

Example:

- Given a list of names and cell numbers, make a phonebook
- Determine the consistency of phonebook as follows:
 - If all the phone numbers are unique
 - e.g., Ali +923029191921 Asad +923029312315
 - e.g., Tahir +923029191921
 - Ali and Tahir are inconsistent

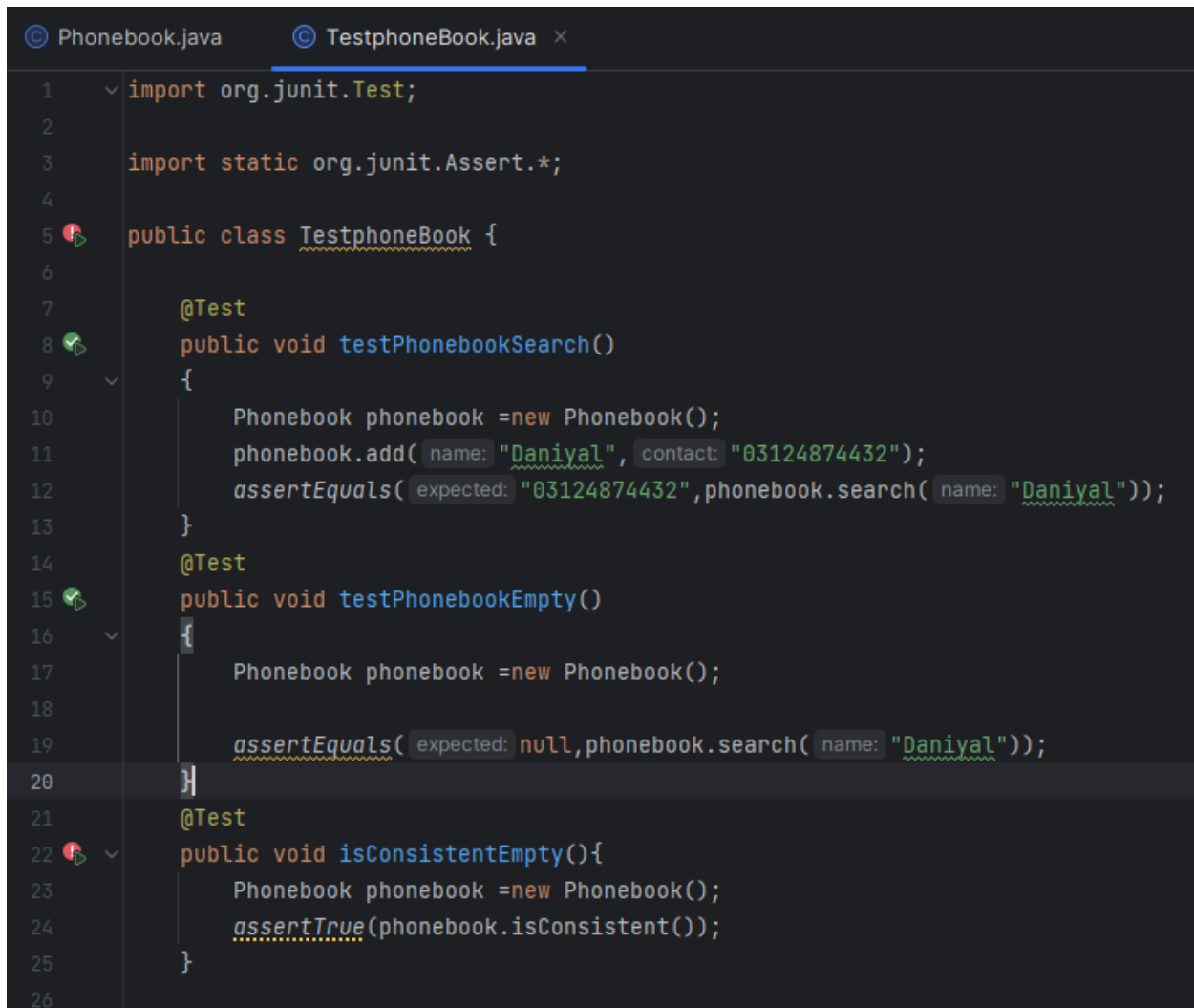
PhoneBook Development using HashMap:

```
1 import java.util.HashMap;
2
3 10 usages
4 public class Phonebook {
5
6 6 usages
7 private HashMap<String,String> contact =new HashMap<>();
8     5 usages
9     > public void add(String name,String contact){ this.contact.put(name, contact);}
10    2 usages
11    > public String search(String name){ return this.contact.get(name);}
12
13    3 usages
14    public boolean isConsistent(){
15        for (String key1:this.contact.keySet())
16        {
17            String contact1=this.contact.get(key1);
18            for (String key2:this.contact.keySet()){
19                if(!key1.equals(key2)&&contact1.equals(this.contact.get(key2))){
20                    return false;
21                }
22            }
23        }
24        return false;
25    }
26 }
```

Test cases for PhoneBook to check PhoneBook Consistency:

A phonebook is consistent when the identities and their corresponding data does not match with each other. If it matches then the phonebook becomes inconsistent.

We will write 4,5 test cases to check the consistency of the phonebook in many senerios by using assertions for evaluation.



```
1  import org.junit.Test;
2
3  import static org.junit.Assert.*;
4
5  public class TestphoneBook {
6
7      @Test
8      public void testPhonebookSearch()
9      {
10         Phonebook phonebook =new Phonebook();
11         phonebook.add( name: "Daniyal", contact: "03124874432");
12         assertEquals( expected: "03124874432",phonebook.search( name: "Daniyal"));
13     }
14
15     @Test
16     public void testPhonebookEmpty()
17     {
18         Phonebook phonebook =new Phonebook();
19
20         assertEquals( expected: null,phonebook.search( name: "Daniyal"));
21     }
22
23     @Test
24     public void isConsistentEmpty(){
25         Phonebook phonebook =new Phonebook();
26         assertTrue(phonebook.isConsistent());
27     }
28 }
```

