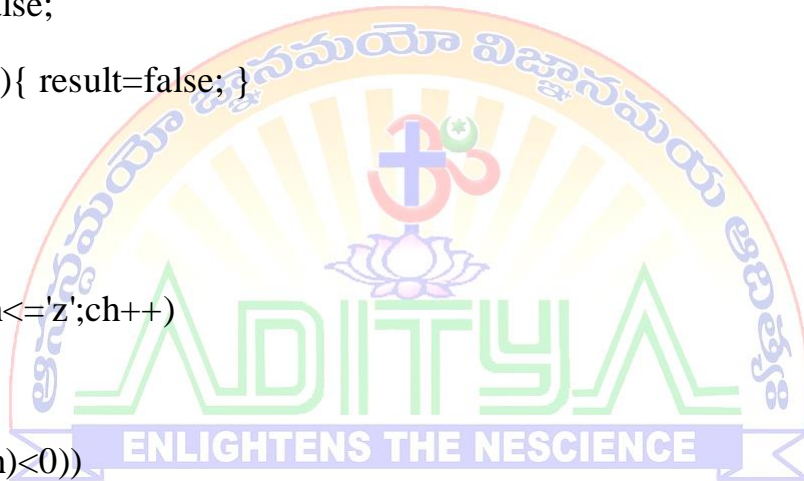


**Week -4****4a)Write a program to check if a given string is a pangram**

**Aim:** To Write a program to check if a given string is a pangram

**Program:**

```
public class Pangram {  
    public static void checkPangram(String str)  
    {  
        str=str.toLowerCase();  
        boolean result=false;  
        if(str.length()<26){ result=false;}  
        else  
        {  
            for(char ch='a';ch<='z';ch++)  
            {  
                if((str.indexOf(ch)<0))  
                {  
                    result=false;  
                    break;  
                } else{  
                    result=true;  
                }  
            }  
        }  
    }  
}
```





```
if(result)
{
System.out.println("str is pangram");
} else{
System.out.println("str is not pangram");
}
}
}

public static void main(String[] args){
    checkPangram("welcome to java programming");
    checkPangram("abcdefghijklmnopqrstuvwxyz");
}
}}
```

**Output:**

```
C:\Users\admin\Desktop>javac Pangram.java
```

```
C:\Users\admin\Desktop>java Pangram
str is not pangram
str is pangram
```

```
C:\Users\admin\Desktop>|
```

**b) Write a program to find the most frequently occurring character in a string.**

**Aim:** To write a program to find the most frequently occurring character in a string.

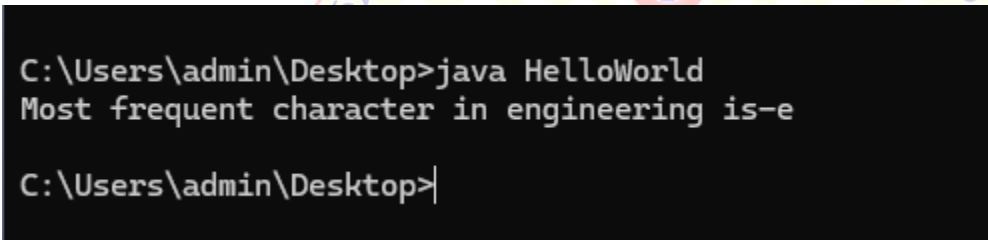
**Program:**

```
public class HelloWorld
{
    public static char findmost(String str)
    {
        if(str==null || str.isEmpty())
        {
            System.out.println("String must not be null or empty.");
        }
        int[] frequency=new int[256];
        for(char ch:str.toCharArray())
        {
            frequency[ch]++;
        }
        char most='\0';
        int maxCount=0;
        for(int i=0;i<frequency.length;i++){
            if(frequency[i]>maxCount){
                maxCount=frequency[i];
            }
        }
        return most;
    }
}
```

```
        most=(char) i;
    }
}

    return most;
}

public static void main(String[] args) {
String str="engineering";
System.out.println("Most frequent character in "+ str +" is-"+findmost(str));
}
}
```

**Output:**

```
C:\Users\admin\Desktop>java HelloWorld
Most frequent character in engineering is-e
C:\Users\admin\Desktop>
```

**c) Write a program to find all permutations of a given string.**

**Aim:** To write a program to find all permutations of a given string.

**Program:**

```
class Demo {  
    void printPermutations(String str) {  
  
        char[] charArray=str.toCharArray();  
        generatePermutations(charArray, 0,charArray.length -1);  
    }  
    void generatePermutations(char[] charArray,int left,int right)  
    {  
        if(left==right){  
            System.out.println(new String(charArray));  
        }  
        else{  
            for(int i=left;i<=right;i++){  
                swap(charArray,left,i);  
                generatePermutations(charArray,left+1,right);  
                swap(charArray,left,i);  
            }  
        }  
    }  
}
```

```
}  
  
void swap(char[] charArray,int i,int j) {  
char temp=charArray[i];  
charArray[i]=charArray[j];  
charArray[j]=temp;  
  
}  
  
}  
  
public class Permutation{  
public static void main(String args[]){  
Demo d=new Demo();  
String str="sam";  
d.printPermutations(str);  
}  
}
```

**Output:**

```
C:\Users\admin\Desktop>javac Permutation.java
```

```
C:\Users\admin\Desktop>java Permutation
```

```
sam
```

```
sma
```

```
asm
```

```
ams
```

```
mas
```

```
msa
```



**d) Write a program to check if a given string is a anagram**

**Aim:** To write a program to check if a given string is a anagram

**Program:**

```
import java.util.Arrays;

public class Acheck{

    public static boolean Anagrams(String s1,String s2)
    {
        // sort both strings

        char[] a1=s1.toCharArray();
        char[] a2=s2.toCharArray();

        Arrays.sort(a1);
        Arrays.sort(a2);

        return Arrays.equals(a1,a2);
    }

    public static void main(String[] args)
    {

        String str1="arm";

        String str2="ram ";

        if(Anagrams(str1,str2)) {

            System.out.println("String is a anagram");

        }else{
```

```
System.out.println("String is not a anagram");
```

```
}
```

```
}
```

```
}
```

**Output:**

```
C:\Users\admin\Desktop>java Acheck  
String is a anagram
```

```
C:\Users\admin\Desktop>|
```

