

Programming Challenges

Getting Started

About ACM contest

- Teamwork
- Individual efforts
- Judges
- Scoring
- Any thing else ??

Judge feedback

- Accepted (AC)
- Presentation Error (PE)
- Accepted (PE)
- Wrong Answer (WA)
- Compile Error (CE)
- Runtime Error (RE)
- Time Limit Exceeded (TL)
- Others !!

Languages

- C (fastest)
- C++ (most popular)
- Pascal
- Java
- You need to know your tool capabilities and limitations

Jolly Jumpers

PC/UVa IDs: 110201/10038, **Popularity:** A, **Success rate:** average
Level: 1

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.

String/Character I/O

- C / C++
 - getchar()
 - scanf()
 - gets()
 - sscanf()
 - ostream
 - stringstream
- Java

Data Types

- Int / long / long long / bool / char
- float / double
- Strings
- Should we use pointers ? When should we use pointers?

Data Structures

- Queues & Stacks
 - Operations
 - Complexity
 - Applications
 - Search ??

Data Structures

- Dictionaries
 - Operations (insert, delete, search)
 - Complexity and implementations
 - Sorted arrays
 - Binary search trees
 - Hash tables
 - Applications

Data Structures

- Priority Queues
 - Operations (insert, Max, Extract Max)
 - Complexity and implementations
 - Binary heap
 - Sorted arrays (when to use ?)
 - Applications

Data Structures

- Sets
 - Operations (Member, Union, Intersection, Insert, delete)
 - Sets as dictionaries
 - Sets as bit Vectors
 - Union & Intersection
 - Efficiency

Data Structures

- C++

Data Structure	Concrete	Methods
Stack	Stack	pop, push, top
Queue	Queue	Front, back, push, pop
Dictionaries	Map, Hash_Map	Find, insert
Priority Queue	priority_queue	Top, push, pop
Sets	Set	

Data Structures

- JAVA

Data Structure	Abstract class	Concrete class	Methods
Stack	No interface	Stack	pop, push, empty, peek
Queue	List	ArrayList, LinkedList	add, remove, clear
Dictionaries	Map	HashMap, Hashtable	put, get, contains
Priority Queue	SortedMap	TreeMap	firstKey, lastKey, headMap
Sets	Set	HashSet	add, remove, contains

Websites

- <http://www.programming-challenges.com/>
 - We need to join the class there.
- <http://uva.onlinejudge.org/>
 - We will solve some problems here
- <http://ahmed-aly.com/>

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Jolly Jumpers

Input

Each line of input contains an integer $n < 3,000$ followed by n integers representing the sequence.

Output

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

Sample Input

4 1 4 2 3

5 1 4 2 -1 6

Sample Output

Jolly

Not jolly