No More Reservation

You might heard of Kuota, a small country located in the southeast part of Mars and one of the very few countries where royalty still rules. Kuota is considered as the most corrupt country in the entire Mars. Common peoples of Kuota are totally disturbed by this extreme corruption and power practice of the King and his henchman.

Government owned rail service (SSS) is the main public transport system of Kuota. SSS provides three different classes of seats for each train: *elite-class, business-class and economy-class*.

You might wonder how the railway service was named SSS. Actually, it was originated from the code names of different classes: elite-class, business-class and economy-class seats are also known with their code names SNIGDHA, SHOVON and SHULOV accordingly.

The strange thing is, fare for all classes are same, but service qualities are very different. So everyone in Kuota wants to travel in elite-class seats. But SSS booking system is totally ridiculous where most of the elite-class and business-class seats are always reserved for administrative peoples and common peoples can only access economy-class seats. Following shows that how ridiculous the booking system is.

- Elite class: 80% seats are reserved for administrative peoples
- Business class: 55% seats are reserved for administrative peoples
- Economy class: no reservation

Recently the youth of Kuota became very furious about this reservation system and they raised a strong protest against it. They started boycotting rail service and day by day protest grows stronger and stronger.

Being prescient, K1101, the 13th and current ruling king of Kuota, perceived that he should stop the protest anyhow, otherwise it might cause his fall. He declared "*No more reservation system*" to calm down the dissidents and formed a committee to ensure a fair booking system. The committee proposed the followings:

Citizens who wish to buy train tickets must form a booking queue and an individual can buy only one ticket at a time. First person on booking queue will get SNIGDHA ticket, second person will get SHOVON and third person will get SHULOV. The fourth person will get SNIGDHA ticket again and so on in cyclic order depending on availability.

For example, let say there are 1 SNIGDHA, 2 SHOVON and 3 SHULOV tickets available, then tickets will be distributed in following ways:

Position in the booking queue	Ticket class
1	SNIGDHA
2	SHOVON
3	SHULOV
4	SHOVON
5	SHULOV
6	SHULOV
7 or latters	None

While everyone applauding this new proposal, you, the youngest member of the committee, immediately found some discrepancy. You discovered that ticket class is not purely random, rather it is a function of position in the booking queue and the number of available seats for different classes. Hence, someone wicked can still ensure elite-class ticket by intentionally delaying his position in booking queue.

To prove your finding, the head of the committee gave you some query. In each query, you are given a position in booking queue and number of available seats for each classes. You have find out the code name of the ticket class.

Input:

Input start with an integer T ($1 <= T <= 200$), denoting the number of test cases. Each test case consists of **two** lines of input.

First line will have three integers x, y and z ($1 <= x, y, z <= 10^{12}$) denoting the numbers of available seats for SNIGDHA, SHOVON and SHULOV accordingly.

Second line will have a single integer k ($1 <= k <= x + y + z$) denoting the position in the booking queue.

Output:

For each case, print the case number and the code name of the ticket class in uppercase i.e. SNIGDHA or, SHOVON or, SHULOV.

Sample Input	Sample Output
4 1 1 1 3 3 4 5 4 7 7 1 7 1000000000000 1 1 1000000000002	Case 1: SHULOV Case 2: SNIGDHA Case 3: SHOVON Case 4: SNIGDHA