

// ChartBars.java: This program draws bar charts based on data sets.

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import java.awt.*;
import java.awt.event.*;
import java.io.*;
import java.math.RoundingMode;
import java.util.*;
import java.text.DecimalFormat;
import javax.management.RuntimeErrorException;
import javax.swing.*;

public class ChartBars {

    private static JFrame mainFrame;
    private JPanel controlPanel;
    private JPanel canvasPanel;
    private CvBars cvb;

    public ChartBars() {
        // Get and Store Data
        java.util.List<java.util.Map.Entry<String, Integer>> dataEntries = new
        ArrayList<java.util.Map.Entry<String, Integer>>();
        String dataTitle = getDataSet(dataEntries);

        // Display GUI
        prepareGUI(dataEntries, dataTitle);
    }

    public static void main(String[] args) {

        new ChartBars();
    }

    private String getDataSet(java.util.List<java.util.Map.Entry<String, Integer>> dataEntries) {
        String csvFile = "";
        BufferedReader br = null;
        Scanner sc = null;
        String line = "";
        String csvSplitBy = ",";

        try {
            // Read In File Name From Console
            sc = new Scanner(System.in);
            System.out.print("CSV File Name: ");
            while (csvFile.equals(""))
                csvFile = sc.nextLine();
            sc.close();
            // Open and Read File Data
            br = new BufferedReader(new FileReader(csvFile));
            while ((line = br.readLine()) != null) {
                String[] content = line.split(csvSplitBy);
                if (content.length != 2)
                    throw new Error("Too Much Content.");
                if ((Character.isLetter(content[0].charAt(0))) && (!
                    Character.isLetter(content[1].charAt(0))))
                    dataEntries.add(new java.util.AbstractMap.SimpleEntry<>(content[0],
                        Integer.valueOf(content[1])));
                else if ((!Character.isLetter(content[0].charAt(0))) &&
                    (Character.isLetter(content[1].charAt(0))))
                    dataEntries.add(new java.util.AbstractMap.SimpleEntry<>(content[1],
                        Integer.valueOf(content[0])));
                else
                    throw new Error("Bad Content.");
            }
            String[] Title = csvFile.split(".csv");
            return Title[0];
        } catch (FileNotFoundException e) {
            e.printStackTrace();
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}
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        e.printStackTrace();
    } finally {
        if (br != null) {
            try {
                br.close();
            } catch (IOException e) {
                e.printStackTrace();
            }
        }
    }
    return "";
}

private void prepareGUI(java.util.List<java.util.Map.Entry<String, Integer>> dataEntries,
String dataTitle) {
    mainFrame = new JFrame("Bar Chart: " + dataTitle);
    mainFrame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    mainFrame.setSize(new Dimension(1000, 600));
    mainFrame.setResizable(false);

    controlPanel = new JPanel();
    controlPanel.setSize(new Dimension(1100, 600));
    controlPanel.setLayout(new BoxLayout(controlPanel, BoxLayout.Y_AXIS));

    canvasPanel = new JPanel();
    canvasPanel.setSize(new Dimension(1100, 600));
    canvasPanel.setLayout(new FlowLayout());
    cvb = new CvBars(dataEntries);
    cvb.setSize(new Dimension(511, 511));
    canvasPanel.add(cvb);

    controlPanel.add(canvasPanel);
    mainFrame.add(controlPanel);
    mainFrame.setVisible(true);
}

}

class CvBars extends Canvas {
    private static final long serialVersionUID = 1L;

    java.util.List<java.util.Map.Entry<String, Integer>> dataEntries = new
ArrayList<java.util.Map.Entry<String, Integer>>();
    int maxX, maxY, gMaxX, gMaxY, barWidth, barGap, spacing;
    Color[] colors;

    public CvBars(java.util.List<java.util.Map.Entry<String, Integer>> dataEntries) {
        setBackground(Color.lightGray);

        this.dataEntries = dataEntries;

        try {
            if (dataEntries.size() > 15)
                throw new Error("Too Many Entries.");
        } catch (Exception e) {
            e.printStackTrace();
        }
    }

    private void initgr() {
        Dimension d = getSize();
        maxX = d.width - 61;
        maxY = d.height - 61;
        barGap = 5;
        spacing = 50;
        gMaxX = maxX - 50;
        gMaxY = maxY - spacing;
        barWidth = (int) (gMaxX / dataEntries.size()) - barGap;
        colors = new Color[dataEntries.size()];
        setColors();
    }
}

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private void setColors() {
    int jump = 255 / dataEntries.size();
    for (int i = jump; i < 255; i += jump)
        colors[(i / jump) - 1] = new Color(i, 50, 100);
}

private void drawString(Graphics g, String text, int x, int y) {
    for (String line : text.split(" "))
        g.drawString(line, x, y += g.getFontMetrics().getHeight());
}

public void paint(Graphics g) {
    initgr();

    // Draw the x-Axis and y-Axis
    g.drawLine(spacing, spacing, spacing, maxY);
    g.drawLine(spacing, maxY, maxX, maxY);

    // Draw the Bars
    int max = 0;
    for (java.util.Map.Entry dataEntry : dataEntries)
        if (Integer.valueOf(dataEntry.getValue().toString()) > max)
            max = Integer.valueOf(dataEntry.getValue().toString());

    int start = barGap;
    int count = 0;
    for (java.util.Map.Entry dataEntry : dataEntries) {
        double percentage = (double) Integer.valueOf(dataEntry.getValue().toString()) / max;
        Color c = colors[count++];
        g.setColor(c);
        g.fillRect(spacing + start, gMaxY - (int) (gMaxY * percentage) + spacing, barWidth,
            (int) (gMaxY * percentage));
        g.setColor(Color.black);
        g.setFont(g.getFont().deriveFont(7.0f));
        g.drawString(dataEntry.getValue().toString(), spacing + start,
            gMaxY - (int) (gMaxY * percentage) + spacing - barGap);
        drawString(g, dataEntry.getKey().toString(), spacing + start, maxY);
        start += barWidth + barGap;
    }

    // Draw the y-Axis Ticks
    double step = max;
    double inc = (double) max / 10;
    DecimalFormat df = new DecimalFormat("#.##");
    df.setRoundingMode(RoundingMode.CEILING);
    for (int i = 50; i <= gMaxY + 50; i += (int) (gMaxY / 10)) {
        g.drawLine(45, i, 50, i);
        g.drawString(String.valueOf(df.format(step)), barGap, i);
        step -= inc;
    }
}
}

```