

**Ahsanullah University of Science and Technology (AUST)**

**Department of Computer Science and Engineering**

**Course No. : CSE2202**

**Course Title : Numerical Methods Lab**

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**Section : A2**

Online 2:Implementation of Secant Method

package secantfinal;

import java.text.DecimalFormat;

import java.util.Scanner;

public class SecantFinal {

static final double epsilon=0.001;

static DecimalFormat d=new DecimalFormat(".##");

static double honor(double arr[],int n,double x)

{

double result=arr[0];

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

{

result=result\*x+arr[i];

}

return result;

}

public void scantmethod(double x1,double x2,double arr[],int n)

{

double x0,c,xm;

if((honor(arr,n,x1)/honor(arr,n,x2))<0)

{

do{

x0=((x1\*honor(arr,n,x2))-(x2\*honor(arr,n,x1)))/(honor(arr,n,x2)-honor(arr,n,x1));

c=honor(arr,n,x1)\*honor(arr,n,x0);

x1=x2;

x2=x0;

if(c==0)

{

break;

}

xm=((x1\*honor(arr,n,x2))-(x2\*honor(arr,n,x1)))/(honor(arr,n,x2)-honor(arr,n,x1));

}while(Math.abs(xm-x0)>=0);

System.out.println("The root is: "+d.format(x0));

}

else{

System.out.println("Cant find the root");

}

}

public static void main(String[] args) {

Scanner input=new Scanner(System.in);

int number;

System.out.println("Enter the polynomial number");

number=input.nextInt();

double arr[]=new double[number+1];

for(int i=0;i<number+1;i++)

{

System.out.println("Enter a co-effient: ");

arr[i]=input.nextDouble();

}

System.out.println("Enter two guess value: ");

double x1=input.nextDouble();

double x2=input.nextDouble();

int n=arr.length;

SecantFinal obj=new SecantFinal();

obj.scantmethod(x1, x2, arr, n);

}

}