

# 21<sup>th</sup> South African Regional (Mock) International Collegiate Programming Contest

26 October 2019

## Problem 1 — Transparent Balloon Linguistics

### Problem Description

A friendly *Hello* will always start a conversation on a positive note. A greeting in a *lingua franca* known to both parties always makes a good first impression. You have therefore been tasked by the Smile Aid Interaction Committee for Professional Conduct (SA ICPC) to write a short program to greet in either French, Portuguese or if all else fails, English.

### Input

Your input consists of an arbitrary number of records, but no more than 20.

Each record comprises a number,  $n$  ( $0 \leq n \leq 9$ ) and the name of the person being greeted. The name will be a single word comprising the characters a–z and/or A–Z, without any spaces or punctuation, and will be at least 1 character long, but no longer than 30 characters.

When an  $n$  of 0 is read, the greeting is given in French, and 1 in Portuguese. Anything else should result in the greeting in English.

The end of input is indicated by a line containing only -1.

### Output

For each input record, output on its own line, text containing **Bonjour** followed by the name of the person if the greeting is to be conducted in French and **Ola** for Portuguese. Any other value for  $n$  must default to **Hello** in English.

**Remember:** Only the required output must be printed and nothing more. No prompts or other debug text should be printed. And please note that all output is **case-sensitive**.

### Sample input

```
3 Klaas
0 Pierre
9 Tom
1 Jose
-1
```

### Sample output

```
Hello Klaas
Bonjour Pierre
Hello Tom
Ola Jose
```

### Resource Constraints

- **Time limit:** 1 second
- **Memory limit:** 256 MB

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## Problem 1 — Clear Balloon Sum of Squares

### Problem Description

Each year you go on holiday to Square Island. Square Island is truly a strange place. For the first couple of years, you paid using a credit card and paid triple the cash amount of your hotel bill, taxi bill, ice cream etc., all for the luxury of not having to deal with the cash payment requirements on Square Island.

The customs brochure explains the payment structure with the following example:

Assume your beach ball costs  $54si$  ( $si$  being the Square Island currency designation). You then need pay with seven  $7si$  notes, two  $2si$  notes and one  $1si$  note.

Yes, you guessed it. Square Island produces notes for  $N$  denominations, with  $1si \leq N \leq 100si$ ,  $N \in \mathbb{N}$

### Input

Your input is a list of records, each on its own line, of costs (as positive integers) terminated by a  $-1$ .

### Output

For each input record, output on its own line, the notes you need to count off to pay the input amount. The format for each output line is a list of space delimited squares beginning with the largest square and ending with the smallest in the form  $n^{\wedge}n$ , with  $1 \leq n \leq 100$ ,  $n \in \mathbb{N}$

### Sample input

```
54
75
13
5
4
-1
```

### Sample output

```
7^7 2^2 1^1
8^8 3^3 1^1 1^1
3^3 2^2
2^2 1^1
2^2
```

### Resource Constraints

- **Time limit:** 5 seconds
- **Memory limit:** 256 MB