Ahsanullah University of Science and Technology (AUST)
Department of Computer Science and Engineering

Course No.   : CSE2202
Course Title : Numerical Methods Lab

Date of Performance: 27.01.2019

Date of Submission: 10.02.2019

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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;
```

```java
        }
        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);
    }

}
```