1.

```java
package Generic;

import java.util.HashSet;
import java.util.Set;

class Employee2
{

    private int id;
    private String name;
    private String department;
    private int salary;

    public void displayDetails(int id, String name, int salary, String department)
    {
        this.id = id;
      this.name = name;
        this.salary = salary;
        this.department = department;
    }

    public String toString()
    {
        return
                "id='" + id + "\n" +
                "name='" + name + '\'' + "\n" +

                "salary='" + salary + "\n" +
                  "department=" +department +'\'' +"\n"

                ;
    }
}

public class Employee
{
    public static void main(String[] args)
    {
        Employee2 e1 = new Employee2( );
        e1.displayDetails(9, "Ramesh",20000, "IT");
        Set<Employee2> employees = new HashSet<>();
        employees.add(e1);


        System.out.println(employees);
    }
}
```
Output:

```java
Employee.java ✕
 1  package Generic;
 2
 3
 4  import java.util.HashSet;
 5  import java.util.Set;
 6
 7  class Employee2
 8  {
 9
10
11      private int id;
12      private String name;
13      private String department;
14      private int salary;
15
16      public void displayDetails(int id, String name, int salary, String department)
17      {
18          this.id = id;
19          this.name = name;
20          this.salary = salary;
21          this.department = department;
22      }
23
24      public String toString()
25      {
26          return
27                  "id='" + id + "\n" +
28                 "name='" + name + '\'' + "\n" +
29
30                 "salary='" + salary + "\n" +
31                  "department=" +department +'\'' +"\n"
32
```

```
Console ✕
<terminated> Employee [Java Application] C:\Program Files\Java\jdk-16.0.2\bin\javaw.exe  (07-Aug-2021, 2:23:30 pm – 2:23:34 pm)
[id='9
name='Ramesh'
salary='20000
department=IT'
]
```

2.

```java
package Generic;


//Importing HashMap class
import java.util.Random;
import java.util.HashMap;

//Main class
public class Employee  {
```

```java
// Main driver method
public static void main(String[] args)
{
    // Create an empty hash map by declaring object
    // of string and integer type
        Random random = new Random();

    HashMap<Integer, Double> map = new HashMap<>();


        // Checking if a key is present and if
        // present, print value by passing
        // random element
    for(int i=0; i<10;i++)
    {
        int a = random.nextInt(100);
            double d = random.nextDouble();
        map.put(a, d);
    }
    // Print size and content of the Map
    System.out.println("Size of map is:- "
                        + map.size());

    // Printing elements in object of Map
    System.out.println(map);

    // Checking if a key is present and if
    // present, print value by passing
    // random element

    }
}
```

```java
1 package Generic;
2
3
4 //Importing HashMap class
5 import java.util.Random;
6 import java.util.HashMap;
7
8 //Main class
9 public class Employee {
10
11 // Main driver method
12 public static void main(String[] args)
13 {
14     // Create an empty hash map by declaring object
15     // of string and integer type
16     Random random = new Random();
17
18     HashMap<Integer, Double> map = new HashMap<>();
19
20
21
22     // Checking if a key is present and if
23     // present, print value by passing
24     // random element
25     for(int i=0; i<10;i++)
26     {
27         int a = random.nextInt(100);
28         double d = random.nextDouble();
29         map.put(a, d);
30     }
31     // Print size and content of the Map
32     System.out.println("Size of map is:- "
```

```
Size of map is:- 10
{32=0.6403436235885418, 48=0.48925592707977594, 49=0.8549837223379866, 86=0.1611103290120648, 87=0.6042728926041726, 39=0.8553453416206386, 10=0.3747836333698963,
```

3.
```java
package Generics;

import java.util.ArrayList;
import java.util.Arrays;
import java.util.Collections;
import java.util.List;

public class Employee {
    public static final <T> void swap (T[] a, int i, int j) {
        T t = a[i];
        a[i] = a[j];
        a[j] = t;
    }

    public static final <T> void swap (List<T> l, int i, int j) {
        Collections.<T>swap(l, i, j);
    }

    private static void test() {
        String [] a = {"Riddhi", "Rathod"};
        swap(a, 0, 1);
        System.out.println("a:"+Arrays.toString(a));
        List<String> l = new ArrayList<String>(Arrays.asList(a));
        swap(l, 0, 1);
        System.out.println("l:"+l);
```

```
        }
public static void main(String[] args) {
        test();
    }
}
```

Employee.java ⊠

```java
 1  package Generics;
 2
 3  import java.util.ArrayList;
 4  import java.util.Arrays;
 5  import java.util.Collections;
 6  import java.util.List;
 7
 8  public class Employee {
 9      public static final <T> void swap (T[] a, int i, int j) {
10          T t = a[i];
11          a[i] = a[j];
12          a[j] = t;
13      }
14
15      public static final <T> void swap (List<T> l, int i, int j) {
16          Collections.<T>swap(l, i, j);
17      }
18
19      private static void test() {
20          String [] a = {"Riddhi", "Rathod"};
21          swap(a, 0, 1);
22          System.out.println("a:"+Arrays.toString(a));
23          List<String> l = new ArrayList<String>(Arrays.asList(a));
24          swap(l, 0, 1);
25          System.out.println("l:"+l);
26      }
27  public static void main(String[] args) {
28          test();
29  }
30  }
31
```

Console ⊠

```
<terminated> Employee (1) [Java Application] C:\Program Files\Java\jdk-16.0.2\bin\javaw.exe  (07-Aug-2
a:[Rathod, Riddhi]
l:[Riddhi, Rathod]
```

4.

```
1  package Generics;
2
3  public class Genirics{
4
5⊖     public static void main(String[] args) {
6
7          Pair<String,String> P1=new Pair<>();
8          P1.setKey("1");
9          P1.setValue("Hello");
10         System.out.println("For first pair Key is "+P1.getKey()+" and value is "+P1.getValue());
11         |
12         Pair<String,java.util.Date> P2=new Pair<>();
13         P2.setKey("Today is ");
14         P2.setValue(new java.util.Date());
15         System.out.println("For Second pair Key is "+P2.getKey()+" and value is "+P2.getValue());
16     }
17
18 }
```

```
package Generics;

public class Pair2{
    public static void main(String[] args) {
        class Genirics<K,V>{

            private K key;
            private V value;
            public K getKey() {
                return key;
            }
            public void setKey(K key) {
                this.key = key;
            }
            public V getValue() {
                return value;
            }
            public void setValue(V value) {
                this.value = value;
            }
```

```
        }}
}
```