Introduction to Java 1 Exercise

Q1. Write a program to replace a substring inside a string with other string ?

Sol – Program Files Folder name – program1

```
public class Program1 {
	public static void main(String args[]) {
		String str="Naveen Garg";
		System.out.println("Original String:   " + str );
		System.out.println("str.replace() function use:  "+ str.replace( 'N','G' )
);
		System.out.println("str.replaceFirst() function use:   "+
str.replaceFirst("a", "e") );
		System.out.println("str.replaceAll() function use:   "+
str.replaceAll("a", "y") );
	}
}
```

```
ttn@ttn:Java day1 $ vim Program1.java
ttn@ttn:Java day1 $ javac Program1.java
ttn@ttn:Java day1 $ java Program1
Original String:   Naveen Garg
str.replace() function use:  Gaveen Garg
str.replaceFirst() function use:   Neveen Garg
str.replaceAll() function use:   Nyveen Gyrg
ttn@ttn:Java day1 $
```

Q2. Write a program to find the number of occurrences of the duplicate words in a string and print them ?

Sol – Program File Folder name – program2

```
public class DuplicateWords {
   public static void main(String[] args) {
      String string = "Naveen Garg is employee of ttn naveen good morning ttn
is a IT company naveen hello naveen";
      int count;
      string = string.toLowerCase();
      String words[] = string.split(" ");

      System.out.println("Number of occurrences of the duplicate words in a
given string : ");
      for(int i = 0; i < words.length; i++) {
         count = 1;
         for(int j = i+1; j < words.length; j++) {
            if(words[i].equals(words[j])) {
               count++;
```

```
                words[j] = "0";
            }
          }
         if(count > 1 && words[i] != "0")
          System.out.println("Word: " + words[i] + "\nNo. of occurrences is "+
count + "\n");
      }
   }
}
```

```
ttn@ttn:program2 $ vim DuplicateWords.java
ttn@ttn:program2 $ javac DuplicateWords.java
ttn@ttn:program2 $ java DuplicateWords
Number of occurrences of the duplicate words in a given string :
Word: naveen
No. of occurrences is 4

Word: is
No. of occurrences is 2

Word: ttn
No. of occurrences is 2
```

Q3. Write a program to find the number of occurrences of a character in a string without using loop?

Sol – Program File Folder name – program3

```
class CharacterOccurrences
{
   public static void main(String[] args)
   {
      String str = "naveen Garg naveen";
      int count = str.length() - str.replace("e", "").length();
      System.out.println("Number of occurances of 'e' in "+ str +" = "+count);
   }
}
```

```
ttn@ttn:program3 $ vim CharacterOccurrences.java
ttn@ttn:program3 $ javac CharacterOccurrences.java
ttn@ttn:program3 $ java CharacterOccurrences
Number of occurances of 'e' in naveen Garg naveen = 4
ttn@ttn:program3 $
```

Q4. Calculate the number & Percentage Of Lowercase Letters,Uppercase Letters, Digits And Other Special Characters In A String

Sol – Program File Folder name – program4

```
import java.io.*;

class NoAndPercentage
{
   public static void main(String args[])
   {
      String str = "Ind:354/2, Overs:48";
      int total_length = str.length();
      int upper = 0, lower = 0, number = 0, special = 0;

      for(int i = 0; i < str.length(); i++)
      {
         char ch = str.charAt(i);
         if (ch >= 'A' && ch <= 'Z')
            upper++;
         else if (ch >= 'a' && ch <= 'z')
            lower++;
         else if (ch >= '0' && ch <= '9')
            number++;
         else
            special++;
      }

      double upperPercentage = (upper*100.0)/total_length;
      double lowerPercentage = (lower*100.0)/total_length;
      double numberPercentage = (number*100.0)/total_length;
      double specialPercentage = (special*100.0)/total_length;

      System.out.println("Number of Lower case letters : " + lower + " and
Percentage is " + lowerPercentage);
      System.out.println("Number of Upper case letters : " + upper + "  and
Percentage is " + upperPercentage);
      System.out.println("Number of Digits : " + number + "  and Percentage is
" + numberPercentage);
      System.out.println("Number of Special characters : " + special + "  and
Percentage is "+ specialPercentage);
   }
}
```

```
ttn@ttn:Program4 $ vim NoAndPercentage.java
ttn@ttn:Program4 $ javac NoAndPercentage.java
ttn@ttn:Program4 $ java NoAndPercentage
Number of Lower case letters : 6 and  Percentage is 31.57894736842105
Number of Upper case letters : 2  and Percentage is 10.526315789473685
Number of Digits : 6  and Percentage is 31.57894736842105
Number of Special characters : 5  and Percentage is 26.31578947368421
ttn@ttn:Program4 $
```

Q5. Find common elements between two arrays.

Sol – Program Files Folder name – program5

```
import java.io.*;
import java.util.*;

class CommomElement{
   public static void FindCommonElements(int[] arr1, int[] arr2)
   {
      Set<Integer> set1 = new HashSet<Integer>();
      Set<Integer> set2 = new HashSet<Integer>();
      for (int i : arr1)
      {
         set1.add(i);
      }

      for (int i : arr2)
      {
         set2.add(i);
      }

      set1.retainAll(set2);  // find common elements
      System.out.println("Common elements- " + set1);
   }

   public static void main(String[] args)
   {
      int[] arr1 = { 1, 2, 3, 4, 5, 2 };

      int[] arr2 = { 5, 4, 2, 1, 7, 8 };

      System.out.println("Array 1: "+ Arrays.toString(arr1));
      System.out.println("Array 2: "+ Arrays.toString(arr2));
      FindCommonElements(arr1, arr2);
   }
}
```

```
ttn@ttn:program5 $ vim CommomElement.java
ttn@ttn:program5 $ javac CommomElement.java
ttn@ttn:program5 $ java CommomElement
Array 1: [1, 2, 3, 4, 5, 2]
Array 2: [5, 4, 2, 1, 7, 8]
Common elements- [1, 2, 4, 5]
ttn@ttn:program5 $
```

Q6. There is an array with every element repeated twice except one. Find that element

Sol – Program Files Folder name – program6

```
class FindSingleElement
{
   public static void main (String[] args)
   {
      int ar[] = {2, 3, 1, 4, 1, 3, 4};
      int n = ar.length;
      int val = ar[0];
      for (int i = 1; i < n; i++)
         val = val ^ ar[i];
      System.out.println("Element occurring once is " + val);
   }
}
```

```
ttn@ttn:program6 $ vim FindSingleElement.java
ttn@ttn:program6 $ javac FindSingleElement.java
ttn@ttn:program6 $ java FindSingleElement
Element occurring once is 2
ttn@ttn:program6 $
```

Q7. Write a program to print your Firstname,LastName & age using static block,static method & static variable respectively

Sol – Program Files Folder name – program7

```
class StaticProgram
{
      static int age = 24;
      static void lname()
      {
            System.out.println("Last Name: Garg");
      }
      static
      {
            System.out.println("First Name: Naveen");
      }

      public static void main(String args[])
      {
            lname();
            System.out.println("Age: "+ age);
      }
}
```

```
ttn@ttn:program7 $ vim StaticProgram.java
ttn@ttn:program7 $ javac StaticProgram.java
ttn@ttn:program7 $ java StaticProgram
First Name: Naveen
Last Name: Garg
Age: 24
```

Q8. Write a program to reverse a string and remove character from index 4 to index 9 from the reversed string using String Buffer

Sol – Program Files Folder name – program8

```
import java.lang.*;
public class ReverseAndDelete {
    public static void main(String[] args)
    {
        String str = "Naveen Garg";
        StringBuffer sbr = new StringBuffer(str);
        sbr.reverse();
        System.out.println("Reverse String: " + sbr);
        sbr.delete(4, 10);
        System.out.println("After deletion string is = " + sbr);
    }
}
```

```
ttn@ttn:program8 $ vim ReverseAndDelete.java
ttn@ttn:program8 $ javac ReverseAndDelete.java
ttn@ttn:program8 $ java ReverseAndDelete
Reverse String: graG neevaN
After deletion string is = graGN
ttn@ttn:program8 $
```

Q9.Write a program to display values of enums using a constructor & getPrice() method (Example display house & their prices)

Sol – Program Files Folder name – program9

```
enum House {

House101(900000),House103(150000),House105(5000000),House111(356000)
,House114(1000002);
   int price;
   House(int p)
   {
     price = p;
   }
   int getPrice()
   {
     return price;
   }
}
public class Const {
   public static void main(String args[]){
     System.out.println("All House prices:");
     for (House c : House.values())
       System.out.println(c + " costs " + c.getPrice() + " Rupees.");
   }
}
```

```
ttn@ttn:Java day1 $ javac Const.java
ttn@ttn:Java day1 $ java Const
All House prices:
House101 costs 900000 Rupees.
House103 costs 150000 Rupees.
House105 costs 5000000 Rupees.
House111 costs 356000 Rupees.
House114 costs 1000002 Rupees.
ttn@ttn:Java day1 $
```

Q10.Write a single program for following operation using overloading
A) Adding 2 integer number
B) Adding 2 double
C) multiplying 2 float
D) multiplying 2 int
E) concate 2 string
F) Concate 3 String

Sol – Program Files Folder name – program10

```
import java.util.Scanner;

public class OverloadingUse {
    public int add(int a, int b)
    {
        return a+b;
    }
    public double add(double a,double b)
    {
        return a+b;
    }
    public float multiply(float a,float b)
    {
        return a*b;
    }
   public int multiply(int a, int b)
    {
        return a*b;
    }
    public void stringAdd(String a,String b)
    {
        String str = a+b;
        System.out.println("Concatenation of two Strings : "+ str);
    }
    public void stringAdd(String a,String b,String c)
    {
        String str = a+b+c;
        System.out.println("Concatenation of three Strings : "+ str);
    }
    public static void main(String[] args) {
        OverloadingUse obj = new OverloadingUse();
```

```
        Scanner sc = new Scanner(System.in);

        int result = obj.add(23,35);
        System.out.println("Addition of two integer : "+ result);

        double result2 = obj.add(234563.212,355678.32);
        System.out.println("Addition of two double : "+ result2);

        double result3 = obj.multiply(4.6f, 5.6f);
        System.out.println("Multiplication of two integer : "+ result3);

        int result4 = obj.multiply(45,20);
        System.out.println("Multiplication of two integer : "+ result4);

        obj.stringAdd("Hello ","World! ");
        obj.stringAdd("Hello ","World! ","This is Ques10");

        }
    }
```

```
ttn@ttn:program10 $ vim OverloadingUse.java
ttn@ttn:program10 $ javac OverloadingUse.java
ttn@ttn:program10 $ java OverloadingUse
Addition of two integer : 58
Addition of two double : 590241.532
Multiplication of two integer : 25.759998321533203
Multiplication of two integer : 900
Concatenation of two Strings : Hello World!
Concatenation of three Strings : Hello World! This is Ques10
```

Q11.Create 3 sub class of bank SBI,BOI,ICICI all 4 should have method called getDetails which provide there specific details like rateofinterest etc,print details of every banks

Sol – Program Files Folder name – program11

```
import java.util.Scanner;

class Bank{
      protected String name;
      protected int noOfBranches;
      protected float rateofInterest;

      Bank(String name, int noOfBranches, float rateofInterest){
         this.name = name;
         this.noOfBranches = noOfBranches;
         this.rateofInterest = rateofInterest;
      }
      public void getDetails()
      {
         System.out.println("Bank name : "+name);
         System.out.println("No of Branches : "+noOfBranches);
```

```
        System.out.println("Rate of interest : "+rateofInterest);
        System.out.println();
    }
}

class SBI extends Bank{

    SBI(String name, int noOfBranches, float rateofInterest){
        super(name,noOfBranches,rateofInterest);
    }
}

class BOI extends Bank{

    BOI(String name, int noOfBranches, float rateofInterest){
        super(name,noOfBranches,rateofInterest);
    }
}
class ICICI extends Bank{

    ICICI(String name, int noOfBranches, float rateofInterest){
        super(name,noOfBranches,rateofInterest);
    }
}
public class Ques11 {
    public static void main(String[] args) {

        Bank b = new SBI("SBI",200,7);
        b.getDetails();

        Bank b1 = new BOI("BOI",70,8);
        b1.getDetails();

        Bank b2 = new ICICI("ICICI",90,9);
       b2.getDetails();
    }
}
```

```
ttn@ttn:Java day1 $ javac Ques11.java
ttn@ttn:Java day1 $ java Ques11
Bank name : SBI
No of Branches : 200
Rate of interest : 7.0%

Bank name : BOI
No of Branches : 70
Rate of interest : 8.0%

Bank name : ICICI
No of Branches : 90
Rate of interest : 9.0%
```