

CORE JAVA

GENERIC ASSIGNMENT

1. Use a HashSet to hold Employee Objects. Upon running the application, the details of the employees added to the HashSet should be displayed.

Employee<<class>>

--id

--name

--salary

--department

--displayDetails

Feel free to add properties and methods to Employee class.

Note: -If we try to store any object other than Employee Object in HashSet, we should not be allowed to.

Code: -

Employee.java

```
1 package generic;
2 class Employee
3 {
4     int id,salary;
5     String name,department;
6     public Employee(int id,String name,String department,int salary)
7     {
8         this.id=id;
9         this.name=name;
10        this.department=department;
11        this.salary=salary;
12    }
13    public void detailsDisplay()
14    {
15        System.out.println("Emp id:"+id);
16        System.out.println("Emp name:"+name);
17        System.out.println("Emp department:"+department);
18        System.out.println("Emp salary:"+salary);
19    }
20 }
```

HashSetEmp.java

```
1 package generic;
2 import java.util.*;
3 public class HashSetEmp
4 {
5     public static void main(String[] args)
6     {
7         Employee E1=new Employee(1,"Mrunal","IT",50000);
8         Employee E2=new Employee(2,"Siddhi","HR",40000);
9         HashSet<Employee> emp=new HashSet<>();
10        emp.add(E1);
11        emp.add(E2);
12        Iterator<Employee> iterate=emp.iterator();
13        while(iterate.hasNext())
14        {
15            iterate.next().detailsDisplay();
16        }
17    }
18 }
19
20
21
```

<terminated> HashSetEmp [Java Application] C:\Users\MBALKRIS\p2\poo\plugins\org.eclipse.justi.openjdk.hotspot.jre.full.win32.x86_64_17.0.0.v20230718-1920\bin\java.exe

Emp id:1
Emp name:Mrunal
Emp department:IT
Emp salary:50000

Emp id:2
Emp name:Siddhi
Emp department:HR
Emp salary:40000

2. Write an application to hold 10 random int values as keys and 10 random double values as values for a HashMap. Print the data store in the HashMap.

Note: - Keys can only be int and values double.

Code: -

HashMapEg.java

```
1 package generic;
2 import java.util.*;
3 public class HashMapEg
4 {
5     public static void main(String[] args)
6     {
7         HashMap<Integer,Double> m=new HashMap<>();
8         m.put(1, 10.0);
9         m.put(2, 20.0);
10        m.put(3, 30.0);
11        m.put(4, 40.0);
12        m.put(5, 50.0);
13        m.put(6, 60.0);
14        m.put(7, 70.0);
15        m.put(8, 80.0);
16        m.put(9, 90.0);
17        m.put(10, 100.0);
18        System.out.println("Size of stored data:"+m.size());
19        System.out.println("Data stored in HashMap:"+m);
20    }
21 }
22
```

<terminated> HashMapEg [Java Application] C:\Users\MBALKRIS\p2\poo\plugins\org.eclipse.justi.openjdk.hotspot.jre.full.win32.x86_64_17.0.0.v20230718-1920\bin\java.exe

Size of stored data:10
Data stored in HashMap:{1=10.0, 2=20.0, 3=30.0, 4=40.0, 5=50.0, 6=60.0, 7=70.0, 8=80.0, 9=90.0, 10=100.0}

3. Write a generic method to exchange the positions of two different elements in an array.

Code: -

Genericswap.java

```
Genericswap.java ×
1 package generic;
2 public class Genericswap
3 {
4     public static void main(String args[])
5     {
6         Integer arr[] = {10, 20};
7         System.out.println("Before Swapping: "+arr[0]+" "+arr[1]);
8         swapnum(arr);
9     }
10    public static <S> void swapnum(S[] arr)
11    {
12        S temp = arr[1];
13        arr[1] = arr[0];
14        arr[0] = temp;
15        System.out.println("After Swapping: "+arr[0]+" "+arr[1]);
16    }
17 }

Problems Javadoc Declaration Console × Git Staging
<terminated> Genericswap [Java Application] C:\Users\MBALKRIS\p2\pool\plugins\org.eclij
Before Swapping:10 20
After Swapping:20 10
```

4. Design a class named Pair which has two properties. The name of the first property is key and that of the second property is value. When designing the class take case of the following scenarios:

- a. Create an Object of Pair class to store String value for the property key and String value for the property value. Restriction Apart from String type no other types should be acceptable as key or value input.

e.g.

myObj.setKey("1");

myObj.setValue("Hello");

- b. Create an Object of the class Pair to store String value for the property key and java.util.Date as value for the property value.

e.g.

myObj.setKey("Today is");

myObj.setValue(java.util.Date());

Note: - In scenario a, no data apart from String should be used for key and value, in scenario b, no data apart from String for key and java.util.Date should be allowed.

Code: -Pair.java

Keyvalue.java

```
Keyvalue.java Pair.java ×
1 package generic;
2 public class Pair <k,v>
3 {
4     private k key;
5     private v value;
6     public Pair(k key, v value)
7     {
8         super();
9         this.key = key;
10        this.value = value;
11    }
12    public <k,v> String show()
13    {
14        return key+" "+value;
15    }
16 }
```

```
*Keyvalue.java × Pair.java
1 package generic;
2 public class Keyvalue
3 {
4     public static void main(String[] args)
5     {
6         Pair<String,String> obj1 = new Pair<String,String>("1", "Mrunal");
7         Pair<String,java.util.Date> obj2 = new Pair<String,java.util.Date>("Today is ", new java.util.Date());
8         System.out.println("Key-Value: "+obj1.show());
9         System.out.println("Key-Date: "+obj2.show());
10    }
11 }
12 }

Problems Javadoc Declaration Console × Git Staging
<terminated> Keyvalue [Java Application] C:\Users\MBALKRIS\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre
Key-Value:1 Mrunal
Key-Date:Today is Sat Nov 06 00:16:47 IST 2021
```