MEC Independence Day Programming Contest 2022

https://toph.co/c/lm6jjkt

Toph

Schedule

The contest will run for **2h0m0s**.

Authors

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Rules

You can use C# Mono 6.0, C++11 GCC 7.4, C++14 GCC 8.3, C++17 GCC 9.2, C11 GCC 9.2, Java 1.8, Python 2.7, Python 3.7, and Python 3.8 in this contest.

Be fair, be honest. Plagiarism will result in disqualification. Judges' decisions will be final.

Notes

There are 6 challenges in this contest.

Please make sure this booklet contains all of the pages.

If you find any discrepencies between the printed copy and the problem statements in Toph Arena, please rely on the later.

Disclaimer

The contents of this contest, as prepared by its organizer, may not have been reviewed by Toph and does not necessarily represent Toph's views.

A. Golden Jubilee of Bangladesh

"Golden jubilee" refers to the 50th anniversary of an event.

Bangladesh's independence from Pakistan through a nine-month armed liberation war from March 26 to December 16, 1971.

Now Bangladesh Celebrate the 50th anniversary of Bangladesh's independence from Pakistan.

Input

Given a year, Determine if the year is Golden Jubilee or Not.

Output

if golden jubilee print "YES" otherwise print "NO"

Samples

Input	Output
2020	NO

Input	Output
2021	YES

B. Cypher Text

Roman King "Julius Caesar" wants to pass a secret message to another kingdom's king. But he wants that the message should be known to these two persons only. So, he makes a security term called Cypher Text'. This method will change all of the alphabet in the message by replacing an alphabet that comes three alphabets after the alphabet(i.e. for 'a' the replaced alphabet is 'e').In case of, ‘w’, ’x’, ’y’, ’z’, we will replace them with '/', ’?’, ’.’ and ‘}’ correspondingly. But it will not affect any kind of number.

Input

Input contains a string s(1<=s=<50) consists of lowercase English letters & numbers.

Output

The modified text into the cypher text method.

Samples

Input	Output
ajabdunia9947ak47mi	enefhyrme9947eo47qm

Input	Output
coronacvid19virus2020happibangla1427dena	rgsvsregzmh19zmvyw2020lettmferkpe1427hirev

C. Avarage

Robin Like series. He found a formula to generate a series. The following formula to generate a series

$$\text{N}^{\text{th}}\ \text{Number} = N^3\left(\frac{3N-1}{2N^2}\right)$$

find the Average of the first **A** numbers of the series.

Example :

if For **A=3**, first 3 numbers of the series are 1, 5, 12. Their sum is 18 and hence their average is 18/3 = **6**.

For **A=5,** first 5 numbers of the series are 1, 5, 12, 22, 35. Their sum is 75. So their average is 75/5=**15**.

Input

Each line contains an integer A (1 ≤ *A* ≤10^5).

Output

Print i^*ith* line contains the answer. Answer will always be an integer.

Samples

Input	Output
3	6

Input	Output
5	15

Input	Output
10	55

D. Jonty on MEC CSE CARNIVAL - 2022

Jonty is a student of Mymensingh Engineering College. He used to play PUBG in his free time. This year **MEC CSE CARNIVAL-2022** is going to be held on his campus. He determined to participate in a racing competition in this carnival with his amazing racing car rather PUBG.

The rule of this game is very simple. If there will be n contestants, every contestant will have **two** cars with the same contestant id(Every contestant has distinct id **1 to n**) to participate and both of them will participate at the same time. If at least one of them will be at position **P** such that **P MOD 10 = 1** then they will be rewarded.

Unfortunately, Jonty has **only one car**. As he is determined to join, he will join with his only car. Like 1V4 in PUBG.

There will be given the final ranking of a total of 2n-1(as Jonty has one) cars, you have to find the position of Jonty and tell "**OP JONTY**" if he is rewarded. Otherwise, tell "**FLOP JONTY**".

For example, if there are **4** contestants and ranking is:

1 4 1 3 2 4 3

Here Jonty's id is 2(Because 2 has only one occurrence) and his position is 5th and **5 MOD 10 = 5**. So, Jonty is flopping here.

Input

The first line of each test case contains a single integer n (1<= n <=10^5).

The next line contains 2n-1 integer ai of ranking ai(1<= ai<=n).

Output

Print a single line "**OP JONTY**" if Jonty is rewarded otherwise "**FLOP JONTY**" without double quotation.

Samples

Input	Output
4 1 4 1 3 2 4 3	FLOP JONTY

Input	Output
6 1 1 2 2 3 4 4 5 5 6 6	FLOP JONTY

Input	Output
7 1 1 2 2 3 3 4 4 5 5 6 7 7	OP JONTY

E. Independence Day T Shirts

Mymensingh Engineering College wants to provide T-shirts to every participant of the contest arranged by MECPC(Mymensingh Engineering College Programming Club) named “Independence Day Programming Contest 2022” as a present. But it is not clear how many T-shirts of what sizes should be ordered, and on the other hand, one doesn't want to order too many T-shirts. After some pre-estimation process, MECPC ordered a certain number of T-shirts of sizes S, M, L, XL and XXL. The T-shirts turned out to bring good luck, that's why on the contest day there built up a line of K participants willing to get one. Every contestant is characterized by his/her desired T-shirt size (so it happens that for all the participants it is also one of the sizes S, M, L, XL and XXL). The participants come up to get a T-shirt one by one and try to choose the most suitable one, choosing it like this. If there is still a T-shirt of the optimal size left, that he/she takes it. Otherwise the contestant would prefer to choose a T-shirt with the size as close to the optimal one as possible (the distance between neighboring sizes is considered equal to one).For example, for a person whose optimal size is L the preference list looks like this: L, XL, M, XXL, S. Using the data on how many T-shirts of every size had been ordered by the organizers, on the size of contestants in the line determine who got a T-shirt of what size.

Input

The first line contains five non-negative integers NS, NM, NL, NXL, NXXL not exceeding 1000 which represent the number of T-shirts of the corresponding sizes. The second line contains an integer K($1 \leq K \leq 1000$) which represents the number of participants. The next K lines contain the optimal T-shirt sizes for the contestants. The sizes are given in the order in which the participants stand in the line. It is guaranteed that $NS + NM + NL + NXL + NXXL \geq K$.

Output

For each contestant, print a line containing the size of the T-shirt he/she got.

Samples

Input	Output
1 0 2 0 1 3 XL XXL M	XXL L L

F. Don't Divide Me

You have a nice array A of length N. In this array, there are some elements that are not divisible by any other elements. You have to identify those beautiful elements.

Formally, Find the number of integers (1≤i≤N) with the following property:

For every integer j (1≤*j*≤*N*) such that i≠j, Aj does not divide Ai.

Constraints

- All values in input are integers.
- 1≤N≤2×10^5
- 1≤Ai≤10^6

Input

Input is given from Standard Input in the following format:

N

A1 A2 A3 … AN

Output

Print the answer.

Samples

Input	Output
5 3 11 8 3 16	2

Input	Output
6 10 15 3 5 6 20	2

Input	Output
4 3 3 3 5	1