Assignment-2

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Faculty at CodingBlocks 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
```

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.

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.

A Boston number is a composite number, the sum of whose digits is the sum of the digits of its prime factors obtained as a result of prime factorization (excluding 1). The first few such numbers are 4,22 ,27 ,58 ,85 ,94 and 121 . For example, 378 = 2 × 3 × 3 × 3 × 7 is a Boston number since 3 + 7 + 8 = 2 + 3 + 3 + 3 + 7. Write a program to check whether a given integer is a Boston number.

Input Format

There will be only one line of input:N , the number which needs to be checked.