

# JAVA PROGRAMMING COURSE

## EXERCISE

### GENERIC COLLECTIONS IN JAVA

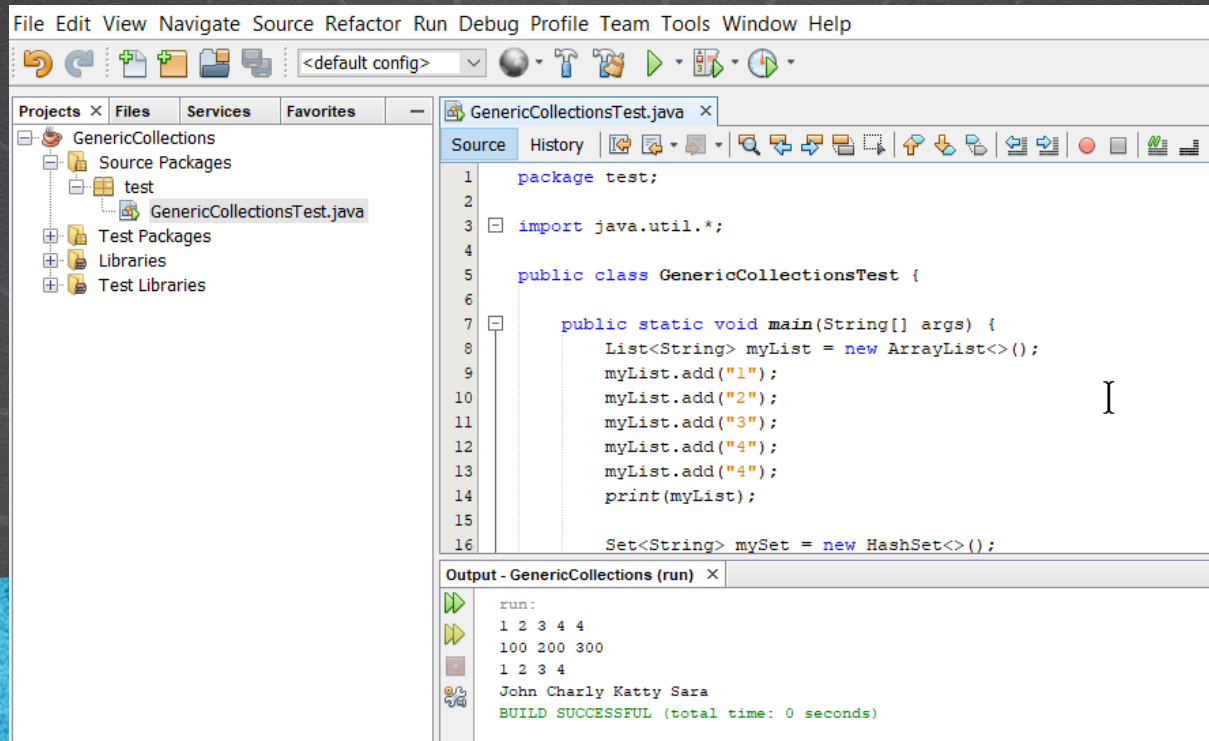


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# EXERCISE OBJECTIVE

Create the exercise of generic collections in Java. At the end we should observe the following:



The screenshot shows an IDE window with the following components:

- Menu Bar:** File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help.
- Toolbar:** Includes icons for undo, redo, save, run, and other development actions.
- Project Explorer (Left):** Shows a project named 'GenericCollections' with sub-packages 'Source Packages' and 'Test Packages'. The 'test' package contains 'GenericCollectionsTest.java'.
- Source Editor (Center):** Displays the code for 'GenericCollectionsTest.java'. The code is as follows:

```
1 package test;
2
3 import java.util.*;
4
5 public class GenericCollectionsTest {
6
7     public static void main(String[] args) {
8         List<String> myList = new ArrayList<>();
9         myList.add("1");
10        myList.add("2");
11        myList.add("3");
12        myList.add("4");
13        myList.add("4");
14        print(myList);
15
16        Set<String> mySet = new HashSet<>();
```
- Output Console (Bottom):** Shows the output of the program after a successful build and run:

```
run:
1 2 3 4 4
100 200 300
1 2 3 4
John Charly Katty Sara
BUILD SUCCESSFUL (total time: 0 seconds)
```

# 1. CREATE A NEW PROJECT

Create a new project:

**New Java Application**

**Steps**

1. Choose Project
2. **Name and Location**

**Name and Location**

Project Name:

Project Location:

Project Folder:

☐ Use Dedicated Folder for Storing Libraries

Libraries Folder:

Different users and projects can share the same compilation libraries (see Help for details).

☐ Create Main Class

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## 2. CREATE A NEW CLASS

Create a new class:

**New Java Class**

**Steps**

1. Choose File Type
2. **Name and Location**

**Name and Location**

Class Name:

Project:

Location:

Package:

Created File:

< Back   Next >   **Finish**   Cancel   Help

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# 3. MODIFY THE CODE

## GenericCollectionsTest.java:

```
package test;

import java.util.*;

public class GenericCollectionsTest {

    public static void main(String[] args) {
        List<String> myList = new ArrayList<>();
        myList.add("1");
        myList.add("2");
        myList.add("3");
        myList.add("4");
        myList.add("4");
        print(myList);

        Set<String> mySet = new HashSet<>();
        mySet.add("100");
        mySet.add("200");
        mySet.add("300");
        mySet.add("300");
        print(mySet);
    }
}
```

### 3. MODIFY THE CODE

#### GenericCollectionsTest.java:

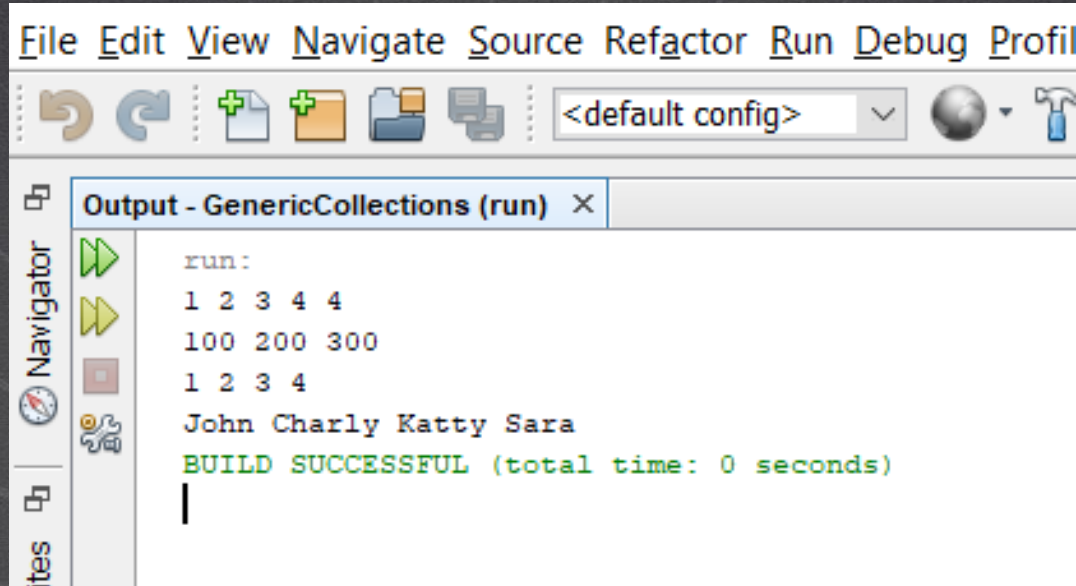
```
Map<String, String> myMap = new HashMap<>();
myMap.put("1", "John");
myMap.put("2", "Charly");
myMap.put("3", "Katty");
myMap.put("4", "Sara");
print(myMap.keySet());
print(myMap.values());
}

static void print(Collection<String> col) {
    for (String element : col) {
        System.out.print(element + " ");
    }
    System.out.println();
}
}
```



## 4. EXECUTE THE PROJECT

The result is as follows:



The screenshot shows an IDE window with the title bar 'File Edit View Navigate Source Refactor Run Debug Profil'. Below the title bar is a toolbar with icons for undo, redo, add file, add folder, save, and print. A dropdown menu shows '<default config>'. The main area is titled 'Output - GenericCollections (run)'. On the left is a 'Navigator' sidebar with icons for Explorer, Run and Debug, and Test. The output text is as follows:

```
run:
1 2 3 4 4
100 200 300
1 2 3 4
John Charly Katty Sara
BUILD SUCCESSFUL (total time: 0 seconds)
|
```

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# EXERCISE CONCLUSION

- With this exercise we have put into practice concept of generic collections in Java. It is left as an exercise to compare the syntax of this exercise with the exercise of collections without using generics, and thus observe the differences and advantages between each code used.
- For more information consult:
- <https://docs.oracle.com/javase/tutorial/collections/index.html>



**ONLINE COURSE**

# **JAVA PROGRAMMING**

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