**1.Write a java program to convert Binary to Decimal Number**

**Input=110110111**

**Output=439**

**( Ans.)**

import java.util.Scanner;  
public class Binary  
{  
 public static void main(String[] args)   
{  
 Scanner sc=new Scanner(System.in);  
 System.out.print("Enter a binary number: ");  
 String b=sc.nextLine();  
 int dec=binaryToDecimal(b);  
 System.out.println("Decimal Value: "+dec);  
}  
public static int binaryToDecimal(String binary)   
{  
 int deci=0;  
 int l=binary.length();  
 for(int i=0;i<l;i++)   
 {  
 int bit=Character.getNumericValue(binary.charAt(i));  
 deci+= bit\*Math.pow(2,l-1-i);  
 }  
 return deci;  
}  
}

**Output:**

D:\Java>java Binary

Enter a binary number: 110110111

Decimal Value: 439

**2.Write a java program to calculate power using recursion**

**to calculate power using recursion**

**input=3**

**4**

**output=81**

**(Ans)**

class Power

{

public static void main(String[] args)

{

int base = 3, power = 4;

int result = power(base, power);

System.out.println(base + "^" + power + "=" + result);

}

public static int power(int base, int power)

{

if (power != 0)

{

return (base \* power(base, power - 1));

}

else

{

return 1;

}

}

}

**output**

D:\Java>javac Power.java

D:\Java>java Power

3^4=81

**3.Write a java program to find Average Number and second maximum of Number using arrays.**

**To Average using arrays**

**input=45.3,67.5,-45.6,20.34,30.0,45.6**

**output=27.69**

**45.6**

import java.util.\*;

public class Avgarray {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

double total=0;

System.out.println("enter the no of items to enter");

int n=sc.nextInt();

System.out.println("enter the items");

double a[]=new double[n];

for(int i=0;i<n;i++)

{

a[i]=sc.nextDouble();

}

for(int i=0;i<n;i++)

{

total=total+a[i];

}

double max=a[0];

double secondMax=0;

for(int i=0;i<n;i++)

{

if (a[i]>max)

{

secondMax=max;

max=a[i];

}

}

int out=(int)secondMax;

System.out.println("second maximum is: "+out);

System.out.println("average is "+total/n);

}

}

**OUTPUT**

\Java>javac Avgarray.java

D:\Java>java Avgarray

enter the no of items to enter

6

enter the items

45.3

65.7

-45.6

20.34

33.0

45.6

second maximum is: 45

average is 27.39