

Institute of Engineering & Technology
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Department of Computer Science & Engineering



Object Oriented Programming (CER3C2)
Assignment-5
(String)

Submitted To:

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Assignment-5

1. Write a Java Program that does following:

- a) Declare a String Object named s containing the string "Help me God."
- b) Print the entire String.
- c) Use the length() method to print the length of the String.
- d) Use the charAt() method to print the first character in the String.
- e) Use the indexOf() and the substring() methods to print the first word in the String.
- f) Count and print all the duplicates string.

```
import java.util.*;
public class StringOp {
    public static void main(String[] args) {
        String s = "Help me God";
        System.out.println(s);
        System.out.println(s.length());
        System.out.println(s.charAt(0));
        System.out.println(s.indexOf("me"));
        System.out.println(s.substring(0,3));

        int count=0, ctr=0;

        char[] p = s.toCharArray();
        for(int i=0; i<s.length(); i++)
        {
```

```

        count = 1;
        for(int j=i+1; j<s.length(); j++)
        {
            if(s.charAt(i) == s.charAt(j))
            {
                count++;
                p[j] = '0';
            }
        }

        if(count>1 && s.charAt(i)!='0')
        {
            ctr++;
            System.out.print(p[i] + " ");
        }
    }
    System.out.print("Number of Duplicates: " + ctr);
    System.out.println();
}
}

```

Output

```

PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) {
javac StringOp.java } ; if ($?) { java StringOp }
Are you Friend
14
A
4
Are
re Number of Duplicates: 3
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) {
javac StringOp.java } ; if ($?) { java StringOp }
Help me God
11
H
5
Hel
e Number of Duplicates: 2
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5>

```

2. Write a java program that capitalizes first letters of each word in the String. (for example “this Is pEn” would generate the output “This Is A Pen”).

```
import java.util.*;
public class Capital {
    public static void main(String[] args) {
        String s;
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a String: ");
        s = sc.nextLine();

        char[] c;
        String e = s.toLowerCase();
        c = e.toCharArray();
        c[0] = Character.toUpperCase(c[0]);

        for(int i=0; i<s.length(); i++)
        {
            if(s.charAt(i)==32)
            {
                c[i+1] = Character.toUpperCase(c[i+1]);
            }
        }

        for(int i=0; i<s.length(); i++)
        {
            System.out.print(c[i]);
        }

        sc.close();
    }
}
```

Output

```
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac Capital.java } ; if ($?) { java Capital }
Enter a String: this is pEn
This Is Pen
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac Capital.java } ; if ($?) { java Capital }
Enter a String: this is book
This Is Book
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> |
```

3. Write a java program that inputs five names and then prints them in their increasing alphabetical order.

```
import java.util.*;
public class IncreaseAlpha_order {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        String[] s = new String[5];

        for(int i=0; i<5; i++)
        {
            System.out.print("Enter the "+ (i+1) + "th
Word:");
            s[i] = sc.nextLine();
        }

        Arrays.sort(s);
        System.out.println();

        System.out.println("The Words in Increasing Order:
");

        for(int i=0; i<5; i++)
        {
            System.out.print(s[i] + " ");
        }
        sc.close();
    }
}
```

Output

```
{ javac IncreaseAlpha_order.java } ; if ($?) { java IncreaseAlpha_order }
Enter the 1th Word:Tanishq
Enter the 2th Word:Yash
Enter the 3th Word:Ritesh
Enter the 4th Word:Somu
Enter the 5th Word:Gagan

The Words in Increasing Order:
Gagan Ritesh Somu Tanishq Yash
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac IncreaseAlpha_order.java } ; if ($?) { java IncreaseAlpha_order }
Enter the 1th Word:Vandana
Enter the 2th Word:Pankaj
Enter the 3th Word:Deepak
Enter the 4th Word:Ravi
Enter the 5th Word:Siddharth

The Words in Increasing Order:
Deepak Pankaj Ravi Siddharth Vandana
> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac IncreaseAlpha_order.java } ; if ($?) { java IncreaseAlpha_order }
```

4. Write a java program that inputs the name of the month and does following:
- a)Echoing the input.
 - b)Extracting the first three letters of the input (printing the abbreviation) in capital.
 - c)Using switch statement to identify and print the number of the month from the abbreviation.
 - d)Print the number of days of month.

```
import java.util.*;
public class Month {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println();
        System.out.print("Enter the Name of the Month:");
        String ech = sc.nextLine();
        System.out.println();
        System.out.println("Echoing the Input: " + ech);

        String mon = ech.substring(0,3);
        mon = mon.toUpperCase();
        System.out.println(mon);

        switch(mon)
        {
            case "JAN" :
                System.out.println("1st Month of the Calendar");
                System.out.println("The Number of Days in Month
is: 31");
                break;

            case "FEB" :
                System.out.println("2nd Month of the Calendar");
```



```
        System.out.println("The Number of Days in Month  
is: 28/29");  
        break;  
  
        case "MAR" :  
            System.out.println("3rd Month of the Calendar");  
            System.out.println("The Number of Days in Month  
is: 31");  
            break;  
  
        case "APR" :  
            System.out.println("4th Month of the Calendar");  
            System.out.println("The Number of Days in Month  
is: 30");  
            break;  
  
        case "MAY" :  
            System.out.println("5th Month of the Calendar");  
            System.out.println("The Number of Days in Month  
is: 31");  
            break;  
  
        case "JUN" :  
            System.out.println("6th Month of the Calendar");  
            System.out.println("The Number of Days in Month  
is: 30");  
            break;  
  
        case "JUL" :  
            System.out.println("7th Month of the Calendar");  
            System.out.println("The Number of Days in Month  
is: 31");  
            break;  
  
        case "AUG" :  
            System.out.println("8th Month of the Calendar");  
            System.out.println("The Number of Days in Month  
is: 31");
```

```

        break;

        case "SEP" :
            System.out.println("9th Month of the Calendar");
            System.out.println("The Number of Days in Month
is: 30");
            break;

        case "OCT" :
            System.out.println("10th Month of the
Calendar");
            System.out.println("The Number of Days in Month
is: 31");
            break;

        case "NOV" :
            System.out.println("11th Month of the
Calendar");
            System.out.println("The Number of Days in Month
is: 30");
            break;

        case "DEC" :
            System.out.println("12th Month of the
Calendar");
            System.out.println("The Number of Days in Month
is: 31");
            break;

        default:
            System.out.println("Enter Valid Input");
            break;
    }
    sc.close();
}
}

```

Output

```
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac Month.java } ; if ($?) { java Month }

Enter the Name of the Month:DEC

Echoing the Input: DEC
DEC
12th Month of the Calendar
The Number of Days in Month is: 31
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac Month.java } ; if ($?) { java Month }

Enter the Name of the Month:JUL

Echoing the Input: JUL
JUL
7th Month of the Calendar
The Number of Days in Month is: 31
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> |
```

5. Write a Java program to find all interleavings of given strings.

```
import java.util.*;
import java.util.HashSet;
import java.util.Set;
public class Interleavings {
    public static void allInterleavings(String res, String
F, String S, Set < String > out)
    {
        if(F.length() == 0 && S.length() == 0)
        {
            out.add(res);
            return;
        }
        if(F.length() > 0)
        {
            allInterleavings(res + F.charAt(0),
F.substring(1), S, out);

        }
        if(S.length() > 0)
        {
            allInterleavings(res + S.charAt(0), F,
S.substring(1), out);

        }
    }

    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter First String: ");
        String F = sc.nextLine();
        System.out.print("Enter Second String: ");
        String S = sc.nextLine();
    }
}
```

```

        System.out.println("The Given Strings are: " + F + "
" + S + "\n");
        System.out.println("The Interleavings Strings are:
");
        Set < String > out = new HashSet < > ();

        allInterleavings("", F, S, out);

        out.stream().forEach(System.out::println);

    }
}

```

Output

```

PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac Interleavings.java } ; if ($?) { java Interleavings }
Enter First String: wx
Enter Second String: yz
The Given Strings are: wx yz

The Interleavings Strings are:
wxzy
ywzx
wxyz
wyzx
ywzx
yzwx
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac Interleavings.java } ; if ($?) { java Interleavings }
Enter First String: tc
Enter Second String: yc
The Given Strings are: tc yc

The Interleavings Strings are:
yctc
tycc
ytcc
tcyc
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5>

```

6. Write a Java program to find the second most frequent character in a given string.

```
import java.util.*;
public class FrequentChar {
    public static void main(String[] args) {
        int max=0, newmax=0;
        String s;
        char p[], k=' ';
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter the String: ");
        s = sc.nextLine();
        s = s.toLowerCase();
        p = s.toCharArray();
        Map<Character, Integer>mp = new
HashMap<Character,Integer>();

        for(int i=0; i<s.length(); i++)
        {
            if(mp.containsKey(p[i]) && p[i] != ' ')
            {
                mp.put(p[i], mp.get(p[i]) + 1);
            }
            else{
                if(p[i] != ' ')
                {
                    mp.put(p[i], 1);
                }
            }
        }
        for(char i : mp.keySet())
        {
            if(mp.get(i)>max)
            {
                max = mp.get(i);
            }
        }
    }
}
```

```

    }
    for(char i : mp.keySet())
    {
        if(mp.get(i)<max && mp.get(i)>=newmax)
        {
            k = i;
            newmax = mp.get(i);
        }
    }
    System.out.println("Second Most Frequent Character
is: ");
    for(char i : mp.keySet())
    {
        if(mp.get(i) == mp.get(k))
        {
            System.out.print(i + " ");
        }
    }
    sc.close();
}
}

```

Output

```

PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac FrequentChar.java } ; if ($?) { java FrequentChar }
Enter the String: I am noobdi
Second Most Frequent Character is:
a b d m n
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac FrequentChar.java } ; if ($?) { java FrequentChar }
Enter the String: I am superman
Second Most Frequent Character is:
p r s u e i n
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac FrequentChar.java } ; if ($?) { java FrequentChar }
Enter the String: Thats what she did
Second Most Frequent Character is:
a s d
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5>

```

7. Write a Java program to find first non-repeating character from a stream of characters.

```
import java.util.*;
public class NonRepeating_Char {
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a String: ");
        String s;
        s = sc.nextLine();
        sc.close();

        s = s.toLowerCase();

        char[] p = s.toCharArray();
        Map<Character, Integer> mp = new HashMap<Character,
Integer>();

        for(int i=0; i<s.length(); i++)
        {
            if(mp.containsKey(p[i]))
            {
                mp.put(p[i], mp.get(p[i]) + 1);
            }
            else
            {
                mp.put(p[i], 1);
            }
        }
        int j;
        for(j=0; j<s.length(); j++)
        {
            if(mp.get(p[j])==1 && p[j]!=32)
            {
```



```

        System.out.print("The First Non Repeating
Character is: " + p[j]);
        break;
    }
}
if(j == s.length())
{
    System.out.println("No Non Repeating
Character");
}
}
}
}

```

Output

```

PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac NonRepeating_Char.java } ; if ($?) { java NonRepeating_Char }
Enter a String: God is great
The First Non Repeating Character is: o
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac NonRepeating_Char.java } ; if ($?) { java NonRepeating_Char }
Enter a String: Hello my friend
The First Non Repeating Character is: h
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac NonRepeating_Char.java } ; if ($?) { java NonRepeating_Char }
Enter a String: How are you
The First Non Repeating Character is: h
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5>

```

8. Write a Java program to read two strings append them together and return the result. If the strings are different lengths, remove characters from the beginning of longer string and make them equal length.

```
import java.util.*;
public class Append {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter the First String: ");
        String s1 = sc.nextLine();
        System.out.print("Enter the Second String: ");
        String s2 = sc.nextLine();
        sc.close();

        int l1 = s1.length();
        int l2 = s2.length();

        if(l1==l2)
        {
            System.out.println(s1.concat(s2));
        }
        else if(l1>l2)
        {
            System.out.println(s1.substring(l1-
12).concat(s2));
        }
        else
        {
            System.out.println(s1.concat(s2.substring(12-
11)));
        }
    }
}
```

Output

```
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac Append.java } ; if ($?) { java Append }
Enter the First String: Tanishq
Enter the Second String: Chauhan
TanishqChauhan
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac Append.java } ; if ($?) { java Append }
Enter the First String: Yash
Enter the Second String: Chauhan
Yashuhan
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac Append.java } ; if ($?) { java Append }
Enter the First String: God
Enter the Second String: Great
Godeat
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> |
```

9. Write a Java program to return the sum of the digits present in the given string. If there is no digits the sum return is 0.

```
import java.util.*;
public class SumDigit {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a String: ");
        String s = sc.nextLine();
        char p[] = s.toCharArray();
        sc.close();

        int sum=0;
        for(int i=0; i<s.length(); i++)
        {
            if(p[i]>48 && p[i]<=57)
            {
                sum = sum + p[i]-48;
            }
        }
        System.out.println("The Sum of the Digits is: " +
sum);
    }
}
```

Output

```
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac SumDigit.java } ; if ($?) { java SumDigit }
Enter a String: Hello13kyahaa1s1
The Sum of the Digits is: 6
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac SumDigit.java } ; if ($?) { java SumDigit }
Enter a String: br9h0war6y8u
The Sum of the Digits is: 23
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> |
```

10. Write a Java program to test if a given string contains only digits.

```
import java.util.*;
public class OnlyDigits {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a String: ");
        String s = sc.nextLine();
        char p[] = s.toCharArray();
        sc.close();

        int count=0;

        for(int i=0; i<s.length(); i++)
        {
            if(p[i]>=48 && p[i]<=57)
            {
                count++;
            }
        }

        if(count == s.length())
        {
            System.out.println("The String Contains Only
Digits");
        }
        else if(count == 0)
        {
            System.out.println("The String Does Not Contain
Digits");
        }
        else
        {
            System.out.println("The String Does Not
Exclusively Contain Digits");
        }
    }
}
```

```
}  
}  
}
```

Output

```
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac OnlyDigits.java } ; if ($?) { java OnlyDigits }  
Enter a String: 123456789  
The String Contains Only Digits  
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac OnlyDigits.java } ; if ($?) { java OnlyDigits }  
Enter a String: Tanishq08  
The String Does Not Exclusively Contain Digits  
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5\" ; if ($?) { javac OnlyDigits.java } ; if ($?) { java OnlyDigits }  
Enter a String: Tanishq  
The String Does Not Contain Digits  
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-5> |
```