import java.io.\*;

import java.util.\*;

public class Personality {

public static final int DIMENSIONS = 4;

public static final int[] DIMENSIONDIVISION = {10, 20, 20, 20};

public static final String[][] DIMENSIONOPTIONS = {{"E", "I"}, {"S", "N"}, {"T", "F"}, {"J", "P"}};

public static void main(String[] args) throws IOException {

// scanner to read user input

Scanner console = new Scanner(System.in);

userIntro();

// scanner to import data from user specified input file

System.out.print("input file name? ");

Scanner input = new Scanner(new File(console.next()));

// PrintStream to write to a user specified output file

System.out.print("output file name? ");

PrintStream output = new PrintStream(new File(console.next()));

// while loop to go through input file

while (input.hasNextLine()) {

// print name to the output file

output.print(input.nextLine() + ": ");

String line = input.next();

// creating an array to store the line breakdown

String[] lineBreakdown = new String[4];

// calling a method to populate the new array

lineBreakdown = getLineBreakdown(line);

int[] breakdown = answerCalculator(lineBreakdown);

int[] bPercentages = calculateBPercentage(breakdown);

output.println(Arrays.toString(bPercentages) + " = " + findPersonalityDimensions(bPercentages));

if (input.hasNextLine()) {

input.nextLine();

}

}

output.close();

console.close();

}

// method to print an introduction to the program

public static void userIntro() {

System.out.println("This program processes a file of answers to the");

System.out.println("Keirsey Temperament Sorter. It converts the");

System.out.println("various A and B answers for each person into");

System.out.println("a sequence of B-ercentages and then into a");

System.out.println("four-letter personality type.");

System.out.println();

}

// method to calculate the percentages of 'B' answers, when given arrays with

// the number of 'A' and 'B' answers

public static int[] calculateBPercentage(int[] breakdown) {

int[] bPercentages = new int[DIMENSIONS];

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

bPercentages[i] = (int) Math.round((double) breakdown[(i \* 2) + 1] / (breakdown[i \* 2] + breakdown[(i \* 2) + 1]) \* 100);

}

return bPercentages;

}

// method to determine the dimensions of personality given an array with

// the percentages of b

public static String findPersonalityDimensions(int[] bPercentages) {

String dimensions = "";

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

if (bPercentages[i] > 50) {

dimensions = dimensions + DIMENSIONOPTIONS[i][1];

} else if (bPercentages[i] < 50) {

dimensions = dimensions + DIMENSIONOPTIONS[i][0];

} else {

dimensions = dimensions + "X";

}

}

return dimensions;

}

// method to get the answers to each of the individual question sections

public static String[] getLineBreakdown(String line) {

String[] outputArray = new String[4];

int j = 0;

for (int i = 0; i < outputArray.length; i++) {

outputArray[i] = "";

}

for (int i = 0; i < 70; i++) {

// if statement to reset j when one cycle is complete

if (j > 6) {

j = 0;

}

// index to get the correct index in the array (ranges from 1 to 4 in a 1-2-2-2 distribution)

int arrayIndex = (int)Math.round((j + 1) / 2);

// add the corresponding letter to the correct slot in the array

outputArray[arrayIndex] = outputArray[arrayIndex] + Character.toUpperCase(line.charAt(i));

j++;

}

return outputArray;

}

// method to count the number of A's and B's in each of the individual sections

public static int[] answerCalculator(String[] inputArray) {

int[] outputArray = new int[8];

int index = 0;

for (int i = 0; i < inputArray.length; i++) {

for (int j = 0; j < inputArray[i].length(); j++) {

if (inputArray[i].charAt(j) == 'A') {

outputArray[index] = outputArray[index] + 1;

} else if (inputArray[i].charAt(j) == 'B') {

outputArray[index + 1] = outputArray[index + 1] + 1;

}

}

index = index + 2;

}

return outputArray;

}

}