CSCI 381 (Java)

Project 1.1 Histogram

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Algorithm Steps for Histogram:

Step 0: open input and output files

Step 1: get rows, cols, min value and max value form header of input file

Step 2: process input file from left to right and top to bottom

Step 3: repeat step 2 until the file is empty

Step 4: output histogram array to output file

Step 5: close input and output file

Source Code

import java.util.Scanner;

import java.io.FileReader;

import java.io.IOException;

import java.io.FileWriter;

import java.io.File;

import java.io.FileOutputStream;

import java.io.PrintWriter;

public class Histogram{

  public static void main(String [] args){

      File inFile = new File (args[0]);

      File outFile = new File (args[1]);

      computeHistogram(inFile, outFile);

  }

  public static void computeHistogram(File in, File out){

    int row, col, min, max;

    int [] vars = new int [4];

      try {

          Scanner sc = new Scanner(in);

          int c = 0;

            while (sc.hasNextInt() && c != 4){

                vars[c++] = sc.nextInt();

            }

            row = vars[0];

            col = vars[1];

            min = vars[2];

            max = vars[3];

          System.out.println(row);

          System.out.println(col);

          System.out.println(min);

          System.out.println(max);

            int [][] data = new int [row][col];

            int [] hist = new int [max + 1];

            for (int i = 0; i < row; i++){

              for (int j = 0; j < col; j++){

                data[i][j] = sc.nextInt();

              }

            }

          for (int x = 0; x <= max; x++){

              int count = 0;

              for (int i = 0; i < row; i++){

                  for (int j = 0; j < col; j++){

                      if (data[i][j] == x) count++;

                  }

              }

              hist[x] = count;

          }

          PrintWriter pw = new PrintWriter(new FileWriter(out));

          pw.print(row);

          pw.print(' ');

          pw.print(col);

          pw.print(' ');

          pw.print(min);

          pw.print(' ');

          pw.print(max);

          pw.println();

          for (int i = 0; i <= max; i++){

              pw.print(i);

              pw.print(' ');

              pw.print(' ');

              pw.print(hist[i]);

              pw.println();

          }

          pw.close();

      }

      catch (Exception e) {

          System.out.println("Error " + e);

      }

    }

}

Output

