Problem A. Circle area

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

You are given radius of a circle. Find it's one quarter of the area.

Input

In a single line given integer R - radius of circle.

Output

Output double value - `one quarter of the area` of given circle.

Examples

standard input	standard output
3	7.0685834705770345
25	490.8738521234052

Problem B.

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Write a Python program that matches a string that has 'kbtu' or 'KBTU' word followed by one or more 'best'

Input

You are given one line text

Output

print 'Found a match!' if matches found, otherwise print 'Not matched!'

Problem C. Almaty?

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Find amount of occurrences of 'Almaty' in a given text.

Uppercase or Lowercase it doesnt matter.

'Almaty' shouldn't contain any prefix or suffix.

Input

Only line of input contains a text.

Output

Print number occurrences of 'Almaty' in a given text

Examples

standard input	standard output
`Almaty alMatY zAlmaty45 almatyp`	2
`Almaty formerly known as Alma-Ata and Verniy is the largest city in Kazakhstan.`	1
`aLmAtY`	1

Problem D. Power of 2

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	256 megabytes

It's very difficult for Zhenya to find the powers of 2. So, he asked you for your help. Your task is to write a program, that gets a number as input, and outputs all powers of 2 from 0 to a given number n.

Input

Single integer number n

Output

Powers of 2, from `2 pow of 0` to `2 pow of` n

Examples

standard input	standard output
5	1 2 4 8 16 32
3	1 2 4 8
10	1 2 4 8 16 32 64 128 256 512 1024

Problem E. Mountain peak of array

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

You are given list `A` a mountain with size `N`. Let's consider `peak` of list where all the left parts of the list are less than the peak, and all the right parts of the list are less than the peak.

There exists some:

`0 < `i` < N-1` such that `A[0] < A[1] < ... A[i-1] <` $A[i]$ `> A[i+1] > A[i+2] > ... > A[N-1]`.

Please, output a position(index) of list's peak.

Input

In the first line you are given N, size of list `3` $\leq$ `N` $\leq$ `10000`

In the second line there N integer elements of list `A`.

Output

Write position(index) of peak.

Examples

standard input	standard output
3 0 1 0	1
5 1 2 3 2 1	2

Note

It's guarenteed that list `A` is mountain, and there exist `peak`.

Problem F. Sum in array

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

After the next lectures on philosophy, during the break, Alik decided to buy panini.

Panini seller Serik, said that he can accept only 2 coins without exchange to buy a panini with a cost `k` tenge.

Alik has `n` coins, help him find out if he can buy a panini with a cost of `k` tenge.

In general you are given an array with `n` coins.

Determine, is there any pair `(i, j)` in the array that `a[i]+a[j]=`k `and i!=j`.

Input

In the first line given `n, k` - size of array, cost of panini.

In the next line there are n elements of array.

$2 \leq n \leq 1000$.

$1 \leq a[i], k \leq 10000$.

Output

Print 'Bon Appetit', if it's possible to buy a panini, otherwise print 'So sad'.

Examples

standard input	standard output
5 10 1 4 5 6 2	Bon Appetit
6 13 1 2 3 4 5 6	So sad

Problem G. Again Serik panini seller

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

You want to buy some panini and asu with lemon from Serik for exactly `N` tenge. Panini cost 7 tenge, asu with lemon cost 4 tenge.

Input

You are given single integer `N`. 1 <= N <= 1000.

Output

Print Yes, if you can buy some panini and asu for exactly `N` tenge.

Examples

standard input	standard output
11	Yes
3	No
7	Yes

Note

You can buy zero or more times panini and asu with lemon.

Problem H. Tribonacci

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

The Tribonacci sequence T[n] is defined as follows:

T[0] = 0, T[1] = 1, T[2] = 1, and T[n+3] = T[n] + T[n+1] + T[n+2] for n >= 0.

Given `n`, return the value of `T[n]`.

Input

Given single integer n. $0 \leq n \leq 20$

Output

Print n-th Tribonacci Number.

Examples

standard input	standard output
4	4
20	66012

Problem I. Anagram

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Given two text `s` and `t`. Determine if `t` is an anagram of `s`.

Input

Given two text s, t.

Output

Print "Anagram", if t is anagram of s, else print "Not anagram".

Examples

standard input	standard output
anagram nagaram	Anagram
rat car	Not anagram
The closer you see The less you know	Not anagram

Note

Anagram is a word formed from another by rearranging its letters.

Problem J. Deserialization JSON

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

You are given raw JSON object data. Structure of JSON object see below.

Find the most expensive subscription.

Input

Read raw JSON data just by input method, and deserialize it to python dictionary object.

It's guaranteed that all data in the same format as listened in sample.

Output

Print subscription `name`, and `price`, which has a maximum price.

See details in example below.

Example

standard input	standard output

`{`
`  "Subscriptions": [`
`  {`
`  "name":  "Three month subscription",`
`  "price": "39900"`
`  },`
`  {`
`  "name": "One month subscription",`
`  "price": "19900"`
`  },`
`  {`
`  "name": "Premium trial",`
`  "price": "40000"`
`  }`
`  ]`
`}`
	`Name: Premium trial`
	`Price: 40000`