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import java.io.*;
import java.awt.*;
import java.awt.event.*;
import java.util.*;

public class bestFit extends Frame implements ActionListener {

    // This java program calculate the distribution of the events
    // occurring in coincidence but with a time delay calculated by means
    // of auto-correlation algorithm

    private static final long serialVersionUID = 1L;

    WindowAdapter asc;
    TextField t0;
    TextField t1;

    public static void main (String argv[]) {
        new bestFit();
    }
    bestFit() {

        setLayout(null);
        t0 = new TextField();    add(t0); t0.addActionListener(this);
t0.setBounds(120,300,60,20); //fbot
        t1 = new TextField();    add(t1); t1.addActionListener(this);
t1.setBounds(120,320,60,20); //flag
        run = new Button("run");    add(run); run.addActionListener(this);
run.setBounds(120,340,60,20);

        t0.setText("292");    // fbot
        t1.setText("20");    // flag
        setBounds(100,100,400,400);
        setTitle("bestFit panel");
        setVisible(true);
        asc = new WindowAdapter() {
            public void windowClosed (WindowEvent evt) {
                System.exit(0);
            }
            public void windowClosing(WindowEvent evt) {
                bestFit.this.dispose();
            }
        };

        addWindowListener(asc);
    }

    double[] A = new double[600];
    double[][] maxA = new double[400][2000];
    double[] C = new double[2000]; // first order moment

    int    fbot=204, korg=0, flag=20;
    int    funk=0, jj=0, nA=0, numA = 0;
    double pA=0;

    String ss="recB-";
    File   fileA=null;

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Button uzoom_Y = null;
Button dzoom_Y = null;
Button run = null;

public void actionPerformed(ActionEvent event) {

    if (event.getSource() == run) {
        fbot = (int) Float.parseFloat(t0.getText());
        flag = (int) Float.parseFloat(t1.getText());
        fit();
        gapping();
        scrittura();
    }
}

public void fit() {

    int i=0, j=0;

    for(i=1; i<fbot; i++) { //18 //*****
        for(j=1; j<1501; j++) {
            maxA[i][j]=0;
        }
    }

    for(i=90; i<fbot; i++) {

        for(j=1; j<1441; j++) {

            fileA=new
File("/media/mick/Elements/ex/setback/"+ss+i+"/"+j+".txt");
            if(fileA.exists()==true) {
                lettura();
                maxA[i][j]=A[flag];
                System.out.println(" numA = "+numA+" maxA = " +maxA[i]
[j]);
            }
        }
    }
}

public void gapping() {

    int jub=1, i=0, j=0, m=0;
    double maxiA=0;
    double[] aa = new double[2000];

    for(i=0; i<200; i++) {
        C[i]=0;
    }

    for(i=88+2; i<fbot; i++) {
        for(j=jub; j<i; j++) {
            System.out.println(" i = "+i+" j = "+j);
            maxiA=0;
            nA=0;
            for(m=-90; m<91; m++) {
                aa[m+90]=0;
                for(jj=90; jj<1351; jj++) {

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        aa[m+90]= aa[m+90]+(maxA[i][jj+m]*maxA[j][jj]);
    }
    if(aa[m+90]>maxiA) {maxiA=aa[m+90]; nA=m;}
    }
    if(Math.abs(nA)!=90) {
        funk= i-j;
        pA = nA/(4.0*funk);
        sieve();
    }
}
}
}
public void sieve() {
    int k=0, s=0, p=0, fict=0;
    double pop;

    pop=60.0/(4.0*funk); //+1);
    System.out.println(" pop = "+pop);
    p= (int)Math.round(pop/2);

    for(k=-90; k<91; k++) {
        if((int) (60*pA)==k) {
            for(s=-p-1; s<=p; s++) {
                fict=(int)Math.round(60*pA)+s+110;
                C[fict]=C[fict]+ 1/pop;
                System.out.println(" C["+fict+"] = "+C[fict]);
            }
        }
    }
}
}
}
public void lettura() { //leggo i file data1

    int k=1;
    String line=null ;
    StringTokenizer str;
    String s=null;

    try {
        InputStream is=new FileInputStream(fileA);
        BufferedReader in = new BufferedReader(new InputStreamReader(is));

        while((k<=flag)&&((line=in.readLine())!= null)) {

            str=new StringTokenizer(line);
            s=str.nextToken();
            s=str.nextToken(); A[k]=Double.parseDouble(s);
            k++;
        }

        numA=k;
        in.close();
    }
    catch (Exception ex){
        System.out.println("FFT file "+fileA+" not found");
    }
}

public void scrittura() { //leggo i file data1

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int i=0;
try {
    OutputStream is= new FileOutputStream("outta-"+flag+".txt");
    BufferedWriter out = new BufferedWriter(new OutputStreamWriter(is));

    for(i=0; i<221; i++){
        out.write((int)C[i]+" ");
        out.newLine();
    }
    out.close();
}
catch (Exception ex){
    System.out.println(" problems writing "+ex);
}
}
```