**Chewbacca and Number**

Luke Skywalker gave Chewbacca an integer number x. Chewbacca isn't good at numbers but he loves inverting digits in them. Inverting digit t means replacing it with digit 9 - t.

Help Chewbacca to transform the initial number x to the minimum possible positive number by inverting some (possibly, zero) digits. The decimal representation of the final number shouldn't start with a zero.

**Input Format**

The first line contains a single integer x (1 ≤ x ≤ 10^18) — the number that Luke Skywalker gave to Chewbacca.

**Constraints**

x <= 100000000000000000

**Output Format**

Print the minimum possible positive number that Chewbacca can obtain after inverting some digits. The number shouldn't contain leading zeroes.

**Sample Input**

4545

**Sample Output**

4444

**Explanation**

There are many numbers form after inverting the digit. For minimum number, check if inverting digit is less than or greater than the original digit. If it is less, then invert it otherwise leave it.

**Simple Input**

Given a list of numbers, stop processing input after the cumulative sum of all the input becomes negative.

**Input Format**

A list of integers to be processed

**Constraints**

All numbers input are integers between -1000 and 1000.

**Output Format**

Print all the numbers before the cumulative sum become negative.

**Sample Input**

1

2

88

-100

49

**Sample Output**

1

2

88

**Shopping Game**

Faculty at Shubhuji loves to purchase smartphones and decides to play a game. Aayush and Harshit decides to shop for smartphones. Aayush purchases 1 smartphone, then Harshit purchases 2 smartphones, then Aayush purchases 3 smartphones, then Harshit purchases 4 smartphones, and so on. Once someone can't purchase more smartphones, he loses.

Aayush can purchase at most M smartphones and Harshit can purchase at most N smartphones. Who will win ? Print "Aayush" and "Harshit" accordingly.

**Input Format**

The first line of the input contains an integer T denoting the number of test cases. The description of T test cases follows. Two integers M and N denoting the maximum possible number of smartphones Aayush and Harshit can purchase respectively.

**Constraints**

1 ≤ T ≤ 1000 1 ≤ M, N ≤ 10^6

**Output Format**

For each test case, output a single line containing one string — the name of the winner i.e. Aayush or Harshit

**Sample Input**

2

9 3

8 11

**Sample Output**

Aayush

Harshit

**Explanation**

Test case 1. We have M = 9 and N = 3. Aayush shops for 1 smartphone, and then Harshit shops for 2 smartphones. Then Aayush shops for 3 smartphones and then Harshit shops for 4 smartphones but that would mean 2 + 4 = 6 smartphones in total. It's impossible because Harshit can shop for at most N smartphones, so he loses. Aayush wins, and so we print "Aayush".

Test case 2. Now we have M = 8 and N = 11. Aayush shops for 1 smartphone first, and then Harshit shops for 2 smartphones, then Aayush shops for 3 smartphones. Now Harshit shops for 4 smartphones (he has 2 + 4 = 6 smartphones in total, which is allowed because it doesn't exceed N). Then Aayush tries to shop for 5 smartphones but he can't because 1 + 3 + 5 = 9 which is greater than M. Aayush loses and Harshit is the winner.

**Odd and Even back in Delhi**

Due to an immense rise in Pollution, Kejriwal is back with the Odd and Even Rule in Delhi. The scheme is as follows, each car will be allowed to run on Sunday if the sum of digits which are even is divisible by 4 or sum of digits which are odd in that number is divisible by 3. However to check every car for the above criteria can't be done by the Delhi Police. You need to help Delhi Police by finding out if a car numbered N will be allowed to run on Sunday?

**Input Format**

The first line contains N , then N integers follow each denoting the number of the car.

**Constraints**

N<=1000 Car No >=0 && Car No <=1000000000

**Output Format**

N lines each denoting "Yes" or "No" depending upon whether that car will be allowed on Sunday or Not !

**Sample Input**

2

12345

12134

**Sample Output**

Yes

No

**Explanation**

1 + 3 + 5 = 9 which is divisible by 3  
1 + 1 + 3 = 5 which is NOT divisible by 3 and 2+4 = 6 which is not divisble by 4.

**Count digit**

Take the following as input.  
A number  
A digit  
Write a function that returns the number of times digit is found in the number. Print the value returned.

**Input Format**

Integer (A number) Integer (A digit)

**Constraints**

0 <= N <= 1000000000 0 <= Digit <= 9

**Output Format**

Integer (count of times digit occurs in the number)

**Sample Input**

5433231

3

**Sample Output**

3

**Explanation**

The digit can be from 0 to 9. Assume decimal numbers.In the given case digit 3 is occurring 3 times in the given number.

**Inverse a Number**

Take the following as input.  
A number  
Assume that for a number of n digits, the value of each digit is from 1 to n and is unique. E.g. 32145 is a valid input number.

Write a function that returns its inverse, where inverse is defined as follows

Inverse of 32145 is 12543. In 32145, “5” is at 1st place, therefore in 12543, “1” is at 5th place; in 32145, “4” is at 2nd place, therefore in 12543, “2” is at 4th place.

Print the value returned.

**Input Format**

Integer

**Constraints**

0 < N < 1000000000

**Output Format**

Integer

**Sample Input**

32145

**Sample Output**

12543

**Explanation**

Assume that for a number of n digits, the value of each digit is from 1 to n and is unique. E.g. 32145 is a valid input number. Inverse of 32145 is 12543. In 32145, “5” is at 1st place, therefore in 12543, “1” is at 5th place; in 32145, “4” is at 2nd place, therefore in 12543, “2” is at 4th place.