CSE 312 Midterm I (Lab Exam)

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I. Jolly Jumpers

A sequence of $n > 0$ integers is called a jolly jumper if the absolute values of the differences between successive elements take on all possible values 1 through n - 1. For instance, 1 4 2 3 is a jolly jumper, because the absolute differences are 3, 2, and 1, respectively. The definition implies that any sequence of a single integer is a jolly jumper. Write a program to determine whether each of a number of sequences is a jolly jumper.

A. Input

The first line of the input consists of a single integer T giving the number of test cases to follow. Then each test case contains an integer $n < 3000$ followed by n integers representing the sequence.

B. Sample Input

```
2
4 1 4 2 3
5 1 4 2 -1 6
```

C. Output

For each line of input generate a line of output saying 'Jolly' or 'Not jolly'.

D. Sample Output

```
Jolly
Not jolly
```

II. Count Words

Write a program that finds distinct words in a text. Your program will also write how many times a word appears in the text.

A. Input

Input consists of several lines of text.

B. Sample Input

```
kirk kup kirk kulbu kirik kirk kup
dal kalkar kartal sarkar kartal kalkar
```

C. Output

For each distinct word in the text, put the word and the number of times it occurs in the text. The words must be sorted.

D. Sample Output

```
dal 1
kalkar 2
kartal 2
kirik 1
kirk 3
kulbu 1
kup 2
sarkar 1
```

III. Balance the Keywords

Write a program that reads in a sequence of Visual Basic keywords, and determines whether they are 'balanced'. Visual Basic keywords are for, endfor, if, endif, while, endwhile, case, endcase.

A. Input

The first line of the input consists of a single integer T giving the number of test cases to follow. Then each test case contains an integer $n < 1000$ followed by n keywords.

B. Sample Input

```
2
6
for
if
endif
while
endwhile
endfor
4
for
case
endfor
endcase
```

C. Output

For each test case generate a line of output saying 'Balanced' or 'Not balanced'.

D. Sample Output

```
Balanced
Not balanced
```