resources
    JRE System Library [JavaSE-1.8]
    Maven Dependencies
    target
    pom.xml

SimpleMapTest.java
  44  public void testSingleSaveKeyValuePair() {
  45    map.save(1, "Priyan");
  46    assertThat("Priyan", is(equalTo(map.get(1))));
  47  }
  48
  49  @Test
  50  public void testMultipleSaveKeyValuePair() {
  51    map.save(1, "Priyan");
  52    map.save(2, "Priyadarshan");
  53    assertThat("Priyadarshan", is(equalTo(map.get(2))));
  54    assertThat("Priyan", is(equalTo(map.get(1))));
  55  }
  56
  57  @Test
  58  public void testContainsKey() {
  59    map.save(1, "Priyan");
  60    assertThat(true, is(equalTo(map.containsKey(1))));
  61  }
  62
  63
  
```

KeyValuePair.java

```

  28
  29
  30
  31
  32
  33
  34   public V get(K key) {
  35     KeyValuePair<K, V> keyValuePair;
  36     for(int i=0;i<size;i++) {
  37       keyValuePair = this.keyValuePair[i];
  38       if(key.equals(keyValuePair.getKey())) {
  39         return keyValuePair.getValue();
  40       }
  41     }
  42
  43     return null;
  44
  45   public boolean containsKey(K key) {
  46     return true;
  47   }
  
```

Markers Properties Servers Data Source Explorer Snippets JUnit Debug

Finished after 0.027 seconds

Runs: 6/6 Errors: 0 Failures: 0

org.self.learn.test.SimpleMapTest [Runner: JUnit 4] (0.001 s)

Failure Trace

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```

File Edit Source Refactor Navigate Project Run Window Help
Project Explorer JUnit Java EE Quick Access
SimpleMapTest.java
45     map.save(1, "Priyan");
46     assertThat("Priyan", is(equalTo(map.get(1))));
47 }
48
49 @Test
50 public void testMultipleSaveKeyValuePair() {
51     map.save(1, "Priyan");
52     map.save(2, "Priyadarshan");
53     assertThat("Priyadarshan", is(equalTo(map.get(2))));
54     assertThat("Priyan", is(equalTo(map.get(1))));
55 }
56
57 @Test
58 public void testContainsKey() {
59     map.save(1, "Priyan");
60     assertThat(true, is(equalTo(map.containsKey(1))));
61     assertThat(true, is(not(equalTo(map.containsKey(35)))));
62 }
63
64 }

```

KeyValuePair.java

```

20 }
21
22 public V get(K key) {
23     KeyValuePair<K, V> keyValuePair;
24     for(int i=0;i<size;i++) {
25         keyValuePair = this.keyValuePair[i];
26         if(key.equals(keyValuePair.getKey())) {
27             return keyValuePair.getValue();
28         }
29     }
30     return null;
31 }
32
33
34 public boolean containsKey(K key) {
35     return true;
36 }
37
38 }
39

```

SimpleMap.java

Markers Properties Servers Data Source Explorer Snippets JUnit Debug

Finished after 0.039 seconds

Runs: 6/6 Errors: 0 Failures: 1

Failure Trace

- java.lang.AssertionError:  
Expected: is not <true>  
but: was <true>
- at org.hamcrest.MatcherAssert.assertThat(MatcherAssert.java:20)  
at org.self.learn.test.SimpleMapTest.testContainsKey(SimpleMapTest.java:61)

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```

File Edit Source Refactor Navigate Project Run Window Help
Project Explorer JUnit Java EE Quick Access
SimpleMapTest.java
46     assertThat("Priyan", is(equalTo(map.get(1))));
47 }
48
49 @Test
50 public void testMultipleSaveKeyValuePair() {
51     map.save(1, "Priyan");
52     map.save(2, "Priyadarshan");
53     assertThat("Priyadarshan", is(equalTo(map.get(2))));
54     assertThat("Priyan", is(equalTo(map.get(1))));
55 }
56
57 @Test
58 public void testContainsKey() {
59     map.save(1, "Priyan");
60     assertThat(true, is(equalTo(map.containsKey(1))));
61     assertThat(true, is(not(equalTo(map.containsKey(35)))));
62     assertFalse(map.containsKey(35));
63 }
64
65 }

```

KeyValuePair.java

```

28 }
29
30
31
32
33
34 public boolean containsKey(K key) {
35     KeyValuePair<K, V> keyValuePair;
36     for(int i=0;i<size;i++) {
37         keyValuePair = this.keyValuePair[i];
38         if(key.equals(keyValuePair.getKey())) {
39             return true;
40         }
41     }
42
43     return false;
44 }
45
46
47

```

InvocationTargetException.class

SimpleMap.java

Markers Properties Servers Data Source Explorer Snippets JUnit Debug

Finished after 0.029 seconds

Runs: 6/6 Errors: 0 Failures: 0

Failure Trace

- java.lang.AssertionError:  
Expected: is not <true>  
but: was <true>
- at org.hamcrest.MatcherAssert.assertThat(MatcherAssert.java:20)  
at org.self.learn.test.SimpleMapTest.testContainsKey(SimpleMapTest.java:61)

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```

File Edit Source Refactor Navigate Project Run Window Help
Project Explorer   SimpleMapTest.java  KeyValuePair.java  SimpleMap.java  InvocationTargetException.class
src/main/java
  org.self.learn
    KeyValuePair.java
    SimpleMap.java
src/main/resources
src/test/java
  org.self.learn.test
    SimpleMapTest.java
src/test/resources
JRE System Library [JavaSE-1.8]
Maven Dependencies
src
target
pom.xml

SimpleMapTest.java
51     assertEquals("Priyan",is(equalTo(map.get(1))));
52 }
53
54@Test
55 public void testMultipleSaveKeyValuePair() {
56     map.save(1, "Priyan");
57     map.save(2, "Priyadarshan");
58     assertEquals("Priyadarshan",is(equalTo(map.get(2)));
59     assertEquals("Priyan",is(equalTo(map.get(1)));
60 }
61
62@Test
63 public void testContainsKey() {
64     map.save(1, "Priyan");
65     assertTrue(true, is(equalTo(map.containsKey(1)));
66     assertTrue(true, is(not(equalTo(map.containsKey(35));
67     assertFalse(map.containsKey(35));
68 }
69
70@Test
71 public void testNoSuchKeyException() {
72     map.save(1, "Priyan");
73     thrown.expect(NoSuchKeyException.class);
74     map.get(2);
75 }

NoSuchKeyException cannot be resolved to a type
17 quick fixes available:
Create class 'NoSuchKeyException'
Create interface 'NoSuchKeyException'
Change to 'NamingException' (javax.naming)
Change to 'NoSuchAlgorithmException' (java.security)
Change to 'NoSuchAttributeException' (javax.naming.directory)
Change to 'NoSuchElementException' (java.util)
Change to 'NoSuchFieldException' (java.lang)
Change to 'NoSuchElementException' (java.util)
Press 'F2' for focus

```

Writable Smart Insert 73:38

3:56 AM 2/16/2016

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```

File Edit Source Refactor Navigate Project Run Window Help
Project Explorer   SimpleMapTest.java  SimpleMap.java
src/main/java
  org.self.learn
    KeyValuePair.java
    NoSuchKeyException.java
    SimpleMap.java
src/main/resources
src/test/java
  org.self.learn.test
    SimpleMapTest.java
src/test/resources
JRE System Library [JavaSE-1.8]
Maven Dependencies
src
target
pom.xml

SimpleMapTest.java
1 package org.self.learn.test;
2
3@import static org.hamcrest.CoreMatchers.*;
4
5@RunWith(@BlockJUnit4ClassRunner.class)
6public class SimpleMapTest {
7     private SimpleMap<Integer, String> map;
8
9     @Rule
10    public ExpectedException thrown = ExpectedException.none();
11
12    @Before
13    public void init() {
14        map = new SimpleMap<>();
15    }
16
17    @Test
18    public void testEmptyMapCreation() {
19        assertEquals(0, is(equalTo(map.size())));
20        assertEquals(0, map.size());
21    }
22
23    @Test
24    public void testNonEmptyMap() {
25        map.save(1, "Priyan");
26        assertEquals(1, is(not(equalTo(map.size())));
27    }
28
29    @Test
30    public void testSize() {
31        map.save(1, "Priyan");
32        assertEquals(1, is(equalTo(map.size())));
33        map.save(2, "Priyadarshan");
34        assertEquals(2, is(equalTo(map.size())));
35        map.save(10, "Priyan Parida");
36        assertEquals(3, is(equalTo(map.size())));
37    }

SimpleMap.java
12
13    public int size() {
14        return this.size;
15    }
16
17    public void save(K key, V value) {
18        KeyValuePair.this.size++ = new KeyValuePair<K, V>(key, value);
19    }
20
21    public V get(K key) {
22        KeyValuePair<K, V> keyValuePair;
23        for(int i=0;i<size;i++) {
24            keyValuePair = this.keyValuePair[i];
25            if(key.equals(keyValuePair.getKey())) {
26                return keyValuePair.getValue();
27            }
28        }
29
30        return null;
31    }
32
33    public boolean containsKey(K key) {
34        KeyValuePair<K, V> keyValuePair;
35        for(int i=0;i<size;i++) {
36            keyValuePair = this.keyValuePair[i];
37            if(key.equals(keyValuePair.getKey())) {
38                return true;
39            }
40        }
41
42        return false;
43    }
44
45    
```

Writable Smart Insert 20:5

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```
File Edit Source Refactor Navigate Project Run Window Help
Project Explorer
SimpleMapTest.java
43     map.save(2, "Priyadarshan");
44     assertEquals(2, map.size());
45     map.save(10, "Priyan Parida");
46     assertEquals(3, map.size());
47 }
48
49 @Test
50 public void testSingleSaveKeyValuePair() {
51     map.save(1, "Priyan");
52     assertEquals("Priyan", map.get(1));
53 }
54
55 @Test
56 public void testMultipleSaveKeyValuePair() {
57     map.save(1, "Priyan");
58     map.save(2, "Priyadarshan");
59     assertEquals("Priyadarshan", map.get(2));
60     assertEquals("Priyan", map.get(1));
61 }
62
63 @Test
64 public void testContainsKey() {
65     map.save(1, "Priyan");
66     assertTrue(map.containsKey(1));
67     assertFalse("Priyadarshan".equals(map.containsKey(35)));
68     assertFalse(map.containsKey(35));
69 }
70
71 @Test
72 public void testNoSuchKeyException() {
73     map.save(1, "Priyan");
74     thrown.expect(NoSuchKeyException.class);
75     map.get(2);
76 }
77
78 }
```

KeyValuePair.java SimpleMap.java NoSuchKeyException.java

```
package org.self.learn;
public class NoSuchKeyException extends Exception {
    private static final long serialVersionUID = -97951759851767710L;
}
```

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```
File Edit Source Refactor Navigate Project Run Window Help
Project Explorer
SimpleMapTest.java
59     assertEquals("Priyadarshan", map.get(2));
60     assertEquals("Priyan", map.get(1));
61 }
62
63 @Test
64 public void testContainsKey() {
65     map.save(1, "Priyan");
66     assertTrue(map.containsKey(1));
67     assertFalse("Priyadarshan".equals(map.containsKey(35)));
68     assertFalse(map.containsKey(35));
69 }
70
71 @Test
72 public void testNoSuchKeyException() {
73     map.save(1, "Priyan");
74     thrown.expect(NoSuchKeyException.class);
75     map.get(2);
76 }
77
78 }
```

SimpleMap.java

```
public int size() {
    return this.size;
}
public void save(K key, V value) {
    KeyValuePair<K, V> keyValuePair = new KeyValuePair<K, V>(key, value);
    this.size++;
    keyValuePair = this.keyValuePair[this.size];
    if(key.equals(keyValuePair.getKey())) {
        return keyValuePair.getValue();
    }
    return null;
}
```

Markers Properties Servers Data Source Explorer Snippets JUnit

Finished after 0.05 seconds

Runs: 7/7 Errors: 0 Failures: 1

org.self.learn.test.SimpleMapTest [Runner: JUnit 4] (0.000 s)

- testMultipleSaveKeyValuePair (0.000 s)
- testSize (0.000 s)
- testNonEmptyMap (0.000 s)
- testNoSuchKeyException (0.000 s)
- testSingleSaveKeyValuePair (0.000 s)
- testContainsKey (0.000 s)
- testEmptyMapCreation (0.000 s)

Failure Trace

java.lang.AssertionError: Expected test to throw an instance of org.self.learn.NoSuchKeyException

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```
File Edit Source Refactor Navigate Project Run Window Help
Project Explorer SimpleMapTest.java SimpleMap.java
SimpleMapTest.java
59     assertEquals("Priyadarshan",is(equalTo(map.get(2))));
60     assertEquals("Priyan",is(equalTo(map.get(1))));
61 }
62
63 @Test
64 public void testContainsKey() {
65     map.save(1, "Priyan");
66     assertEquals(true, is(equalTo(map.containsKey(1))));
67     assertEquals(true, is(not(equalTo(map.containsKey(35)))));
68     assertFalse(map.containsKey(35));
69 }
70
71 @Test
72 public void testNoSuchKeyException() throws NoSuchKeyException {
73     map.save(1, "Priyan");
74     thrown.expect(NoSuchKeyException.class);
75     map.get(2);
76 }
77
78 }
```

```
SimpleMap.java
19         keyValuePair[this.size++] = new KeyValuePair<K, V>(key, val);
20     }
21 }
22 public V get(K key) throws NoSuchKeyException {
23     KeyValuePair<K, V> keyValPair;
24
25     if(!containsKey(key)) {
26         throw new NoSuchKeyException();
27     }
28
29     for(int i=0;i<size;i++) {
30         keyValPair = this.keyValuePair[i];
31         if(key.equals(keyValPair.getKey())) {
32             return keyValPair.getValue();
33         }
34     }
35
36     return null;
37 }
38 }
```

Markers Properties Servers Data Source Explorer Snippets JUnit

Finished after 0.03 seconds

Runs: 7/7 Errors: 0 Failures: 0

Failure Trace

org.self.learn.test.SimpleMapTest [Runner: JUnit 4] (0.007 s)

- testMultipleSaveKeyValuePair (0.001 s)
- testSize (0.000 s)
- testNonEmptyMap (0.001 s)
- testNoSuchKeyException (0.004 s)
- testSingleSaveKeyValuePair (0.000 s)
- testContainsKey (0.000 s)
- testEmptyMapCreation (0.001 s)

Writable Smart Insert 75:20

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```
File Edit Source Refactor Navigate Project Run Window Help
Project Explorer SimpleMapTest.java SimpleMap.java
SimpleMapTest.java
69 }
70
71 @Test
72 public void testNoSuchKeyException() throws NoSuchKeyException {
73     map.save(1, "Priyan");
74     thrown.expect(NoSuchKeyException.class);
75     map.get(2);
76 }
77
78 @Test
79 public void testContainsValue() {
80     map.save(1, "Priyan");
81     map.save(2, "Priyan");
82     map.save(3, "Priyadarshan");
83     assertTrue(map.containsValue("Priyan"));
84     assertTrue(map.containsValue("Priyadarshan"));
85     assertFalse(map.containsValue("Priyan Parida"));
86 }
87
88 }
```

```
SimpleMap.java
17
18 public void save(K key, V value) {
19     keyValuePair[this.size++] = new KeyValuePair<K, V>(key, val);
20 }
21
22 public V get(K key) throws NoSuchKeyException {
23     KeyValuePair<K, V> keyValPair;
24
25     if(!containsKey(key)) {
26         throw new NoSuchKeyException();
27     }
28
29     for(int i=0;i<size;i++) {
30         keyValPair = this.keyValuePair[i];
31         if(key.equals(keyValPair.getKey())) {
32             return keyValPair.getValue();
33         }
34     }
35
36     return null;
37 }
```

The method containsValue(String) is undefined for the type SimpleMap<Integer, String>

3 quick fixes available:

- Change to 'containsKey...'
- Create method 'containsValue(String)' in type 'SimpleMap'
- Add cast to 'map'

Press 'F2' for focus

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```

File Edit Source Refactor Navigate Project Run Window Help
Project Explorer JUnit Data Source Explorer Servers Properties Markers Snippets
SimpleMapTest.java
69 }
70
71 @Test
72 public void testNoSuchKeyException() throws NoSuchKeyException {
73     map.save(1, "Priyan");
74     thrown.expect(NoSuchKeyException.class);
75     map.get(2);
76 }
77
78 @Test
79 public void testContainsValue() {
80     map.save(1, "Priyan");
81     map.save(2, "Priyan");
82     map.save(3, "Priyadarshan");
83     assertTrue(map.containsValue("Priyan"));
84     assertTrue(map.containsValue("Priyadarshan"));
85     assertFalse(map.containsValue("Priyan Parida"));
86 }
87
88 }
```

```

SimpleMap.java
45
46
47     return false;
48 }
49
50 public boolean containsValue(V value) {
51     KeyValuePair<K, V> keyValuePair;
52     for(int i=0;i<size;i++) {
53         keyValuePair = this.keyValuePair[i];
54         if(value.equals(keyValuePair.getValue())) {
55             return true;
56         }
57     }
58
59     return false;
60 }
61
62 }
63
64 }
```

Markers Properties Servers Data Source Explorer Snippets JUnit

Finished after 0.027 seconds

Runs: 8/8 Errors: 0 Failures: 0

testMultipleSaveKeyValuePair (0.001 s)  
testSize (0.000 s)  
testNonEmptyMap (0.000 s)  
testNoSuchKeyException (0.004 s)  
testSingleSaveKeyValuePair (0.000 s)  
testContainsKey (0.000 s)  
testContainsValue (0.000 s)  
testEmptyMapCreation (0.001 s)

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```

File Edit Source Refactor Navigate Project Run Window Help
Project Explorer JUnit Data Source Explorer Servers Properties Markers Snippets
SimpleMapTest.java
70
71 @Test
72 public void testNoSuchKeyException() throws NoSuchKeyException {
73     map.save(1, "Priyan");
74     thrown.expect(NoSuchKeyException.class);
75     map.get(2);
76 }
77
78 @Test
79 public void testContainsValue() {
80     map.save(1, "Priyan");
81     map.save(2, "Priyan");
82     map.save(3, "Priyadarshan");
83     assertTrue(map.containsValue("Priyan"));
84     assertTrue(map.containsValue("Priyadarshan"));
85     assertFalse(map.containsValue("Priyan Parida"));
86 }
87
88 public void testDuplicateKeyFoundException() {
89     map.save(1, "Priyan");
90     thrown.expect(DuplicateKeyFoundException.class);
91     map.save(1, "P");
92 }
93
94
95
96
97
98
99
100 }
```

DuplicateKeyFoundException cannot be resolved to a type

5 quick fixes available:

- >Create class 'DuplicateKeyFoundException'
- Create interface 'DuplicateKeyFoundException'
- Change to 'DuplicateFormatFlagsException' (java.util)
- Create enum 'DuplicateKeyFoundException'
- Fix project setup...

SimpleMap.java

```

20
21
22 public V get(K key) throws NoSuchKeyException {
23     KeyValuePair<K, V> keyValuePair;
24
25     if(!containsKey(key)) {
26         throw new NoSuchKeyException();
27     }
28
29     for(int i=0;i<size;i++) {
30         keyValuePair = this.keyValuePair[i];
31         if(key.equals(keyValuePair.getKey())) {
32             return keyValuePair.getValue();
33         }
34     }
35
36     return null;
37 }
38
39 public boolean containsKey(K key) {
40     KeyValuePair<K, V> keyValuePair;
41     for(int i=0;i<size;i++) {
42         keyValuePair = this.keyValuePair[i];
43         if(key.equals(keyValuePair.getKey())) {
44             return true;
45         }
46     }
47
48     return false;
49 }
50
51 public boolean containsValue(V value) {
52     KeyValuePair<K, V> keyValuePair;
53     for(int i=0;i<size;i++) {
54         keyValuePair = this.keyValuePair[i];
55         if(value.equals(keyValuePair.getValue())) {
56             return true;
57         }
58     }
59
60     return false;
61 }
62
63 }
64
65 }
```

Writable Smart Insert | 101:5

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```
File Edit Source Refactor Navigate Project Run Window Help
Project Explorer SimpleMapTest.java SimpleMap.java DuplicateKeyFoundException.java
SimpleMapTest.java
60     assertEquals("Priyadarshan",is(equalTo(map.get(2))));
61     assertEquals("Priyan",is(equalTo(map.get(1))));
62 }
63
64 @Test
65 public void testContainsKey() {
66     map.save(1, "Priyan");
67     assertEquals(true, is(equalTo(map.containsKey(1))));
68     assertEquals(true, is(not(equalTo(map.containsKey(35)))));
69     assertFalse(map.containsKey(35));
70 }
71
72 @Test
73 public void testNoSuchKeyException() throws NoSuchKeyException {
74     map.save(1, "Priyan");
75     thrown.expect(NoSuchKeyException.class);
76     map.get(2);
77 }
78
79 @Test
80 public void testContainsValue() {
81     map.save(1, "Priyan");
82     map.save(2, "Priyan");
83     map.save(3, "Priyadarshan");
84     assertTrue(map.containsValue("Priyan"));
85     assertTrue(map.containsValue("Priyadarshan"));
86     assertFalse(map.containsValue("Priyan Parida"));
87 }
88
89 @Test
90 public void testDuplicateKeyFoundException() {
91     map.save(1, "Priyan");
92     thrown.expect(DuplicateKeyFoundException.class);
93     map.save(1, "Priyadarshan");
94 }
95 }
```

Java EE - simple-map/src/main/java/org/self/learn/SimpleMap.java - Eclipse

```
File Edit Source Refactor Navigate Project Run Window Help
Project Explorer SimpleMapTest.java SimpleMap.java
SimpleMapTest.java
77 }
78
79 @Test
80 public void testContainsValue() throws DuplicateKeyFoundException {
81     map.save(1, "Priyan");
82     map.save(2, "Priyan");
83     map.save(3, "Priyadarshan");
84     assertTrue(map.containsValue("Priyan"));
85     assertTrue(map.containsValue("Priyadarshan"));
86     assertFalse(map.containsValue("Priyan Parida"));
87 }
88
89 @Test
90 public void testDuplicateKeyFoundException() throws NoSuchKeyException {
91     try {
92         map.save(1, "Priyan");
93         map.save(1, "Priyadarshan");
94     } catch (Exception e) {
95         assertEquals(e instanceof DuplicateKeyFoundException.class, true);
96     }
97     assertEquals("Priyan", map.get(1));
98 }
99 }
```

SimpleMap.java

```
1 package org.self.learn;
2
3 public class DuplicateKeyFoundException extends Exception {
4     private static final long serialVersionUID = 3949470449695281;
5 }
6 }
```

Markers Properties Servers Data Source Explorer Snippets JUnit Debug

Finished after 0.03 seconds

Runs: 9/9 Errors: 0 Failures: 0

Failure Trace

Java EE - simple-map/src/main/java/org/self/learn/SimpleMap.java - Eclipse

```

File Edit Source Refactor Navigate Project Run Window Help
Project Explorer JUnit Java EE Debug
SimpleMapTest.java
85     assertTrue(map.containsKey("Priyan"));
86     assertTrue(map.containsValue("Priyadarshan"));
87     assertFalse(map.containsValue("Priyan Parida"));
88
89 @Test
90 public void testDuplicateKeyFoundException() throws NoSuchKeyException {
91     try {
92         map.save(1, "Priyan");
93         map.save(1, "Priyadarshan");
94     } catch (Exception e) {
95         assertEquals(e, instanceof(DuplicateKeyFoundException.class));
96     }
97     assertEquals("Priyan", map.get(1));
98 }
99
100 @Test
101 public void testNullKeyAndValues() throws DuplicateKeyFoundException {
102     map.save(1, "Priyan");
103     map.save(null, null);
104 }
105
106 }
107 }
```

```

SimpleMap.java
39     return null;
40 }
41
42 boolean containsKey(K key) {
43     KeyValuePair<K, V> keyValuePair;
44     for(int i=0;i<size;i++) {
45         keyValuePair = this.keyValuePair[i];
46         if(key.equals(keyValuePair.getKey())) {
47             return true;
48         }
49     }
50     return false;
51 }
52
53
54 boolean containsValue(V value) {
55     KeyValuePair<K, V> keyValuePair;
56     for(int i=0;i<size;i++) {
57         keyValuePair = this.keyValuePair[i];
58         if(value.equals(keyValuePair.getValue())) {
59             return true;
60         }
61     }
62 }
```

Markers Properties Servers Data Source Explorer Snippets JUnit Debug

Finished after 0.033 seconds

Runs: 10/10 Errors: 1 Failures: 0

org.self.learn.test.SimpleMapTest [Runner: JUnit 4] (0.013 s)

- testMultipleSaveKeyValuePair (0.001 s)
- testNullKeyAndValues (0.004 s)
- testSize (0.000 s)
- testNonEmptyMap (0.001 s)

Failure Trace

- java.lang.NullPointerException
- at org.self.learn.SimpleMap.containsKey(SimpleMap.java:46)
- at org.self.learn.SimpleMap.save(SimpleMap.java:19)
- at org.self.learn.test.SimpleMapTest.testNullKeyAndValues(SimpleMapTest.java:104)

Java EE - simple-map/src/main/java/org/self/learn/SimpleMap.java - Eclipse

```

File Edit Source Refactor Navigate Project Run Window Help
Project Explorer JUnit Java EE Debug
SimpleMapTest.java
84     map.save(1, "Priyan");
85     assertTrue(map.containsKey("Priyan"));
86     assertTrue(map.containsValue("Priyadarshan"));
87     assertFalse(map.containsValue("Priyan Parida"));
88
89 @Test
90 public void testDuplicateKeyFoundException() throws NoSuchKeyException {
91     try {
92         map.save(1, "Priyan");
93         map.save(1, "Priyadarshan");
94     } catch (Exception e) {
95         assertEquals(e, instanceof(DuplicateKeyFoundException.class));
96     }
97     assertEquals("Priyan", map.get(1));
98 }
99
100 @Test
101 public void testNullKeyAndValues() throws DuplicateKeyFoundException {
102     map.save(1, "Priyan");
103     map.save(null, null);
104 }
105
106 }
```

```

SimpleMap.java
35     return keyValuePair.getValue();
36 }
37
38
39     return null;
40
41 boolean containsKey(K key) {
42     KeyValuePair<K, V> keyValuePair;
43     for(int i=0;i<size;i++) {
44         keyValuePair = this.keyValuePair[i];
45         if(key.equals(keyValuePair.getKey()) || (key==null && keyValuePair.getKey()==null) || (key!=null && key.equals(keyValuePair.getKey()))) {
46             return true;
47         }
48     }
49
50
51     return false;
52 }
53
54 boolean containsValue(V value) {
55     KeyValuePair<K, V> keyValuePair;
56     for(int i=0;i<size;i++) {
57         keyValuePair = this.keyValuePair[i];
58         if(value.equals(keyValuePair.getValue())) {
59             return true;
60         }
61     }
62 }
```

Markers Properties Servers Data Source Explorer Snippets JUnit Debug

Finished after 0.026 seconds

Runs: 10/10 Errors: 0 Failures: 0

org.self.learn.test.SimpleMapTest [Runner: JUnit 4] (0.008 s)

Failure Trace

Java EE - simple-map/src/main/java/org/self/learn/SimpleMap.java - Eclipse

File Edit Source Refactor Navigate Project Run Window Help

Project Explorer

SimpleMapTest.java

```
92     map.save(1, "Priyan");
93     map.save(1, "Priyadarshan");
94 } catch (Exception e) {
95     assertThat(e, isInstanceOf(DuplicateKeyFoundException.class));
96 }
97 assertEquals("Priyan", map.get(1));
98 }
99 }
```

SimpleMap.java

```
24     public V get(K key) throws NoSuchKeyException {
25         KeyValuePair<K, V> keyValuePair;
26
27         if(!containsKey(key)) {
28             throw new NoSuchKeyException();
29         }
30
31         for(int i=0;i<size;i++) {
32             keyValuePair = this.keyValuePair[i];
33             if(key.equals(keyValuePair.getKey())) {
34                 return keyValuePair.getValue();
35             }
36         }
37
38         return null;
39     }
40
41     public boolean containsKey(K key) {
42         KeyValuePair<K, V> keyValuePair;
43         for(int i=0;i<size;i++) {
44             keyValuePair = this.keyValuePair[i];
45             if((key==null && keyValuePair.getKey()==null) || (key!=null && key.equals(keyValuePair.getKey())))
46                 return true;
47         }
48
49         return false;
50     }
51
52     public void save(K key, V value) {
53         if(key==null)
54             throw new NullPointerException("Key cannot be null");
55
56         if(value==null)
57             throw new NullPointerException("Value cannot be null");
58
59         if(key.equals(keyValuePair.getKey()))
60             keyValuePair.setValue(value);
61         else
62             keyValuePair = new KeyValuePair<K, V>(key, value);
63
64         this.keyValuePair.add(keyValuePair);
65     }
66
67     public void remove(K key) {
68         if(key==null)
69             throw new NullPointerException("Key cannot be null");
70
71         for(int i=0;i<size;i++) {
72             if(key.equals(keyValuePair.getKey()))
73                 keyValuePair = null;
74             else
75                 keyValuePair = this.keyValuePair[i];
76         }
77
78         if(keyValuePair==null)
79             throw new NoSuchKeyException("Key not found");
80
81         this.keyValuePair.remove(keyValuePair);
82     }
83
84     public int size() {
85         return this.size;
86     }
87
88     public void clear() {
89         this.size = 0;
90         this.keyValuePair.clear();
91     }
92 }
```

Markers Properties Servers Data Source Explorer Snippets JUnit Debug

Finished after 0.039 seconds

Runs: 10/10 Errors: 1 Failures: 0

Failure Trace

java.lang.NullPointerException

at org.self.learn.SimpleMap.get(SimpleMap.java:34)

at org.self.learn.test.SimpleMapTest.testNullKeyAndValues(SimpleMapTest.java:111)

Java EE - simple-map/src/main/java/org/self/learn/SimpleMap.java - Eclipse

File Edit Source Refactor Navigate Project Run Window Help

Project Explorer

SimpleMapTest.java

```
92     map.save(1, "Priyan");
93     map.save(1, "Priyadarshan");
94 } catch (Exception e) {
95     assertThat(e, isInstanceOf(DuplicateKeyFoundException.class));
96 }
97 assertEquals("Priyan", map.get(1));
98 }
99 }
```

SimpleMap.java

```
22     {
23         keyValuePair[this.size++] = new KeyValuePair<K, V>(key, value);
24     }
25     public V get(K key) throws NoSuchKeyException {
26         KeyValuePair<K, V> keyValuePair;
27
28         if(!containsKey(key)) {
29             throw new NoSuchKeyException();
30         }
31
32         for(int i=0;i<size;i++) {
33             keyValuePair = this.keyValuePair[i];
34             if((key==null && keyValuePair.getKey()==null) || (key!=null && key.equals(keyValuePair.getKey())))
35                 return keyValuePair.getValue();
36         }
37
38         return null;
39     }
40
41     public boolean containsKey(K key) {
42         KeyValuePair<K, V> keyValuePair;
43
44         for(int i=0;i<size;i++) {
45             keyValuePair = this.keyValuePair[i];
46             if(key.equals(keyValuePair.getKey()))
47                 return true;
48         }
49
50         return false;
51     }
52
53     public void save(K key, V value) {
54         if(key==null)
55             throw new NullPointerException("Key cannot be null");
56
57         if(value==null)
58             throw new NullPointerException("Value cannot be null");
59
60         if(key.equals(keyValuePair.getKey()))
61             keyValuePair.setValue(value);
62         else
63             keyValuePair = new KeyValuePair<K, V>(key, value);
64
65         this.keyValuePair.add(keyValuePair);
66     }
67
68     public void remove(K key) {
69         if(key==null)
70             throw new NullPointerException("Key cannot be null");
71
72         for(int i=0;i<size;i++) {
73             if(key.equals(keyValuePair.getKey()))
74                 keyValuePair = null;
75             else
76                 keyValuePair = this.keyValuePair[i];
77         }
78
79         if(keyValuePair==null)
80             throw new NoSuchKeyException("Key not found");
81
82         this.keyValuePair.remove(keyValuePair);
83     }
84
85     public int size() {
86         return this.size;
87     }
88
89     public void clear() {
90         this.size = 0;
91         this.keyValuePair.clear();
92     }
93 }
```

Markers Properties Servers Data Source Explorer Snippets JUnit Debug

Finished after 0.029 seconds

Runs: 10/10 Errors: 0 Failures: 0

Failure Trace

java.lang.NullPointerException

at org.self.learn.SimpleMap.get(SimpleMap.java:34)

at org.self.learn.test.SimpleMapTest.testNullKeyAndValues(SimpleMapTest.java:111)

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

File Edit Source Refactor Navigate Project Run Window Help

Project Explorer

SimpleMapTest.java

```
92     map.save(1, "Priyan");
93     map.save(1, "Priyadarshan");
94 } catch (Exception e) {
95     assertThat(e, isInstanceOf(DuplicateKeyFoundException.class));
96 }
97 assertEquals("Priyan", map.get(1));
98 }
99 }
100 @Test
101 public void testNullKeyAndValues() throws DuplicateKeyFoundException {
102     map.save(null, null);
103     map.save(1, null);
104     assertEquals(true, map.containsKey(null));
105     try {
106         map.save(null, "Priyan");
107     } catch (Exception e) {
108         assertThat(e, isInstanceOf(DuplicateKeyFoundException.class));
109     }
110     assertNull(map.get(null));
111     assertTrue(map.containsValue(null));
112 }
```

SimpleMap.java

```
keyValPair = this.keyValuePair[i];
if((key==null && keyValuePair.getkey()==null) ||
(key!=null && key.equals(keyValuePair.getkey()))) {
    return true;
}
return false;
}
public boolean containsValue(V value) {
    KeyValuePair<K, V> keyValuePair;
    for(int i=0;i<size;i++) {
        keyValuePair = this.keyValuePair[i];
        if(value.equals(keyValuePair.getValue())) {
            return true;
        }
    }
    return false;
}
```

Markers Properties Servers Data Source Explorer Snippets JUnit Debug

Finished after 0.039 seconds

Runs: 10/10 Errors: 1 Failures: 0

Failure Trace

- org.self.learn.test.SimpleMapTest [Runner: JUnit 4] (0.016 s)
  - testMultipleSaveKeyValuePair (0.002 s)
  - testNullKeyAndValues (0.005 s)
  - testSize (0.000 s)
  - testNonEmptyMap (0.001 s)

Writable Smart Insert | 112:45

Java EE - simple-map/src/main/java/org/self/learn/SimpleMap.java - Eclipse

File Edit Source Refactor Navigate Project Run Window Help

Project Explorer

SimpleMapTest.java

```
92     map.save(1, "Priyan");
93     map.save(1, "Priyadarshan");
94 } catch (Exception e) {
95     assertThat(e, isInstanceOf(DuplicateKeyFoundException.class));
96 }
97 assertEquals("Priyan", map.get(1));
98 }
99 }
100 @Test
101 public void testNullKeyAndValues() throws DuplicateKeyFoundException {
102     map.save(null, null);
103     map.save(1, null);
104     assertEquals(true, map.containsKey(null));
105     try {
106         map.save(null, "Priyan");
107     } catch (Exception e) {
108         assertThat(e, isInstanceOf(DuplicateKeyFoundException.class));
109     }
110     assertNull(map.get(null));
111     assertTrue(map.containsValue(null));
112 }
```

SimpleMap.java

```
keyValuePair = this.keyValuePair[i];
if((key==null && keyValuePair.getkey()==null) ||
(key!=null && key.equals(keyValuePair.getkey()))) {
    return true;
}
return false;
}
public boolean containsValue(V value) {
    KeyValuePair<K, V> keyValuePair;
    for(int i=0;i<size;i++) {
        keyValuePair = this.keyValuePair[i];
        if((value==null && keyValuePair.getValue()==null) ||
(value!=null && value.equals(keyValuePair.getValue()))) {
            return true;
        }
    }
    return false;
}
```

Markers Properties Servers Data Source Explorer Snippets JUnit Debug

Finished after 0.027 seconds

Runs: 10/10 Errors: 0 Failures: 0

Failure Trace

- org.self.learn.test.SimpleMapTest [Runner: JUnit 4] (0.008 s)
  - testMultipleSaveKeyValuePair (0.002 s)
  - testNullKeyAndValues (0.001 s)
  - testSize (0.001 s)
  - testNonEmptyMap (0.000 s)

Writable Smart Insert | 61:37

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```

File Edit Source Refactor Navigate Search Project Run Window Help
Project Explorer SimpleMapTest.java SimpleMap.java
src/main/java org.self.learn
  DuplicateKeyFoundException.java
  KeyValuePair.java
  NoSuchKeyException.java
  SimpleMap.java
src/main/resources
src/test/java org.self.learn.test
  SimpleMapTest.java
src/test/resources
JRE System Library [JavaSE-1.8]
Maven Dependencies
src target pom.xml

```

**SimpleMapTest.java**

```

99     } user.equals(" Priyan ", map.get(1));
100
101 @Test
102 public void testNullKeyAndValues() throws DuplicateKeyFoundException {
103     map.save(null, null);
104     map.save(1, null);
105     assertTrue(map.containsKey(null));
106     try {
107         map.save(null, "Priyan");
108     } catch (Exception e) {
109         assertEquals(e, instanceof(DuplicateKeyFoundException));
110     }
111     assertNull(map.get(null));
112     assertTrue(map.containsValue(null));
113 }
114
115 @Test
116 public void testRemove() throws DuplicateKeyFoundException {
117     map.save(1, "Priyan");
118     map.save(2, "Priyadarshan");
119     map.remove(2);
120 }

```

The method remove(int) is undefined for the type SimpleMap<Integer, String>.

2 quick fixes available:

- Create method 'remove(int)' in type 'SimpleMap'
- Add cast to 'map'

Press F2 for focus

**SimpleMap.java**

```

37     }
38
39     return null;
40 }
41
42 public boolean containsKey(K key) {
43     KeyValuePair<K, V> keyValuePair;
44     for(int i=0;i<size;i++) {
45         keyValuePair = this.keyValuePair[i];
46         if((key==null && keyValuePair.getKey()==null) ||
47             (key!=null && key.equals(keyValuePair.getKey())))
48             return true;
49     }
50
51     return false;
52 }
53
54 public boolean containsValue(V value) {
55     KeyValuePair<K, V> keyValuePair;
56     for(int i=0;i<size;i++) {
57         keyValuePair = this.keyValuePair[i];
58         if((value==null && keyValuePair.getValue()==null) ||
59             (value!=null && value.equals(keyValuePair.getValue())))
60             return true;
61     }
62
63     return false;
64 }
65
66 public void remove(K key) throws NoSuchKeyException {
67     // TODO Auto-generated method stub
68 }
69
70
71
72
73
74 }

```

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```

File Edit Source Refactor Navigate Search Project Run Window Help
Project Explorer SimpleMapTest.java SimpleMap.java
src/main/java org.self.learn
  DuplicateKeyFoundException.java
  KeyValuePair.java
  NoSuchKeyException.java
  SimpleMap.java
src/main/resources
src/test/java org.self.learn.test
  SimpleMapTest.java
src/test/resources
JRE System Library [JavaSE-1.8]
Maven Dependencies
src target pom.xml

```

**SimpleMapTest.java**

```

87     }
88
89 @Test
90 public void testDuplicateKeyFoundException() throws NoSuchKeyException {
91     try {
92         map.save(1, "Priyan");
93         map.save(1, "Priyadarshan");
94     } catch (Exception e) {
95         assertEquals(e, instanceof(DuplicateKeyFoundException));
96     }
97     assertEquals("Priyan", map.get(1));
98 }
99
100 @Test
101 public void testNullKeyAndValues() throws DuplicateKeyFoundException {
102     map.save(null, null);
103     map.save(1, null);
104     assertTrue(map.containsKey(null));
105     try {
106         map.save(null, "Priyan");
107     } catch (Exception e) {
108         assertEquals(e, instanceof(DuplicateKeyFoundException));
109     }
110     assertNull(map.get(null));
111     assertTrue(map.containsValue(null));
112 }
113
114 @Test
115 public void testRemove() throws DuplicateKeyFoundException {
116     map.save(1, "Priyan");
117     map.save(2, "Priyadarshan");
118     map.remove(2);
119 }
120
121 }
122 }

```

**SimpleMap.java**

```

40     }
41
42     return null;
43 }
44
45 public boolean containsKey(K key) {
46     KeyValuePair<K, V> keyValuePair;
47     for(int i=0;i<size;i++) {
48         keyValuePair = this.keyValuePair[i];
49         if((key==null && keyValuePair.getKey()==null) ||
50             (key!=null && key.equals(keyValuePair.getKey())))
51             return true;
52     }
53
54     return false;
55 }
56
57 public boolean containsValue(V value) {
58     KeyValuePair<K, V> keyValuePair;
59     for(int i=0;i<size;i++) {
60         keyValuePair = this.keyValuePair[i];
61         if((value==null && keyValuePair.getValue()==null) ||
62             (value!=null && value.equals(keyValuePair.getValue())))
63             return true;
64     }
65
66     return false;
67 }
68
69 public void remove(K key) throws NoSuchKeyException {
70     // TODO Auto-generated method stub
71 }
72
73
74 }

```

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```

107     try {
108         map.save(null, "Priyan");
109     } catch (Exception e) {
110         assertEquals(e, instanceof(DuplicateKeyFoundException));
111     }
112     assertNull(map.get(null));
113     assertTrue(map.containsValue(null));
114 }
115 @Test
116 public void testRemove() throws DuplicateKeyFoundException {
117     map.save1, "Priyan";
118     map.save2, "Priyadarshan";
119     map.remove(2);
120     assertFalse(false, isEqualTo(map.containsKey(2)));
121     assertFalse(false, isEqualTo(map.containsValue("Priyadarshan")));
122     assertEquals(1, isEqualTo(map.size()));
123     thrown.expect(NoSuchKeyException.class);
124     map.get(2);
125 }
126 }
127 }
```

SimpleMap.java

```

107     try {
108         map.save(null, "Priyan");
109     } catch (Exception e) {
110         assertEquals(e, instanceof(DuplicateKeyFoundException));
111     }
112     assertNull(map.get(null));
113     assertTrue(map.containsValue(null));
114 }
115 @Test
116 public void testRemove() throws DuplicateKeyFoundException {
117     map.save1, "Priyan";
118     map.save2, "Priyadarshan";
119     map.remove(2);
120     assertFalse(false, isEqualTo(map.containsKey(2)));
121     assertFalse(false, isEqualTo(map.containsValue("Priyadarshan")));
122     assertEquals(1, isEqualTo(map.size()));
123     thrown.expect(NoSuchKeyException.class);
124     map.get(2);
125 }
126 }
127 }
```

Markers Properties Servers Data Source Explorer Snippets JUnit Debug

Finished after 0.04 seconds

Runs: 11/11 Errors: 0 Failures: 1

org.self.learn.test.SimpleMapTest [Runner: JUnit 4] (0.000 s)

- testMultipleSaveKeyValuePair (0.000 s)
- testNullKeyAndValues (0.000 s)
- testSize (0.000 s)
- testNonEmptyMap (0.000 s)
- testNoSuchKeyException (0.000 s)
- testSingleSaveKeyValuePair (0.000 s)

Failure Trace

- java.lang.AssertionError:  
Expected: is <true>  
but was <false>
- at org.hamcrest.MatcherAssert.assertThat(MatcherAssert.java:20)
- at org.self.learn.test.SimpleMapTest.testRemove(SimpleMapTest.java:120)

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```

105     assertTrue(map.containsKey(null));
106     try {
107         map.save(null, "Priyan");
108     } catch (Exception e) {
109         assertEquals(e, instanceof(DuplicateKeyFoundException));
110     }
111     assertNull(map.get(null));
112     assertTrue(map.containsValue(null));
113 }
114 @Test
115 public void testRemove() throws DuplicateKeyFoundException {
116     map.save1, "Priyan";
117     map.save2, "Priyadarshan";
118     map.remove(2);
119     assertFalse(false, isEqualTo(map.containsKey(2)));
120     assertFalse(false, isEqualTo(map.containsValue("Priyadarshan")));
121     assertEquals(1, isEqualTo(map.size()));
122     thrown.expect(NoSuchKeyException.class);
123     map.get(2);
124 }
125 }
```

SimpleMap.java

```

105     assertTrue(map.containsKey(null));
106     try {
107         map.save(null, "Priyan");
108     } catch (Exception e) {
109         assertEquals(e, instanceof(DuplicateKeyFoundException));
110     }
111     assertNull(map.get(null));
112     assertTrue(map.containsValue(null));
113 }
114 @Test
115 public void testRemove() throws DuplicateKeyFoundException {
116     map.save1, "Priyan";
117     map.save2, "Priyadarshan";
118     map.remove(2);
119     assertFalse(false, isEqualTo(map.containsKey(2)));
120     assertFalse(false, isEqualTo(map.containsValue("Priyadarshan")));
121     assertEquals(1, isEqualTo(map.size()));
122     thrown.expect(NoSuchKeyException.class);
123     map.get(2);
124 }
125 }
```

Markers Properties Servers Data Source Explorer Snippets JUnit Debug

Finished after 0.031 seconds

Runs: 11/11 Errors: 0 Failures: 0

org.self.learn.test.SimpleMapTest [Runner: JUnit 4] (0.009 s)

- testMultipleSaveKeyValuePair (0.002 s)
- testNullKeyAndValues (0.001 s)
- testSize (0.000 s)
- testNonEmptyMap (0.001 s)

Failure Trace

Java EE - simple-map/src/test/java/org/self/learn/test/SimpleMapTest.java - Eclipse

```

File Edit Source Refactor Navigate Project Run Window Help
Project Explorer SimpleMapTest.java SimpleMap.java
114
115  @Test
116  public void testRemove() throws DuplicateKeyFoundException {
117      map.save(1, "Priyan");
118      map.save(2, "Priyadarshan");
119      map.remove(2);
120      assertEquals(false, isEqualTo(map.containsKey(2)));
121      assertEquals(false, isEqualTo(map.containsValue("Priyadarshan")));
122      assertEquals(1, isEqualTo(map.size()));
123      exception.expect(NoSuchKeyException.class);
124      map.get(2);
125  }
126
127  @Test
128  public void testDynamicMapSize() throws DuplicateKeyFoundException {
129      map.save(1, "Priyan");
130      map.save(2, "Priyan");
131      map.save(3, "Priyan");
132      map.save(4, "Priyan");
133      map.save(5, "Priyan");
134      map.save(6, "Priyan");
135  }
136 }

1 package org.self.learn;
2
3 public class SimpleMap<K, V> {
4     private KeyValuePair<K, V>[] keyValuePair;
5     private int size;
6
7     @SuppressWarnings("unchecked")
8     public SimpleMap() {
9         this.size = 0;
10        this.keyValuePair = (KeyValuePair<K, V>[] ) new KeyValuePair[5];
11    }
12
13    public int size() {
14        return this.size;
15    }
16
17    public void save(K key, V value) throws DuplicateKeyFoundException {
18        if(containsKey(key)) {
19            throw new DuplicateKeyFoundException();
20        }
21        keyValuePair[this.size++] = new KeyValuePair<K, V>(key, value);
22    }
23

```

Markers Properties Servers Data Source Explorer Snippets JUnit Debug

Finished after 0.038 seconds

Runs: 12/12 Errors: 1 Failures: 0

Failure Trace

- java.lang.ArrayIndexOutOfBoundsException: 5
  - at org.self.learn.SimpleMap.save(SimpleMap.java:22)
  - at org.self.learn.test.SimpleMapTest.testDynamicMapSize(SimpleMapTest.java:134)

Java EE - simple-map/src/main/java/org/self/learn/SimpleMap.java - Eclipse

```

File Edit Source Refactor Navigate Project Run Window Help
Project Explorer SimpleMapTest.java SimpleMap.java
121      assertEquals(false, isEqualTo(map.containsKey("Priyadarshan")));
122      assertEquals(1, isEqualTo(map.size()));
123      exception.expect(NoSuchKeyException.class);
124      map.get(2);
125  }
126
127  @Test
128  public void testDynamicMapSize() throws DuplicateKeyFoundException {
129      map.save(1, "Priyan");
130      map.save(2, "Priyan-2");
131      map.save(3, "Priyan-3");
132      map.save(4, "Priyan-4");
133      map.save(5, "Priyan-5");
134      map.save(6, "Priyan-6");
135      assertEquals("Priyan-6", isEqualTo(map.get(6)));
136      assertEquals("Priyan-5", isEqualTo(map.get(5)));
137      assertEquals("Priyan-4", isEqualTo(map.get(4)));
138      assertEquals("Priyan-3", isEqualTo(map.get(3)));
139      assertEquals("Priyan-2", isEqualTo(map.get(2)));
140      assertEquals("Priyan-1", isEqualTo(map.get(1)));
141      assertEquals(6, map.size());
142  }

11
12 }
13
14 public int size() {
15     return this.size;
16 }
17
18 public void save(K key, V value) throws DuplicateKeyFoundException {
19     if(containsKey(key)) {
20         throw new DuplicateKeyFoundException();
21     }
22
23     if(this.size < this.keyValuePair.length) {
24         this.keyValuePair[this.size++] = new KeyValuePair<K, V>(key, value);
25     } else {
26         @SuppressWarnings("unchecked")
27         KeyValuePair<K, V>[] newKeyValuePair = (KeyValuePair<K, V>[] ) new KeyValuePair[5];
28         System.arraycopy(this.keyValuePair, 0, newKeyValuePair, 0, this.size);
29         this.keyValuePair = newKeyValuePair;
30         this.keyValuePair[this.size++] = new KeyValuePair<K, V>(key, value);
31     }
32 }


```

Markers Properties Servers Data Source Explorer Snippets JUnit Debug

Finished after 0.033 seconds

Runs: 12/12 Errors: 0 Failures: 0

Failure Trace