Problem H

I Want That Cake

There was an interesting game played on a popular Korean reality TV Show. 12 players in 3 teams – 4 persons in each team – lined up in one row in random order. The game master approaches the players one by one starting from the most front player, with a tray full of 31 cakes. Each player should eat at least 1 and at most 5 cakes during his/her turn. The player who eats the last cake will lose along with his/her group (this is a team game). It was more an entertainment show rather than a real competition. The players were selected from "chubby" celebrities who like to eat, thus causing them in dilemma whether they should win the game (which might require them to hold their urge to eat the cakes), or just enjoy all 5 cakes ignoring their team member.

This problem is related to the game. There are 2 teams (A and B) each with N players lined up in a row in random order. Initially there are M cakes in the tray, and each player (starting from the most front) has to eat at least 1 and at most K cakes during his/her turn. The team whose player eat the last cake win (note that this is different compared to the original game).

Your task is to determine which team will win the game, given both teams play optimally.

Input

The first line of input contains an integer T ($T \le 100$) denoting the number of cases. Each case begins with three integers N, M, and K ($1 \le N \le 1{,}000$; $1 \le K \le M \le 2{*}N$) in a line denoting the number of players in each team, the initial number of cakes, and the maximum number of cakes can be eaten by each player in his/her turn respectively. The next line contains a string S representing the players order from the front most to the last player. S consists of only character 'A' or 'B' representing which team does the respective player belongs to. The length of S is exactly $2{*}N$ and the number of 'A' and 'B' will be equal.

Output

For each case, output "`Case #X: Y`", where `X` is the case number starts from 1 and `Y` is 'A' if the game will be won by team A, otherwise 'B'. Assume both teams will play the game optimally to win the game.

<table>
<tr><th>Sample Input</th><th>Output for Sample Input</th></tr>
<tr><td><pre>4
3 5 2
AAABBB
4 7 2
AAABBBBA
4 5 2
BABABABA
4 6 3
BAABBABA</pre></td><td><pre>Case #1: A
Case #2: B
Case #3: B
Case #4: A</pre></td></tr>
</table>

Explanation for 1st sample case
The first two players of team A each needs to eat 2 cakes, while the third A player eats the last cake.

Explanation for 2nd sample case
No matter what team A do, the last cake will be eaten by one of team B's player.

Explanation for 3rd sample case
To ensure their win, the first player (B) should eat 2 cakes, leaving only 3 cakes to the next player (A). This player (A) should eat at least 1 and at most 2 cakes. No matter how many cakes this player eats, the next player (B) will eat the last cake.