PART-7

Collection Framework and Generic

GitHub Repository Link: https://github.com/21ce114/JAVA-Practicals.git

Question 1:	Create a generic method for sorting an array of Comparable objects.
Answer:	

```java
/*ID: 21CE114
Name: Harsh Rana
Git Repository Link:
https://github.com/21ce114/JAVA-Practicals.git
AIM :Create a generic method for sorting an array of Comparable
objects.
*/

import java.util.Arrays;

class Sample{
    public int num;
    public Sample(int num){
        this.num = num;
    }
    public String toString(){
        return String.format("Number:"+ num);
    }
}

public class Practical7_1{
    public static void main(String[] args){
        Sample[] samples = Arrays.asList(new Sample( 97),
                                         new Sample( 114),
                                         new Sample( 103)
                                        ).toArray(new
Sample[3]);

        Arrays.sort(samples, (a, b) -> a.num - b.num);
        Arrays.stream(samples).forEach(System.out :: println);
    }
}
```

```
PS C:\Users\HARSH\OneDriv
sers\HARSH\AppData\Roamin
Number:97
Number:103
Number:114
```

Question 2:

Write a program that counts the occurrences of words in a text and displays the words and their occurrences in alphabetical order of the words. Using Map and Set Classes.

Answer:

```java
/*ID: 21CE114
Name: Harsh Rana
Git Repository Link:
https://github.com/21ce114/JAVA-Practicals.git
AIM ://Write a program that counts the occurrences
 of words in a text and displays the words and their
 occurrences in alphabetical order of the words.
 Using Map and Set Classes.*/

import java.util.Map;
import java.util.Set;
import java.util.TreeMap;

public class Practical7_2 {

    public static void main(String[] args) {
        String text = "Hello how do you do " + "Have  a
good  Day.  Have  fun!";
        System.out.println(text);
        Map<String, Integer> map = new TreeMap<>();
        String[] words = text.split("[  \n\t\r.,;:!?()]");
        for (int i = 0; i < words.length; i++) {
            String key = words[i].toLowerCase();
            if (key.length() > 0) {
                if (!map.containsKey(key)) {
                    map.put(key, 1);
                } else {
                    int value = map.get(key);
                    value++;
                    map.put(key, value);
                }
            }
        }
        Set<Map.Entry<String, Integer>> entrySet =
map.entrySet();
        for (Map.Entry<String, Integer> entry : entrySet) {
            System.out.println(entry.getKey() + "--> " +
entry.getValue());
        }
```

```
        System.out.println(map);

    }

}
```

Output:

```
PS C:\Users\HARSH\OneDrive\Desktop\JAVA\Part-7>  & 'C:\Program Fi
workspaceStorage\3099cdd0e8829350dc6fcab7a09a3ac0\redhat.java\jdt
Hello how do you do Have  a good  Day.  Have  fun!
fun--> 1
good--> 1
have--> 2
hello--> 1
how--> 1
you--> 1
{a=1, day=1, do=2, fun=1, good=1, have=2, hello=1, how=1, you=1}
PS C:\Users\HARSH\OneDrive\Desktop\JAVA\Part-7>
```

Question 3:

Personal Loan Eligibility Criteria for Salaried Applicant is as follows:
Eligible Age Group - 21 years to 60 years
Minimum Net Monthly Income - Rs. 15,000
Minimum Total Work Experience - 1 year
Citizenship – Indian
Create a class AccountHolder to store above given information entered by a user. Create 5
objects of AccountHolder class and store them in an ArrayList. Display names of account
holders , who are eligible to get a loan based on given criteria.

Answer:

```
/*ID: 21CE114
Name: Harsh Rana
Git Repository Link:
https://github.com/21ce114/JAVA-Practicals.git
AIM :Personal Loan Eligibility Criteria for Salaried
Applicant is as follows:
Eligible Age Group - 21 years to 60 years
Minimum Net Monthly Income - Rs. 15,000
Minimum Total Work Experience - 1 year
Citizenship – Indian
Create a class AccountHolder to store above given information
 entered by a user. Create 5 objects of AccountHolder class and
 store them in an ArrayList. Display names of account holders
, who are eligible to get a loan based on given criteria.
*/

import java.util.*;

class AccountHolder {
    int age, monthlyIncome, workExperience;
```

```
    String name, citizenship;

    AccountHolder(int age, int monthlyIncome, int workExperience,
String name, String citizenship) {
        this.age = age;
        this.monthlyIncome = monthlyIncome;
        this.workExperience = workExperience;
        this.name = name;
        this.citizenship = citizenship;
    }

    boolean checkEligibility() {
        if ((age >= 21 && age <= 60) && (monthlyIncome >= 15000)
&& (workExperience >= 1) && (citizenship == "Indian")) {
            return true;
        } else {
            return false;
        }
    }
}

public class Practical7_3 {
    public static void main(String[] args) {
        AccountHolder a1 = new AccountHolder(17, 16000, 1,
"AccountHolder0", "Indian");
        AccountHolder a2 = new AccountHolder(22, 16000, 2,
"AccountHolder1", "Indian");
        AccountHolder a3 = new AccountHolder(21, 20000, 1,
"AccountHolder2", "Kazakistan");
        AccountHolder a4 = new AccountHolder(25, 25000, 0,
"AccountHolder3", "Morocco");
        AccountHolder a5 = new AccountHolder(65, 20000, 1,
"AccountHolder4", "Indian");
        ArrayList<AccountHolder> arrayList = new ArrayList<>();
        arrayList.add(a1);
        arrayList.add(a2);
        arrayList.add(a3);
        arrayList.add(a4);
        arrayList.add(a5);
        for (int i = 0; i < 5; i++) {
            if (arrayList.get(i).checkEligibility()) {
                System.out.println("AccountHolder" + i + " is
eligible for personal loan");
            } else {
                System.out.println("AccountHolder" + i + " is not
eligible for personal loan");
            }
        }
```

```
    }
}
```

Output:

```
PS C:\Users\HARSH\OneDrive\Desktop\JAVA\Part-7>  c:; cd
.exe' '-cp' 'C:\Users\HARSH\AppData\Roaming\Code\User\w
ctical7_3'
AccountHolder0 is not eligible for personal loan
AccountHolder1 is eligible for personal loan
AccountHolder2 is not eligible for personal loan
AccountHolder3 is not eligible for personal loan
AccountHolder4 is not eligible for personal loan
PS C:\Users\HARSH\OneDrive\Desktop\JAVA\Part-7>
```