**7: Implementation of Kolmogorov-Smirnov test for checking Uniformity Property of random numbers.**

**KS.java**

import java.util.\*;

import java.util.Arrays;

class KS

{

public static void main(String args[])

{

int a,c,m,n;

double dmmax=0,dpmax=0,d;

Scanner in = new Scanner(System.in);

System.out.println("Enter the number of random numbers");

n = in.nextInt();

double[] x = new double[n];

double[] dp = new double[n];

double[] dm = new double[n];

/\*

System.out.println("Enter the values of constants a,c and m");

a = in.nextInt();

c = in.nextInt();

m = in.nextInt();

\*/

a=5;

c=10;

m=15;

x[0] = 0.1;

System.out.print("\n Random numbers are: \n \t");

System.out.print(" "+x[0]);

for(int i=1;i<n;i++)

{

x[i]=((a\*x[i-1]+c)%m)/m;

x[i]=(double)Math.floor(x[i]\*100)/100;

System.out.print(" "+x[i]);

}

Arrays.sort(x);

System.out.print("\n \n Sorted random numbers are: \n \t");

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

{

System.out.print(x[k]+" ");

}

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

{

dp[j]=((double)(j+1)/n)-x[j];

dm[j]=x[j]-((double)j/n);

if(dpmax<dp[j])

dpmax=dp[j];

if(dmmax<dm[j])

dmmax=dm[j];

System.out.println(" \n\n For random number "+(j+1)+": \n \t dp = "+dp[j]+" dm = "+dm[j]);

}

if(dpmax>dmmax)

d=dpmax;

else

d=dmmax;

System.out.println("\n Value of d = "+d);

if(d<0.565)

System.out.println("\n Conclusion: Numbers are uniformly generated.");

else

System.out.println("\n Conclusion: Numbers are not uniformly generated.");

}

}

**Output**

