JAVA PROGRAMMING

STRING METHODS AND ARRAYS

Name: N Kishore Kumar

Reg.no: 18BCE2106

Slot: L23 + L24

Faculty: Nallakaruppan M K

STRING METHODS

```
public class StringMethods {
    public static void main(String[] args){
        String s = "Hi, Welcome";
        System.out.println(s);
        System.out.println();

        //String Concatenation && String.length()
        System.out.println("String Concatenation && String.length()");
        int l = s.length();
        System.out.println("Length is " + l);
        System.out.println();

        //String.join()
        System.out.println("String.join()");
        System.out.println(String.join("-","05","02","2021"));
        System.out.println(String.join(":","15","15","45"));
        System.out.println();

        //String.getBytes()
        System.out.println("String.getBytes()");
        String s1 = "Kishore";
        byte[] barr = s1.getBytes();
        for(int i=0; i<barr.length; i++){
            System.out.println(barr[i]);
        }
        System.out.println();

        //String.split()
        System.out.println("String.split()");
        String s2 = "VIT Vellore is not yet open";
        String[] words = s2.split("\\s");
        for(String w:words) {
```

```
            System.out.println(w);
        }
        System.out.println();

        //String.equals()
        System.out.println("String.equals()");
        String a = "Vellore";
        String b = "Vellore";
        System.out.println(a.equals(b));
        System.out.println();

        //String.compareTo()
        System.out.println("String.compareTo()");
        String st1 = "hello";
        String st2 = "hello";
        System.out.println(st1.compareTo(st2));
        System.out.println();

        //String.replace()
        System.out.println("String.replace()");
        String st3 = "java is good language";
        System.out.println(st3.replace("is","was"));
        System.out.println();

        //String.replaceAll()
        System.out.println("String.replaceAll()");
        String st4 = "java is good language";
        System.out.println(st4.replaceAll("a","e"));
        System.out.println();

        //String.trim()
        System.out.println("String.trim()");
        String st5 = "   Hello World";
        System.out.println(st5.trim());
        System.out.println();

        //String.charAt()
        System.out.println("String.charAt()");
        String st6 = "Kishore";
        System.out.println(st6.charAt(5));
        System.out.println();

        //String.concat()
        System.out.println("String.concat()");
        String st7 = "VIT is ";
        System.out.println(st7.concat("not open yet"));
        System.out.println();
```

```java
//String.contains()
System.out.println("String.contains()");
String st8 = "What is your name";
System.out.println(st8.contains("What"));
System.out.println(st8.contains("the"));
System.out.println();

//String.endsWith()
System.out.println("String.endsWith()");
String st23 = "Ends with";
System.out.println(st23.endsWith(" with"));
System.out.println(st23.endsWith("With"));
System.out.println();

//String.startsWith()
System.out.println("String.startsWith()");
String st9 = "Starts with";
System.out.println(st9.startsWith("Start"));
System.out.println(st9.startsWith("Start w"));
System.out.println();

//String.equalsIgnoreCase()
System.out.println("String.equalsIgnoreCase()");
String st10 = "HelLo";
System.out.println(st10.equalsIgnoreCase("hello"));
System.out.println();

//String.format()
System.out.println("String.format()");
String name = "Kishore";
System.out.println(String.format("Name is %s: ", name));
System.out.println(String.format("32.223232 is %f: ", 32.2232323));
System.out.println(String.format("32.223232 is %32.12f: ", 32.223232));
System.out.println();

//String.getChars()
System.out.println("String.getChars()");
String st11 = "My name is Kishore Kumar";
char[] ch = new char[30];
st11.getChars(2,17,ch,2);
System.out.println(ch);
System.out.println();

//String.indexOf()
System.out.println("String.indexOf()");
```

```java
        String st12 = "This is the that of this";
        System.out.println(st12.indexOf("is"));
        System.out.println(st12.indexOf("is",4));
        System.out.println(st12.indexOf("is",10));
        System.out.println();

        //String.intern()
        System.out.println("String.intern()");
        String st13 = "hello";
        String st14 = new String("hello");
        String st15 = st14.intern();
        System.out.println(st13==st14);
        System.out.println(st14==st15);
        System.out.println(st13==st15);
        System.out.println();

        //String.lastIndexOf()
        System.out.println("String.lastIndexOf()");
        String st16 = "N Kishore Kumar";
        System.out.println(st16.lastIndexOf("a"));
        System.out.println();

        //String.isEmpty()
        System.out.println("String.isEmpty()");
        String st17 = "";
        System.out.println(st17.isEmpty());
        System.out.println(st16.isEmpty());
        System.out.println();

        //String.toLowerCase()
        System.out.println("String.toLowerCase()");
        String st18 = "HELLo WorLD";
        System.out.println(st18.toLowerCase());
        System.out.println();

        //String.toUpperCase()
        System.out.println("String.toUpperCase()");
        String st19 = "HELLo WorLD";
        System.out.println(st19.toUpperCase());
        System.out.println();

        //String.toCharArray()
        System.out.println("String.toCharArray()");
        String st20 = "Hello World";
        char[] arr = st20.toCharArray();
        System.out.println(arr.length);
        for(int i=0; i<arr.length; i++){
            System.out.print(arr[i] + "\t");
```

```
        }
        System.out.println("\n\n");

        //String.substring()
        System.out.println("String.substring()");
        String st21 = "Hello World";
        System.out.println(st21.substring(6));
        System.out.println(st21.substring(3,10));
        System.out.println();

        //String.valueOf()
        System.out.println("String.valueOf()");
        float f  = 10.05f;
        double d = 10.02;
        String s22 = String.valueOf(f);
        String s23 = String.valueOf(d);
        System.out.println(s22 + s23);
    }
}
```

OUTPUT:

```
PS C:\Users\N Kishore Kumar>  & 'c:\Users\N Kishore Kumar\.vscode\extensi
InExceptionMessages' '-Dfile.encoding=UTF-8' '-cp' 'C:\Users\N Kishore Ku
Hi, Welcome

String Concatenation && String.length()
Length is 11

String.join()
05-02-2021
15:15:45

String.getBytes()
75
105
115
104
111
114
101

String.split()
VIT
Vellore
is
not
yet
open

String.equals()
true

String.compareTo()
0

String.replace()
java was good language

String.replaceAll()
jeve is good lenguege

String.trim()
Hello World
```

```
String.charAt()
r

String.concat()
VIT is not open yet

String.contains()
true
false

String.endsWith()
true
false

String.startsWith()
true
false

String.equalsIgnoreCase()
true

String.format()
Name is Kishore:
32.223232 is 32.223232:
32.223232 is                    32.223232000000:

String.getChars()
 name is Kishor

String.indexOf()
2
5
22

String.intern()
false
false
true

String.lastIndexOf()
13

String.isEmpty()
true
```

```
String.toLowerCase()
hello world

String.toUpperCase()
HELLO WORLD

String.toCharArray()
11
H       e       l       l       o               W       o       r       l       d


String.substring()
World
lo Worl

String.valueOf()
10.0510.02
PS C:\Users\N Kishore Kumar>
```

ARRAYS

I. Minimum Element, Maximum Element, Sorting, Cloning, Copying

```java
public class Array1D {
    //Minimum Element
    static void min(int arr[]){
        int min = arr[0];
        for(int i=1; i<arr.length; i++){
            if(arr[i] < min ){
                min = arr[i];
            }
        }
        System.out.println("Minimum = " + min);
    }

    //Maximum ELement
    static void max(int arr[]){
        int max = arr[0];
        for(int i=1; i<arr.length; i++){
            if(arr[i] > max) {
                max = arr[i];
            }
        }
        System.out.println("Maximum = " + max);
    }
```

```java
//Sorting Array in Ascending order
static int[] sort(int arr[]){
    for(int i=0; i<arr.length; i++){
        for(int j=i+1; j<arr.length; j++){
            if(arr[i] > arr[j]){
                int temp = arr[i];
                arr[i] = arr[j];
                arr[j] = temp;
            }
        }
    }
    return arr;
}
public static void main(String[] args){
    int a[] = {33,12,6,4,3};

    //Minimum Element
    min(a);
    System.out.println();

    //Maximum Element
    max(a);
    System.out.println();

    //Sorting Array in Ascending order
    System.out.println("Sorted Array: ");
    int arr[] = sort(a);
    for(int i=0; i<arr.length; i++){
        System.out.print(arr[i] + " ");

    }
    System.out.println();

    //Array Cloning
    System.out.println("\nArray Cloning");
    int ar1[] = {33,4,5,6};
    System.out.println("Original Array: ");
    for(int i:ar1){
        System.out.print(i + " ");
    }
    System.out.println();
    int car1[] = ar1.clone();
    System.out.println("Cloned Array: ");
    for(int i:car1){
        System.out.print(i + " ");
    }
    System.out.println();
```

```
        //Array Copying
        System.out.println("\nArray Copying");
        char[] copyFrom = {'v','i','t','u','n','i','v','e','r','s','i','t','y'};
        char[] copyTo = new char[10];
        System.out.println("Original Array: " + String.valueOf(copyFrom));
        System.arraycopy(copyFrom, 3, copyTo, 0, 10);
        System.out.println("Copied Array: " + String.valueOf(copyTo));
    }
}
```

OUTPUT:

```
PS C:\Users\N Kishore Kumar\Desktop\Java_Programs>  c:; cd 'c:\User
-debug-0.31.0\scripts\launcher.bat' 'C:\Program Files\Java\jdk-14.0
 Kumar\AppData\Roaming\Code\User\workspaceStorage\b332b045a5e54b453
Minimum = 3

Maximum = 33

Sorted Array:
3 4 6 12 33

Array Cloning
Original Array:
33 4 5 6
Cloned Array:
33 4 5 6

Array Copying
Original Array: vituniversity
Copied Array: university
PS C:\Users\N Kishore Kumar\Desktop\Java_Programs>
```

II. Matrix Addition, Matrix Multiplication, Jagged Array

```java
public class Array2D{
    public static void main(String[] args){

        //2x3 Matrix Addition
        System.out.println("Matrix Addition\n");

        int arr1[][] = {{1,2,3},{4,5,6}};
        int arr2[][] = {{6,5,4},{3,2,1}};
        System.out.println("Matrix 1 ");
        for(int i=0; i<2; i++){
            for(int j=0; j<3; j++){
                System.out.print(arr1[i][j] + " ");
            }
            System.out.println();
        }
        System.out.println("\n" + "Matrix 2");
        for(int i=0; i<2; i++){
            for(int j=0; j<3; j++){
                System.out.print(arr2[i][j] + " ");
            }
            System.out.println();
        }
        int c[][] = new int[3][3];  //Initialization
        for(int i=0; i<2; i++){ //Number of rows = 2
            for(int j=0; j<3; j++){     // Number of columns = 3
                c[i][j] = arr1[i][j] + arr2[i][j];
            }
        }
        System.out.println("\nResult Matrix");
        for(int i=0; i<2; i++){
            for(int j=0; j<3; j++){
                System.out.print(c[i][j] + " ");
            }
            System.out.println();
        }
        System.out.println();

        //3x3 Matrix Multiplication
        System.out.println("Matrix Multiplication\n");
        int mat1[][] = {{1,2,3}, {4,5,6}, {7,8,9}};
        int mat2[][] = {{9,8,7}, {6,5,4}, {3,2,1}};
        System.out.println("Matrix 1 ");
        for(int i=0; i<mat1.length; i++){
            for(int j=0; j<mat1.length; j++){
                System.out.print(mat1[i][j] + " ");
            }
            System.out.println();
        }
        System.out.println("\n" + "Matrix 2");
```

```
        for(int i=0; i<mat2.length; i++){
            for(int j=0; j<mat2.length; j++){
                System.out.print(mat2[i][j] + " ");
            }
            System.out.println();
        }
        int res[][] = new int[3][3];
        System.out.println("\nResult Matrix");
        for(int i=0; i<res.length; i++){
            for(int j=0; j<res.length; j++){
                res[i][j] = 0;
                for(int k=0; k<3; k++){
                    res[i][j] += mat1[i][k] * mat2[k][j];
                }
                System.out.print(res[i][j] + " ");
            }
            System.out.println();
        }
        System.out.println();


        //Jagged Array
        System.out.println("Jagged Array");
        int ma[][] = new int[3][];
        ma[0] = new int[2];
        ma[1] = new int[4];
        ma[2] = new int[3];
        int count = 0;
        for(int i=0; i<ma.length; i++){
            for(int j=0; j<ma[i].length; j++){
                ma[i][j] = count++;
            }
        }
        for(int i=0; i<ma.length; i++){
            for(int j=0; j<ma[i].length; j++){
                System.out.print(ma[i][j] + " ");
            }
            System.out.println();
        }
    }
}
```

OUTPUT:

```
PS C:\Users\N Kishore Kumar\Desktop\Java_Programs>  c:; cd 'c:\User
-debug-0.31.0\scripts\launcher.bat' 'C:\Program Files\Java\jdk-14.0
 Kumar\AppData\Roaming\Code\User\workspaceStorage\b332b045a5e54b453
Matrix Addition

Matrix 1
1 2 3
4 5 6

Matrix 2
6 5 4
3 2 1

Result Matrix
7 7 7
7 7 7

Matrix Multiplication

Matrix 1
1 2 3
4 5 6
7 8 9

Matrix 2
9 8 7
6 5 4
3 2 1

Result Matrix
30 24 18
84 69 54
138 114 90

Jagged Array
0 1
2 3 4 5
6 7 8
PS C:\Users\N Kishore Kumar\Desktop\Java_Programs>
```