Assignment - 3.

1). How to print duplicate characters from string? For ex. if string is "java" then the program should print "a".

Ans:
```
Public class Dupstr
{
    public static void main (string args[])
    {
        String str = "java";
        int cnt = 0;
        char[] inp = str.tocharArray();
        System.out.println("Duplicate characters
                            are:");
        for (int i = 0; i < str.length(); i++)
        {
            for (int j = i+1; j < str.length(); j++)
            {
                if (inp[i] == inp[j])
                {
                    System.out.println (inp[j]);
                    cnt++;
                    break;
                }
            }
        }
    }
}
```

O/P: Duplicate characters are: a

Q2. How to catch if two strings are anagrams of each other?. A simple coding probl -em based upon string, but could also be asked with numbers. you need to A simple Write a Java programs to check if two given strings are anagrams of Each other.

Ans:

```
class Anagram.
{
    public static void main (string [] args)
    {
        if (check Anagram ("army", "Mary"))
        system. out. println ("anAnagram");
        else
```

```java
system.out.println("Not an Anagram");
}

public static boolean checkAnagrame
(string a, string b)
{
    if(a.length() != b.length())
        return false;
    int index;
    for(int i=0; i<a.length(); i++)
    {
        if(index = b.indexof(a.charAt(i)) != -1)
        {
            b = b.substring(0,index) + b.substring
            (index+1, b.length());
        }
        else
        {
            return false;
        }
    }
    if(b.length() == 0)
        return true;
    else
        return false
    }
}
```

o/p: An Anagram

Q3. How to program to print first non repeated character from string? one of the most common string interview questions. find the first non-repeated (unique) character in a given string. For example, if given string is 'Morning'' then it should print "M" this question demonstrates the efficient use of the table data structure.

Ans:-

```java
import java.util.HashMap;
import java.util.Scanner;
public class FNR
{
    public static void main(String[] args)
    {
        System.out.println("Please enter the
        input string:");
        Scanner in = new scanner(System.in);
        String s = in.nextline();
        char c = firstNonRepeated character(s)
```

```java
        system.out.println("The First non repeated
        character is: " + c);
    }

    public static character First NonRepeated
    character (String str) {
        HashMap<character, integer> cht = new Hash
        Map<character, integer>();
        int i, length;
        character c;
        length = str.length();
        for(i=0; i<length; i++)
        {   c = str.charAt(i);
            if(cht.containskey(c))
            {
                cht.put(c, cht.get(c) + 1);
            }
            else {
                cht.put(c, 1);
            }
        }
        for(i=0; i<length; i++)
        {
            c = str.charAt(i);
            if(cht.get(c) == 1)
                return c;
        }
        return null;
    }
}
```
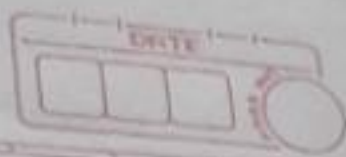
Q4: How to reverse string in java using Iteration and Recursion?
Your task is write a program to reverse string in Java without using a string BUFFer class. You also need to Provide bothe iterative and recursive algorithm for string reversal. you can use other string utility methods e.g-charAt (), to charArray() or substring from java. Lang. String class.

Ans:
```
public class strev
{
Public static void main (string args[])
throws File NoFound Exception, Io Exception
{
string str = " sony is going to introduce
                Internet TV soon";

system. out. println ("original string" +str);
    string reverse str = reverse (str);
system. out. println (Reverse string in
    Java using Iteration :" + revers str);
reverstr = reverseRecursively (str);
system.out. println ("Reverse string in
Java using recursion" + revers str);
}
```

```java
public static void string reverse (string str)
{
    string Builder strBuilder = new string Builder ();
    char[] strChars = str.tochar Array ();
    For (int i = strchars.length-1; i>=0; i--)
    {
        strBuilder.append (strchars[i]);
    }
    return strBuilder.to string ();
}

public static string reverse Recursively (string str)
{
    if (str.length() <2)
    {
        return str;
    }
    return reverse Recursively (str.substring (1)) + str.chartAt(0);
}
```

Q5. How to find duplicate charater in a string? you need to write a program to print all duplicate character and their count in Java. For ex. if given string is " programming " then your program should print.
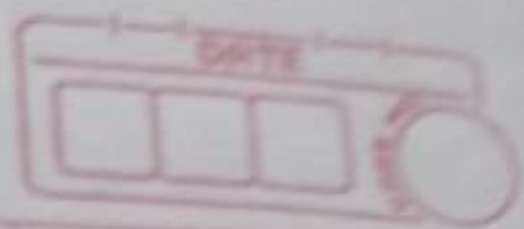
g : 2
r : 2
m : 2

Q6). How to find dutplicate el

How to count a number of vowels and consonants in a string? one of the easiest string questions your will ever see. you have to write a Java programs that will take a string input and print out a number of vowels and consonants on that string. For example, if the inputs is " Java" then your program should print "2 vowels and 2 consonants".

```java
import java.util.*;
class Dupsc
{
public static void countDuplicate character
                (string str)
{
Map<character, Integer> map= new HashMap<
                character, Integer> ();
char[] charArray = str.tochar Array();
For (char c: charArray)
   { if (map.containskey (c)) {
map.put (c, map.get (c) +1);
}
else {
map.put (C,1);
}
}
for (map.Entry <character, Integer> entry:
                map.entryset()) {
if (entry.getValue.() >1)
{
system.out.println (entry.getkey()+ " "+
                entry.getValue (1));
}
}
}
```

```java
public static void main (string args [])
{
string str = " programing";
count Duplicate characters (str);
?
?
```

O/P :-
$$g : 2$$
$$r : 2$$
$$m : 2$$

How to catch if two strings are anag

r : 2
m : 2

Q6). How to find dulplicate el

How to count a number of vowels and consonants in a string? one of the easiest string questions your will ever see. you have to write a Java programs that will take a string input and print out a number or vowels and consonants on that string. For example, if the inputs is "Java" then your program should print "2 vowels and 2 consonants"

Ans:
```java
import java.util.*;
class Duplicatesvowels
{
                                        main
public static void void countDuplicate
characters (string args[])
```

```java
Map <character, Integer> map = new Hashmap
         <character, Integer> ();
char [] charArray = str. tocharArray ();
For (char c : charArray)
{
  if (map. containskey (c))
  {
  map. put (c, map.get (c) +1);
  }
  else
  map. put (c, 1);
  }
 }

For (map. Entry character, Integer> entry :
    map.entry set ())
 {
  if (entry. getValue () >1)
  {
System. out. println (entry. getkey() + " " +
        entry. getValue());
  }
  }
  }
public static void main (string args[])
{
```

```
String str = "Java";
int vowels = 0; consonants = 0;
str = str.toLowerCase();
for(int i = 0; i< str.length(); i++)
{
   char ch = str.charAt(i);
   if((ch == 'a' || == 'e' || ch == 'i'
      || ch == 'o' || ch == 'u')) {
      ++vowels;
   }
   else {
      ++consonants;
   }
}
System.out.println(+vowels + "vowels:");
System.out.println(+consonant + " consonants");
}
}
```
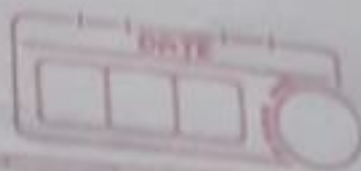
O/P: 2 vowels
       2 consonants

Q7. How to count occurrence of a given character in string? your method must return a count of a given character is 'a' then it should return 2.

Ans:
```
class countocc
{
   static void countEachchar (string str)
   {
```

```java
int counter[] = new int [256];
int len = str.length();
for (int i = 0; i < len; i++)
counter[str.charAt(i)]++;
char array[] = new char[str.length()];
for (int i = 0; i < len; i++)
{
array[i] = str.charAt(i);
int flag = 0;
for (int j = 0; i <= i; j++)
{
if (str.charAt(i) == array[j])
    flag++;
}
System.out.println("occurunce of char" +
        str.charAt(i) + " in the string is :"
        + counter[str.charAt(i)]);
}
}

public static void main (string [] args)
{
    string str = "Java";
    countEachchar (str);
}
}
```

o/p : occurunce of char 2 in the
        string is Java

Q8. How to convert numeric string to an int? For ex. if you pass "67263" to the Program then it should return 67263.

Ans:-

```
public class strloint
{
    Public static void main (string args[])
    {
        String s = "67263";
        int i = Integer.paseInt(s);
        System.out.println(i);
    }
}
```

o/p:-   67263

Q9. How to find all permutation of string? Write a program to print all permutations of a string in java for ex. if the input is "xyz" then it should print "xyz", "yzx", "zxy", "xzy", "yxz" "zyx".

Ans:

```java
public class per
{
    Public static string swapsting (string a, int i, int j)
    {
        char[] b = a.tocharArray();
        char ch;
        ch = b[i];
        b[i] = b[j];
        b[j] = ch;
        return string.valueof(b);
    }
    public static void main(string[] args)
    {
        String str = "xyz";
        int len = str.length();
        system.out.println("All the permutation of the string are:");
        generatepermutation(str, 0, len);
    }
    public static void generatepermutation(string str, int stent, int end)
    {
```

```java
if (start == end-1)
    System.out.printIn(str);
else
{
    for (int i = start; i < end; i++)
    {
        str = swapstring(str, start, i);
        generate permutation(str, start+1, end);
        str = swapstring(str, start, i);
    }
}
}
}
```

Q10. How to check if string is palindrome?
For example, if the input is "radar" the output should be true, if the input is "madam" output will be true, and if the input is "Java" output should be false.

Ans:
```java
import java.util.scanner;
class palindrome
{
    public static void main (string args[])
    {
        String str, rev="";
        scanner sc = new scanner(system.in);
        system.out.printIn("Enter a string");
```

```java
str = sc.nextline();
int length = str.length();

For(int i = length-1; i >= 0; i--)
    rev = rev + str.charAt(i);

if(str.equals(rev))
system.out.println("true = "+str +=" is
a palindrome");
else
system.out.println(" False "+str+" is
not a palindrome");
}
}
```

O/P: Enter a string
        ~~Mam~~ Java
               Java
True   ~~Mam~~ is a palindrome
       False Java is not a palindrome

Q11). How to remove duplicate characters
      from string? For example, if the
      input is "bananas" the output will
      be 'bans'

Ans:-

```java
public class Maxoccur
{
    char getMaxoccuringchar(String *str)
    {
        int count[ASCII-SIZE) = {0};
        int len = str.len(str);
        int max = 0;
        String result;
```

```
For (int i = 0; i< Len; i++) {
    count [str [i]]++;
    if (max < count [str [i]]) {
        Max = count [str[i]];
        result = str [i];
    }
}
return result;
}

public static void main (string args [])
{
    char str [] = "sample string";
    System.out.println (" Max occurring character
        is =" getMaxoccuring char (str));
}
}
```

O/P :- Max occurring character is: s

Q12 How to return the highest occurred character in a string? You need to Write a function to implement an algorithm that will accept a string of characters and should find the highest occurrence of the character and display it. For example if input is "aaaaaaa acia bbbbc dddd eeeeee" it should return "a".

```java
public class Mn
{
public static string maxoccuredchar(string str)
{
char[] array = str.tocharArray();
int maxcount = 1;
char maxchar = array [0];
for(int i = 0, j = 0; i < str.length()-1;
    i = j)
{
int count = 1;
While (++j < str.length() && array[i] ==
    array[j])
{
count ++;
}
if (count > Maxcount)
{
Maxcount = count;
Maxchar = array [i];
}
}
return (maxchar + "(" + Maxcount + "
time)" );
}
public static void main (string [] ans
{
String str1 = Maxoccured ("aaaaaoaooo
bbbbcddeeeeee");
```

System.out. println ("Highest occured cha
in string :" + str1);
}
}

o/P:- aa
Highest occured character in
string:- a.
11 times